66TH CONGRESS : : : 2D SESSION

DECEMBER 1, 1919–JUNE 5, 1920

HOUSE DOCUMENTS

VOL. 9

WASHINGTON : : GOVERNMENT PRINTING OFFICE : : 1919

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

J66
Copy 2.

LIBRARY OF CONGRESS
RECEIVED
APR 15 1921
DOCUMENTS DIVISION

66TH CONGRESS
2d Session

HOUSE OF REPRESENTATIVES

DOCUMENT
No. 436

ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES

FOR THE FISCAL YEAR

1919

WASHINGTON
GOVERNMENT PRINTING OFFICE
1919

TREASURY DEPARTMENT,

Document No. 2859

Public Health Service.

LETTER OF TRANSMITTAL.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, November 20, 1919.

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 1919.

Respectfully,

CARTER GLASS,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

CONTENTS.

	Page.
Administrative organization	9
Division of Scientific Research	22
Diarrhea	23
Dysentery	23
Encephalitis	23
Enteritis	24
Influenza	24
Malaria	28
Pellagra	31
Poliomyelitis	34
Smallpox	34
Trachoma	34
Tuberculosis	37
Typhoid fever	37
Typhus fever	37
Industrial hygiene and medicine	38
Shipyard sanitation	44
Public health organization and administration	46
Milk	47
Child and mental hygiene	48
Rural sanitation	51
Stream pollution	52
Industrial wastes	52
Excreta disposal	53
Cooperation with Bureau of Chemistry	55
Leprosy investigative station	56
Hygienic Laboratory	57
Arsphenamine investigation and control	66
Conference with State and territorial health authorities	67
Representation at meetings of scientific and sanitary associations and congresses	68
Dissemination of information	68
Division of Domestic (Interstate) Quarantine	69
Plague	70
Water supplies in interstate commerce	77
Prevention of interstate spread of disease	79
National home for lepers	80
Activities of the Public Health Service in combating the influenza epidemic	81
Extra-cantonment zone sanitation	86
Control of communicable diseases	88
Morbidity reports	93
Public health nursing	94
Food, drink, and restaurant supervision	95
Supervision of water supplies	97
Sewage disposal	98
Public health education	98
Division of Maritime Quarantine	107
Expansion of quarantine administration	107
General prevalence of quarantinable diseases	109
Quarantine operations along the Mexican border	111
Destruction of rats on vessels	112
Violation of quarantine laws	112
Relocation of maritime quarantine stations	113
Reports from national quarantine stations	115
Foreign and insular quarantine	130
Medical inspection of aliens	153
Reports from immigration stations	159
Sanitary Reports and Statistics	175
State morbidity reports	180
Prevalence of disease in the United States	182
Prevalence of disease in extra-cantonment zones	196
World prevalence of cholera, plague, typhus fever, and yellow fever	204

Page.
Section of Public Health Education 213
Bulletins and other publications 214
Division of Marine Hospitals and Relief 219
Relief stations opened 219
War risk insurance patients 219
Merchant seamen and other patients 220
Physical examinations 220
Purveying depot operations 221
Tuberculosis sanatorium at Fort Stanton, N. Mex 223
Division of Venereal Diseases 234
Creation of by the Chamberlain-Kahn Act 234
Regulations governing allotments of funds to States 235
Allotments to States 237
Interstate quarantine regulations 238
Division personnel 238
Venereal-disease program 239
Medical measures 239
Druggists and advertising media 258
Educational measures 260
Special features 272
Law-enforcement measures 285
Division of Personnel and Accounts 292
Personnel for extra-cantonment sanitation 292
Temporary personnel for influenza epidemic work 292
Enlarged personnel for War Risk Insurance Bureau medical relief 292
Public Health Service Reserve Corps 292
Commissioned medical officers 293
Field investigations of public health 293
Venereal-disease control measures 296
Collaborating epidemiologists 297
Plague eradicative measures 297
Personnel, Hygienic Laboratory 298
Acting assistant surgeons 298
Medical inspectors 298
Pharmacists 298
Hospital and quarantine attendants 298
Boards convened 299
Chief Clerk's Office 300
Bureau personnel 300
Methods of work 300
Bureau office quarters 300
Public Health library 301
Needs of the Service 302
Appendix 303
Financial statement 303
Statistical tables concerning medical relief 308

OPERATIONS OF THE UNITED STATES PUBLIC HEALTH SERVICE

1919

ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE.

TREASURY DEPARTMENT,
BUREAU OF THE PUBLIC HEALTH SERVICE,
Washington, D. C., November 15, 1919.

SIR: In accordance with the act of July 1, 1902, I have the honor to submit for transmission to Congress the following report of the operations of the Public Health Service for the fiscal year ending June 30, 1919. This is the forty-eighth annual report of the service, covering the one hundred and twenty-first year of its existence.

The administrative organization of the bureau for the past fiscal year was as follows:

(1) Scientific Research.
(2) Domestic (Interstate) Quarantine.
(3) Foreign and Insular (Maritime) Quarantine and Immigration.
(4) Sanitary Reports and Statistics.
(5) Marine Hospitals and Relief.
(6) Personnel and Accounts.
(7) Venereal Diseases.
(8) Section of Public Health Education.
(9) Chief Clerk.

The administrative heads of the service and the chiefs of the bureau divisions at the close of the fiscal year consisted of the following:

Surg. Gen. Rupert Blue.

Asst. Surg. Gen. J. C. Perry, in charge of the Division of Personnel and Accounts.

Asst. Surg. Gen. C. C. Pierce, in charge of Division of Venereal Diseases.

Asst. Surg. Gen. W. G. Stimpson, in charge of Division of Marine Hospitals and Relief.

Asst. Surg. Gen. J. W. Schereschewsky, in charge of Division of Scientific Research.

Asst. Surg. Gen. A. J. McLaughlin, in charge of Division of Domestic Quarantine.

Asst. Surg. Gen. R. H. Creel, in charge of Division of Foreign and Insular Quarantine and Immigration.

Asst. Surg. Gen. B. S. Warren, in charge of Division of Sanitary Reports and Statistics.

Surg. (R.) Charles Bolduan, in charge of Section of Public Health Education.

Chiet Clerk, Daniel Masterson.

Secretary to Surgeon General, F. Gwynn Gardiner.

New Legislation.

Chamberlain-Kahn Act.—The act known by this short title was approved July 9, 1918, and provided for the establishment of a Division of Venereal Diseases in the Bureau of the Public Health Service, appropriating for the purposes of the act $1,200,000 for the control of these diseases in cooperation with State boards or departments of health.

Reserve act.—The act of October 27, 1918, created a reserve of the Public Health Service for duty in time of national emergency. Under the provisions of this act it has been possible to expand the commissioned corps and obtain sufficient personnel to efficiently operate the hospitals and sanitoria provided for the greatly increased number of beneficiaries of the Service. The reserve act is as follows:

Joint Regulations To establish a reserve of the Public Health Service.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of securing a reserve for duty in the Public Health Service in time of national emergency there shall be organized, under the direction of the Secretary of the Treasury, under such rules and regulations as the President shall prescribe, a reserve of the Public Health Service. The President alone shall be authorized to appoint and commission as officers in the said reserve such citizens as, upon examination prescribed by the President, shall be found physically, mentally, and morally qualified to hold such commissions, and said commissions shall be in force for a period of five years, unless sooner terminated in the discretion of the President, but commission in said reserve shall not exempt the holder from military or naval service: *Provided,* That the officers commissioned under this Act, none of whom shall have rank above that of assistant surgeon general, shall be distributed in the several grades in the same proportion as now obtains among the commissioned medical officers of the United States Public Health Service and shall at all times be subject to call to active duty by the Surgeon General and when on such active duty shall receive the same pay and allowances as are now provided by law and regulation for the commissioned medical officers in the said regular commissioned medical corps.

Approved, October 27, 1918.

The regulations, issued in pursuance of the authority contained in this act, will be found on page 11.

War Risk Hospital act.—With the signing of the armistice and the cessation of hostilities arose the problem of taking care of the injured sailor and soldier after discharge from the military forces. Congress gave this matter its immediate attention and after discussion and amendment in both Houses the act of March 3, 1919, was finally enacted into law.

The purposes of this act are fairly expressed by section 1 of this act, which is quoted below:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Treasury be, and he is hereby, authorized to provide immediate additional hospital and sanatorium facilities for the care and treatment of discharged sick and disabled soldiers, sailors, and marines, Army and Navy nurses (male and female), patients of the War Risk Insurance Bureau, and the following persons only: Merchant marine seamen, seamen on boats of the Mississippi River Commission, officers and enlisted men of the United States Coast Guard, officers and employees of the Public Health Service, certain keepers and assistant keepers of the United States Lighthouse Service, seamen of the Engineer Corps of the United States Army, officers and enlisted men of the United States Coast and Geodetic Survey, civilian employees entitled to treatment under the United States Employees' Compensation Act, and employees on Army transports not officers or enlisted men of the Army, now entitled by law to treatment by the Public Health Service.

It will be seen that Congress thus designated the Public Health Service as the medical agency of the Government through which beneficiaries of the War Risk Insurance were to be given the necessary hospital and sanatoria treatment.

This legislative action is in line with the administrative practice of the Public Health Service in endeavoring to have utilized by other Government departments and bureaus the sanitary and medical machinery which it has perfected. Prior to the passage of this act the service had entered into cooperative arrangements with the War Risk Insurance to give medical attention to its beneficiaries, and similar arrangements have been made with the Federal Board for Vocational Education. This plan coordinates the medical activities of the Government under the supervision of the bureau best equipped with personnel and facilities to handle this character of work.

AMENDMENTS TO SERVICE REGULATIONS.

Reserve Corps regulations.—Under date of November 13, 1918, the President, on the recommendation of the Secretary of the Treasury, amended the regulations of the Public Health Service, approved March 4, 1913, to read as follows:

Rules and Regulations for the Government of the Reserve of the United States Public Health Service.

1. Except as hereinafter provided, all of the regulations for the government of the United States Public Health Service with amendments thereto or hereafter made, not inconsistent with Senate joint resolution approved October 27, 1918, to create a reserve of the Public Health Service shall apply to and govern officers commissioned under the said resolution when the said officers are on active duty.

2. The resolution to establish a reserve of the Public Health Service approved October 27, 1918, is referred to in these regulations as the reserve act.

3. Officers commissioned under the resolution to establish a reserve of the Public Health Service approved October 27, 1918, are referred to in these regulations as reserve officers.

4. Citizens of the United States desirous of undergoing examination for appointment and commission in the reserve of the Public Health Service must make an application in their own handwriting requesting permission to appear before a board of examiners. An applicant for examination shall state his age, date and place of birth, present legal residence, whether he is a citizen of the United States; give the names of the schools or colleges of which he is a graduate; furnish testimonials from at least two persons as to his professional and moral character, and submit a recent photograph of himself. An applicant of foreign birth must furnish proof of American citizenship.

5. Officers commissioned and appointed under the reserve act will not be appointed to any particular station, but to the general service. They shall at all times be subject to call to active duty and shall serve wherever ordered to duty.

6. The corps of reserve officers shall not exceed 1,000 unless otherwise specifically authorized by the Secretary of the Treasury. Said officers shall be distrubuted in the several grades in the same proportion as now obtains among the commissioned medical officers of the Public Health Service.

7. Sanitary engineers when commissioned in the reserve shall be known and designated as follows:

1. Sanitary engineers with the grade of Assistant Surgeon General,
   "Directing sanitary engineer."
2. Sanitary engineers with the grade of senior surgeon,
   "Senior sanitary engineer."
3. Sanitary engineers with the grade of surgeon,
   "Sanitary engineer."
4. Sanitary engineers with the grade of passed assistant surgeon,
   "Associate sanitary engineer."
5. Sanitary engineers with the grade of assistant surgeon,
   "Assistant sanitary engineer."

Other officers (not graduates of medicine) shall be known and designated by the above prefixes to their titles, zoologist, pharmacologist, chemist, and sanitarian, as the case may be.

Reserve officers, when on active duty, shall take order of rank and precedence with officers of the Public Health Service commissioned under the act of January 4, 1889, of the same rank and grade, according to seniority of commission, except, unless otherwise ordered, at marine hospitals and quarantine stations the senior medical officer shall be in charge of the station.

8. Boards of commissioned officers shall be convened by the Surgeon General from time to time for the purpose of examining applicants for appointment under the reserve act. Such board shall consist of three or more commissioned officers, of whom the senior shall be chairman and the junior recorder. Reserve officers may be ordered to serve on such boards.

9. That for the purpose of the initial organization a board of officers of the Public Health Service shall be convened by the Surgeon General to examine the record of the physical, mental, and moral qualifications of the medical and sanitary personnel now on duty in the Public Health Service, and those found by this examination to be qualified to hold commissions in the reserve may be recommended for such commissions without further examination.

10. A physical, academic, and professional examination for appointment shall be conducted by the board of commissioned officers convened under paragraph 8, and the order of examination shall be:

1. Physical.
2. Academic.
3. Professional.
4. Personal (including general aptitude and moral fitness).

11. The physical examination shall be made according to the rules prescribed by the regulations of the United States Public Health Service. Applicants shall be required to give explicit statements upon a blank form which shall be furnished them for that purpose of any severe illness or injury from which they have suffered, and certify in detail as to any acquired or inherited ailment or defect, mental or physical.

12. The board shall carefully consider all defects in applicants, and shall certify before recommending for appointment that the applicant is free from mental or physical defects of a character which would prevent his performing the duties required of officers in the reserve. All mental or physical defects found upon examination must be carefully noted and described upon the physical examination blank.

13. The board shall examine into the general education of the applicant, and may terminate his examination if it appears that he is deficient therein.

14. The examination of applicants for appointment shall begin with a short autobiography of the applicant in which he shall state concisely whether married or single; the date and place of his birth; the school, institution, or college at which he received his general education; the several branches studied, including his knowledge of general literature and of the ancient and modern languages; the exact title of the professional school or schools at which he received instruction and the date of his graduation; the time when he commenced the study of his profession; the experience he has had in the practice of his profession, and in public health work, if any. The applicant shall append to this statement his name in full, post-office address, and his local address at the date of examination.

15. The professional examination of applicants for commission shall consist of questions on the several branches of their profession.

16. The examination shall further consist of such inquiries as may tend to show the general aptitude of the person for the special duties required of a commissioned officer in the service and to show his moral qualifications for the position of trust and responsibility which he will assume if appointed.

17. In so far as practicable, reserve officers, during the first 12 months subsequent to appointment and annually thereafter, may be ordered, by the Surgeon General of the United States Public Health Service, with the approval of the Secretary of the Treasury, as on active duty for a period not exceeding one month, to a school of training in an approved institution or station located convenient to the district in which he resides.

18. Any physician commissioned under the reserve act whose age is more than 32 and less than 40 years, and who, at the time, has served on active duty in the Public Health Service for 5 years, may be examined for appointment as assistant surgeon under the act of January 4, 1889.

19. Reserve officers while on active duty may be granted leave allowances under the same laws, rules, and regulations as are now provided for officers commissioned under the act of January 4, 1889.

20. Leave may be granted to reserve officers in active service on account of sickness contracted in line of duty: *Provided*, That no leave of absence shall be granted on account of sickness which is due to mental or physical defects which existed prior to appointment or which occurred after appointment and which were not incurred in line of duty: *Provided further*, That no leave shall be granted on account of sickness which is due to an aggravation of any such mental or physical defect.

21. A board of three or more commissioned officers shall be convened from time to time by the Surgeon General for the purpose of recommending officers for promotion. Recommendations for promotions must be based solely on the record for fitness and capacity, without regard to seniority, except that selections will ordinarily be made from the next lower grade. Vacancies in the higher grades may be filled by original appointment to the reserve, but will ordinarily be filled by selection from officers in the reserve.

No officer shall be promoted who has been found physically unfit for duty in the grade for which he is examined.

22. When ordered to active duty for part-time service, in cooperation with State or local health authorities, officers of the reserve shall receive pay and allowances for such time as they are on active duty for the United States Public Health Service.

For pay purposes the day shall be seven hours and shall begin on arrival from residence at office of the station and terminate on departure therefrom. Fractional parts of a day shall accumulate until they make a day of seven hours, excepting on termination of active duty payment may be made for fractional parts of a day.

23. During an emergency the Secretary of the Treasury may transfer regular commissioned officers of the United States Public Health Service to the reserve in order to assume charge of important work, and while so serving they shall be commissioned in the reserve as Assistant Surgeons General, or senior surgeons, as in the discretion of the Secretary of the Treasury the importance of the work may require. Unless sooner terminated by direction of the President, the commission of the officer so transferred shall terminate when the emergency ceases to exist: *Provided*, That such transfers shall be made only to positions which are related to an existing emergency: *And, provided further*, That the pay and allowances shall be of the grade to which transferred, and no such transfer shall operate to reduce the pay and allowances of an officer so transferred.

24. The temporary transfer of officers from the regular corps to the reserve shall not create a vacancy in the grade from which transferred, and upon the termination of the temporary commission officers so transferred shall return to the grade and number which they would have occupied if they had not been transferred.

25. The Surgeon General, at the expiration of his term of office, if not reappointed, shall be appointed and commissioned an Assistant Surgeon General in the reserve for duty in an advisory capacity in the direction of training schools and stations, with pay and allowances as an Assistant Surgeon General on active duty. A vacancy shall not be created thereby in the grade from which he was appointed to Surgeon General and, at any time upon his own request, he may be transferred back to the grade and number which he would have occupied in the regular corps if he had not been appointed to Surgeon General and commissioned in the reserve.

26. The appropriations for the current fiscal year and those hereafter made for specified work shall be available for the pay and allowances of reserve officers of the Public Health Service ordered to active duty upon such work.

Under date of November 13, 1918, with the approval of the President and the Secretary of the Treasury, paragraph 17 of the Service Regulations of March 4, 1913, was also amended to read as follows:

PAR. 17. Medical officers of the Public Health Service required by the act of January 4, 1889, to be appointed by the President, by and with the advice and consent of the Senate, and officers appointed and commissioned by the President under the reserve act, shall be known in these regulations as commissioned officers.

Under the same date and the same authority a new paragraph, No. 12-a, was added to the Regulations, as follows:

PAR. 12-a. (New paragraph to be added to Regulations.)

Officers detailed in charge of bureau divisions shall be commissioned Assistant Surgeons General for a period of four years, and shall serve as such unless sooner relieved from the detail to the bureau by order of the Surgeon General. The temporary assignment of officers for duty as Assistant Surgeons General in charge of bureau divisions shall not create a vacancy in the grade from which assigned, and upon termination of such assignment these officers shall return to the grade and number which they would

have occupied if they had not been assigned as chiefs of bureau divisions: *Provided*, That after the expiration of the four-year assignment as Assistant Surgeon General in charge of a bureau division an officer may be reassigned for an additional four-year period, but after the expiration of the second assignment he shall not be eligible for a third assignment until he shall have served at least four years at some other duty.

In addition to the above amendments, paragraphs 87 and 103 to the service regulations were amended during the fiscal year, the former on July 16 and the last mentioned on August 14, 1918. The two amendments are as follows:

PAR. 87. Pharmacists, when on duty at United States marine hospitals or quarantine stations, shall when practicable be entitled to quarters, necessary household furniture for same, subsistence (as allowed previous to Mar. 4, 1913), fuel, light, and necessary laundry work, and when on duty at stations where there are no quarters belonging to the service, they shall be entitled to commutation therefor at the rate of $40 a month for quarters, fuel, and light, and $60 a month for subsistence and all other allowances.

PAR. 103. When a commissioned medical officer is serving within the geographical limits of the United States, as they existed January 1, 1898, at a station where there are no quarters belonging to the service available for assignment to him, he shall receive commutation therefor at a rate not exceeding $12 per month per room and commutation of heat and light allowances at rates allowed medical officers of the Army of the same relative rank.

AMENDMENTS TO INTERSTATE QUARANTINE REGULATIONS.

In accordance with the provisions of the quarantine act of February 15, 1893, amendments to the interstate quarantine regulations have been approved by the department during the fiscal year relating to the purity of water supplied to passengers in interstate traffic. The regulation follows:

SEC. 13. Water provided for drinking or culinary purposes on any car, vessel, or other conveyance while engaged in interstate traffic by any person, firm, company, or corporation shall be from a source which is certified and approved as producing water of satisfactory sanitary quality and safety.

(*a*) The certification of such water supplies shall be procured by the person, firm, company, or corporation providing the water for the aforesaid purposes, and the certificate shall be filed with the United States Public Health Service at Washington, D. C.

(*b*) Certificates concerning the safety and sanitary quality of such water shall be based upon its relative freedom from contamination, or exposure to contamination, by microorganisms and substances recognized as harmful or deleterious to the consumer's health or liable to spread infectious or contagious disease, as determined through a survey of the sanitary conditions under which the supply is produced and the results of bacteriological and chemical analysis of samples of the water. In making such determinations, survey and laboratory methods which are acceptable to the Surgeon General of the United States Public Health Service shall be followed.

(*c*) Certificates of examination may be issued by officers of the United States Public Health Service or by the respective State departments of health having jurisdiction over the source of supply, and shall be subject to the approval of the Surgeon General of the United States Public Health Service.

(*d*) Certificates of water examination shall be procured and filed whenever the Surgeon General of the United States Public Health Service may direct, but in any case not less than semiannually, in March and September of each year: *Provided*, That the certification of water supplies certified by and produced under the constant supervision of the respective State departments of health may be required but once annually with the approval of the Surgeon General of the United States Public Health Service.

(*e*) Persons, firms, companies, or corporations providing water from certified supplies shall cause such water to be so handled from the source of supply to the delivery to consumers in such manner that the safety or sanitary quality of such water shall not be impaired. Water cooled for drinking purposes shall be cooled in such manner that ice can not come into contact with such water. Water coolers and containers shall be cleansed and sterilized at least once in each week in use.

(*f*) The provisions of this section shall also apply to water provided for drinking and culinary purposes on vessels plying between foreign ports on or near the frontiers of the United States and adjacent ports in the United States.

This amendment supersedes Amendment No. 1 to Interstate Quarantine Regulations, 1916.

The danger to the public health of the country through the possible transmission of anthrax by using improperly sterilized shaving brushes resulted in the promulgation on July 30, 1918, of the following amendment to the Interstate Quarantine Regulations of the Public Health Service.

To medical officers of the U. S. Public Health Service, State and local health authorities, and others concerned:

In accordance with the act of Congress approved February 15, 1893, the following amendment and additions are hereby made to the Interstate Quarantine Regulations promulgated by this department January 15, 1916.

Section 1 is hereby amended to read as follows:

"SEC. 1. For the purposes of interstate quarantine the following diseases shall be regarded as contagious and infectious diseases within the meaning of section 3 of the act approved February 15, 1893: Plague, cholera, typhoid fever, pulmonary tuberculosis, yellow fever, smallpox, leprosy, typhus fever, scarlet fever, diphtheria, measles, whooping cough, poliomyelitis (infantile paralysis), Rocky Mountain spotted or tick fever, anthrax, and epidemic cerebrospinal meningitis; and any person affected with any disease aforesaid, and anything, living or dead, which has been affected with or exposed to the contagion or infection of any such disease, except as otherwise provided in these regulations, shall be regarded as contagious or infectious until the contrary has been proven."

The following regulations are hereby added to the Interstate Quarantine Regulations:

"SEC. 39. No person, firm, or corporation shall offer for shipment in interstate traffic, and no common carrier shall accept for shipment or transport in interstate traffic any shaving brush or lather brush unless manufactured in accordance with these regulations.

"SEC. 40. Shaving brushes or lather brushes shall be made only from hair or bristles known to be free from anthrax spores.

"SEC. 41. Unless hair or bristles are known to be free from anthrax spores before such bristles are made up into shaving or lather brushes, their disinfection shall be accomplished by one of the following methods: (*a*) By boiling the hair or bristles for not less than three hours; (*b*) by exposing the hair or bristles to steam under not less than 15 pounds gauge pressure for not less than 30 minutes with a preliminary vacuum of not less than 10 inches before turning on the steam; (*c*) by exposure to streaming steam for not less than six hours.

"SEC. 42. All shaving or lather brushes shall be permanently marked with the name of the manufacturer or with a registered trade-mark in order to insure identification of the manufacturer and enforcement of these regulations."

Likewise to reduce the disease menace occurring from the unrestricted travel of persons infected with venereal diseases, the following Interstate Quarantine Regulation amendment was promulgated on November 19, 1918:

To medical officers of the U. S. Public Health Service, State and local health authorities, and others concerned:

The following addition is hereby made to the Interstate Quarantine Regulations promulgated by this department January 15, 1916, said addition and regulations being in accordance with the act of Congress approved February 15, 1893.

The following regulation, addition to section 1 and section 28–A, is hereby added to Interstate Quarantine Regulations:

I.

I. Section 1, line 8. Insert "syphilis, gonorrhea, chancroid" after tick fever so that the text will read * * * Rocky Mountain spotted or tick fever, syphilis, gonorrhea, chancroid and epidemic cerebrospinal meningitis; * * *

II. Introduce section 28–A.

1. Any person, infected with syphilis, gonorrhea, or chancroid, who wishes to engage in interstate travel, must first obtain a permit, in writing, from the local health officer under whose jurisdiction he resides. This permit shall state that, in the opinion of the health officer, such travel is not dangerous to the public health.

2. Any person, infected with syphilis, gonorrhea, or chancroid, who wishes to change his residence from one State to another must first obtain his release, in writing, from the local health officer. He shall inform the local health officer as to the place

where he intends to reside and shall agree, in writing, to report in person to the proper health officer within one week after arrival at his new residence.

It shall be the duty of the health officer who issues the release to promptly notify the health officer under whose jurisdiction the infected person is to enter, of its issue. This release shall contain the name and address of the infected person.

The receiving health officer shall, in turn, report the arrival of the infected person to the health officer who issued his release and notify the State health officer of his State that a person infected with venereal disease has entered his jurisdiction.

3. Any person, infected with syphilis, gonorrhea, or chancroid, who wishes to engage in interstate travel or change his residence shall agree to continue treatment, under the direction of a reputable physician, until the health officer shall have certified that he is no longer infectious. A certificate of noninfection shall not be issued until the health officer, or his accredited representative, shall have complied with the State board of health requirements for release of venereally infected persons.

Suggested Forms.

1. PERMIT TO ENGAGE IN INTERSTATE TRAVEL.

This is to certify that, in my opinion, ... may engage in
(Name of patient.)
interstate travel without endangering the public health.

.....
(Health Officer.)

....., ...
(Town.) (State.)

2. PERMIT TO CHANGE RESIDENCE.

Permission is hereby granted ..... to change his residence
(Name of patient.)
from ....., ..., to ....., ...
(Town.) (State.) (Town.) (State.)

.....
Health Officer.)

....., ...
(Town.) (State.)

3. REQUEST FOR CHANGE OF RESIDENCE.

I, ..., desire to change my residence from .....,
(Town.)
....., to....., ... I hereby acknowledge that I am infected
(State.) (Town.) (State.)
with ..... and agree to report my condition to the local health officer at ..... within one week after my arrival.

I further agree to continue treatment for ..... under the direction of a competent physician until I shall have been released by the health officer.

(Signed.) .....

4. NOTICE OF RELEASE.

.....,
(Place.)

.....
(Date.)

John Doe,
Health Officer,

.....
(Town.)

.....
(State.)

This is to inform you that ....., who formerly resided at
....., ..., is infected with ..... He has this day secured
(Town.) (State.)
his release from this office and declared his intention to change his residence to
....., ... He has agreed to report to you within one week after
(Town.) (State.)
arrival.

.....
(Health Officer.)

5. NOTICE OF REPORT.

.....,
(Place.)

.....
(Date.)

JOHN DOE,
Health Officer,
.....
(Town.)
.....
(State.)

This is to inform you that ..... who formerly resided at ....., ..., reported at this office on ..... and stated that he is
(Date.)
infected with ..... He {has placed / or / will place} himself under the care of Doctor ..... of .....

.....,
(Health Officer.)
W. G. MCADOO,
Secretary.

AMENDMENTS TO QUARANTINE REGULATIONS.

Amendments to the United States Quarantine Regulations, under the provisions of the quarantine act of February 15, 1893, were promulgated by the Treasury Department on July 31, 1918, as follows:

Paragraph 1 is amended to read as follows:

"For the purpose of these regulations the quarantinable diseases are cholera, yellow fever, smallpox, typhus fever, leprosy, plague and anthrax."

Paragraph 132 A:

Shaving brushes or lather brushes destined for shipment into the United States shall be made only from hair or bristles known to be free from anthrax spores.

Paragraph 132 B:

Unless known to be free from anthrax spores such hair or bristles, before being made into shaving or lather brushes, shall be disinfected by one of the following methods; (*a*) by boiling for not less than three hours; (*b*) by exposure to steam under not less than 15 pounds gauge for not less than 30 minutes with a preliminary vacuum of at least 10 inches; (*c*) by exposure to streaming steam for not less than six hours.

AFTER-THE-WAR PROGRAM.

After the war emergency had passed the service formulated a comprehensive program to meet pressing after-the-war health needs. That these needs are urgent is indicated by the fact that in the recent draft over 34 per cent of all registrants were rejected by examining boards on account of physical defects and diseases. In large measure these defects and diseases could have been prevented had proper attention been given to them, especially in childhood. This unsatisfactory condition of the public health, persisting in spite of the energetic work of many health departments and voluntary agencies, indicates clearly that health work has not received the attention from governmental authorities it merits. While preventable disease rates have been lowered in many cases, and campaigns against isolated diseases and insanitary conditions have met with success, no national campaign dealing with public health in all its phases has been conducted.

The success of this program will depend upon the active cooperation of Federal, State, and local health authorities and voluntary organizations. Practical experience has proved that the proper coordination

of public health activities can best be obtained under the Federal aid extension principle. The program follows:

1. *Industrial hygiene:*

(*a*) Continuing and extending health surveys in industry with a view to determining precisely the nature of the health hazards and the measures needed to correct them.

(*b*) Securing adequate reports of the prevalence of disease among employees and the sanitary conditions in industrial establishments and communities.

(*c*) National development of adequate systems of medical and surgical supervision of employees in places of employment.

(*d*) Establishment by the Public Health Service, in cooperation with the Department of Labor, of minimum standards of industrial hygiene and the prevention of occupational diseases.

(*e*) Improvement of the sanitation of industrial communities by officers of the Public Health Service, and cooperation with State and local health authorities and other agencies.

(*f*) Medical and sanitary supervision by the Public Health Service of civil industrial establishments owned or operated by the Federal Government.

2. *Rural hygiene:*

(*a*) Federal aid extension for establishment and maintenance of adequate county health organizations in counties in which the county and State governments, separately or together, will bear at least one-half (usually two-thirds) of the expense for reasonably intensive rural health work; county health officer to be given status in national health organization by appointment as field agent of the Public Health Service at nominal salary; sanitary inspectors and health nurses also to be given official status in the Public Health Service.

(*b*) Detail of specially trained officers of the Public Health Service to formulate and carry out, in cooperation with local authorities, intensive campaigns for the sanitation of groups of rural towns, the work to be directed especially toward securing safe water supplies, cleanly disposal of human excreta, pasteurization of milk supplies, and bedside control of cases of communicable disease.

(*c*) Studies by a special board of service officers to determine improved methods of rural sanitation, the studies to be confined to the most practical and essential phases of the subject.

(*d*) Widespread dissemination of the simple rules for rural sanitation through various Government and civil agencies, such as the bureaus and divisions of the Department of Agriculture, the Farm Loan Board, agricultural colleges, public school boards, farmers' associations, and women's clubs.

3. *Prevention of the diseases of infancy and childhood:*

(*a*) Through cooperation with the Children's Bureau, the American Red Cross, and other recognized agencies in promoting measures for child and maternal welfare.

(*b*) Through prenatal care by promoting—

(1) The adoption of measures for the adequate care and instruction of expectant mothers through visiting nurses, prenatal clinics, lying-in facilities, attention during confinement, and regulation of the practice of midwifery under medical supervision.

(2) Safeguarding of expectant mothers engaged in industries.

(*c*) Through infant-welfare work, by promoting—

(1) Accurate registration of all births, and measures for adequate care of babies in homes, welfare stations, and day nurseries.

(2) Instruction of mothers by visiting nurses. The enforcement of prophylactic measures to prevent blindness in the newborn.

(3) Safeguarding of milk supplies and establishment of pasteurization plants.

(*d*) Through supervision of children of preschool age by promoting—

(1) The organization of divisions of child hygiene in State and local health departments.

(2) Instruction by visiting nurses in general, personal, and home hygiene, and inspection for physical defects and the control of communicable diseases.

(3) The establishment of clinics for sick children.

(*e*) Through supervision of children attending school by promoting—

(1) The supervision of the home and school environment, including sanitation of school grounds and school buildings.

(2) The maintenance of health supervision of school children by school nurses and school physicians to detect and correct physical and mental defects and to control communicable diseases.

(3) Mental examinations of school children to determine and prescribe suitable treatment and training for children who fail in class work.

4. *Water supplies.*—National development of safe water supplies—

(*a*) By extending surveys already made by the Public Health Service of water supplies, checked by laboratory analyses when necessary, to be done by national, State, local, or university personnel and laboratories.

(*b*) Introduction and extension of methods of water purification according to results of surveys and analyses.

(*c*) Stimulation of communities to obtain safe water through national, State, and local representatives and volunteer organizations.

5. *Milk supplies.*—National development of safe milk supplies through—

(*a*) Universal pasteurization (including adequate municipal supervision).

(*b*) Adequate inspection of production and distribution of milk and milk products.

(*c*) Stimulation of communities to obtain safe milk through national, State, and local representatives and volunteer organizations.

6. *Sewage disposal.*—Proper sewage disposal will control intestinal diseases, such as typhoid fever, dysentery, diarrhea, and hookworm. These diseases now cause over 60,000 deaths annually. National development of safe methods through—

(*a*) Extension of water carriage sewerage systems wherever practicable.

(*b*) Elimination within municipal limits of cesspools and privies.

(*c*) In rural communities the installation of sanitary privies.

(*d*) The establishment of minimum standards of permissible pollution of streams, lakes, and rivers used for water supplies.

(*e*) Stimulation of communities through national, State, and local representatives and volunteer organizations, to obtain safe sewage disposal.

7. *Malaria.*—National development of measures for the control of malaria and malaria-bearing mosquitoes in industrially, agriculturally, and economically important areas of the United States—

(*a*) By the further dissemination of the knowledge of methods for its control (elimination of malaria-mosquito breeding places through drainage, oiling, ditching, and the like) now being demonstrated by the Public Health Service.

(*b*) By the extension throughout the country of surveys of certain areas as to the prevention of malaria and malaria-bearing mosquitoes.

(*c*) By increasing the corps of experts of the Public Health Service engaged in malaria prevention and by the utilization of other national agencies wherever practicable to advise the communities as to the methods for best handling their problems in malaria.

(*d*) Additional appropriations for the reclamation of large areas from malaria through proper drainage. Funds for such projects should be supplied on a 50–50 basis by Federal and State Governments. This plan is especially applicable to the control of malaria in communities where malaria conditions interfere with their economic development.

8. *Venereal diseases:*

(*a*) Medical measures:

(1) Establishment of clinics, dispensaries, and hospitals.

(2) Epidemiologic studies.

(3) Free diagnosis.

(4) Examination for release as noninfective.

(5) Free distribution of arsphenamine.

(6) Control of carriers through detention and commitment.

(*b*) Educational measures:

(1) Proper reporting of cases.

(2) Standardization of pamphlets, exhibits, placards, and lectures.

(3) Cooperation with national, State, and local authorities and volunteer associations.

(4) Cooperative work in industrial plants, shipyards, and railway employees' organizations.

(5) Cooperation with druggists' organizations to secure their voluntary aid in the control of patent nostrums for the treatment of venereal diseases.

9. *Tuberculosis:*

(*a*) Stringent provisions for the proper reporting of cases of tuberculosis.

(*b*) Adequate instructions of families and patients, especially in families where there is an advanced case.

(*c*) Hospitalization of cases, wherever practicable, either through city institutions or by arrangements with State or district tuberculosis hospitals.

(*d*) Cooperation with national societies and agencies having for their object the prevention of tuberculosis or the improvement of economic conditions.

(*e*) Improvement of industrial conditions predisposing to tuberculosis, such as "dusty occupations."

10. *Railway sanitation:*

(*a*) Consolidation under supervision of the Public Health Service of railway sanitation.

(*b*) Protection of railway employees by adequate health measures (e. g., protection against smallpox and typhoid fever by vaccination and inoculation; supervision of food, water, and milk supplies consumed by employees; elimination of hazards in shops and other work places; supervision of sanitary housing facilities; sanitation of railway communities).

(*c*) Protection of the public by—

(1) Sanitary supervision of water, milk, and food supplies furnished by railway administration.

(2) Sanitary supervision of employees engaged in handling water and food supplies so furnished.

(3) Sanitation of stations, terminals, rights of way, with special reference to sewage disposal, malaria-mosquito eradication, and screening against disease-bearing insects.

(4) Prevention of the spread of communicable diseases through common carriers.

(5) Improvement and demonstration of the principle of employing full-time health officers by all municipalities.

11. *Municipal sanitation:*

(*a*) Development and demonstration of the principle of employing full-time health officers by all municipalities.

(*b*) Enactment and enforcement of ordinances for adequate disease reporting.

(*c*) Provisions for safe water, food, and milk supplies and sewage disposal.

(*d*) Enactment and enforcement of special regulations for the improvement of conditions causing tuberculosis.

(*e*) Establishment of community health centers.

(*f*) Municipal campaign for the control of venereal diseases through venereal-disease reporting; clinics for the treatment and control of carriers and free treatment for all cases.

(*g*) Control of malaria and malaria-bearing mosquitoes in malarious regions.

(*h*) Enactment of proper building ordinances and provision for sanitary supervision of housing, especially in industrial centers, including improvements in transportation, so as to permit redistribution of persons living in overcrowded communities.

(*i*) Adequate systems of medical supervision of schools.

(*j*) Reduction of infant mortality by proper provision for prenatal care, bed space in maternity hospitals, infant-welfare stations, visiting nurses, and milk and ice stations.

(*k*) Stimulation of municipalities to realize their own responsibilities for health, and the part played by adequate health protection in the happiness and material prosperity of the community.

12. *Health standards:*

(*a*) Communicable diseases. Promulgation by the Public Health Service of minimum standards for the control of communicable diseases.

[NOTE.—The service has published on this subject a report of committee of the American Public Health Association, on which the service was represented. This report should be reviewed and amended by a board of service officers. It should then be formally approved by the conference of State and Territorial health officers with the Public Health Service, and be promulgated by the Public Health Serviceas Federal standards.]

(*b*) Industrial hygiene. Standards of industrial hygiene and of sanitation of places of employment should be prepared by the service in cooperation with the Department of Labor.

(*c*) Sewage and excreta disposal. Minimum standards should be promulgated on the following: (1) Water-carriage sewerage systems; (2) sanitary privies.

(*d*) Standard specifications for safe water and water purification.

(*e*) Community sanitation. Preparation of standards method for scoring the sanitary conditions of communities.

(*f*) Preparation of additional standards for the manufacture and the purity and potency of biologic products and for arsphenamine.

(*g*) Preparation of standards for illuminating, heating, and ventilating public buildings and schools.

13. *Health education.*—To increase the knowledge of the general public on means relating to disease prevention and personal hygiene—

(*a*) By the employment of medical sanitarians, having special experience in educational methods and their use, in cooperation with Red Cross National and State organizations, State and municipal health departments, State industrial commissions, and State and national health associations.

[NOTE.—The prevention of the following conditions and diseases will be the special objects of health education: Excessive infant mortality, occupational diseases (see section on industrial hygiene), malaria, typhoid fever, hookworm, venereal diseases, pellagra, tuberculosis, pneumonia, cerebrospinal meningitis, and personal hygiene.]

(*b*) By advocating and assisting in the securing of full-time State, district, and local health officers.

(*c*) By stimulation of States and municipalities to the acceptance of their full responsibility for public-health conditions and the support of health activities by adequate appropriations.

(*d*) By the detail of service officers to State health organizations and, when necessary, to city organizations, particularly in communities presenting special health problems.

14. *Collecting of morbidity reports.*—Extension of disease reporting to be accomplished through the collection of adequate reports of disease prevalence:

(*a*) By the extension of the present system of collaborating epidemiologists.

(*b*) For the industrial group of the population, through the appointment of industrial surgeons and record clerks in various industrial establishments, such industrial surgeons to be appointed by the Public Health Service, at a nominal salary, so as to place them under the direction and control of the service, and the remainder of the salary to be paid by the industrial establishments to which they are attached. In addition to reporting disease, these surgeons will act as medical and surgical officers and sanitarians. They will also report on community sanitation.

15. *Organization and training for duty in emergency of the reserve of the Public Health Service*—

(*a*) By the establishment of training schools in public-health work in connection with stations of the Public Health Service and leading universities at which members of the reserve may receive intensive training for short periods at stated intervals.

(*b*) Ordering members of the reserve to active duty to participate in important eld work of the Public Health Service.

SCIENTIFIC RESEARCH.

During the first half of the fiscal year, the activities of this division related primarily to investigations which were of value in connection with the prosecution of the war. Upon the signing of the armistice, the division turned its attention to rendering all assistance possible in carrying out a program for the continuation and extension of measures for the general protection and improvement of the public health, and during the remainder of the year the studies made by this division have related particularly to those phases of such a program which required investigation. The program upon which attention was centered will be found in full on pages 17–21.

As in the previous year, the division continued its cooperation with the division of Domestic Quarantine in carrying out extra-cantonment sanitation. Demonstrations in rural sanitation were conducted in the zones surrounding military cantonments and important results secured in minimizing the prevalence of typhoid fever and similar diseases in these zones. The division supervised the malaria control work conducted in these zones, by means of which the encamped soldiers and the civilians in the vicinity of the camps were kept remarkably free from the disease. The division also assisted in the establishment of school inspection in a large number of the zones.

At the outset of the influenza epidemic, when medical personnel was urgently needed, this division, by reason of the fact that its chief was a member of the Board of Governors of the Volunteer Medical Service Corps and was serving as liaison officer between the service and that corps, directed efforts to mobilize personnel in order to assist local health authorities in meeting the demands arising from the epidemic. As soon as some personnel had been mobilized, it was placed at the disposal of the Domestic Quarantine division, which directed measures against the epidemic, and the Scientific Research division concentrated its efforts on the study of the disease. Attempts were made to transmit the infection from person to person; a large amount of work was done to determine the prophylactic value of vaccines made from the influenza bacillus and of vaccines containing this organism together with various organisms which were regarded as probably the cause of the complicating pneumonia; and extensive studies of an epidemiological nature were made with a view to throwing light upon the nature of the epidemic. These studies were conducted in the hope of securing information which would be of practical assistance in meeting a recurrence of the epidemic this fall, should such recurrence take place.

By an Executive order of July 1, 1918, the Public Health Service was placed in charge of the sanitary or public health activities in connection with the prosecution of the war. For the conduct of this work, an office of industrial hygiene and medicine was organized, and district headquarters were established in a number of the large cities of the country. The work of this office was carried out in cooperation with the Working Conditions Service of the Department of Labor. Under the same presidential order the service assumed supervision

of activities in connection with the health and sanitation of shipyards under control of the Emergency Fleet Corporation, this body giving financial assistance to the work until February.

Through the division, the service cooperated with the Capital Issues committee, furnishing advice as to the immediate necessity from a public health standpoint of bond issues for sanitary improvements. Such advice was given in the case of projects in not less than 45 cities from July 1, 1918, until the close of the war, in some cases involving an expenditure of millions of dollars.

Summarized briefly, the work of the division during the past fiscal year has involved investigations of diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage and the pollution of navigable streams and lakes of the United States; studies of, and demonstrations in, rural sanitation; the regulation of the propagation and sale of viruses, serums, toxins, and analogous products in interstate traffic; prevention of the spread of trachoma; general direction of Hygienic Laboratory, leprosy investigation station, and pellagra hospital.

Diarrhoea.

LEETSDALE, PA.

At the request of the United States Shipping Board, Emergency Fleet Corporation, Passed Asst. Surg. A. J. Lanza was detailed, in August, 1918, to investigate an outbreak of diarrhoea in a construction camp at Leetsdale, Pa.

Since the milk, water supplies, and meat refrigeration were apparently beyond criticism, the disease was obviously contracted through a large pit privy, which had no fly protection and was located 100 feet from the kitchen of the camp.

Recommendations given were immediately acted upon.

Dysentery.

EPIDEMIC IN JACKSON, KY.

In response to a request from the Kentucky State Board of Health, Asst. Surg. R. P. Sandidge was detailed in September, 1918, to investigate an epidemic of dysentery in Jackson and Breathitt County, Ky. It was found that dysentery has been endemic in the county for years as a result of grossly insanitary conditions. An educational campaign in public health matters was advised.

Encephalitis.

INVESTIGATION OF EPIDEMIC ENCEPHALITIS.

Recent studies conducted by Passed Asst. Surg. H. F. Smith on epidemic encephalitis (*Encephalitis lethargica*, Nona) show that there was a distinct outbreak of this disease in the United States during the fall of 1918 and the early part of 1919. Its incidence has been noted in Massachusetts, Connecticut, New Hampshire, Rhode Island, New York, Pennsylvania, Virginia, Tennessee, North Carolina, South Carolina, Georgia Alabama, Louisiana, Texas, Arkansas, Missouri, Iowa, Oklahoma, Illinois, Ohio, and California.

While outbreaks of epidemic encephalitis have been previously reported in central Europe, France, Italy, Great Britain, and Algeria, this is believed to be its initial appearance, at least in epidemic form, in the United States.

Studies were conducted in New York, Pennsylvania, Virginia, Ohio, South Carolina, Louisiana, Mississippi, Arkansas, and Texas. As the result of these studies epidemiological data were secured on 222, or 88 per cent, of the total number of cases reported. Of these 222 cases investigated 39, or 18 per cent, were excluded on account of erroneous diagnoses and two were doubtful cases.

A study of the remaining 181 cases shows the first occurrence of the disease to have been in New York City in September, 1918. Three cases occurred in October, 7 in November, 10 in December, 19 in January, and 35 in February. The outbreak reached its peak in March, during which month 61 cases occurred. There was a sharp decline in April, with the occurrence of only 12 cases, followed by 5 in May and none in June.

The data collected are being formulated into a report which will contain a résumé of the literature on the subject and of previous foreign outbreaks of the disease together with the correlation of the epidemiological data of the recent outbreak in the United States in reference to the age, sex, color, seasonal and geographical distribution, the relation of attacks of influenza to epidemic encephalitis in the individual cases studied, symptomatology, laboratory findings, and the results of animal inoculation.

Enteritis.

NITRO, W. VA.

Senior Sanitary Engineer (Reserve) E. B. Phelps and Passed Asst. Surg. M. H. Neill were detailed in July, 1918, to investigate an epidemic of enteritis at Nitro, W. Va., where the United States Government was constructing a plant for the manufacture of smokeless powder.

Among the 5,806 cases applying for medical relief there were no deaths and only 32 were of sufficient severity to require their admission to either the base or emergency hospitals. The investigation indicated the probability of a causal relation between the water supply and the outbreak, with contact infection as an important contributory cause.

Specific recommendations were made to control the epidemic.

Statistical and Epidemiological Studies of Influenza.

As soon as the subsidence of the first wave of the influenza epidemic in November, 1918, had released a sufficient number of the personnel up to that time necessarily engaged in the organization of preventive and relief measures, a statistical and epidemiological study of the epidemic was undertaken. Surg. W. H. Frost was assigned, November 12, 1918, in charge of this work, with Public Health Statistician Edgar Sydenstricker, and with the temporary detail at various times of Passed Asst. Surgs. H. F. Smith, G. A. Kempf, H. C. Cody, and Assistant Surgs. Charles Armstrong and B. E. Roberts, of whom only one, Dr. Armstrong, was continued on this duty for more than a few weeks.

PURPOSE AND SCOPE OF INVESTIGATION.

The general purpose of the investigation has been to assemble into significant epidemiological analyses the statistical material available through various collective agencies, including the mortality statistics collected in this country by the Census Bureau, the more detailed mortality statistics available from certain State health departments, the morbidity reports from certain States, and the mortality statistics and other special data accessible in published reports from foreign countries. The data available from all these sources have been supplemented with original epidemiological records collected in the field by the Service.

In order that the work of the Public Health Service might be effectively coordinated with that of other investigative and collective agencies, conferences were held with the Bureau of the Census, the Office of the Surgeon General of the Army, the Bureau of Medicine and Surgery of the Navy, and a committee of the Section on Vital Statistics of the American Public Health Association before detailed plans were adopted. Effective coordination of the work of the several Federal departments engaged in collecting statistics of influenza was later established by the formation of an interdepartmental joint committee, made up of representatives designated by the Surgeon General of the Army, Surgeon General of the Navy, Director of the Census, and the Surgeon General of the Public Health Service, as follows:

Census Bureau: Dr. Wm. H. Davis, chairman, and Mr. C. S. Sloane.

Army: Col. D. C. Howard, Col. F. F. Russell, and Lieut. Col. A. G. Love.

Navy: Lieut. Commander J. R. Phelps and Surg. Carroll Fox.

Public Health Service: Surg. W. H. Frost and Mr. Edgar Sydenstricker.

To coordinate the work of the service with that of State health departments letters were sent out to all State health officers, advising them in detail of the work projected by the service and requesting that they in turn advise the Surgeon General of the scope of any special investigations proposed in their respective States. The prompt replies received from a large proportion of State health officials and their cordial cooperation have greatly facilitated the planning and execution of the work undertaken by the Service.

As the first and most extensive field work in connection with this study was undertaken in Maryland, headquarters were first established, November 20, 1918, in a temporary office at 7 Clay Street, Baltimore. Subsequently, on January 1, 1919, a more permanent office was established at 228 First Street NW., Washington, and shortly thereafter the Baltimore office was discontinued upon completion of the field work in that territory.

The work undertaken comprises: (1) Field work for the collection of original data; (2) cooperation with the Census Bureau and the various State health organizations in making desired compilations from the original records available to them; (3) the collection of detailed information regarding the preventive and relief measures carried out in American cities; (4) assembling into significant compilations published data relating to the current prevalence and mortality of influenza in foreign countries and mortality in the United States in past years.

FIELD WORK.

The first two months of the investigation were occupied chiefly in the collection of original records of the occurrence, duration, and fatality of influenza in representative population groups in a number of widely separated localities throughout the United States.

These data were collected by a house-to-house canvass of a sufficient number of residents in well-scattered areas in each of the cities selected for study. In the populations canvassed information was obtained as to the total number of persons in each household; the color, sex, and age of each; the number of individuals who had suffered from influenza, with record of the date, duration, severity, and termination of each case; housing conditions and economic status. These records were obtained by inspectors in the employ of the service, working under the immediate direction of service officers. In Baltimore and other localities in Maryland, excepting Charles County, the surveys were made under the direction of Passed Asst. Surg. H. F. Smith and Asst. Surg. Charles Armstrong, who were especially detailed for that purpose. In the other cities mentioned below, the surveys were made by service officers stationed in the respective communities in charge of previously established public health organizations maintained by the service. Localities in which surveys were made and the number of persons canvassed in each locality are as follows:

Baltimore, Md	33,361
Other communities in Maryland (Cumberland, Lonaconing, Frederick, Salisbury)	12,482
Charles County, Md. (Census by United States Census Bureau)	18,212
New London, Conn	7,933
Spartanburg, S. C	5,257
Augusta, Ga	4,123
Macon, Ga	7,905
Louisville, Ky	12,602
Little Rock, Ark	9,920
San Antonio, Tex	12,534
Des Moines, Iowa	5,857
San Francisco, Calif	18,682
Total	148,268

Since the method of house-to-house survey used in these cities could not be economically applied in sparsely settled rural districts, an arrangement was made with the Census Bureau whereby the latter undertook for the service a complete census of a rural area, Charles County, Md., to secure in that area the same data included in the surveys of urban communities previously mentioned. This census was conducted under the official direction of the Census Bureau by enumerators in the employ of that bureau, all expenses being reimbursed by the Public Health Service.

A special survey of generally similar scope was also made by the service in the Bureau of Engraving and Printing in Washington, detailed information being secured from each employee of that bureau by means of special questionnaires. The special purpose of this survey, which included about 6,000 employees, was to afford information as to the influence, if any, of industrial conditions upon the occurrence and severity of influenza.

The data collected in these several surveys afford, so far as is known, the most extensive statistics available in this country as to

the case-incidence of influenza in various localities; the relative incidence in relation to color, sex, age, size of family, and economic status; the proportionate incidence of pneumonia and the case-fatality.

While detailed analyses of all the data have not yet been completed, preliminary statistics comprising about 46,000 persons canvassed in Baltimore and other Maryland localities have been presented in the Public Health Reports (Reprint No. 510, Mar. 14, 1919) and further data will be published shortly.

COOPERATION IN COMPILING STATISTICS COLLECTED BY OTHER AGENCIES.

In order to enable the Census Bureau to carry out promptly a number of special tabulations of mortality data relating to the influenza epidemic, the Secretary of the Treasury authorized the payment of certain expenses, not to exceed $20,000, incurred by the Census Bureau in connection with this work, and as the result of this aid a large mass of mortality statistics in far greater detail than is ordinarily given will soon be available from the Census Bureau.

Arrangements were also made early in the investigation with the State department of health of Maryland, whereby clerical and other assistance was rendered in making detailed and rapid compilations of mortality and morbidity statistics on file in that office. Similar arrangements were made later with the office of the State registrar of vital statistics in Massachusetts for detailed analyses of mortality statistics, and with the secretary of the State board of health of Kansas for analyses of the morbidity records of these respective States.

COLLECTION OF INFORMATION RELATIVE TO PREVENTIVE AND RELIEF MEASURES CARRIED OUT IN AMERICAN CITIES.

In order to secure, if possible, significant information as to the effect of various attempted preventive and relief measures upon controlling the occurrence and mortality of influenza, detailed questionnaires were sent out through State health officers to the local health officers of registration cities of 25,000 population or more, and satisfactory replies have been received from 137 of the cities, constituting about 60 per cent of the total number of which inquiry was made. These records, although their compilation is now nearly complete, will not be significant until detailed records of influenza mortality in each of the cities shall become available through the Bureau of the Census, as is expected within the next few months.

SPECIAL ANALYSES OF DATA FROM PUBLISHED REPORTS.

A necessary and considerable part of the work in connection with this investigation is the assembling and analysis of data, chiefly mortality statistics, from published reports, including current mortality records in certain American cities and in a number of foreign cities; also records of mortality from influenza and pneumonia in various subdivisions of the registration area of the United States in past years. The assembling of these statistics from widely scattered sources and their rearrangement into significant epidemiological analyses is an undertaking of considerable magnitude, but substantial

progress in this direction has already been made. A preliminary article relating to the world distribution of the epidemic has been issued under the title "Epidemic Influenza in Foreign Cities" in the Public Health Reports of June 20, 1919.

An important contribution to the study of the epidemic has been made by Dr. Raymond Pearl, professor of vital statistics and biometry, Johns Hopkins University, School of Hygiene and Public Health, who has been appointed consultant in vital statistics and epidemiology for cooperation in this investigation. Dr. Pearl has taken up especially the pathometric analysis of mortality statistics relating to the influenza epidemic. In order to carry out this work he has been furnished certain clerical assistance, and in addition arrangements have been made whereby the data compiled in Washington are available for his analysis. The first of his studies has been published in the Public Health Reports (Reprint No. 548, August 8, 1919). In this study Dr. Pearl has demonstrated a striking correlation between the explosiveness of the epidemic as manifested in 39 American cities and the gross mortality rates, also the mortality rates from pulmonary tuberculosis, organic heart disease, and nephritis in previous years in these same cities.

GENERAL PROGRESS.

At the close of the fiscal year all field work in connection with this investigation, including the work of compiling data from State records, had been completed, and analysis of the various data collected is well under way. There remains, however, to complete the analysis of the material already in hand, several months' work, and additional work utilizing the further material which is expected to be available within a few months.

Although no plans have as yet been made for continuation of these studies beyond completion of analyses of the data no on hand and definitely in prospect, it is evident that for several years further information of real significance in relation to the epidemic will become available.

A report of the research work carried on under the direction of the Hygienic Laboratory is found on page 58.

MALARIA.

During the past year, field and other investigations were conducted from the office of field investigations of malaria, United States Marine Hospital, New Orleans, La. On June 12, 1919, the headquarters were transferred to Memphis, Tenn., with Surg. L. D. Fricks in charge.

GENERAL ACTIVITIES.

As during the previous fiscal year, the entire staff was assigned to field duties in supervision of intensive control operations at extracantonment zones and other points of immediate importance to the national defense. Of necessity little laboratory and biological malaria work was conducted..

Asst. Surg. Gen. H. R. Carter assumed immediate supervision of activities in the States of Maryland and Virginia. Passed Asst. Surg. R. C. Derivaux was detailed for duty in Nashville, Tenn., and

vicinity. Senior Sanitary Engineer J. A. Le Prince had charge of all matters of special engineering nature in the Eastern, Central, and Southern States. Inspection visits, including surveys of towns where shipbuilding, munition plants, and other essential enterprises had been established, were also engaged in by the various officers.

Activities in connection with malaria investigations have included field surveys, collection of morbidity data with reference to prevalence and geographic distribution of malaria, laboratory and biologic studies, educational demonstrations and lectures.

SURVEYS.

In compliance with requests received from local and other officials and for purposes of special study, visits were made to various points in the Southern States. Lectures were given and detailed recommendations presented to the local officials for the correction of existing conditions favorable to the prevalence of malaria.

The following is a list of points visited in connection with activities engaged in under the supervision of headquarters at New Orleans, La. This does not include, however, the several extra cantonments, military zones, etc., where surveys have been made and where control operations are in progress. A report of the extra-cantonment work will be found on pages 88–93 and 102.

Alabama: Mobile.
Arkansas: Russellville.
Florida: Pensacola, West Palm Beach.
Georgia: Valdosta, Tifton, Moultrie and vicinity, Mitchell County.
Louisiana: Baton Rouge.
Mississippi: Jackson, Clinton, Raymond, Oxford, D'Le Cooper's Well, Clyde.
Oklahoma: Claremore.

RAILROAD WORK (CONTROL DEMONSTRATION).

Sanitary Engineer H. W. Van Hovenberg continued to act as the supervisor of malaria work along the St. Louis-Southwestern line until March 15, 1919, when he was given leave of absence for one year to continue malaria work for this railroad. In May, 1919, Asst. Sanitary Engineer A. F. Allen was detailed to assist in this work. Headquarters were established at Texarkana, Ark. The service participated in or supervised demonstrations of control by mosquito reduction at Tyler, Lufkin, Keltys, Wildhurst, Corsicana, Texarkana, and Pine Bluff; screen work on bunk cars; and quinine prophylaxis (immunization) among bridge and building outfits and extra gangs. Summaries of costs of malaria control work in cities in Arkansas and Texas, summaries of results of malaria control, and tables showing the number of malaria cases treated were submitted to the committee on health and medical relief of the United States Railroad Administration.

SCIENTIFIC STUDIES.

Associate Sanitarian (Reserve) Bruce Mayne [1] engaged in training a corps of women assistants at the medical school, University of Tennessee, Memphis, Tenn., in malaria microscopy for employment in extra-cantonment zones, where malaria index work was conducted.

---

[1] Formerly Biologist M. Bruin Mitzmain.

A visit was made to extra-cantonment laboratories operated by the service in connection with malaria control measures. A detailed report of all data obtained and conditions observed at these laboratories was made by Mr. Mayne.

The results obtained in routine malaria blood examinations during the past year are as follows:

	Examined.	Infected.
Millington, Tenn	289	4
Monroe, La	200	2
Tucker, Ark	355	3
Cummins, Ark	397	1
Vicksburg, Miss	2,362	3
Warren County, Miss	524	1
Miscellaneous, Memphis, Tenn	210	11
Miscellaneous, Louisiana	4	2
Total	4,341	27

Studies of the habits of *Anopheles crucians* in connection with malaria transmission, mosquito trap and bait experiments, and investigations on larval feeding habits were continued by Special Investigator C. W. Metz in Lakeland, Fla., until March 1, 1919. A report on these investigations is being prepared for publication.

MORBIDITY REPORTS.

Circular return postal cards have been supplied during the year 1918 to health officers in the States of Georgia, Indiana, Maryland, New Jersey, Ohio, Oklahoma, Virginia, and East Texas, for the purpose of mailing to physicians in their respective States to determine the prevalence and geographic distribution of malaria. Monthly tabulations of the returned data were prepared, copies of which were sent each month to the bureau and to the health officers of the States concerned. Complete summary reports of all States have been made. There was no circularization of States during the year of 1919.

HEMOGLOBINURIC FEVER.

Reports of cases of hemoglobinuric fever were received from physicians in the States of Georgia, Oklahoma, Texas, and Virginia.

INVESTIGATION OF MALARIA, RICE FIELDS, CALIFORNIA.

In cooperation with the California State Board of Health, intensive studies of the relation of the culture of rice to anopheles propagation and malaria prevalence were begun in the rice districts of California, March 24, 1919. The studies have been carried on under the direction of Epidemiologist J. C. Geiger. Headquarters have been established in Chico, where laboratory space and land for experimental work were secured through local funds.

In Butte County, the oldest rice district in California, four towns have been selected for intensive investigation. Seven hundred and fifty history incidence indices obtained showed a 13 per cent infection. The slide index has not been completed.

Two experimental rice fields near Chico have been obtained for investigation of biological conditions.

MOSQUITO CONTROL, YOSEMITE VALLEY.

At the request of the director of National Parks, Epidemiologist J. C. Geiger and Asst. Sanitary Engineer L. D. Mars supervised mosquito control measures in the Yosemite Valley in the spring of 1919. In April, prolific breeding was found in all stages. Results have been spectacular. In previous years it would have been impossible for visitors to stay in the valley during the months of May, June, and July without much discomfort. One transportation company figures that its loss would have been $100,000 during the season had not control measures been undertaken.

INDEX WORK, CALIFORNIA.

Index work was conducted, on request, for the Durham Land Co. settlement, situated near the rice field district, and in Anderson, Shasta County.

TIDE GATE EXPERIMENTS.

In connection with studies in malaria control and rural sanitation, studies of experimental tide gates applicable to the drainage of tidal marshes were conducted at Green Mill Creek, near Wilmington, N. C., under the direction of Asst. Sanitary Engineer A. W. Fuchs.

ADVICE RENDERED.

Advantage was taken of the experience gained in investigations of malaria to advise official and other bodies, manufacturing plants, railroads, and individuals in regard to the most effective measures for controlling mosquito breeding. Specifications for preventing the creation of mosquito-breeding places in connection with the construction of Federal roads were submitted to the Bureau of Public Roads of the Department of Agriculture.

MALARIA CONFERENCE.

The first annual conference of officers of the service directing the antimalaria campaign was held at Wilmington, N. C., February 17 to 20, 1919. The transactions of the conference are reported in Public Health Bulletin No. 104, now in press.

PELLAGRA.

FIELD INVESTIGATIONS.

At the close of the fiscal year 1918 the following field investigations of pellagra, under the direction of Surg. Joseph Goldberger, were under way:

1. A study of the value of single foods in the prevention of pellagra.
2. A study of factors influencing pellagra prevalence in selected cotton mill villages.

The study of the pellagra-preventive value of certain single foods when added to the diet of a group of inmates in an asylum in which cases of pellagra were ordinarily of frequent occurrence was begun about January 1, 1918, with Asst. Surg. W. F. Tanner in immediate charge, and was still in progress at the close of the fiscal year.

Valuable results, both from the scientific and practical point of view, are expected from this study.

The study of factors influencing pellagra prevalence in cotton-mill villages, first begun in the spring of 1916, has been continued on a much reduced scale during the fiscal year. It is still in progress, but the actual collection of field data is now rapidly drawing to a close.

During the first half of the year six cotton-mill villages were being studied. This number was reduced to one during the second half, but at the same time the study was made much more intensive, the families included being kept under continuous surveillance, especially with respect to household food supply and related factors of an economic character. This particular phase of the investigation is expected to furnish data that will permit of a more than ordinarily close determination of the character of the diet of pellagrous households and of the character of the dietary changes associated with season.

The tabulation and analysis of the field data collected during 1916 has been completed, and reports on the several phases of this part of the pellagra investigations are far advanced in preparation.

Satisfactory progress has been made on preparing for tabulation and analysis the large mass of field data collected in the cotton-mill village study during 1917.

Toward the close of the fiscal year the full report on the experimental production of pellagra in some convicts at the Mississippi Penitentiary farm near Jackson, Miss., unavoidably delayed by the pressure of continued field duties, was completed and submitted for publication.

SPECIAL STUDIES OF PELLAGRA AT SPARTANBURG, S. C.

The special studies of pellagra which were begun in 1914 were continued throughout the year. Both the hospital and laboratory studies were conducted under the general direction of Surg. Joseph Goldberger. Passed Asst. Surg. G. A. Kempf was in immediate charge of the station until September 28, when relieved by Passed Asst. Surg. G. A. Wheeler, who continued in immediate charge during the remainder of the year.

Clinical studies.—As in previous years, the clinical studies were conducted at both the hospital proper and the out-patient clinic.

The hospital patients were received from widely separated points in South Carolina and neighboring States and were resident in the hospital throughout the period of treatment.

The out-patients were received from the immediate vicinity of the hospital, mainly from cotton-mill villages. They were required to visit the hospital for the noonday meal, at which time they were inspected and, once a week, weighed; otherwise they followed their usual customs and habits.

Two principal diets were used—a "special" diet, which was well proportioned, but soft and easily digested, and a "standard" diet, which was a substantial and well-balanced ration. New admissions to the hospital were placed on "special" diet for a variable period, depending upon the degree of gastrointestinal involvement, and then transferred to the "standard" diet. The out-patients were

given the midday meal, which for the greater portion of the time was identical with the "standard" dinner served the hospital patients. The composition of both types of diet were varied from time to time to meet suggestions arising in the course of the studies.

With the exception of occasional medication to meet indications arising from complicating disorders in a few cases, the treatment was purely dietary. All uncomplicated cases of pellagra readily responded to dietary treatment, and the use of drugs of any kind was found to be entirely unnecessary. Those cases in which the pellagrous condition was ingrafted upon a chronic disease, but in which the symptoms of pellagra were not masked by those arising from the primary condition, showed a complete disappearance of the pellagrous symptoms after a stay of a few weeks in the hospital.

The following summaries give the number of patients treated and the results of the treatment:

Hospital.

Under treatment at beginning of year	28
Admitted during year	105
Total treated during year	133
Discharged during the year	107
Remaining under treatment at end of year	26

Of the 107 patients discharged from the hospital during the year 51 were recovered,[1] 45 were improved, 4 unimproved, 1 died, and 6 were discharged after a brief stay in the hospital for the reason that the diagnosis of pellagra was not confirmed.

Out-patients.

Under treatment at beginning of year	28
Admitted during year	17
Total treated during year	45
Discharged during year	42
Remaining under treatment at end of year	3

Of the 42 patients discharged from the out-patient clinic during the year, 19 were recovered,[1] 20 improved, and 3 unimproved.

In addition to the regular admissions to the hospital and out-patient clinic, about as many persons applied at the hospital for consultation and advice. There were also a large number of requests for information and advice by letter or otherwise. Several thousand reprints setting forth the nature, prevention, and treatment of pellagra were distributed among physicians, welfare workers, and others interested in pellagra.

Thirteen claimants were examined for the Bureau of War Risk Insurance. Two were admitted to the hospital for observation in order to complete the diagnosis.

The hospital was converted into a relief hospital for influenza sufferers on October 14, and continued to be used as such until

[1] The term "recovered," as used to indicate the condition of discharged pellagra patients, means that such patients were entirely free of both objective and subjective signs and symptoms of pellagra, and, so far as could be determined, had completely recovered from pellagra before being discharged. Prior to September 28 these cases were included with the "improved."

November 19. Prior to the opening of the hospital for the treatment of influenza patients, all pellagra patients whose physical condition permitted were sent to their homes and the out-patient service was suspended.

Chemical laboratory.—The work of the chemical laboratory consisted in the study of saliva for diastatic power, sulphocyanates, alkalinity, and behavior in various colormetric reactions; of the study of the urine for total nitrogen, urea, uric acid, creatinin, and ammonia; and the study of the alkali reserve of the blood. These studies were begun upon the entrance of the patient to the hospital and continued at frequent intervals to the time of discharge. A bulletin reporting the results of these studies is being prepared for publication.

POLIOMYELITIS.

CINCINNATI, OHIO.

Surg. W. H. Frost was detailed on July 16, 1918, to confer with health authorities of Cincinnati, Ohio, relative to the reported increased prevalence of poliomyelitis in that city.

Nine cases were reported from January 1 to July 20, 1918. Of these cases, eight had occurred since June 20. This number, though considerably in excess of the number usually reported at this season, did not constitute an epidemic. The cases were widely scattered and no fatalities occurred.

The prophylactic measures taken were prompt and satisfactory. Of the eight cases reported after June 20, seven were promptly removed to an isolation hospital.

Recommendations were made for the control of the disease and for the after-care of paralyzed patients.

SMALLPOX.

EPIDEMIC IN LOUDON COUNTY, VA.

Passed Asst. Surg. J. P. Leake investigated an epidemic of smallpox in Loudon County, Va., at the request of State authorities in July, 1918.

Of the 200 cases in the county reported between March and July, only 63 had been attended by physicians, and many of these received medical attention only in the initial stage, the eruption being very slight.

Advice was given that particular stress be laid upon universal vaccinations. Of the 63 cases mentioned, only 1 was stated to have been vaccinated previously. The proportion of the general population which had been vaccinated was estimated at 25 per cent. In the four households where the disease was diagnosed by Dr. Leake, those who had been vaccinated were the only ones immune, with one exception.

TRACHOMA.

The amount of work done in the trachoma hospitals and the field clinics during the past fiscal year has been curtailed, due not only to the great difficulty found in securing the services of physicians and nurses for the work during the war, but also to the necessity of closing all of the trachoma hospitals for several months during the influenza epidemic in the fall of 1918, in order that the doctors and nurses might be used where most needed.

Hospitals.—A well-equipped hospital was opened at La Moure, N. Dak., a few months after the closing of the Coeburn, Va., hospital. The La Moure County commissioners have furnished a building for the hospital rent free, and the State has given $1,200 toward the maintenance of the institution. Although only established since December 13, 1919, 884 patients have already applied for treatment.

The hospital at Welch, W. Va., had practically accomplished the purpose for which it was established and was not reopened after the influenza epidemic. It has been impossible to secure the services of a satisfactory eye specialist, and therefore a suitable place for its relocation has not yet been selected.

The hospital at Jackson, Ky., although opened more than five years ago, is still very active and receiving patients from a wide area. The hospital building has been thoroughly renovated and enlarged.

The hospital at Tazewell, Tenn., established in August, 1916, continues to have a large clinic. During the fiscal year 3,274 patients applied for treatment, 4,581 days' relief were furnished, and a total of 5,815 rations were supplied, notwithstanding the fact that the hospital was closed to all patients for three months during the influenza epidemic.

Patients are being received in the hospitals from practically all over the United States, and satisfactory results are being obtained at all of the institutions.

The following table reports the dispensary and hospital treatment given during the fiscal year:

Dispensary and hospital treatment, operations, etc.

	Jackson, Ky.	Pikeville, Ky.	Greenville, Ky.	Welch, W. Va.	Tazewell, Tenn.	La Moure, N. Dak.	Total.
DISPENSARY RELIEF.							
Old cases, all causes	767	1,074	456	162	2,178	261	4,898
Old cases, trachoma	447	634	333	33	1,367	182	2,996
New cases, all causes	843	1,100	488	185	1,096	623	4,335
New cases, trachoma	145	196	141	19	371	136	1,008
Total attendance	1,610	2,174	944	347	3,274	884	9,233
Total number of treatments	1,693	2,705	977	368	3,416	887	10,046
Average daily attendance	8.9	7.9	3.6	3.8	11.6	4.6	6.7
Cases impaired vision from trachoma	92	180	84	15	153	45	569
Cases corneal opacity from trachoma	76	37	41	14	49	25	242
Cases blindness both eyes from trachoma	0	3	4	0	4	3	14
Cases blindness one eye from trachoma	2	15	11	0	1	6	35
Cases ulcer from trachoma	32	17	38	0	20	1	108
Cases pannus from trachoma	69	111	44	13	52	16	305
Cases entropion from trachoma	29	20	19	4	20	8	100
Cases trichiasis from trachoma	17	18	8	5	17	8	73
Cases photophobia from trachoma	90	116	108	19	142	28	503
Cases conjunctivitis	280	441	192	139	666	176	1,894
Cases glaucoma	1	1	0	0	1	1	4
Cases trachoma cured	32	32	46	10	274	41	435
HOSPITAL RELIEF.							
Cases remaining from previous year	12	19	0	6	14	0	51
Cases admitted during the year	179	414	162	34	468	169	1,426
Cases discharged during the year	183	415	155	40	459	163	1,415
Cases remaining at close of year	8	18	7	0	23	6	62
Days relief furnished	1,848	4,746	1,420	429	4,581	1,939	14,963
Rations furnished	2,774	6,045	2,909	786	5,819	2,736	21,069
OPERATIONS.							
Operations under general anesthesia	34	54	35	5	41	17	186
Operations under local anesthesia	94	178	86	27	439	92	916
Operations with grattage method	103	178	101	24	417	96	919
Operations for entropion	22	20	12	8	38	13	113

District work.—The district work in the hospitals has been conducted as in previous years. Clinics were held by the doctors and nurses in the neighborhoods of the hospitals when they could be spared from the hospital duties. The total attendance at the six institutions during the year was 9,233. One thousand four hundred and twenty-six patients were admitted and treated as hospital patients and 1,102 operations performed. Of this number 186 were under general and 916 under local anesthesia. The total number of days' relief furnished was 14,963, and 21,069 rations were furnished at an average cost of 33 cents.

Field clinics.—It was possible to hold only six field clinics during the year, at which 62 operations were performed.

A number of public schools in cities in central Kentucky were visited. Two thousand nine hundred and forty-seven children were examined and about 60 operations performed at the local hospitals on those found infected.

Extension of work.—Requests for the extension of the trachoma work have been received from a number of States, but all could not be complied with on account of the shortage of physicians in the work. Arrangements have been made with the commissioner of health of the State of Ohio to commence trachoma work there in the immediate future. This State has recently appropriated $10,000 for the next two years for the purpose of conducting trachoma hospitals and clinics in cooperation with the service.

A request from the Indian Service that trachoma clinics be held in the hospitals of the Indian reservations will be complied with as soon as the necessary personnel can be obtained.

Research laboratory.—A research laboratory was established last summer at Pikeville, Ky., where a busy trachoma hospital is located, and an expert bacteriologist, Prof. Wm. B. Wherry, of Cincinnati, was placed in charge. It was necessary for this officer to return to his college duties during the winter months, and as it has been impossible to secure the services of another expert, the activities in the laboratory have been curtailed. Several monkeys were inoculated with trachomatous material and one developed a condition resembling the acute form of this disease, but unfortunately died almost immediately of pulmonary tuberculosis. The other monkeys have so far remained negative to the trachoma infection. It is hoped that at an early date the services of an expert bacteriologist can be secured and the research work again resumed in connection with the Pikeville (Ky.) Hospital.

Since trachoma work is no longer confined to the Appalachian Mountain district, but extends throughout the whole United States, plans have been made to remove the central office from Lexington to Louisville, Ky., which is more centrally located.

ETIOLOGY OF TRACHOMA.

In connection with the trachoma work, Acting Asst. Surg. F. B. Eaton was detailed to survey the State of California for the purpose of investigating the etiological relation of animals and insects to human trachoma, especially as regards scar tissue conjunctivitis in animals.

During the present fiscal year Dr. Eaton will extend his investigations to Kentucky and other sections of the Appalachian Mountains.

TRACHOMA IN CHARLOTTE, N. C.

On request of the State health officer, an examination of reported cases of trachoma in Charlotte, N. C., was made by Surg. John McMullen in July, 1918. A total of 123 cases in the city schools had been reported, but since the schools had been dismissed for the season, and it was necessary to visit the homes, it was possible to examine only 77. Of these, 26 were found to be suffering from trachoma, 9 were suspected of having the disease, and 42 were found to be negative, but showed evidence of follicular conjunctivitis. At the two clinics held, 19 children were operated on under general anesthesia and instructions were given to local physicians for the treatment of other cases.

TUBERCULOSIS.

PROTEAL THERAPY IN FORT STANTON, N. MEX.

Tests to establish the value of "proteals" in the treatment of tuberculosis are being conducted at the service sanatorium for tuberculous men at Fort Stanton, N. Mex.

TYPHOID FEVER.

EPIDEMIC IN SAN ANTONIO, TEX.

An outbreak of typhoid fever occurring in San Antonio, Tex., Surg. J. S. Boggess was detailed to make a study of the sanitary conditions in that city in cooperation with State and local authorities.

Three hundred and seventy-six cases with 57 deaths occurred between February and November, 1918. The greatest degree of incidence was noted during the latter part of July and the first part of August. A large proportion of cases were found in the poorer Mexican quarter of the city. In an examination of causative factors the conclusion was reached that the cases were probably transmitted by flies, but the original source of infection could not be ascertained. Over 20,000 were immunized against typhoid fever, and 12,000 were vaccinated against smallpox. Since all known etiological factors were active when the decline in the number of cases occurred, it is probable that the large amount of immunization done, together with the improved sanitary conditions secured by the surveys, were largely responsible for the rapid decrease in the number of cases.

OUTBREAK IN ELBA, N. Y.

Surg. J. W. Kerr was detailed in July, 1918, to investigate an outbreak of intestinal disease among employees in the vegetable-drying establishment at Elba, N. Y. In six cases the disease proved to be typhoid fever.

The introduction of foreign labor was the probable source of infection. Careful examination was made of the raw materials used, the process of preparation of the food products, and the water supply.

TYPHUS FEVER.

CASES IN NORTH EAST, MD.

In response to a request of the State health authorities, Surg. Joseph Goldberger investigated at North East, Md., in July, 1918, three cases suspected of being typhus fever, occurring in a gypsy family

camped just outside of the village. All of these cases were fatal. Consideration of such data as were available suggested typhus fever as the most probable diagnosis. A careful inquiry into the epidemiological history of this family gave no basis for judging the probable source of the infection. Appropriate sanitary measures were instituted by the local officer.

Industrial Hygiene and Medicine.

Headquarters for studies of industrial sanitation, located in Pittsburgh at the beginning of the fiscal year, were transferred to Washington in October, 1918. At this time the Public Health Service entered into a cooperative agreement with the Working Conditions Service of the United States Department of Labor, whereby personnel of the United States Public Health Service were detailed to constitute the Division of Industrial Hygiene and Medicine, with Passed Asst. Surg. A. J. Lanza in charge. Mr. Bernard J. Newman was placed in charge of the research field work; Dr. C. D. Selby, in charge of plant medicine and surgery; and Pharmacist W. G. Beucler acted as executive assistant. This arrangement was continued until the end of the fiscal year.

The scope of work of the division was rapidly increased and by January 1, 1919, there were field offices in operation in New York, Philadelphia, Pittsburgh, Cleveland, St. Louis, and Chicago.

The personnel in each field office consisted of medical and engineering officers under the supervision of a district director. A great many investigations of hygienic conditions in industrial plants in the vicinity of these field offices were made. In each case recommendations for improvements were offered to the plants and accepted by them, and engineering assistance in carrying them out was not infrequently given by the staff of the division. The division maintained close contact with and often operated through various State departments of labor and industry.

EXPLOSIVES INDUSTRY.

Close cooperation was maintained with the Industrial Service Section, Production Division, Army Ordnance, at whose request numerous shell-loading and explosives plants were investigated as to their hygienic condition and at times as to their mechanical safety. Reports of these investigations were furnished the Ordnance Department, which saw to the enforcing of the recommendations contained therein. Thirty plants manufacturing T. N. T., picric acid, and other chemicals, loading shells and hand grenades, and handling poison gases were included in this work.

SURVEYS IN CLEVELAND, OHIO.

Under the direction of Consulting Hygienist Roger G. Perkins, 16 plants in Cleveland, Ohio, making khaki uniforms and blankets, were investigated, special attention being paid to those handling shoddy. Eighteen plants making bronze and aluminum castings were also investigated.

NIAGARA FALLS, N. Y.

Early in the fiscal year an investigation of the electrochemical and abrasives plants in Niagara Falls was undertaken. This investigation was commenced at the request of the Women in Industry Service

of the Department of Labor, and was carried on in cooperation with them and with the Industrial Service Section of the Ordnance Department and the Niagara Falls office of the Chemical Warfare Service. A thorough examination was made of these plants, chiefly with reference to the possible employment of women as an emergency war measure. A report of this survey by Passed Asst. Surg. (Reserve) Paul M. Holmes, who acted as field director of the investigating personnel, is now in press. Extensive changes were effected in several plants, improving the health of the workers, increasing production, and resulting in financial advantage to the plant.

EAST CHICAGO AND INDIANA HARBOR, IND.

During August, September, and October, 1918, a survey was made of the industries of 18 large plants in East Chicago and Indiana Harbor, mostly metal refineries and steel and iron plants. Supplementary work was done in January and February, 1919, in plants not covered in the original survey.

KALAMAZOO, MICH.

Similiar studies in industrial hygiene, and in medical and surgical relief were made in the industrial plants of Kalamazoo, Mich., at the request of the manufacturers.

PERTH AMBOY DISTRICT, N. J.

At the request of the department of labor of New Jersey, a cross-section study of industries in New Jersey towns bordering on New York Harbor was undertaken. This involved research into the occupational health hazards of a variety of industries, including such plants as smelters, chemical works, foundries, and cigar manufactories.

The survey is practically completed. An industrial clinic is being organized in connection with the Perth Amboy Board of Health. The data collected in this investigation, together with the records of physical examinations, have been made available for the use of plant engineers, and will be published by the service.

THE POTTERY INDUSTRY.

An investigation of the pottery industry located chiefly at Trenton, N. J., and in the East Liverpool district, Ohio, including potteries in western Pennsylvania, West Virginia, and Ohio, was inaugurated in December, 1918. This investigation was made at the request of the National Brotherhood of Operative Potters.

One hundred and sixteen potteries were investigated and physical examinations of over 1,700 men were made, chiefly with the view of estimating the extent of the lead hazard in the potteries. The investigations were conducted under the direction of Passed Asst. Surg. (Reserve) Paul M. Holmes in Trenton, and Associate Sanitary Engineer (Reserve) G. E. P. Wright and Scientific Asst. N. P. Bryan in the East Liverpool district. Medical advice was given to all men having symptoms of lead poisoning or other pronounced physical defects. The report of this investigation is now in process of preparation.

INDUSTRIAL ZONE STUDIES.

At the request of the Army Ordnance Department, sanitary surveys were conducted in several industrial communities. Comprehensive studies were made of municipal sanitation, including water supplies and sewage, and the housing of industrial war workers, notably in such areas as Davenport, Iowa; Moline and Rock Island, Ill.; Kings Mills, South Lebanon, and Lebanon, Ohio, and certain new towns in Pennsylvania engaged in powder production.

NITRO, W. VA.

During the year medical and surgical service and hospital relief were administered by the service at the United States Government Explosives Plant C, at Nitro, W. Va. Passed Asst. Surg. J. A. Watkins was in charge until January, 1919, when he was relieved, because of illness, by Acting Asst. Surg. R. E. Davis.

This work involved the care of the personnel and their families, and became of vital importance during the influenza epidemic. At the peak of this plant's activities complete sanitary supervision and medical and surgical care were furnished to approximately 35,000 persons. With the termination of hostilities, the activities of this plant were gradually diminished, but a staff of six medical officers and 16 nurses is still maintained there.

UNITED STATES EMPLOYEES' COMPENSATION COMMISSION.

The United States Employees' Compensation Commission requested that the service assume advisory and in some instances direct charge of the medical and surgical relief in plants whose employees were judged to come under the Federal compensation laws. Investigations to determine the adequacy of medical and surgical relief were made in several instances, and medical officers were stationed at the United States Nitrate Plant, Muscle Shoals, Ala., and the Richmond Bag-Loading Plant, Seven Pines, Va. A comprehensive survey was made of medical and surgical relief of port employees of the New York and Boston Harbors, and adequate service was established.

VENTILATION STUDIES.

Studies in air condition and in exhaust systems for grinding shops and other dusty processes, including methods of sampling dusty air and counting dust particles, were made under the direction of Prof. C.-E. A. Winslow, of Yale University, consulting hygienist in the service. Several publications were issued during the year and others are in preparation.

MINE SANITATION.

The cooperative studies with the United States Bureau of Mines in miner's consumption and other phases of mine hygiene were interrupted by the war. These studies were resumed toward the close of the fiscal year, and preparations have been made to undertake an extensive investigation of dust and ventilation conditions in some of the Arizona mines. A mining engineer and medical officer have been assigned to this work, and five more medical officers are to be assigned to the mine rescue cars of the Bureau of Mines.

EXAMINATION OF ADOLESCENT CHILDREN.

In cooperation with the division of hygiene of the Children's Bureau, Department of Labor, a study made for the purpose of establishing standards for the height and weight of Southern mill children was continued until the close of the fiscal year. Asst. Surg. (Reserve) W. Byron Parker was detailed to this work.

INDUSTRIAL PHYSIOLOGY.

The investigation of problems in industrial physiology which was begun in the summer of 1917 has been continued actively during the past year under the general supervision of Senior Physiologist (Reserve) Frederic S. Lee, with Associate Sanitarian (Reserve) P. Sargant Florence and Associate Physiologist (Reserve) A. H. Ryan in immediate charge of the investigating staff. Studies of the chemical phenomena of fatigue by Asst. Chemist (Reserve) A. Baird Hastings in the physiological laboratory of Columbia University and muscle tests under Scientific Asst. E. G. Martin have been continued. An extended report of the results of the two years' investigation has been prepared by Special Expert Josephine Goldmark and Scientific Asst. Mary D. Hopkins. Some of the features of the report, which is now in press, are here indicated.

1. *The maintenance of output in day work.*—The many operations observed are classified under the four main types of dextrous handwork, muscular handwork, machine work on lathes, and miscellaneous machine work. The conspicuous feature of the results is the steady maintenance of output in the 8-hour plant in contrast to the fluctuating output of the 10-hour plant.

2. *Lost time.*—At the 8-hour plant, work, with almost full power, begins and ends approximately on schedule and lost time throughout the day is reduced to a minimum. At the 10-hour plant, work ceases regularly before the end of the spell and lost time throughout the day is frequent.

3. *Stereotyped, or fixed, output.*—In the 10-hour plant, artificial limitation of output is widely prevalent. In the 8-hour plant, output varies more nearly with individual capacity.

4. *Industrial accidents.*—The report points out the value of taking into consideration accident risk per unit of output, and presents detailed statistics and charts showing that the two main interacting influences in accident causation are speed of production and fatigue.

5. *Output of the 12-hour night shift.*—Accompanying the 10-hour day system, a 12-hour night shift is the rule. The chief characteristics of this long night shift are the abrupt fall of output in the last two hours and the progressive slowing in the rate of production during the night.

6. *Labor turnover.*—Labor turnover is directly associated with distasteful working conditions, such as long hours, low wages, and undesirable physical surroundings. It is lowered by systematic efforts to improve conditions and fit the workers to their jobs. It is highest among new employees.

7. *The effect of rest.*—The general effect of 10-minute recess periods in the two spells was an increase in hourly output at both the 8-hour and the 10-hour factories, a decrease in the total day's output at the 8-hour plant, and an increase in the total day's output at the 10-hour plant.

8. *Rhythm.*—In lathe work, rhythm appears to be maintained throughout the day in spite of the fatigue which is apparently indicated by physiological tests. Rhythm, therefore, seems to mask the fall in working capacity.

9. *The measurement of fatigue.*—Studies have been continued during the year on the measurement of fatigue by technical physiological methods, the comparison of fatigue in different jobs and the relation of fatigue to output. The examination of the data has not yet been completed.

10. *Illness and accidents.*—Statistics have been gathered on the frequency of illness and accidents in different operations, in an attempt to correlate these with fatigue studies.

Chemical phenomena of fatigue.—Experiments show that fatigue from physical exertion is accompanied by a diminution of the carbon dioxide of the blood plasma, which is proportional to the rate and the amount of the exercise. This diminution is not accompanied by any significant changes in the reaction of the plasma, as measured by its hydrogen ion content. After fatigue is rapidly induced the return of the carbon dioxide to its original concentration is relatively rapid; after fatigue is slowly induced the return is relatively slow, the result pointing to an accumulation of fatigue substances in the body. The acidity of urine, as measured by its hydrogen ion content, does not change significantly in a series of hours in resting men; in factory workers it exhibits a slight increase during the shift; in men performing very strenuous exercise, such as in a Marathon run or a six-day bicycle race, it exhibits a large increase.

Results of muscle tests.—Since the beginning of the investigation, muscle tests under scientific Asst. E. G. Martin have been made on approximately 200 men and 150 women. During the past year the attention of the investigators has been directed chiefly to women, since numerous data had previously been obtained from men.

The results of the study of male workers may be summarized briefly as follows: For each laborious operation in industry there is a "standard" strength which will be approximated by all the workers at the operation who are physically fitted to perform it. Those workers who are unable to measure up to the "standard" strength of the operation will show, whenever tested, a strength which is not only much less than the "standard" for the job, but much below the general average for healthy adult males. This finding is interpreted as showing that operatives who continue at tasks for which they are physically unfitted are doing so at the expense of their physiques, and are likely to suffer. The strength test offers a means of determining in each laborious operation whether any operatives are overtaxing themselves.

Although mild fatigue is probably not demonstrable by means of the strength test a degree of fatigue which is likely to affect productiveness unfavorably is believed to be indicated by a persistent tendency for the strength at the end of the working period to be less than at the beginning. It is found that weak workers are much more likely to show injurious fatigue than are strong workers, and this difference is especially marked in the harder operations. The strength test affords some evidence that fatigue may be cumulative, becoming greater from day to day.

Tests on a single group of operatives indicate that night work tends to impair strength. This study was made on a 12-hour night shift.

No impairment was discoverable in an 8-hour shift working from 4 o'clock to midnight.

Women operatives show a grading of strength in accordance with the laboriousness of their work, but this showing is complicated by the finding that the strength showing in women is very dependent on the habitual mental alertness. Thus women doing heavy lathe work in a factory average less than much smaller women who are employed as clerks, or in other capacities which make greater demands on intelligence.

It appears that tasks requiring close application, whether laborious or not, are among the most likely to show evidence of fatigue by the criterion of the strength test. In easy routine operations only the weaker operatives gave indication of fatigue.

New project of the Scovill Manufacturing Co.—The Scovill Manufacturing Co., of Waterbury, Conn., has decided to establish in its factory a new department for the investigation of problems relating to industrial physiology, and has appointed to its directorship Scientific Asst. A. H. Ryan. Dr. Ryan will enter upon his new duties on November 1, and will devote his entire time to the work. He will have an adequate equipment in laboratory facilities, apparatus and personnel to carry on his researches. This step represents the first of its kind to be undertaken by any industrial extablishment in any country and is the direct outcome of the work of the Public Health Service.

Study of industrial conditions in England and France.—A study of the industrial conditions in England and France was made in the fall of 1918 by Senior Physiologist (Reserve) Frederic S. Lee along the lines of (1) sanitation in connection with explosives industries, (2) the problem of industrial fatigue, and (3) the employment of women in industry.

This work was greatly facilitated by the cooperation of the National Research Council and the assistance of scientific men and Government officials in both England and France.

EDUCATIONAL COURSES.

In January, 1919, Consulting Hygienist Winslow conducted at Yale University an intensive course in industrial hygiene for nine members of the staff of the division. The course lasted three weeks and included both lectures and visits to industrial establishments.

In February, 1919, a similar course of instruction was conducted by Consulting Hygienist E. R. Hayhurst, at the Ohio State University.

During the year assistance was rendered several universities in organizing courses of industrial hygiene.

BUREAU OF WAR RISK INSURANCE.

In April, 1919, at the request of the Secretary of the Treasury, the division assumed charge of the emergency medical and surgical relief of the employees of the Bureau of War Risk Insurance in Washington, approximately 16,000 in number. Rest rooms were installed in the various buildings occupied by that bureau, were adequately equipped, and competent registered nurses were placed in charge. Visiting nurses were also placed on duty, in order to check up absenteeism, with particular reference to the occurrence and spread of communicable diseases. It is expected that this work will be extended to include all of the Treasury Department.

INDUSTRIAL MEDICINE AND SURGERY.

Nineteen industrial establishments were afforded direct service in installing or enlarging systems of medical and surgical relief and in introducing standardized records. In some instances plans for medical and surgical relief rooms were drawn and submitted to the plants. A register of industrial physicians was maintained to assist industries in securing competent physicians and nurses.

SERVICES TO OTHER GOVERNMENT BUREAUS.

In addition to the activities outlined above, cooperative relations were maintained and consulting service rendered to the Women in Industry Service, Children's Bureau, Bureau of Labor Statistics, and the United States Housing Corporation, all under the United States Department of Labor; the Bureau of Standards, and the Federal Board for Vocational Education. Services were rendered the Bureau of Engraving and Printing in a study of an amyl acetate lacquer hazard, and to the Post Office Department in a study of the sanitation of the post office quarters in the Grand Central Station in New York.

SHIPYARD SANITATION.

Following Executive order of July 1, 1918, transferring health activities of the Federal Government relating to conduct of the war to the Public Health Service, arrangements were made for assuming the supervision of activities in connection with the health and sanitation of shipyards under control of the Emergency Fleet Corporation. This transfer of activities from the department of health and sanitation not only placed at the disposal of the shipyards the personnel of the Public Health Service, experienced in public health work, but because of the close relations between the service and the State and local health authorities, made it possible to bring about substantial and immediate improvements not only within the shipyards but in the communities in which the yards were located.

On August 23, Surg. L. L. Lumsden was detailed to assume charge of the health and sanitation work, but arrangements were effected by which Lieut. Col. Philip S. Doane, of the Emergency Fleet Corporation, remained in de facto charge of activities until November 15, 1918, allowing Surg. Lumsden opportunity to become thoroughly acquainted with the measures already taken and the conditions in the yards.

The Emergency Fleet Corporation furnished financial support until February 15, 1919, after which date arrangements were made to meet the expenditures of the work from funds under the control of the Public Health Service.

On November 15, 1918, Surg. L. L. Lumsden became the de facto head of the health and sanitation section. The personnel then on duty were given technical appointments in the Public Health Service, their salaries and expenses until February 15, 1919, being paid by the Emergency Fleet Corporation.

Until the end of the fiscal year the Emergency Fleet Corporation continued to furnish the necessary office space, equipment, and clerical assistance at the home office of the corporation, at Philadelphia, and to provide office space and clerical assistance for the field representatives in the district offices in nearly all instances.

Important changes were made in plans of operation. The personnel of the home office force were given special duties, each officer

specializing in some particular branch or branches of activities. A plan of decentralization was adopted in order that the activities of the field representatives could more directly and effectively meet and regulate the sanitary problems existing in the yards.

In addition to the general plans for promoting health and sanitation in the shipyards, arrangements were made, within the limits of the funds provided, for improving and developing sanitary organizations and conditions in certain communities adjacent to shipyards, where the need for such assistance seemed most urgent.

Hog Island and Harriman, Pa.—Active supervision of health conditions at the Hog Island and Harriman yards was maintained by the Pennsylvania State Board of Health, their representative having a technical status, without compensation, in the Public Health Service.

Chester, Pa.—Because of increased activities in the shipbuilding industry, the population of Chester, Pa., had recently grown from 30,000 to approximately 100,000 persons. Typhoid fever became prevalent in this city in August, 1918. Living accommodations became overcrowded, general sanitary conditions were bad, and health organization inadequate. An inspection conducted by the United States Ordnance Department indicated the necessity for relief. At the request of the State and local health authorities, the Public Health Service organized a sanitary unit in Chester.

A survey was also made and data were collected upon which ordinances for the regulation and control of insanitary conditions were based.

Bath, Me.—Similar work was carried on in Bath, Me., under the supervision of Scientific Asst. C. S. Kingsley.

Shipyard communities on the Gulf coast.—In March, 1919, Epidemiologist F. E. Harrington was detailed to exercise sanitary supervision in shipyard communities along the Gulf.

Shipyard sanitation work was actively carried on in Orange, Tex.; Slidell, La.; and Pensacola, Fla.; and several other southern shipyard communities were visited.

Influenza epidemic.—Medical officers recruited by the service gave assistance during the epidemic. At a number of the yards these officers followed up cases among shipyard workers in the attempt to return them to duty in the yards.

Mosquito control work.—Attention was directed toward the importance of preventing mosquito breeding in the vicinity of shipyards.

Results of activities.—The frequent visits of the field representatives have served to secure many important sanitary improvements. This supervision has likewise stimulated yard managements in their efforts to adopt measures for the promotion of the health of their employees.

Having in mind the fact that shipbuilding in the United States is a permanent industry, the service endeavored, within the limits of the funds and personnel provided, to give a demonstration of the value of industrial hygiene and sanitation as applied to this industry. During the short period of activity ending June 30, 1919, it is believed that the work has been reasonably successful. This success has depended to a considerable degree upon the cooperation of the Emergency Fleet Corporation, State and local health authorities, shipyard officials, and yard employees themselves.

A review of the division's reports warrants the conclusion that the average results obtained have justified the funds appropriated for

the purpose. It indicates further that much remains to be done in order to make this industry, so far as matters of health and sanitation are concerned, attractive and profitable.

Shipyard sanitation activities terminated June 30, 1919.—Because of the failure to secure the necessary appropriations to continue these activities, the work of shipyard sanitation and shipyard community sanitation was terminated as of June 30, 1919, and the services of the personnel engaged in this work were discontinued on that date.

Public Health Organization and Administration.

STUDY OF COUNTY HEALTH ORGANIZATION.

The study of rural health administration in Edgecombe County, N. C., was continued during the fiscal year. Passed Asst. Surg. K. E. Miller served as acting health officer until May, 1919, when Acting Asst. Surg. W. B. Robertson was appointed to this work. Rural health administration is a comparatively new field of work. In a bulletin on this subject to be published during the coming year, it is pointed out that the county is the logical unit for rural health administration; that the ideal county health department should consist of (1) a full-time health officer, (2) at least one public health nurse, and (3) at least one sanitary inspector, and that even the smaller counties should be able to afford this ideal.

The work done by Passed Asst. Surg. Miller in Edgecombe County was the outgrowth of observations made in 12 counties in various parts of the country where full-time health organizations were in more or less successful operation.

A municipal pasteurization and distributing plant for milk has been in operation during the past year in Tarboro, the county seat. This plant is self-sustaining and demonstrates the fact that pasteurization, and therefore a safe milk supply, are within reach of even the small towns.

NEW MEXICO.

A survey of sanitary organization and administration in New Mexico was made by Surg. J. W. Kerr in September and October, 1918, at the request of the State health officers. The recommendations submitted led to the establishment, by legislative enactment, of a State department of health. In January, 1919, Surg. Kerr was detailed to aid the health authorities in drafting a bill providing for the establishment of a New Mexico Health Department. Passed Asst. Surg. C. E. Waller was detailed in June, 1919, to act as State health commissioner of New Mexico to assist in the organization of this department.

MINNESOTA.

In compliance with the request of the Minnesota State Board of Health, Senior Sanitary Engineer E. B. Phelps conducted in July, 1918, a study of the organization and activities of the division of sanitation of that board. Recommendations in regard to the scope of the activities of the division and the proper future extension of these activities were made.

TEXAS.

A study of public health conditions in the State of Texas was conducted by Surg. J. W. Kerr, in January, 1919, on request of the State health authorities. A report, including a résumé of the present

laws relating to public health and suggested improvements for the reorganization of the State board of health, was made.

DALLAS, TEX.

On the request of the local authorities, Associate Sanitary Engineer (Reserve) Leslie B. Frank was detailed in May, 1919, to Dallas, Tex., for a period of one year to conduct a study of intensive health administration, and to act as city health officer.

YOAKUM, TEX.

A preliminary sanitary survey of Yoakum, Tex., was made by Asst. Sanitary Engineer (Reserve) W. R. Bryce-Delaney in March, 1919, in accordance with requests from the State and municipal health officers.

BOSTON, MASS.

In response to requests by the mayor and health commissioner of Boston, Surg. (Reserve) W. H. Price is making a study of the Boston city health department and is cooperating with the health commissioner in devising and putting into effect methods for increasing the efficiency of health administration in that city.

COOPERATION WITH INDIAN SERVICE.

As in the past, examinations of specimens to aid in the diagnosis of communicable diseases have been made at the service laboratories for physicians of the Indian Service. The work includes ordinary examinations and tests of a bacteriological nature.

Antityphoid vaccine is furnished through the Hygienic Laboratory to the Office of Indian Affairs on request.

COOPERATION WITH HAWAIIAN AUTHORITIES.

The service has cooperated with the Territorial board of health of Hawaii in the examination and medical care of patients.

COOPERATION WITH PORTO RICAN AUTHORITIES.

At the request of the Governor of Porto Rico, Asst. Surg. Carl Michel was detailed for duty with the Institute of Tropical Medicine and Hygiene of Porto Rico. This detail was in addition to his duty as chief quarantine officer for Porto Rico.

The institute is an organization of the Government of Porto Rico for the study of diseases peculiar to that country and climate.

MILK.

In an endeavor to assist in the national development of safe milk supplies, the service has conducted such studies as were practicable, with a view to encouraging universal pasteurization and adequate inspection of production and distribution of milk and milk products. Inspections of milk plants have been made upon request and specific recommendations furnished the proper authorities. The following special studies were also conducted:

MILK SUPPLY OF BOSTON, MASS.

A study of the Boston milk supply was made at the request of the Boston health commissioner by Surg. (Reserve) W. H. Price, in February, 1919. A program was formulated for arriving at adequate

control according to the Public Health Service requirements adopted for milk and ice-cream supplies for seven southern extra-cantonment zones. Advice was also given regarding the milk supply of Brookline, Mass., by Surg. Price, necessary to effect a harmonious system for Brookline and Boston.

MILK SUPPLY IN FRAMINGHAM, MASS.

A study of the possibility of organizing a community milk-handling company in Framingham, Mass., was made by Associate Sanitary Engineer (Reserve) A. F. Stevenson in December, 1918, at the instance of the National Tuberculosis Association representative in that city.

On request of the Framingham Community Market Association, suggestions for incorporation in a milk ordinance were submitted.

INSPECTION RECONSTRUCTED MILK PLANT OF WAR DEPARTMENT CAFETERIA.

Inspections of the reconstructed milk plant at the Henry Park Cafeteria of the War Department have been made from time to time, and bacteriological and chemical tests of the milk powder have been sent to the department authorities with appropriate recommendations.

RECONSTRUCTED MILK PLANT AT NITRO, W. VA.

Studies in connection with the reconstructed milk plant at Nitro, W. Va., were continued. Mention of this work is made on pages 63–65.

Child and Mental Hygiene.

Field investigations of child and mental hygiene have continued during the year under the direction of Asst. Surg. Gen. (Reserve) Taliaferro Clark.

CHILD HYGIENE.

Because of the importance of health work directly related to the successful prosecution of the war, the service activities in the field of child hygiene have been necessarily restricted to routine procedure during the fiscal year except as relates to the sanitation of the civil districts adjacent to the several military camps and naval bases. As a part of the general plan of the control of communicable diseases, careful health supervision of the schools in these districts was maintained during the past year, 168,357 children being examined for the presence of communicable diseases and incidentally for the detection of hampering physical defects. Of this number 25,483 were found suffering from physical defects in such degree as to require medical, surgical, or urgent dental attention.[1]

The work in these schools was supplemented by visits to the homes by nurses, not only in follow-up work from the schools but also in the course of their investigations of cases of suspected communicable diseases reported by physicians and the health authorities. Where such procedure was practicable and warranted, advantage was taken of the opportunity to instruct parents in matters relating to the health of infants and of the children of preschool age.

---

[1] Does not include the many children encountered who were in need of dental prophylaxis and minor dental corrections.

Infant-welfare clinics were established in eight of these sanitary areas and three dental clinics for school children were also established. The service provided physicians for medical examinations and nurses necessary for clinic and follow-up work. The establishment of the clinics furnished proof of the value of cooperation by volunteer agencies, without whose assistance this work could not have been satisfactorily undertaken. In one small extra-cantonment town alone over 500 babies were examined and advice given to mothers for their care during a period of 18 months. The number examined constituted a very large percentage of the total number of the babies in this community.

MENTAL HYGIENE.

A program for dealing with problems of mental hygiene as related to public health from a national viewpoint was prepared by the service during the year and submitted for suggestions to about 50 men eminent in matters of mental hygiene. The investigations outlined in this program will be taken up by the service as rapidly as facilities permit. A record of the special studies conducted during the past fiscal year is given below.

Physical and mental study of delinquent women in the State Industrial Farm for Women, Lansing, Kans.—Intensive psychiatric studies were carried on at the State Industrial Farm for Women at Lansing, Kans., as a part of the venereal disease control program in the extra-cantonment zones of the State to determine the presence of mental and physical diseases and psychopathic disorders among the sexual delinquents confined in this institution under State law, and to study the so-called normal periods of their lives in regard to the minor traits of personality conducive to antisocial conduct.

As a result of the physical examinations, it was found that these sexual delinquents had but a limited comprehension of principles of personal hygiene, more than one-half needing dental attention and quite a number suffering from defective hearing due to impacted wax. One-sixth of those examined needed surgical treatment of the tonsils, and an equal number were in need of correction of defective vision by glasses.

It was found that syphilis was of frequent occurrence among these individuals, but that syphilitic involvement of the heart and of the nervous system and mental diseases due to syphilis were not. Almost 95 per cent of them had suffered at some time from gonorrhea, and evidences of a number of surgical operations for the relief of conditions caused by this disease were manifest.

The average mental age of the white women studied was 11.3 years and of the colored 10.6 years. The individual mental ages, however, varied considerably, which should be taken cognizance of in the establishment of schools for the reformation of delinquent women and girls in order to make provision for the proper individual training of the delinquents of different mental ages.

Of the 147 white women studied 76, or 51.7 per cent, and of the colored women 33, or 56.8 per cent, were suffering from mental disorders provocative of social maladjustment. Of the total 206 individuals studied, 109, or 52.9 per cent, were suffering from mental disorders that were in direct relation to the practice of prostitution by them.

The personality studies of these delinquents revealed three large character groups comprising a total of 143 cases, namely, (*a*) those with an exaggerated estimate of self, which prevented a proper mental and social development; (*b*) those with a diminished interest in the pursuits and occupations of others; and (*c*) those evidencing mood disturbances, undue activity, and increased stimulability interfering with conventional adaptation. In addition to this group of 143 cases, there were found 12 others of allied personalities, leaving but 49.3 per cent of those studied with normal mental "make-up".

Physical and mental study of delinquent women in Louisville, Ky.—A physical and mental study of 100 delinquent white women was made in the city of Louisville, Ky., during the months of March and April, 1919. Most of the subjects examined were inmates of the Jefferson County jail with about 10 per cent from the other institutions of Louisville who had been committed under the State law for the control of venereal diseases.

As a result of the physical examination, 95 persons were regarded as having fair or good development, 5 as having poor development. Eighty-five were regarded as being well or fairly well nourished, and 15 as being poorly nourished. Of these 15 persons, 9 were the subjects of both syphilis and gonorrhea, 2 had signs of pulmonary tuberculosis, 1 had pulmonary emphysema, and several had been users of alcohol, morphine, and cigarettes to excess.

As a result of psychiatric and psychologic studies the 100 women were grouped as follows:

	Per cent.
Feeble-minded	38
Constitutionally inferior	43
Epileptic, with intellectual inferiority	1
Allied to epilepsy	2
Dementia precox	1
Normal (probably)	7
Unclassified	1

The mental ages of those examined according to the modified Binet-Simon scale were:

Under 10 years	41
10 years and under 12	50
12 years or more	9

Wassermann tests were negative for syphilis in 57 cases, and in 6 the test was 1 plus, in eight, 2 plus, in eight, 3 plus, and in 21, 4 plus. Smears from 81 of those examined were positive for gonococci, and in 2 cases the microscopic evidence was doubtful.

These studies at Langsing, Kans., and Louisville, Ky., are important from the standpoint of venereal disease control in that they show the very high percentage of active Neisserian infection among the women examined, reveal evidences of syphilitic infection at some time in the career of a large number of them, and strongly emphasize the fact that the personality or mental make-up of the individual sexual delinquent, in addition to mental disease or defect, must be taken into consideration in inaugurating measures for their training and reformation.

Neuropsychiatry section in the medical division of the Bureau of War Risk Insurance.—On March 1, 1919, a section of neuropsychiatry was organized in the medical division of the War Risk Insurance Bureau under the direction of one of the officers of the service formerly engaged in field investigations of mental hygiene.

Rural Sanitation.

Special studies of and demonstration work in rural sanitation were continued under the direction of Surg. L. L. Lumsden.

The counties in which rural sanitation work was conducted in the fiscal year 1919 were 35, as follows: Bibb, Dekalb, Glynn, Muskogee, and Walker Counties, in Georgia; Calhoun, Madison, Lauderdale, Colbert, and Talladega Counties, in Alabama; Cumberland, Edgecombe, Wake, and Durham Counties, in North Carolina; Charleston County, in South Carolina; Davidson and Hamilton Counties, in Tennessee; Harris, McLennon, Orange, and Tarrant Counties, in Texas; Harrison County, in Mississippi; Mason County, in Kentucky; Ottawa County, in Oklahoma; Cherokee County, in Kansas; Jasper County, in Missouri, and Norfolk and eight other counties, in Virginia.

One of the primary objects of this rural sanitation work has been to assist in the establishment of a permanent, adequate health organization in the counties in which demonstrations were conducted, such organization to be financed wholly or in great part by the counties. This object has been attained in practically all of the counties in which work has been carried out.

In each of these counties the expenditures of the service for the demonstration were met by at least an equal amount of funds furnished from State and local sources. To the majority of these counties the work was extended because the county comprised wholly or in part a rural area adjacent to a cantonment or to some large and important war industry. In these areas the work not only subserved its normal purpose of improving rural conditions, but also operated to furnish immediate protection to a large number of troops or of workers in munitions factories. In view of the critical importance of sanitary measures in such localities, a highly intensive plan of work was carried out in each of the communities comprising as a rule an area 5 miles wide around the camp or the factory. The phases of sanitation concentrated upon in these situations were antimalarial measures and antityphoid measures, such as excreta disposal, protection of water supplies, removal of stable manure, garbage, and other fly-breeding material. In each of the areas an improvement of 75 to 100 per cent was accomplished in the methods of disposal of human excreta. This result alone was clearly an important factor in the prevention of intestinal diseases among the military forces and the civilians in each community.[1]

AFTER WAR PROGRAM.

Among the results of the rural sanitation work of the service prior to 1917, comprising a complete sanitary survey of 18 counties situated in 16 different States, were (1) the determination of improved methods and (2) the development of a small force of specially trained workers. Both of these results helped very materially to make possible the rural sanitation work which was critically needed when the war began. With the termination of the active period of the war the establishment of lasting examples of rural health work instead of an effort to meet quickly temporary emergency situations became primary. As the sundry civil bill carrying the appropriation for rural sanitation in the fiscal year 1920 was not enacted before the end

[1] A brief report of the rural sanitation work in extracantonment zones will be found on page 98.

of the fiscal year 1919, the formulation of a detailed program of work was necessarily delayed. Beginning in the early spring of the calendar year 1919, however, steps were taken as rapidly as was practicable to distribute the work with a view to obtaining the best results in rural sanitation possible from the amount of money appropriated. On this basis the work at the end of the fiscal year was in progress in the following counties: Charleston County, S. C.; Cumberland, Edgecombe, Durham, and Wake Counties, N. C.; Glynn and Walker Counties, Ga.; Harrison County, Miss.; Madison and Talladega Counties, Ala.; Mason County, Ky.; Ottawa County, Okla.; Cherokee County, Kans.; Jasper County, Mo.; Hamilton County, Tenn., and eight counties in Virginia.

The work in these counties during the fiscal year 1920 is to be carried out with money from local or State sources in the proportion of from $1 to $5 for every dollar allotted from Federal funds. In Virginia, however, the allotment from the Public Health Service is met by an equal amount allotted by the State board of health and by an amount furnished by the counties equaling the combined allotments of the service and of the State board of health.

The value of intensive public health work is shown in Madison County, Ala., for example, where a demonstration in rural sanitation was begun in January, 1918. There were 18 deaths from typhoid fever in 1916, 20 in 1917, contrasting with 10 in 1918 and 1 in the first six months of 1919. It is interesting, also, to note that only one case of typhoid has been reported this season up to July 1 in Chattanooga, Tenn., and vicinity, a district in which the incidence of the disease has previously been very high.

Stream Pollution.

Investigations of stream pollution, begun in 1913, were discontinued during the summer of 1917 in order to release the personnel thus engaged for more urgent duty in connection with various war-time activities of the service, chiefly the sanitation of extra-cantonment zones.

The organization thus dispersed has not yet been reassembled, and activities in these investigations during the year have been confined to work by Surg. W. H. Frost and Associate Sanitary Engineer H. W. Streeter on data collected up to 1917. Even this work was unavoidably interrupted owing to exigencies arising from the influenza epidemic.

Early in the next fiscal year a considerable part of the original personnel will be reassembled at Cincinnati, Ohio, and the interrupted studies will be resumed. The first work to be undertaken will be completion of a comprehensive report on the studies so far completed and the further development of laboratory studies previously begun. Active field work, probably extending the studies to other watersheds, will be begun later in the year.

Industrial Wastes.

Industrial waste studies were conducted under the general direction of Prof. E. B. Phelps, Chief of the Division of Chemistry, Hygienic Laboratory, until his resignation, which took place February 28, 1919.

DISPOSAL OF CHEMICAL WASTES, SPRINGFIELD, N. J.

A study has been undertaken which has for its object the working out of a suitable procedure for the disposal of certain chemical wastes at Springfield, N. J. A process of treatment has been developed which offers a solution which is entirely satisfactory from the point of view of protecting the stream, although somewhat more expensive in its operation than would under other circumstances be deemed desirable. It is possible under this treatment to remove over 99.5 per cent of the color and practically all the odor of the waste liquors.

WASTES OF GOVERNMENT POWDER PLANT, NASHVILLE, TENN.

A special commission of the service was appointed on request of the War Department to investigate the effect upon the water supply of Nashville, Tenn., of the discharge of acid wastes from a Government powder plant located in that vicinity. Two of the three members of the commission subscribed to the conclusion that the cheapest and most practicable method of safeguarding the waters of the Cumberland River and the water supply of Nashville would be to adopt the following policy: First, provide for the partial neutralization and storage of the acid wastes at the Old Hickory works; second, improve the present chemical treatment of the water supply; and third, assure adequate treatment for the sewage of the Old Hickory settlement. Detailed recommendations were sent to the War Department.

POLLUTION OF DRINKING WATER BY PHENOL WASTES, MILWAUKEE, WIS.

An investigation was made and a report submitted concerning the pollution of the water supply of Milwaukee by wastes from a phenol plant.

TANNERY WASTES.

Studies of tannery wastes at Luray, Va., were continued during the year.

PUBLICATIONS.

A brief digest of experimental work concerning the disposal of creamery wastes and a bulletin dealing with the treatment and disposal of strawboard waste and the determination of bio-chemical oxygen demand of industrial wastes and sewage have been published. A bulletin on the purification of tannery wastes has been sent to press.

Cooperation with Capital Issues Committee.

Cooperation of the service with the Capital Issues Committee in passing upon the public health value and immediate need of bond issues for sanitary improvements was continued until the signing of the armistice. Such advice was given in the case of projects in not less than 45 cities from July 1 until the close of the war, in some cases involving an expenditure of millions of dollars.

Excreta Disposal.

At the conference of State and Territorial health officers with the United States Public Health Service (1918), a resolution was adopted recommending the appointment by the service of a sewage disposal

board for the purpose of standardizing methods for the sanitary disposal of human excreta in rural districts.

PERSONNEL OF BOARD.

Pursuant to this request a board on excreta disposal was convened with the following personnel:

Edwin O. Jordan, professor of bacteriology, University of Chicago, senior sanitarian (Reserve), United States Public Health Service.

L. L. Lumsden, surgeon, United States Public Health Service.

Earle B. Phelps, senior sanitary engineer (Reserve), United States Public Health Service, secretary.

W. S. Rankin, secretary of State board of health, Raleigh, N. C., and surgeon (Reserve), United States Public Health Service.

C. W. Stiles, professor of zoology and directing zoologist (Reserve), United States Public Health Service, chairman.

Victor C. Vaughan, professor of bacteriology, University of Michigan, and Assistant Surgeon General (Reserve), United States Public Health Service.

George C. Whipple, professor of sanitary engineering, Harvard University, and senior sanitary engineer (Reserve), United States Public Health Service.

Headquarters were established at the United States Marine Hospital, Wilmington, N. C. Present plans involve a study of the problem from various standpoints, as agriculture, administration, bacteriology, chemistry, construction, engineering, entomology, finance, law, maintenance, scavenging, and zoology.

AGRICULTURE.

Experiments with untreated night soil have been planned in cooperation with the United States Department of Agriculture. It is agreed that if human excreta are permitted at all as a fertilizer it will be best to avoid their use in specialized types of agriculture, especially in truck gardening and in growing food plants generally, and to confine their use to fodder plants, especially grasses, and to nonedible growths.

BACTERIOLOGY.

Experimental work has been concentrated on the chemical treatment of human excreta. Caustic soda (commercial) was used as the disinfecting agent in percentages from 0.25 to 3 per cent.[1] Results obtained by adding the caustic in a solid state were unsatisfactory, except in the barrels containing enough fluid to give a complete solution. In consequence of the numerous experiments at Wilmington, it is assumed that from a bacteriological point of view a 3 per cent[1] concentration of commercial caustic soda is a cheap, efficient, and safe disinfectant for human excreta, even when in the resistant condition obtaining in surface privies.

Experiments have also been made with sodium bichromate with excellent results. A lower percentage concentration can be used which will make this chemical as cheap and possibly cheaper than caustic. It also possesses the additional advantages of being noninjurious to clothing and the human body.

Both caustic soda and sodium bichromate markedly decrease the nuisance from odor. Fly larvæ are inhibited to a certain extent.

Fermentation experiments with human excreta and studies on soil pollution from pit privies have been started.

---

[1] The percentages given are volume percentages.

ENGINEERING.

The engineering problems involve not only construction and maintenance of privies, but the organization and maintenance of scavenging services and the construction and the maintenance of disposal plants. Field studies have brought to light certain definite faults. The board has two sanitary engineers engaged in experiments in an effort to remedy these faults.

ENTOMOLOGY.

In cooperation with the Bureau of Entomology, Department of Agriculture, the board is studying the insect problems involved in recent burial experiments in Wilmington. The point was developed that flies issue in enormous numbers from buried excreta. Birds contribute materially to keeping down the number of flies, but whether they potentially distribute infection is not as yet established.

Large numbers of determinations and of breeding experiments have been made. There were reared in Wilmington from privy contents a total of 20 species of flies, six of which are not found recorded in the available literature at hand.

Complete life histories and methods for control of the insects breeding in privy contents are now in progress, also a graph illustrating seasonal fly prevalence in Wilmington and the distance of flight of the house fly.

LEGAL.

All laws, ordinances, regulations, and court decisions are being collected on excreta disposal with a view to suggesting model laws, ordinances, and regulations for States, counties, and cities.

The organization of county (or other) health departments to administer local health work, including installation of privies and the necessary follow-up work, is of the greatest importance.

MAINTENANCE AND SCAVENGING.

The general disposition in privy campaigns has been to emphasize construction rather than maintenance. There is no such thing as a privy which is self-maintaining. In general, one must choose between (*a*) an initial higher cost with subsequent lower cost of maintenance and (*b*) initial lower cost with subsequent higher cost of maintenance.

The board emphasizes the point that unless efficient scavenging is arranged for, both the pail system and the vault system are likely to give dissatisfaction.

ZOOLOGY.

Studies on disinfection of spores and eggs are under way.

Cooperation with Bureau of Chemistry.

Cooperation with the Bureau of Chemistry, Department of Agriculture, was continued, Surg. M. V. Glover being detailed to that bureau as in the previous fiscal year for the enforcement of the Sherley amendment to the food and drugs act of 1906.

Leprosy Investigative Station (Honolulu, Hawaii).

On September 26, 1918, Acting Asst. Surg. J. T. McDonald was appointed director at the leprosy investigative station, in Honolulu, Hawaii, succeeding Acting Asst. Surg. H. T. Hollmann, resigned.

Activities during the past fiscal year have been directed chiefly to the intensive experimental treatment of 75 patients at the Kalihi Hospital. Of all remedial measures employed, the derivatives of chaulmoogra oil have given the most encouraging results. Every one of these patients has shown some improvement, a large percentage are making very favorable progress, 20 have already been released on parole, and about 20 more will come before an examining board within a few weeks for the same purpose.

The work receives the most cordial support and harmonious cooperation both of the Hawaiian Terrritoial Board of Health and the College of Hawaii, the chemical laboratory of the latter institution being most generously offered for the elaboration of the chaulmoogra oil products under the immediate supervision of Dr. A. L. Dean, president of the college.

In this laboratory four fractions of fatty acids from chaulmoogra oil have been isolated, and in the form of ethyl esters are administered intramuscularly.

Patients receive weekly injections beginning with from one-half to 1 c. c., gradually increasing the dose up to a maximum of 5 c. c. Results obtained thus far do not allow a definite statement of the relative therapeutic value of these different fractions. Other methods of fractioning the oil are being tried, and injections are being made of fractions prepared by converting the whole oil into the mixed ethyl esters and distilling at reduced pressure. Still another treatment is being given with mixed ethyl esters carrying combined iodine.

Results thus far obtained indicate that the therapeutic action of chaulmoogra oil and its derivatives is not due to the presence of a small quantity of some substance not a fatty acid or an ester thereof. A working hypothesis is that the action is due to the specific effect of the optically active fatty acids of the chaulmoogric acids series, which constitute a unique type of fatty acid.

In addition to the 75 patients above mentioned, some 50 others have during the year been under the care and treatment of the officers of the station. Of these 50, the majority were on entrance very advanced cases of long standing with irremediable deformities and mutilations. All of these have been benefited by palliative treatment. Although they are unpromising cases for a cure, nevertheless, during the six months the law allows them to remain at Kalihi before being transferred to the Molokai Settlement, under the stimulus of a wholesome and general diet, ferruginous tonics (which always include strychnine), hot baths, heliotherapy, surgical dressings, cauterizations with trichloracetic acid, etc., their condition wonderfully improves. Ulcers heal, a fair measure of strength returns, they gain in weight, and life is rendered more endurable, and even comfortable, to these unfortunates.

Confused and contradictory statements appear in the literature relative to the origin of the chaulmoogra oil of commerce. Various lots obtained are markedly different. An important step is now being taken toward clearing the matter up. Prof. Rock, of the College of Hawaii, a botanist of wide experience, is traveling in the Orient in

the interest of the Hawaiian Sugar Planters' Association to secure seeds of forest trees for experimental planting in Hawaii. Because of the very encouraging results of the treatment now being administered by the United States Public Health Service at Kalihi Hospital, the association felt justified in paying Prof. Rock's expenses from Singapore up into Burma, the native habitat of the trees, notably, *Taraxtogenos kurzii*, from which the best oil is said to be obtained. He will investigate the whole subject of the production of the oil, including the botany involved, the gathering of the nuts, expression of the oil, etc., and bring back seeds and cuttings for planting.

Hygienic Laboratory.

Personnel.—Surg. George W. McCoy continued in his position as director of the Hygienic Laboratory.

The following personnel were attached to the station at the close of the fiscal year:

The director, assistant director, executive clerk, 2 professors, 5 surgeons, 6 passed assistant surgeons, 1 assistant surgeon, 2 pharmacists, 6 technical assistants, 1 artist, 2 bacteriologists, 4 sanitary bacteriologists, 2 physiological chemists, 2 organic chemists, 1 pathological physiologist, 1 special expert, 1 physiologist, 1 pharmacologist, 2 assistant pharmacologists, 1 assistant chemist, 2 assistants in chemistry, 3 scientific assistants, 4 laboratory aids, 3 technicians, 8 clerks, and 33 attendants.

A number of changes in personnel in the way of appointments and resignations took place owing to the exigencies of work and the unusual conditions that prevailed during the war. At the close of hostilities it became necessary to suspend certain investigations that were carried on in connection with war activities, and the personnel engaged thereupon were put on other lines of work as conditions permitted. Among the resignations was that of the professor of chemistry and his chief assistant. The laboratory also lost the services of a number of highly trained experts and skilled assistants. These resignations were the result of the demand for experts in commercial establishments, who offered much better financial inducements than could be offered by the service.

Buildings and grounds.—A new building intended especially for work on biologic products was begun in the spring of 1919, and it is expected will be completed about the 1st of January. This building is 208 feet long, 62 feet high, and has two small wings from each end and provides available floor space of 27,500 square feet. It is two stories in height with basement and attic. The building is fireproof to the floor of the attic. The cost of the building is approximately $250,000.

Aid to other institutions.—As heretofore, aid has been tendered in a large number of instances to institutions, not only governmental but private. This aid was freely extended in all cases where it related to matters covering the public health.

As in the preceding year, a large number of inquiries, together with specimens, were received in connection with the intelligence services, particularly of the Army and Navy. These were of a confidential nature and the reports were made directly to the officers interested.

Upon the close of hostilities many institutions applied for cultures for restocking their laboratories. The practice of sending out cultures

was much restricted during the war owing to the possibility of some of the more dangerous cultures reaching the hands of the enemy.

During the fiscal year just closed, 643 cultures were sent out as against 531 for the preceding year, the majority of the cultures being distributed since the close of hostilties. As in the past, the very dangerous organisms, such as plague, cholera, anthrax, and malignant edema, were not distributed except in rare instances, and then were given only to highly responsible and well-known institutions.

A limited number of examinations and tests were made on emergency for miscellaneous applicants. All these pertained to the conserving of public health, and in no case was an examination undertaken where it seemed feasible to direct the inquirer to apply to a local physician.

DIVISION OF PATHOLOGY AND BACTERIOLOGY.

The beginning of this fiscal year found the work of this division devoted entirely to the study of problems and to the performance of routine testing growing out of the large demand made by war conditions for biologic products. Since the conclusion of hostilities the work has again, so far as possible, turned to more purely research lines, although some of the routine testing which grew out of war conditions will have to be continued indefinitely. This refers especially to antimeningococcus, antipneumococcus, and antidysenteric serums.

The especial lines of investigation have been as follows:

Influenza.—When the pandemic reached the United States in the autumn of 1918, and as soon as it became clear that an epidemic of serious proportions would prevail, all other research work was dropped and efforts concentrated on the study of influenza. In the laboratory a large number of inoculations of monkeys and other animals were carried out, using material from cases and cultures of organisms isolated from cases, but without any results of importance.

Three series of attempts at human inoculations were made in conjunction with the Navy medical service—one in San Francisco, Calif., and two at Boston, Mass. Secretions and other material from cases and cultures of the influenza bacillus and of other organisms were used for inoculation purposes, but results were on the whole negative and contributed nothing noteworthy excepting to show the difficulty of artificial transmission of the disease.

A large amount of work was done to determine the prophylactic value of vaccines made from the influenza bacillus and those containing this organism, together with various organisms which were regarded as secondary invaders and probably as the cause of the pneumonia which so often complicates influenza. The only experiments along these lines which are considered of real value were those in which a portion of the personnel in a group or in an institution was inoculated some days prior to the entrance of infection to the group or to the institution. Under these controlled conditions the vaccines which were tried failed to influence either the morbidity or the mortality of the disease.

The service was fortunate in being able to secure at Chicago the services of a considerable group of workers to take up special cultural, serological, pathological, and clinical problems. This group, under Prof. Hektoen, rendered excellent service, and a number of interesting reports bearing on their work have been submitted and published.

When the service emergency influenza hospital was established in Washington three medical officers from the laboratory took charge of ward services at the institution and continued in the care of the patients until the epidemic waned.

Pneumonia.—Studies of pneumonia have had to do chiefly with the investigation of the prophylactic value of a vaccine containing organisms of the three fixed types of the pneumococcus and embraced both field and laboratory investigations. The vaccine used was furnished by the Army Medical School, Washington, D. C.

The field studies were as follows: Portions of groups of employees at the Bureau of Engraving and Printing, Washington, and at the Youngstown Sheet & Tube Co., Youngstown, Ohio, were vaccinated, and arrangements were made for the keeping of proper records so that at the end of the period of observation it would be possible to determine what immunity, if any, had been conferred. In each of these institutions only a small percentage of the employees consented to be vaccinated; in each only about 10 per cent volunteered for the inoculations. This number is too small to permit of any very definite conclusions from this work.

A more promising experiment was undertaken in connection with the New York State Department of Health, through which arrangements were made for the inoculation of approximately one-half of the patients and staffs in the various State hospitals of New York. About one month was required for the performance of the inoculations, and data on the incidence and on the nature of cases of pneumonia that occur subsequently are being collected by two medical officers. At present the indications are that a considerable degree of protection has been afforded. This is in accordance with observations made elsewhere.

Laboratory studies relating to pneumonia, aside from the routine testing of antipneumococcus serum, have been directed especially toward determining a satisfactory test for the antipneumococcus vaccine, particularly that suspended in oil and known generally as lipo-vaccine. Both serological and protection tests indicate that vaccine prepared in this manner is, so far as animal tests are concerned, less effective than one suspended in saline solution. Recommendations for license for the commercial production of antipneumococcus vaccine have been withheld until satisfactory methods of potency testing become available.

Meningitis.—Much time and energy have been expended in the testing of samples of commercial serum as each bottle must be approved at this laboratory before being released for sale. In general, products now going into the American market are of high quality, and a continuance of the present method of control will insure their maintenance on this high plane.

Purely research studies under this heading have been confined chiefly to the grouping of meningococcus cultures secured from various sources. Efforts have been made to classify them by complement fixation, agglutinin absorption, and bacterio-tropin determinations. This very important subject has been extensively studied elsewhere, but without definite conclusions with reference to any direct bearing upon the testing of the serum for human use. Trials of protective tests resulted negatively in our hands, though others have reported good results.

Streptococcus serum.—Study of the streptococcic serums on the market has been undertaken and this particularly difficult problem is being carefully studied. Protective tests have given little encouragement, so that at the present time it seems likely that we shall have to depend on purely test-tube experiments to determine the probable value of this serum.

Anthrax.—Work which was begun in the last fiscal year in connection with the presence of anthrax spores in shaving brushes was continued and brought to a conclusion in the early part of the present fiscal year. Regulations governing the production of shaving brushes, from the anthrax point of view, were recommended and adopted. Unfortunately there are still in commercial channels a large number of infected brushes and occasional cases of anthrax continue to be reported, all traceable, however, to brushes which were placed on the market before restrictions promulgated by the Treasury Department became effective. An effective way of dealing with the presumably dangerous brushes in trade channels has not been evolved; it presents one of the most difficult problems that sanitary authorities have been required to deal with. These potentially dangerous brushes are to be found in the hands of jobbers, wholesalers, and retailers throughout the country and in a total of many thousands of commercial establishments.

Antianthrax serum, which is so commonly used in the treatment of anthrax infections, is being studied with a view to standardization. None of the tests at present available is considered satisfactory, and an effort is being made to provide one which may be used with confidence.

Pathogenic anaerobes.—The studies on the antitoxin of the perfringens bacillus, which organism is regarded as one of the chief factors in the production of gas gangrene, have been continued and resulted in very satisfactory standardization of the antitoxin. Conferences with manufacturers and with representatives of the War Department lead to the adoption of the method, and within a comparatively short time the manufacturers were producing a high-potency serum, although many difficulties were encountered in securing one sufficiently concentrated for clinical use. This antitoxin was furnished in conjunction with tetanus antitoxin by immunizing horses against perfringens and tetanus toxins, and was used in a considerable number of cases in the latter part of the war. It appears unlikely that conditions of civil life will necessitate the continuance of the production of this perfringens antitoxin. An attempt was made to secure a satisfactory antitoxin for the vibrion septique, another organism associated with gas gangrene, but the close of the war came before any material progress had been made.

During the year a question was raised as to the antitoxin value of tetanus antitoxin in relation to certain groups of tetanus bacilli, but some experiments at this laboratory indicated that the antitoxin was quite effective against all groups.

A few experiments in connection with the standardization of antirabic virus and smallpox vaccines have been made, but work has not gone far enough to justify any definite statements.

Cholera.—In connection with the production of an antiserum intended for routine diagnostic purposes the interesting fact was observed that most of the cholera cultures which had been carried at the Hygienic Laboratory for a long time on artificial media have so changed in their biologic characteristics as to make them untrust-

worthy as controls for diagnostic purposes or as antigens for the production of diagnostic serums.

Antienteric vaccine.—In 1913 the manufacture and distribution of antityphoid vaccine was begun and each succeeding year has shown a great increase in the amount of vaccine used. In 1917 the manufacture of triple vaccine, containing *B. typhosus*, *B. paratyphosus* A., and *paratyphosus* B., and also a vaccine containing the *B. paratyphosus* A. and B. only was inaugurated.

Prior to the beginning of the present fiscal year a total of 485,871 c. c. of antityphoid vaccine and 27,146 c. c. of triple vaccine, a total of 513,017 c. c., had been made and distributed.

During the fiscal year ending June 30, 1919, the vaccine consumption exceeded the total amount made in all preceding years, the amount being 776,163 c. c. Over 575,000 c. c. of this was used in the first three months of the fiscal year. The use of antienteric vaccine rapidly declined during the influenza pandemic, but during the second half of the fiscal year its use has increased; 592,766 c. c. of antityphoid vaccine, 181,240 c. c. of triple vaccine, and 2,157 c. c. of paratyphoid vaccine have been sent to various service stations or health authorities. The number of inoculations at the laboratory was: Antityphoid vaccine, 382 c.c.; triple vaccine, 163 c.c.; total, 545 c. c.

Antirabic treatments.—In the fiscal year just closed 1,988 antirabic treatments were prepared and dispatched and 78 persons were treated at the laboratory. This compares with 2,032 sent out in the preceding fiscal year and 40 patients treated at the laboratory. The following table shows detailed shipments.

State.	Number of treatments sent during fiscal year.	State.	Number of treatments sent during fiscal year.
Alabama	426	Oklahoma	29
Arkansas	155	Panama Canal	12
California	7	Oregon	10
Delaware	8	Porto Rico	7
Georgia	8	Rhode Island	1
Idaho	31	South Carolina	8
Illinois	36	Tennessee	126
Iowa	33	Texas	43
Kansas	38	Utah	24
Kentucky	63	Virginia	75
Massachusetts	33	Washington	59
Maryland	91	West Virginia	1
Mississippi	212	Wisconsin	5
Nevada	60		
North Carolina	382	Total	1,988

Examination of specimens.—During the fiscal year 1919, 4,801 specimens, exclusive of biologics, were received for examination as against 2,937 received during the preceding fiscal year. These were examined and suitable reports made.

Specimens received.

Blood for Wassermann test:		
Positive	701	
Negative	2,562	
Anticomplementary	75	
Not satisfactory	137	
Total		3,475

Sputum	131
Urine	184
Tissue	28
Water	452
Disinfectant	28

Animal heads:

	Positive.	Negative.	Decomposed.	Total.
Dog	57	26	27	110
Cat	5	5	4	14
Cow	2	2	1	5
Rat		1		1
Sheep		1		1
	64	35	32	131

Total	131
Miscellaneous	372
Total	4,801

DIVISION OF PHARMACOLOGY.

The professor of pharmacology has continued in charge of the Division of Pharmacology.

The work was largely confined to the investigation of certain war problems.

Nutritive value of wheat and corn products.—The previous work on this subject was extended by a study of the distribution of the antineuritic vitamine in the wheat and corn kernel. It was shown conclusively that, contrary to current conception, the antineuritic vitamine is located in the germ of these cereals. This fact is of considerable practical importance in regard to the milling of cereals. It is now evident that in order to obtain a wheat flour or corn meal of maximum food value it is necessary to incorporate the germ in the final product. The report on this work was published in the American Journal of Physiology.

Poisoning by explosives.—In cooperation with the Divison of Chemistry the investigation of T. N. T. (trinitrotoluene) poisoning was continued and completed. The work of this division was confined to the toxicological and pharmacological aspects of the problem, such as (1) the discovery of diagnostic tests for the early recognition of poisoning, (2) the study of the absorption of the poison, (3) the discovery of preventive measures. The work was first carried out on laboratory animals and the results thus obtained were applied in a field study in one of the largest shell-filling plants. This latter part of the work also included a careful blood and urinary examination of several hundred workers for the purpose of establishing the incidence of T. N. T. poisoning in this particular plant. This investigation has led to numerous results of practical value. The principal findings were published in the Public Health Reports of June 13, and a Hygienic Laboratory bulletin containing the detailed report is in preparation.

In addition to T. N. T. poisoning several other poisons used in the manufacture of munitions were investigated. Thus at the request of the United States Navy and the Chemical Warfare Service the poisonous properties of parazol, a new high explosive, were studied. At the request of the Ordnance Department of the Army the action of mercury fulminate on the skin was also investigated.

At the request of the Air Service of the Army a report was made on the subject of the toxic action of a certain airplane varnish.

In all this work the service cooperated also with the National Research Council.

Standardization of arsphenamine, etc.—The work conducted at the laboratory in regard to arsphenamine is reviewed on pages 66 and 67.

Benzylalcohol as a spinal anesthetic.—As benzylalcohol was found to possess local anesthetic properties and inasmuch as this drug has a low toxicity, an experimental study of the use of this drug for producing spinal anesthesia was carried out. It was shown that benzylalcohol will produce anesthesia if injected into the spinal canal of dogs and monkeys. It is possible that clinical experience will prove that benzylalcohol is less dangerous for producing spinal anesthesia than cocaine and its substitutes, drugs which heretofore have been used for this purpose.

Carvacrol as a remedy in hookworm disease.—As a preliminary to the testing of the efficiency of this drug in the treatment of hookworm disease, the toxicity of carvacrol was compared with that of thymol.

Food value of reconstructed milk.—Supplementing the work on reconstructed milk done by the Division of Chemistry, the Division of Pharmacology began toward the end of the fiscal year an investigation on the comparative food value of fresh and reconstructed milk. The work is of considerable practical value as the indications are that reconstructed milk will be used more extensively in the future as a relatively cheap food.

Digest of Comments on the United States Pharmacopœia and National Formulary.—The publication of these comments has been continued, those for the year 1915 having appeared as Hygienic Laboratory Bulletin No. 118. The manuscript of the comments for the year 1916 has been submitted for publication and work is now in progress on the comments for 1917 and 1918. As in the past, these recent issues of the comments will greatly assist the revision committee in their work.

The habit-forming drug evil.—A member of the division acted as secretary of a special committee appointed by the Secretary of the Treasury to investigate the traffic in narcotic drugs. The report of this committee has been published recently. It is evident from this report that this problem is one of the most important public health problems, and for this reason an extensive investigation was recommended. So far the necessary appropriations for this purpose have not been made available.

Aid to other departments of the Government.—In connection with the control of arsphenamine and its substitutes numerous samples of these drugs were tested for the Federal Trade Commission, the Bureau of Chemistry of the Department of Agriculture, the Surgeon General's Office of the Army and Navy, and several State boards of health.

Assistance of a varying nature was given the Chemical Warfare Service, the Department of Justice, and the Civil Service Commission.

Routine work.—Numerous samples of drugs and alleged poisoned foods were examined for various governmental agencies and private individuals.

Memoranda were prepared in answer to a large number of inquiries of a pharmacological or toxicological nature.

DIVISION OF ZOOLOGY.

The professor of zoology has remained in charge of this division, although he has been on duty elsewhere during most of the year. In October the work was transferred to the United States Marine Hospital, Wilmington, N. C., in connection with the board on excreta disposal, of which the professor of zoology is chairman.

International Commission on Zoological Nomenclature.—Owing to the facts that the chief of the division, who is also secretary of the commission, was occupied with war problems; that his assistant resigned to take another position; and that it has been impossible to communicate by mail with some of the members of the commission, very little nomenclatorial work has been accomplished. With the signing of the peace treaty, plans were immediately formulated to recommence the work as soon as feasible.

Index Catalogue of Medical and Veterinary Zoology.—The extensive proof of the nematode catalogue was received from press late in 1918 and is being read. The preparation of the host catalogue has continued.

Examination for determination of intestinal parasites.—This part of the routine work of the division has been continued throughout the year. Specimens have been examined for the United States Army, United States Navy, National Training School for Boys, and for various State boards of health, universities, and practicing physicians.

Specimen collection.—Owing to war conditions almost nothing has been done in regard to the collection during the past year.

Special details.—July 1 to September 30, the chief of the division was on duty in Augusta, Ga., in charge of extra-cantonment work around Camp Hancock and in the State-wide campaign against venereal disease; October 1 to December 31 he was on special detail in charge of the State-wide epidemic work in influenza in North Carolina; January 1 to June 30 he was stationed at the United States Marine Hospital, Wilmington, N. C., in charge of infectious diseases and as chairman of the board on excreta disposal. During this last detail he has reorganized the Division of Zoology, the personnel of which is temporarily transferred to field duty at Wilmington.

THE DIVISION OF CHEMISTRY.

The professor of chemistry remained in charge of this division until the date of his resignation, February 28, 1919. During the remainder of the fiscal year the physiological chemist was in charge.

Studies relating to prevention of T. N. T. poisoning.—The Division of Chemistry has cooperated with the Division of Pharmacology in carrying out an extensive investigation of the methods of absorption, detection, and prevention of T. N. T. poisoning in munition plants. The parts of this general investigation which were carried out in the Division of Chemistry related to (1) the analytical procedures for the detection of T. N. T. in the atmosphere and in certain animal excretions; (2) the chemistry of T. N. T.—its manufacture and impurities; and (3) the vapor pressure and volatility of T. N. T. as influenced by temperature and humidity. The results which have been obtained in the laboratory were later applied in practical field work. All the results have already been written up and are ready for publication.

Reconstructed milk studies.—The investigation of the possibilities of preparing a marketable milk from skim-milk powder, butter fat,

and water, which was started during the latter part of the last fiscal year, was continued. A complete reconstructed milk plant was constructed at Nitro, W. Va. Careful studies were made of the sanitary quality of the milk thus produced and also of the cost of the various operations. A comprehensive report embodying the results thus obtained has been prepared for publication.

An experimental study has also been undertaken, in cooperation with the Division of Pharmacology, which has for its object the determination of the relative value of the reconstructed milk as a food for growing animals in comparison with normal milk.

Special investigations and reports.—Reports have been submitted concerning the pollution of the water supply of Milwaukee by a phenol plant; on the discharge of acid wastes from a Government powder plant at Nashville, Tenn.; on the organization and activities of the Division of Sanitation, Minnesota State Board of Health; on the possibility of organizing a community milk company in the town of Framingham, Mass.; on the disposal of chemical wastes at Springfield, N. J.; and on the results which have been obtained in the examination of the products resulting from an experiment in distilling human night soil.

Cooperative work with other Government departments.—Cooperative work has been carried out with the Division of Industrial Hygiene and Medicine in connection with an investigation of the sanitary condition of the atmosphere in certain pottery works. This work has included the chemical and microscopical examination of 61 samples of dusts. There were also submitted for chemical analysis 14 samples of the glazes which are in use at these works.

Routine work.—The routine work of the division has included the chemical examination of 193 specimens of various kinds and the preparation and standardization of approximately 120 standard solutions for use outside of the division. This work also included the preparation of various memoranda and the answering of correspondence.

VIRUSES, SERUMS, TOXINS, AND ANALOGOUS PRODUCTS.

Regulations prepared by a board composed of the Surgeons General of the Army, Navy, and Public Health Service, in accordance with an act of Congress, approved July 1, 1902, were issued February 12, 1919, superseding the regulations issued May 11, 1909, and amendments thereto. These regulations have been published as Miscellaneous Publication No. 10.

In the enforcement of the law of July 1, 1902, regulating the sale of viruses, serums, etc., regular inspections of all establishments were made. Two new licenses were granted. At the end of the fiscal year 31 establishments (24 domestic and 7 foreign) were holding licenses and 89 different products were licensed. The complete list has been issued as Reprint No. 469.

The following table shows the number of biological products tested for sterility and potency during the fiscal year:

Sterility.

Diphtheria antitoxin	170
Tetanus	72
Perfringens antitoxin	29
Vaccine virus	30

Rabies virus	166	
Pneumolipo vaccine	2	
Autogenus vaccines	5	
Typhoid vaccine	52	
Bacterial vaccines	2,408	
Pneumococcic serum	391	
Meningococcic serum	195	
Dysentery serum	34	
Anthrax serum	1	
Gonococcic serum	1	
Normal horse serum	3	
Streptococcic serum	2	
Other sera	815	
Tuberculins	71	
Epidermal extract	3	
Pollen extract	39	
Miscellaneous products	105	
		4,594
Potency tests.		
Diphtheria antitoxin	66	
Tetanus antitoxin	98	
Dysentery antitoxin	116	
Meningococcic antitoxin	656	
Pneumococcic antitoxin	1,185	
Perfringens antitoxin	65	
Vaccine virus	117	
Antityphoid	40	
		2,343
Arsphenamine		614
Total		7,551

Arsphenamine Investigation and Control.

The work dealing with this important drug was divided as follows: (1) The standardization of commercial arsphenamine and neoarsphenamine, (2) the investigation of the cause and prevention of the toxic results sometimes following the administration of this drug to patients, and (3) the study of the pharmacological mechanism by means of which the drug kills the parasites within the body.

The control of the manufacture of arsphenamine and neoarsphenamine was continued in accordance with the regulations previously issued by the Federal Trade Commission. A considerable amount of research work on the toxicity test has lead to improvements in this test, and these were included in the official regulations governing the sale of these drugs.

The so-called "rat standard" has proved to be a very reliable guide for the determination of the toxicity of arsphenamine and neoarsphenamine. The toxicity standard has gradually been made more severe by raising the maximum tolerated dose for arsphenamine to 100 mg. and for neoarsphenamine to 200 mg. per kilo body weight, thus insuring the marketing of a safe product. The average preparation now on the market is considerably less toxic than the product formerly imported from Germany. This favorable result is partly due to the fact that the laboratory gave every possible assistance to the manufacturers. A member of the division spent several months in one of the largest plants where arsphenamine is made in order to familiarize himself with the difficult manufacture of this product and to render assistance in overcoming the difficulties. The result of this cooperation was that this particular firm was able

to increase its output of a better product, thus removing the serious shortage of this drug.

During the year a total of 614 lots of arsphenamine and neoarsphenamine submitted to the laboratory by licensed manufacturers was tested as to toxicity and arsenic content. Numerous samples of organic arsenicals, both of domestic and foreign origin, were examined for the Federal Trade Commission and the Bureau of Chemistry.

At the end of the fiscal year 4 establishments (3 domestic and 1 foreign) held licenses and 2 different products were licensed.

The experimental investigation of the cause of the toxic results sometimes following the administration of arsphenamine to patients has lead to the discovery of certain reactions which occur in the lungs. By experiments on animals it was possible to demonstrate that arsphenamine causes an obstruction in the blood flow through the lungs, which secondarily leads to severe disturbances of the circulatory apparatus and particularly the heart. These symptoms can be prevented to some extent by reducing the rate of injection of the drug.

The toxic action of arsphenamine on the kidneys has been studied. It was found that the functional kidney changes, whenever produced by this drug, appear very soon and cause death within a few days, or they disappear rapidly. The most reliable means for the detection of these kidney abnormalities is the phenolsulphonaphtalein test, a very simple test which easily can be applied to patients. Inasmuch as in the treatment of syphilis arsphenamine is often combined with mercury, the combined action of these drugs on the kidney has been investigated. The work has not progressed far enough to permit definite conclusions.

The chemotherapeutic part of the investigation had for its purpose to increase the fundamental knowledge concerning the factors which are involved in the sterilizing action of drugs in the treatment of syphilis and similar diseases. By applying new methods for the estimation of the curative value of this class of drugs a number of facts were discovered which may be useful in the production of new chemotherapeutic drugs. Although work of this nature may not lead to results of immediate practical value it will replace the empirical and time-consuming work along this line by a rational application of certain principles.

Conference With State and Territorial Health Authorities.

The seventeenth annual conference of State and Territorial health authorities with the United States Public Health Service was held in Washington, D. C., on June 4–5, 1919. The following subjects were among those discussed:

Malaria: Its importance. National and State problems. Necessity for cooperative plan of attack between Federal and State Governments.

Child Hygiene: Necessity for a nation-wide program of child hygiene by cooperative work between the Federal and State Governments.

Problems in Interstate Health Work: Control of water supplies used in interstate traffic. Control of the interstate spread of disease.

Control of Venereal Diseases as a National Problem.

The Sanitary Reserve Corps of the Public Health Service.

Problems of Railroad Sanitation.

Statistics, 1920 Census.

League of Red Cross Societies.

Public Health Education. Program for cooperation with States.

Committee reports were made in regard to morbidity returns, sanitation of public conveyances, rural sanitation, and trachoma.

The report of this conference, including the resolutions passed, will be published by the service.

Representation at Meetings of Scientific and Sanitary Associations and Congresses.

A large number of annual and other meetings of scientific or sanitary associations and congresses have been attended by service officers. In most cases the representatives have read papers relating to public health and in all have acquired information of scientific importance to the work of the service.

A meeting of particular interest was the public health conference in Cannes, France, in April, 1919, held for the purpose of creating an international organization of the various national Red Cross societies. Col. William H. Welch and Asst. Surg. Gen. (Reserve) Hugh S. Cumming represented the service at this conference.

Dissemination of Information.

In order that the results of investigations shall accomplish their purpose, it is necessary to disseminate them through proper channels. Among the means taken to this end are: (1) Personal interviews with health authorities following particular studies within their jurisdiction, (2) publications, (3) other reports, (4) lectures, and (5) correspondence.

Interviews and conferences.—Inasmuch as many investigations are undertaken on the request of State and local authorities to meet an emergency, the results of investigations are frequently made known verbally as soon as obtained and advice given based on these data, so that remedial action may be immediately taken. Advantage is frequently taken also of situations to advise not only the health authorities but the mayors and councils of cities and at times the executives and legislative bodies of States.

Publications.—Monographs on sanitary subjects are regularly issued in the weekly Public Health Reports, in reprints of these reports, and in special publications, such as Public Health bulletins and Hygienic Laboratory bulletins. In these publications a large number of the investigations considered above are reported, as will be seen by reference to the report on publications, pages 214–218.

Other reports.—In some cases reports of investigations are submitted to the authorities in typewritten form.

Lectures.—In addition to papers read at meetings of scientific or sanitary associations, popular addresses are given by officers in the field. By this means not only is information of local interest conveyed but the activities of the Public Health Service are brought directly to the attention of the public generally. In some cases courses of lectures on public health are also given by officers of the service.

Correspondence.—A large number of replies are made to letters requesting information of a hygienic or public health nature, especially in regard to questions referred to the division by the section on public health education.

DOMESTIC (INTERSTATE) QUARANTINE DIVISION.

Previous to the signing of the armistice on November 11, 1918, the energies of this division continued for the most part to be concentrated on extra-cantonment zone sanitation and on work in other areas for the protection of the health of the military forces and industrial workers. Since the signing of the armistice, however, work has gradually returned to pre-war activities, extra-cantonment zone sanitation being continued only in the extra-cantonment zones about the permanent camps and about those camps which were used for demobolization, it being discontinued about all camps which were abandoned prior to the end of the fiscal year. The detailed report of extra-cantonment zone sanitation, which follows, summarizes the work performed and the results accomplished during the period of two years, this being done on account of the fact that the work was of such a nature that tabulated results can not be shown for the separate fiscal year.

One of the routine activities of the division, which of necessity had to be carried on during this time, were plague-suppressive measures, which have been continued at New Orleans, Seattle, and San Francisco. The force on duty at New Orleans and Seattle has been reduced, since plague-infected rats have not been found at New Orleans since April, 1917, or at Seattle since March, 1917. Measures have been continued in and around San Francisco with more emphasis being placed upon ground-squirrel infection. Infected ground squirrels have been found during the past year, as shown by the table of activities in California which follows, and it may be advisable to inaugurate a more intensive plan of hunting in order to obtain a more reliable index of the infected area. No infected rats have been found in San Francisco since 1909.

During the past year, in addition to the routine supervision of the purity of water used for drinking and culinary purposes in interstate traffic, there has also been conducted a comprehensive study of the general control of such water supplies for the purpose of informedly bringing their regulation up to date and for utilization, in cooperation through as great a degree as possible, of the existing departmental machinery of the various States. This study resulted in the amending of the existing regulations and the subsequent adoption of an improved form of certificate. In addition, where States were found to be weak in water-supply control the duty of the Federal agency to supervise and otherwise aid the State will be informedly exercised during the ensuing year. This plan of action received the unanimous approval of the recent conference of State and Territorial health officers.

The laboratory cars *Wyman* and *Hamilton* have at all times been available, but have only been used during the passed year in connection with the control of water supplies used in interstate traffic, no especial call on account of a serious epidemic having been received.

During the year this division continued to exercise supervision over the prevention of the interstate spread of communicable diseases, the most serious epidemic being that of influenza which made its appearance in the United States in September, 1918.

Plague Suppressive Measures in California.

OPERATIONS IN SAN FRANCISCO.

The activities of the service within the city of San Francisco during the fiscal year have been confined to the supervision of the work of the city department of health in the destruction of rat harbors, elimination of rat food, and the installation of permanent rat-proofing construction in new and remodeled buildings. On account of the failure of the city to provide funds for the year, trapping operations were discontinued, no rats having been submitted to the laboratory from the city with the exception of those submitted by the quarantine service from ships along the water front.

The protection of the city from vessels along the water front was taken over by the quarantine station at Angel Island, Calif., including the inspection of vessels for proper rat guards, and trapping and fumigation of vessels for the destruction of rats and trapping along the water front. All rats, both fumigated and trapped, were submitted to the laboratory, but no plague infection was found.

OPERATIONS FOR THE ERADICATION OF PLAGUE AMONG GROUND SQUIRRELS.

The service has continued to operate in only the three bay counties—Alameda, Contra Costa, and San Mateo—carrying on hunting operations throughout the year and intensive poisoning and treatment with carbon bisulphide in areas where plague-infected animals have been found.

In the remaining counties where in former years plague has been shown to exist the California State Commission of Horticulture have carried on eradicative measures, working through county commissions of horticulture and farm bureaus and in cooperation with the Biological Survey.

The several years of educational work among the landowners is now showing the desired result, it being the exception to find one who refuses prompt cooperation when called upon to furnish material and labor for eradicative measures upon his property. Exceptionally satisfactory results have been obtained in San Mateo County, fully 90 per cent eradication having been accomplished, while in the west half of each Alameda and Contra Costa Counties 80 to 85 per cent of the squirrels have been destroyed. The Altamont Pass district still furnished a large proportion of infected squirrels, both infection and infestation being relatively high.

A total of 72,021 squirrels have been collected and examined from the three counties, of which 124 were plague infected. They were distributed as follows:

County.	Examined.	Infected.	Per cent of infection.
Alameda	30,323	65	0.0021
Contra Costa	32,148	49	.0015
San Mateo	9,550	10	.0010
Total	72,021	124	.0017

The following report gives the result of squirrel-eradicative work:

Number of reinspections	590
Number of acres reinspected	214,109
Number of acres treated with waste balls	25,295
Number of acres treated with poisoned grain	6,523
Number of acres treated with Bunt balls	1,500
Number of acres treated with CS_2	1,740
Number of holes treated with Bunt balls	6,000
Number of holes treated with CS_2	100,008
Number of squirrels received at laboratory	73,157
Number of squirrels examined	72,021
Number of squirrels infected with plague	124
Number of squirrels infected with plaguelike disease (*B. tularense*)	3
Number of other animals examined	466
Number of other animals infected	0

INTERSTATE SANITARY LABORATORY.

A résumé of the work by the laboratory, together with certain data connected with water analysis, follows:

Blood for Wasserman reaction:	
United States marine hospital—	
San Francisco	1,426
Los Angeles	41
United States immigration station	1
United States Navy	1
Total	1,469
Cerebrospinal fluid for Wasserman reaction:	
United States marine hospital—	
San Francisco	13
Los Angeles	1
Palo Alto base hospital	1
Blood culture for typhoid bacilli (United States marine hospital. San Francisco).	17
Blood for Widal reaction (United States marine hospital, San Francisco)	15
Guinea-pig inoculation for tuberculosis (United States marine hospital, San Francisco):	
Sputum	40
Urine	5
Fluid from knee joint	1
Tissue	1
Pleural fluid	1
Pus	1
Feces for hookworm ova (United States marine hospital, San Francisco)	4
Feces for ameba (United States marine hospital, San Francisco)	1
Feces for culture for typhoid bacilli (United States marine hospital, San Francisco)	22
Throat culture for diphtheria bacilli (United States marine hospital, San Francisco)	1
Virulence test for diphtheria (United States marine hospital, San Francisco)	1
Culture for influenza bacilli (sputum) (United States marine hospital, San Francisco)	21
Guinea-pig inoculation for influenza sputum (United States marine hospital, San Francisco)	2
Culture for organism identification (United States marine hospital, San Francisco)	1
Culture for pneumococci (United States marine hospital, San Francisco)	1
Cerebrospinal fluid for meningicoccus (United States marine hsopital, San Francisco)	2
Autogenous vaccine (United States marine hospital, San Francisco)	1
Milk and cream for butter fat and chemical examination (United States marine hospital, San Francisco)	2
Tissue for histological examination (United States marine hosiptal, San Francisco)	77

Rodent examination.

	Received.	Examined.	Infected.
Squirrels	73,157	72,021	124
Rats	425	425	.....
Gophers	29	29	.....
Rabbits	7	7	.....
Weasels	4	4	.....
Mice	1	1	.....
Total	73,623	72,487	124

Bacteriological examination of water:	
Amador Central Railroad Co	3
California Southern Railroad Co	2
Camino, Placerville & Salt Lake Railroad Co	3
Central California Traction Railroad Co	4
McCloud River Railroad Co	7
Modesto & Empire Railroad Co	3
Nevada Central Railroad Co	4
Nevada Copper Belt Railroad Co	4
Northwestern Pacific Railroad Co	14
Pacific Coast Railroad Co	1
Pajaro Valley Railroad Co	3
Sacramento Northern Railroad Co	11
San Diego & Arizona Railroad Co	2
San Joaquin & Eastern Railroad Co	14
San Pedro, Salt Lake & Los Angeles Railroad Co	9
Santa Fe Railroad Co	45
Sierra Railway Co. of California	6
Southern Pacific Railroad Co	94
Tonopah & Tidewater Railroad Co	2
Western Pacific Railroad Co	8
Yosemite Valley Railroad Co	7
Miscellaneous bacteriological examination of water:	
Antelope Creek & Red Bluff Water Co	4
Baker well (Jamestown)	1
Camptonville	6
Camp San Ysidro	6
Fort McDowell (United States Army)	24
Marysville Water Co	6
Steamship *Kineo* (submitted by United States marine hospital, San Francisco)	1
Sory well (Jamestown)	2
United States immigration station (Angel Island)	1

Examinations of water supplies on interstate carriers.

Number of sources of water supplies in the district of the Pacific	124
Number of samples of water examined	246
Number of samples of water conforming to Treasury Department standard	177
Number of samples of water not conforming	69
Number of sources of supply certified	107
Number of sources of supply certified after improvements were installed	5
Number of sources of supply condemned	6
Number of sources of supply discontinued during the year	11
Miscellaneous examination of water samples	51

Plague-Suppressive Measures at New Orleans, La.

During the fiscal year ending June 30, 1919, all plague-eradicative measures in New Orleans were conducted, as in former years, under the supervision of the United States Public Health Service.

From what has been noted, during the fifth year of the plague campaign it appears that declaring New Orleans a clean port on April 20, 1918, was fully justifiable, and practically all quarantine restrictions have been removed. Health conditions in the city have been steadily improving, and based upon the following it may be said that all danger from the epidemic of 1914 is at an end:

(*a*) The majority of the premises in the city have been rat proofed.

(*b*) Great reduction in rodent population.

(*c*) No human plague since September 8, 1915.

(*d*) No rodent plague since April 3, 1917.

(*e*) Almost an entire absence of rats showing lesions suspicious of plague.

The health ordinances enacted by the commission council at the beginning of the campaign are still in force, and it is not considered the wisest course to cease all service operations.

A sufficient force to keep the situation in hand is maintained. Human and rodent plague is known to be present in many parts of the world, and every precaution must be taken to prevent its reintroduction at that port.

ORGANIZATION AND PERSONNEL.

On June 30, 1919, the personnel of this station, exclusive of the medical officer in charge, consisted of 11 men, this number being considered sufficient for the following:

(*a*) Fumigation of such vessels as may be remanded from quarantine and such others as may request the treatment.

(*b*) Trapping operations along areas adjacent to wharves, along wharves, and on ships.

(*c*) Prosecution of cases pending in the city courts for infractions of the rat-proofing ordinances.

(*b*) Laboratory work as may be required in the service laboratory.

(*e*) Such clerical work as is incident to the foregoing procedures.

RODENT CONTROL.

The reconstruction of premises for the elimination and the preventing of rat harborages has continued through the year, the number becoming smaller, due chiefly to the fact that the majority of premises have been rat proofed, but it is estimated that about 15 per cent of the premises in New Orleans still require some attention.

It has been noted that contractors or others have a tendency to put up new buildings in violation of the rat-proofing ordinance, irrespective of any advice. A plan has been worked out, however, by which the Public Health Service office and the city engineer's office will be corelated in order to secure compliance with the ordinances.

Practically nothing has been done toward the rat proofing of existing wharves, and conditions along the water front remain almost as they did two years ago. At present they are a serious menace, and the possible introduction of rodent plague on this account has led to a strict enforcement of the rat-guarding ordinance. Should an outbreak occur, it is unlikely to gain much headway, due to the fact that previous existing conditions have been remedied.

Recapitulation of rat-proofing operations at New Orleans, for the fiscal year ending June 30, 1919:

Number of premises inspected		4,981
Number of premises abated		3,125
By elevation	312	
By marginal wall	207	
By minor repairs	978	
By concrete floor and wall	635	
Total buildings rat proofed		2,132
Buildings demolished		993
Total number of buildings rat proofed to date (abated)		161,846
Work performed:		
Square yards of concrete laid		39,922
Linear feet of chain wall installed		58,966
Linear feet of flashing laid		715
Square yards of tar-cinder floor laid		325
Linear yards of wall fill		1,945
Total cost of rat proofing		$136,918

RAT TRAPPING.

During the past year trapping operations have been continued with a greatly diminished force. After May 1, 1918, the trapping force operating in the city was discontinued, but trapping operations were continued along the water front and on shipboard, the work being performed by the members of the fumigating squad whenever they were not required to fumigate vessels. Since the water front offers the easiest point of entrance of the disease, it should be kept under close observation for some time. As the result of this part-time trapping 7,464 rodents were captured and sent to the laboratory for examination and classification.

OUTGOING QUARANTINE.

Since May 1, 1918, there have been few restrictions placed on shipping. Vessels are still being fumigated for the destruction of rodents when arriving under sealed pratique or when fumigation is requested. It was noted that only a few vessels that made fast at local wharves placed rat guards on all mooring lines irrespective of whether they tied up at rat-proof or nonrat-proof wharves. A conference was held at which were present the service representative, the chairman of the city board of health, and representatives of the New Orleans Steamship Association, and in order to stimulate the work on the nonrat-proof wharves and at the same time to protect the city from the reintroduction of plague rodents, the following conclusions were reached:

All vessels arriving under sealed pratique to be treated as directed by the United States quarantine officer at quarantine.

All vessels to place rat guards on all lines while in port except those coming from American ports and tying up at rat-proofed wharves. It was advised, however, that rat guards should be placed on all lines.

Routine quarantine operations during the past year were as follows:

Number of vessels fumigated with sulphur	5
Pounds of sulphur consumed	520
Number of vessels fumigated with cyanide gas	170
Pounds of cyanide consumed	10,009
Pints of sulphuric acid used	15,007
Total number of vessels fumigated (certificates issued)	175
Total number of vessels cleared	1,925
Total number of bills of health issued to include additional ports of call [1]	2,554

[1] This figure includes bills issued to include additional ports of call from December, 1918, only.

LABORATORY.

For the reasons stated above the laboratory activities were somewhat diminished during the past year, but since March, 1919, all prewar activities have been resumed. However, as in previous years, no efforts have been spared in the laboratory to detect any indication of plague infection.

The interstate sanitary laboratory, in addition to the plague work is now conducting examinations of any specimens that are sent to it from service hospitals in and near New Orleans or from other sources when requested by a service officer.

Bacteriological and pathological examinations or urinalyses are performed whenever specimens are received, while serological examinations are conducted twice each week, Tuesdays and Fridays having been set aside for that purpose.

For plague the laboratory practice is to give first place to macroscopical diagnosis, supplemented by a biological and microscopical examination in all rodents suspected of plague infection.

During the year a total of 7,464 rodents have been received, all of which were examined and none were found infected. During the entire campaign there have been received 1,330,300 rodents, of which 496,537 have been examined, and of these 353 have been found infected, the last case so confirmed April 3, 1917.

The following tables give detailed information regarding laboratory operations during the year:

Plague.

Number of rodents received	7,464
Number of rodents examined	7,464
Mus norvegicus	474
Mus rattus	1,353
Mus alexandrinus	2,293
Mus musculus	2,037
Wood rats	213
Musk rats	1
Putrid	1,093
Number of suspicious rats	7
Total number of rodents received to June 30, 1919	1,330,300
Total number of rodents examined to June 30, 1919	496,537

No suspicious human plague cases examined; last human case September 8, 1915.

General.

Bacteriological specimens examined (organism identification)	13
Pathological specimens examined	4
Blood serum for Wassermann reaction	945
Cerebrospinal fluid for Wassermann reaction	2
Blood cultures	3
Urinalyses	2
Widal reaction	4
Sputum examinations	3
Guinea pigs inoculated for tubercle bacillus	3
Autogenous vaccine prepared	1
Total specimens	980

Specimens were examined for:	
United States marine hospital, New Orleans, La.	815
Out-patient office, New Orleans, La.	5
United States marine hospital, Mobile, Ala.	142
United States Public Health Service Hospital, Alexandria, La.	4
Bureau War Risk Insurance, New Orleans, La.	14
Total specimens	980

Water.

Vessels from which samples were obtained	65
Total number of samples collected	65
Number of samples conforming	59
Number of samples non-conforming	6
Probability of contamination in handling	2

Plague Suppressive Measures at Seattle, Wash.

During the fiscal year all plague suppressive and preventive measures on Puget Sound were conducted as in former years under the supervision of this station. The work was carried on with the usual activity and care. No rodent plague has been discovered since the cases reported March 30, 1917.

The work had the following objectives:

(*a*) The prevention of the introduction of plague from other ports.

(*b*) Trapping and poisoning operations, including the picking up of dead rats.

(*c*) Laboratory examination of rodents and suspicious cases.

(*d*) Educational work by means of circular letters to persons who make complaints about rats.

(*e*) Intensive trapping on the part of residents in given districts.

(*f*) The rat proofing of buildings in Seattle.

New buildings inspected	805
New buildings reinspected	1,008
Floors concreted, new buildings (405,455 square feet)	226
Basements concreted, new buildings (498,303 square feet)	410
Yards, etc., concreted, new buildings (152,875 square feet)	133
Sidewalks concreted (square feet)	317,148
Total concrete laid (square feet)	1,377,781
New buildings elevated	100
New premises rat proofed, concrete	636
Old buildings inspected	41
Premises rat proofed, old buildings	41
Floors concreted, old buildings (64,315 square feet)	41
Premises otherwise rat proofed, old buildings	10
Openings screened, old buildings	60
Rat holes cemented	290
Wooden floors removed, old buildings	41
Doors rat proofed, old buildings	5
Wire screening used (square feet)	2,280
Buildings razed	70

Water front.

Vessels inspected	624
Vessels fumigated	168
Sulphur used (pounds)	214,660
New rat guards installed	368
Defective rat guards repaired	834
Fumigation certificates issued	168
Canal zone certificates issued	51
Port sanitary statements issued	2,334

Labaratory Operations.

Dead rats received	288
Rats trapped and killed	13,610
Rats after fumigations	1,304
Total rats	15,202
Rodents examined for plague infection	12,434
Rodents proven plague infected	0
Blocks poisoned	36
Poison distributed ... pounds	710

Classification of rodents.

Mus rattus	1,642
Mus alexandrinus	3,646
Mus norvegicus	8,129
Mus musculus	1,815

Miscellaneous work.

Letters sent to contractors, rat proofed, new buildings	642
Letters sent re rat complaints	74

Water Supplies in Interstate Commerce.

The certification of the purity of water provided for drinking or culinary purposes in interstate traffic was continued throughout the year under the supervision of the Service, accomplished through the cooperation of the various State and local health officers in whose jurisdiction the respective water supplies were located with the service.

The science of water purification and its control has shown rapid advance in recent years, particularly prior to the war. This was recognized and rather extensive studies were inaugurated soon after the armistice was declared for the purpose of bringing the supervision and control of the purity of these water supplies up to date. It was necessary to consider the matter from both the points of view of satisfactory requirement of purity and facilitation of certification. The study resulted in recommendations providing for somewhat more elastic criteria of the purity of a given water supply to meet the various types of supplies found in different sections of the country and included a comprehensive certificate more readily adaptable to the available data and water-control organization already existing in the respective cooperating State departments.

These recommendations received the approval of the Conference of State and Territorial Health Officers held in June and resulted in the revision of the sections of the Interstate Quarantine Regulations of the United States relating to the certification of these water supplies, as approved by the Secretary.

During the year the handicap noted last year, due to the combination of the press of more extensive health work imposed by conditions incident to the war, together with depleted man power available for the work, continued to exercise a decided influence upon the certification of these water supplies.

There were reported a total number of 3,376 water supplies from which water was provided for drinking or culinary use in interstate traffic during the year, with 4,776 users for interstate purposes. This is a slight increase over the number of supplies reported in use last year. It is interesting to note that 60 per cent of the water reported

in use this year was taken from municipal supplies and 21 per cent additional from small or private supplies, making a total of 81 per cent of the supplies in interstate use which were also in local community use. This directly indicates one great reason for Federal and State cooperation in supervising the purity of these water supplies.

Of the total of 4,776 users of water for interstate purposes as reported during the year but 49 per cent filed certificates in the 12-month period. The large percentage of delinquency in certification reflects the abnormal condition of the times, already noted, together with the need, now met, of facilitating the issuance of certificates.

Of 2,330 certificates filed during the year, 2,158, or 88 per cent, certified the supply as meeting the required standards of purity, while 108, or 12 per cent, certified the supply as failing to meet the required standards of purity. This latter percentage, as compared with 9.4 per cent in 1918, and 5.7 per cent in 1917, indicates mostly the progressive improvement in the supervision of these water supplies. There are additional factors which increase the actual degree of improvement as above indicated.

In every case where a supply is reported as failing to meet the required standards of purity, the use of the supply for drinking or culinary purposes in interstate traffic is immediately ordered discontinued and appropriate placards are placed in order to prevent the use of the supply pending its improvement or abandonment.

The following table summarizes, by States, the statistics concerning the certification of these water supplies.

Statistics concerning the certification of water provided on cars and vessels by interstate carriers for the fiscal year ending June 30, 1919.

State.	Sources of water supply.				Number of railroads using supplies.	Per cent of railroads filing certificates.	Certificates.		
	Municipal.	Private.	Railroad companies.	Total.			Supply satisfactory.	Supply polluted.	Delinquent.
Alabama	31	10	2	43	70	54	37	1	32
Arizona	7	39	14	60	60	48	29	0	31
Arkansas	37	32	11	80	86	30	26	0	60
California	56	27	23	106	132	59	73	5	54
Colorado	38	11	10	59	73	12	9	0	64
Connecticut	18	2	2	22	29	0	.....	.....	29
Delaware	5	2	0	7	11	55	6	0	5
District of Columbia	1	0	0	1	11	0	.....	.....	11
Florida	53	17	20	90	113	21	24	0	89
Georgia	67	16	2	85	158	43	65	3	90
Idaho	16	13	16	45	48	54	25	1	22
Illinois	58	11	12	81	168	40	58	9	101
Indiana	56	26	19	101	150	30	45	1	104
Iowa	43	20	14	77	113	27	27	4	82
Kansas	70	3	37	110	176	84	124	25	27
Kentucky	29	17	6	52	70	23	16	0	54
Louisiana	49	26	30	105	147	38	57	0	90
Maine	72	11	17	100	127	91	116	1	10
Maryland	18	6	6	30	48	62	30	2	16
Massachusetts	49	1	2	52	71	49	35	0	36
Michigan	74	28	39	141	246	58	107	36	103
Minnesota	39	13	34	86	116	74	71	15	30
Mississippi	30	5	10	45	64	56	36	0	28
Missouri	59	16	16	91	150	53	79	1	70
Montana	22	5	7	34	42	64	27	0	15
Nebraska	30	6	20	56	68	88	60	0	8
Nevada	10	0	11	21	21	76	16	0	5
New Hampshire	27	2	5	34	38	87	32	1	5
New Jersey	31	1	3	35	69	87	52	8	9
New Mexico	3	2	5	10	11	0	.....	.....	11
New York	112	53	20	185	255	26	63	4	188
North Carolina	49	14	6	69	93	39	34	2	57

Statistics concerning the certification of water provided on cars and vessels by interstate carriers for the fiscal year ending June 30, 1919—Continued.

State.	Sources of water supply.				Number of railroads using supplies.	Per cent of railroads filing certificates.	Certificates.		
	Municipal.	Private.	Railroad companies.	Total.			Supply satisfactory.	Supply polluted.	Delinquent.
North Dakota	20	7	14	41	48	77	33	4	11
Ohio	90	18	16	124	233	70	145	18	70
Oklahoma	39	21	7	67	81	37	27	3	51
Oregon	40	24	3	67	85	39	30	3	52
Pennsylvania	137	81	16	234	295	28	84	0	211
Rhode Island	3	1	1	5	10	0	.....	.....	10
South Carolina	32	8	3	43	71	38	23	4	44
South Dakota	18	7	9	34	41	15	6	0	35
Tennessee	30	6	12	48	64	34	22	0	42
Texas	123	44	70	237	335	54	167	20	148
Utah	14	0	1	15	21	62	12	1	8
Vermont	15	8	2	25	31	35	11	0	20
Virginia	45	17	18	80	113	54	61	0	52
Washington	42	24	16	82	125	65	79	2	44
West Virginia	29	15	17	61	76	70	48	5	23
Wisconsin	41	19	24	84	95	15	12	1	82
Wyoming	9	3	4	16	18	61	11	0	7
Total	1,986	738	652	3,376	4,776	.....	2,150	180	2,446
Average	60	21	19	.....	.....	49	45	4	51

Prevention of Interstate Spread of Disease.

In view of the fact that the Public Health Service is required by congressional action to prevent the interstate spread of disease, a plan was discussed at a recent meeting of the State and Territorial health offices in Washington, whereby Service officers should be detailed to the different States at the request of the State health officer for the purpose of assisting in the control of the interstate spread of disease.

The most effective means of preventing interstate spread of disease at the disposal of the Federal Government to-day lies in the development and utilization in every State department of health of strong divisions for control of communicable diseases, water, and sewage.

To develop these divisions and bring them to a standard of uniform excellence it is necessary to detail trained men from the Public Health Service to assist the State health officers. In many States these divisions (usually called divisions of communicable disease and divisions of sanitary engineering) do not exist or exist in name only. In States which possess such divisions plain justice suggests that the Federal Government should render some assistance in doing work which is called for by Federal law and regulation.

For proper communicable-disease control in States the following are essential:

An effective system of morbidity reporting.

An endemic index for each disease for each community or health district.

A prompt epidemiologic investigation whenever the endemic index is exceeded.

The endemic index is an arbitrary figure, computed after eliminating epidemics to show the normal incidence of disease in a given community, and should be checked monthly or oftener.

As a result of the plan discussed at the recent meeting of the State and Territorial health officers in Washington, an officer has been

assigned to duty in each of the following States, where he is available for epidemiological work in order to better assist in the prevention of the interstate spread of disease:

Arkansas.
Georgia.
Louisiana.
Maryland.
Massachusetts.
Indiana.
Ohio.
South Carolina.
Wisconsin.
Mississippi.

Requests were received from more than 30 States, but owing to the scarcity of officers it was necessary to limit the number to 10. As officers become available it is the intention of the bureau to comply in so far as possible with the requests of the other States.

Establishment of a National Home for Lepers.

Legislation was secured February 3, 1917, authorizing the founding of an institution to care for lepers, appropriating $250,000 therefor. Public health officials throughout the country were particularly gratified by this step in the public health legislation, as it has been realized that proper segregation was the only method to cope with the situation, and segregation is advantageous not only from the health standpoint but it is important economically and from a humanitarian point of view. A suitable site for the establishment of the home for care and treatment of lepers was authorized. By this legislation the selection of the site and administration of the home was placed under the care of the Public Health Service. Provision was made for the reception into said home, under regulations prepared by the Surgeon General, of any person afflicted with leprosy who presents himself for care and treatment. The regulations governing the institution are to be prepared by the Surgeon General, subject to the approval of the Secretary of the Treasury.

During the period of the war the members of the board were so busily engaged with what seemed to be more immediately pressing problems than the selection of a location for the Home for Lepers, particularly as it was considered likely that work on the new institution could not have been begun during hostilities, that the subject was not given as much nor as prompt attention as would otherwise have been the case.

The cessation of the war found the country in the midst of the epidemic of influenza and as the chairman of the board and the recorder thereof had extraordinary obligations thrown upon them by the prevailing scourge there was further regrettable delay in carrying out the provisions of the act.

With the view of expediting the completion of the duty enjoined it was recommended that two additional members of the board be appointed. The men selected were laymen who for many years have taken a large and sympathetic interest in the leprosy problem and who were in position to give time to the work of inspections which the medical members of the board found difficult or impossible to give. These additional members were Mr. Frederick L. Hoffman of Newark, N. J., and Mr. William M. Danner of New York City.

During the fiscal year inspections have been made by individual members of the board, or by two or more members, of sites in eight States.

After considering the data in connection with these sites the board recommended the selection of Angel Island, Calif., proposing to utilize either the military reservation or the quarantine reservation. Unfortunately, it was found impossible to secure either of the locations on this island. This was a source of deep regret to the board, as, all things considered, Angel Island afforded a well-nigh ideal location for the purpose of a home for lepers. When the board's recommendation failed of accomplishment the subject was taken up again and the site of the present Louisiana State Home for Lepers at Carville, La., was seriously considered. This site had but little to commend it beyond the fact that it would have offered a prompt solution of the question of providing a location. However, when the matter of the possible acquirement of this site was taken up with the legal branch of the Treasury Department certain obstacles appeared which were insurmountable until further action could be taken by the Legislature of the State of Louisiana.

Since the end of the fiscal year seven additional sites have been inspected.

Brief Outline of Activities of the Public Health Service in Combating the Influenza Epidemic, 1918–19.

During the summer of 1918 reports appeared in the press from time to time showing the great prevalence of the so-called Spanish influenza. The disease was reported to the Public Health Service from Switzerland, France, Great Britian, and elsewhere. According to press dispatches, 8,000,000 persons suffered from the disease in Spain alone.

This bureau realized that the United States would be affected by the epidemic and that it was practically impossible to prevent the entrance of influenza on account of its almost world-wide nature. In order, however, to do everything possible the following circular was issued:

Medical Officers in Charge, United States Quarantine Stations:

Sirs: You are especially cautioned to be on the alert in the inspections of vessels from European ports so as to detect any cases of the so-called Spanish influenza. If any such disease is discovered, vessels should not be released from quarantine until after the local health authorities have been notified in accordance with paragraph 68, United States Quarantine Regulations.

Owing to disordered conditions in European countries, the bureau has no authoritative information as to the nature of the disease or its prevalence. It appears, however, to be an infection due to the *B. influenza* with predilection to lung involvement.

If any such cases are discovered upon arrival of a vessel, they should be reported to the local health authorities and the necessary cooperation extended, including fumigation of living quarters with sulphur dioxide, letting personal effects remain in compartments during the fumigation.

This circular does not contemplate consideration of cases of ordinary pneumonia or respiratory infections, but only those infections involving a considerable number of the crew and which appear to be highly communicable and suggestive of epidemic influenza.

Respectfully, Rupert Blue, *Surgeon General.*

Influenza was not a quarantinable disease, but it was hoped in this way to detect any cases that might be brought into the country, and by this cooperation with the local authorities to isolate the cases so that they might not prove a menace to the general public.

The disease was soon reported, however, and early in September was present in New England to a considerable extent. On September 18 telegrams were sent to all State health officers asking them for information concerning the prevalence of the disease in their respective States. Replies to this request showed that the disease was present in New England and along the coast to the Virginia Capes, and in addition there were a few foci in the States east of the Mississippi.

In order to do everything possible in the way of supplying information concerning the disease, a pamphlet was prepared by the bureau giving the facts as known about its spread, methods of prevention, etc. This was widely distributed, 6,000,000 copies being printed. Posters were printed and distributed through the aid of the Post Office Department, Federal Railroad Administration, and the Red Cross. A newspaper article was prepared and distributed to 10,000 newspapers, with the request that it be published. In these various ways practically everything known concerning influenza that could be of use to the laity was spread broadcast over the country.

On September 26 the State health officer of Massachusetts requested immediate aid from the Public Health Service, as the disease was spreading very rapidly over the entire State and he was unable to furnish doctors and nurses to the stricken communities. Orders were issued immediately to a number of commissioned officers to proceed to Massachusetts for duty in cooperation with the State authorities. The officer in charge notified the bureau directly upon his arrival, after making a preliminary survey of the situation, as to just what help was needed.

There was a great shortage of both doctors and nurses, not only in Massachusetts but throughout the country, as so many were needed for military purposes. Obviously the service could not furnish the medical assistance necessary, so temporary men had to be employed. There was no appropriation available whereby these men could be paid, but Congress immediately passed the following resolution:

[Public Resolution—No. 42—65th Congress.]

[H. J. Res. 333.]

Joint resolution to aid in combating "Spanish influenza" and other communicable diseases.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That to enable the Public Health Service to combat and suppress "Spanish influenza" and other communicable diseases by aiding State and local boards of health, or otherwise, including pay and allowances of medical and sanitary personnel, medical and hospital supplies, printing, clerical services, and rent in the District of Columbia and elsewhere, transportation, freight, and such other expenses as may be necessary, there is appropriated, out of any money in the Treasury not otherwise appropriated, $1,000,000, to be available until June 30, 1919.

SEC. 2. That the Secretary of War, the Secretary of the Navy, and the Secretary of the Treasury are authorized and directed, respectively, to utilize jointly the personnel and facilities of the Medical Department of the Army, the Medical Department of the Navy, and the Public Health Service, so far as possible, in aiding to combat and suppress the said diseases.

Approved, October 1, 1918.

The funds being provided, it then became a question as to where the personnel could be found. The American Medical Association and the Volunteer Medical Service Corps were appealed to and immediately they supplied lists of men in the various States who might be secured

for influenza duty. In addition, the Journal of the American Medical Association, through its columns, appealed to the profession to apply for duty with the service in combating the epidemic. Telegrams were sent to the men whose names were furnished by the above organizations asking if they would accept appointment as acting assistant surgeons with compensation at the rate of $200 per month, an allowance of $4 per diem in lieu of subsistance, and transportation expenses.

Then came the problem of nursing personnel, which was more difficult to find than the medical personnel. The nursing division of the Red Cross asked that the service not attempt to recruit nurses, as they were supplying the needs of the Army and Navy and, so far as possible, the civilian requirements, and that any other recruiting agency would only serve to further complicate a very diffiicult undertaking. They agreed, however, to supply nurses as far as possible, but only upon the approval of the Surgeon General of the Public Health Service.

Needless to say it was impossible to provide enough doctors and nurses to treat the individual cases. This was done wherever possible, and the personnel worked unceasingly to treat the disease, but probably the most important thing that was done was to organize the local resources in advance of the height of the epidemic. Plans were made for opening of emergency hospitals as needed, volunteer nurses were organized, emergency kitchens established, etc., and in this way many communities were able to take care of themselves when the epidemic was well established.

The epidemic was increasing daily and calls for assistance began to come in from many sections. Obviously one office could not attempt to provide help for the whole country, so it was decided to appoint a director for each State. In many instances the State health officer was asked if he would accept appointment as a field director and as such direct the movements of the service personnel. In other instances an officer of the service was detailed to the State to cooperate with the health officer in directing relief. These officers were put on duty in the various States October 15 and were given complete instructions. All requests for aid were made direct to the officer in charge in the respective State, who was able to judge the merits of the different requests and so distribute his personnel as to get the best results.

Each State made daily reports by telegraph of the progress of the epidemic and the need for aid, and in this way the bureau was able to see the whole country and thus know where personnel could be shifted and where it would be of greatest use.

The Red Cross also placed a representative in each State, who was to look after its affairs. This officer cooperated with the State health officer and the Service representative, thereby avoiding duplication of effort and giving the best results possible.

The Commissioner of Indian Affairs reported on October 14 that the Indians on the various reservations were being attacked by the disease and requested that steps be taken to give him some assistance. Accordingly, he was made a field director and given the same authority as the directors in the various States. As a result a large number of doctors and nurses were appointed for duty with the Indians.

The latter part of October the disease appeared in Alaska and the governor requested aid. He was authorized to appoint certain

physicians and to incur expenditures for medical supplies, etc. Conditions soon became more serious, however, and as sufficient personnel could not be secured in Alaska, a Service officer on duty in the State of Washington was ordered to secure doctors and nurses and prepare for a trip to the Territory. A request was made to the Navy Department for a vessel to carry the relief party, and immediately the collier *Brutus* was fitted out for the trip. Some of the party were able to go ahead of the *Brutus*, so they met her in Alaska. After reaching Juneau the party was divided and by the use of small boats visited all the Islands that were affected. The Red Cross rendered very valuable assistance in Alaska, and all its chapters did everything possible to cooperate with the Service representatives.

The disease appeared in the District of Columbia early in October and almost at once the condition became very serious. Washington, of course, was very greatly crowded and new persons were coming in each day, thus making the congestion greater all the time. Obviously it was very important that nothing interfere with the work here for it was absolutely necessary to the prosecution of the war. The District health officer and representatives of the War Department requested that the service aid them in handling the epidemic, and acordingly an officer was ordered to Washington immediately to cooperate with the local authorities in handling the epidemic. The Surgeon General of the Navy offered the services of 40 medical offiers who were immediately available. An emergency hospital was opened with a capacity of 500 beds, this hospital being moved later to a smaller building having a capacity of about 100 patients. This latter hospital was in practically continuous operation from October until March 1, when it was discontinued.

During the epidemic 64 commissioned officers were on influenza duty, most of whom were giving their entire time to it. In addition to the commissioned officers, many temporary appointments were made. One thousand and eighty-five doctors were employed, 703 nurses and nurses' assistants, and 328 miscellaneous persons. This personnel was engaged entirely for influenza duty and gave their whole time to the work.

When the list of personnel is arranged according to States, the number is much larger, for a great many of these people were on duty and in two and some in three States. As far as possible the personnel was shifted from one State to another as conditions improved in one area. In this way a small force could be trained sooner and could be more economically handled.

The clerical work necessary in handling such a force was very great, indeed, inasmuch as it all had to be done in such a short time. The force at the bureau was greatly increased and at a time when trained clerks were not so easily obtained. Practically none could be secured who were familiar with department forms, etc., thus making the work even more difficult.

When the pay rolls and vouchers for other expenses began to come in the work was still further increased. On account of the urgent nature of the work many of the nominations, reports, etc., were necessarily made by telegraph with consequent inaccuracies. Many of the men had had no previous experience with Government forms and where possible an officer of the service was detailed to instruct

them in their preparation. This was a great help and aided materially in expediting the work.

The disbursing and accounting for $1,000,000 in amounts ranging from $1 to $5,000 is no small undertaking and requires considerable personnel. But considering all the obstacles to be overcome and the difficulty, amounting almost to an impossibility, of securing a trained clerical force, the work has been done with very little delay.

Had there been a reserve corps for the service, as had been advocated and passed by the Senate, the work would have been far easier, and perhaps better done. The bill for a reserve was in the House, where it had been for a year with no action having been taken. After influenza had become epidemic over practically the entire country this resolution was brought out of the committee and favorably acted upon by the House. This provided the reserve corps, but it came too late to be of any use in influenza.

By December 1 the epidemic had subsided to a large extent and activities were greatly curtailed. Requests still came in from various parts of the country and investigations were made in each instance and aid given where necessary. It was realized that in numerous instances attempts were made to retain physicians and nurses after the epidemic had subsided. Many communities were without sufficient medical men and naturally were loath to see the doctors leave. This was especially true of the coal-mining regions of Pennsylvania. Many of the companies were without physicians, as the men had entered the Army and they wished to retain doctors for their ordinary work. Of course this was not the purpose of this special appropriation and every effort was made to supply doctors only where epidemic conditions prevailed. The appropriation was so far exhausted that no expenditures have been made chargeable to it since February 15, and the men in the field were advised accordingly.

In addition to supplying doctors and nurses where needed, the service was called upon for advice on various questions of quarantine, etc. These requests were invariably referred to the State health officer when they involved only intrastate matters. A few instances arose where interstate traffic was concerned and in those cases, of course, the service was very greatly interested. In such cases, however, after a conference with the local and State health authorities, the questions were satisfactorily settled.

Through the cooperation of Federal and State authorities, it is felt that a great deal of good was accomplished. Aid was supplied where it would have been impossible otherwise. The States in many instances did not have funds which could be used for influenza, and the legislatures were not in session, so funds could not be made available. Undoubtedly many lives were saved and much suffering avoided by the combined efforts of the State and local authorities, the Red Cross, and the members of the Volunteer Medical Service Corps acting under the direction of the Public Health Service.

EXTRA-CANTONMENT ZONE SANITATION.

On account of the very strained relations existing between the United States and certain other countries, the bureau as early as February 3, 1917, detailed a board of commissioned officers of the service to draw up plans and make a report on the activities which would be demanded of the Public Health Service were a state of war declared. Included among the recommendations made was a plan of sanitation which should be instituted about any of the camps or training stations that might be established, as it was realized from the records of the Civil and Spanish American Wars that large numbers of men became unfit for service on account of the diseases contracted within the near boundaries of the camps. Consequently, upon the declaration of war these plans were perfected and as camp sites were designated the Public Health Service made ready to carry on activities for the prevention of the spread of disease and to properly protect the health of the military forces outside the camp limits. It was realized that in order to accomplish best results cordial cooperation should be extended by all health agencies involved. Consequently, State and local authorities were offered Federal assistance either in an administrative or advisory capacity, knowing that many of the State health authorities and the local health organizations could not meet the emergency suddenly thrust upon them by the influx of the great numbers of military men and industrial workers.

Upon the establishment of a camp service officers were detailed for a rapid sanitary survey of the extra-cantonment area in order to determine the disease problems which were most important, the machinery and funds available to meet the problems, and the amount of additional work necessary to control the situation. It was not known in advance how many camps were to be established, when or where located, nor what force of sanitary engineers or trained personnel would be needed, but it was very apparent that as soon as each camp site was approved disease control and preventive measures should be instituted as soon as possible.

During the period since July, 1917, when the first extra-cantonment zone was established about Camp Zachary Taylor, at Louisville, Ky., up to the end of the fiscal year, June 30, 1919, the primary object and aim of the service has been to do everything possible to protect the health of the fighting forces and the civilian population, and incidentally to demonstrate to local and municipal, as well as State authorities, the advantages to be derived from an effective health department.

To properly safeguard the health of the soldier and sailor it was necessary in many instances to install a complete organization, this being done only in those cases where the local authorities were not able to meet the situation caused by a very greatly increased population. It has been the policy of the service to cooperate to the utmost extent possible with the local agencies and to only supply sufficient personnel to meet the increased emergency conditions. On the

whole the spirit of cooperation on the part of State and local health authorities has been most cordial and they have shown great interest and evinced a strong desire to have the extra-cantonment zone in their localities in the best condition possible for their own protection, as well as for the protection of the health of the men in camp. In instances where individual States felt that their own organizations were able to meet the increased needs occasioned by the sudden increase in population no assistance was neccesary. In all the extra-cantonment zones where the Public Health Service exercised supervision or control the officer in charge was clothed with State and local health authority in order to properly enforce necessary legislation pertaining to general sanitation. Practically without exception it was found that the health machinery in the different zones was wholly inadequate to meet the increased demands suddenly imposed, and this deficiency was supplied by the Public Health Service. The aim in each place was to establish an adequate system of disease control and prevention and to strengthen the health organization by supplying the necessary expert supervision, or in those cases where no organization was present, to supply an organization sufficient to meet the needs of the local situation.

In the beginning of this work there were no Federal funds available for supplying additional personnel, and the American Red Cross, in order to cooperate, created a bureau of sanitary service with an officer of the Public Health Service as director. This bureau has cooperated in the sanitation of the extra-cantonment zones by an allotment of funds upon recommendation of the Surgeon General for the establishment and maintenance of Red Cross sanitary units, the Public Health Service official in charge of the extra-cantonment zone being the director of the unit, and the subordinate personnel consisting of public health nurses, sanitary inspectors, bacteriologists, etc., being supplied by the Red Cross. Funds were also available for transportation and supplies necessary for the operation of these sanitary units. Without the timely assistance which was received from the Red Cross, extra-cantonment zone work would have been greatly hampered and could not have been instituted on an extensive scale until after the passage by Congress of Public Act No. 181, Sixty-fifth Congress, H. R. 12441, as follows:

> Interstate quarantine service: For cooperation with State and municipal health authorities in the prevention of the spread of contagious and infectious diseases in interstate traffic, including the sanitation of areas adjoining military and naval reservations and Government industrial plants, in order properly to safeguard the health of the military forces and Government employees, $1,000,000.

It was realized that to properly protect and safeguard the health of the military forces the scope of activities must be very broad and cover many phases of work if disease hazard was to be reduced to a minimum. Consequently, emphasis was directed toward the following lines of endeavor:

Control of communicable diseases:
- Mosquito control and antimalaria work.
- Venereal disease control.
- Epidemiological work.
- Morbidity and mortality reporting.
- Distributing of serum, vaccine, etc.
- School inspection.
- Laboratory work.

Public health nursing.
Food, drink, and restaurant supervision.
Supervision of milk supplies.
Supervision of water supplies.
General sanitation:
- Sewage disposal.
- Garbage and waste disposal.
- Fly control.

Public health education.

Control of Communicable Diseases.

It was realized in the beginning that one of the important needs in the extra-cantonment zones was the control of communicable diseases. The control of communicable disease was not easy and in order to lessen the possibility of infection many different procedures were necessary. Every effort possible was made to keep a close touch upon the prevalence of disease. Prompt reporting of disease was urged and insisted upon from physicians in all the different zones in order that knowledge of their occurrence would be at hand as soon as possible and the necessary control measures instituted.

Mosquito control and antimalaria work.—In reducing the disease hazard for the soldier and sailor it was realized that special effort would be necessary to combat malaria in the areas about military cantonments, naval reservations, aviation camps, munition plants, shipyards, and other important war industries established throughout the whole of the South. It was realized that the introduction of large forces of laborers from malarious regions would produce new conditions in and around cantonment towns that would make extra precautionary measures more essential for the protection of the civilian, military man, and industrial worker. There was little danger of malaria being contracted within the cantonment reservation as the Sanitary Corps of the Army were prepared to adequately supervise these areas, but as the laborers and men were very likely to spend much of their time in the areas adjacent to the camps, protective measures were necessary for both. The important problem then was to do thorough work rapidly in all localities where military men were present in numbers in potentially malarious districts, as well as to prevent the breeding of mosquitoes and their subsequent flight into the reservations.

In the selection of camp sites the question of malaria prevalence and control of the future incidence of the disease was apparently only one of the many requirements to be considered, and as it was essential to expedite camp construction with all possible speed malaria preventive measures had to proceed accordingly in order to prevent future malaria transmission in that locality. The shortage of efficient labor and the necessity of obtaining funds that could be immediately applied were very important items. In connection with the antimalaria work in extra-cantonment areas the State, county, and city officials in many instances grasped this opportunity for the elimination of malaria and many made liberal contributions for assistance in the work. However, in some cases it was an extremely difficult and slow process to convince local authorities of the urgent necessity for appropriating immediately funds for this work. At this stage had it not been for the financial assistance

received from the American Red Cross, before Federal funds were available, work would have been greatly delayed. However, as a whole the support given by the authorities throughout the Southern States was very encouraging.

Malaria-control measures were carried on usually in an area about 1 mile wide surrounding the reservation, industrial plant, and city or town adjacent, it being deemed sufficient, from experience obtained in the malaria-control work in the Panama Canal Zone that if this strip 1 mile wide were kept free from mosquitoes, those breeding beyond the border would not gain access to the camp, and if the 1-mile-wide area were kept free no malaria mosquitoes would be found in the camp.

The work, which was done, consisted in the drainage of swamps, ponds, wet areas, and seepage outcrops; the proper clearing, training, and regrading of natural watercourses; the application of oil at definite periods to all remaining mosquito-breeding areas; and the modification and systematic treatment of shore lines and shallow parts of large lakes and ponds, together with the proper maintenance measures necessary. In order to accomplish this work, the services of skilled engineers with special training and experience in antimalaria work were necessary.

To attain the desired results many and various local engineering problems had to be met and drainage work done by various methods such as by the use of steam shovels, ditching machines, plows, explosives, and by hand. Some of the problems may be illustrated by the following examples:

Near Macon, Ga., were six lakes in a large, heavily wooded, swampy area with a soft silt bottom. Its feeder stream was diverted to the Ocmulgee River by means of a ditch dug with a steam shovel. Ditches were extended into the main swamp, which was several miles long and had but little grade. After deepening these ditches to a certain point, pressure on the banks would cause the bottom of the ditch to bulge up. Saplings were used and laid parallel to the banks as a ditch lining or wall to support the banks, stakes being driven to hold the saplings in place. Later, as the ditch banks dried the bottom was cleared and deepened, the banks drying out and becoming solid enough to hold to grade. As the silt and mud in this swampy area was too soft to dig to advantage a large part of the ditching was done by dynamite. Several weeks after the ditches through the swamp were dug it was well drained and dried. In installing some of the ditches the semiliquid mud was so soft it had to be removed by bailing. After the swamp once became dry no difficulty was experienced in the maintenance.

In the vicinity of Montgomery, Ala, a large part of the ditching was accomplished by means of a ditching plow drawn by mules. The topography being fairly flat and the soil suitable for this means of ditching resulted in many miles of ditches being installed at a very low cost—about $55 per mile. In this area several ponds and wet areas were drained to a porous gravel subsoil by vertical drains put down by a well-boring outfit.

Surrounding the cantonment at Jacksonville, Fla., is a sandy formation that will stand only on a very flat slope. The ditching there was made difficult by the presence of the roots of the palm plant, which are several inches in diameter and from which radiate

small roots lying so close together that removal of the main root was very difficult. A large part of the ditching work there was done by the use of dynamite. In addition to ditching it was necessary to remove much tightly packed water hyacinths from one of the branches of the St. Johns River in order to eliminate mosquito breeding from the covered surface.

About the cantonment at Hattiesburg, Miss., are hills of sandy formations, but in the ravines are narrow areas of wet, siltlike formation 6 to 10 feet deep penetrated by heavy masses of large roots. It was found too slow and expensive to excavate ditches by hand in such places, but drainage was accomplished by blasting center ditches and installing side seepage ditches where necesssary.

Wilmington, N. C., had an unusual problem. Close to and even within the town limits were extensive abandoned rice fields subject to overflow and generally wet. It was necessary to repair or reconstruct dikes and use tidal gates to prevent mosquito breeding.

Around Chattanooga, Tenn., elimination of anopheles-breeding areas was accomplished by draining ponds to holes dug down to the limestone formation, where it was absorbed. Breeding in the large spring and lake near Camp Oglethorpe was controlled by the use of a subaqueous saw to remove the aquatic vegetation that furnished protection for anopheles larvæ.

The problem near the aviation field at Millington, Tenn., was the removal of drift in several miles of a deep creek bed with a very low grade. Many of the collections of drift and log jams were 6 to 12 feet high and 50 to 100 or more feet long, containing many fallen trees and logs as much as 30 feet or more in diameter. Removal of the jams and drainage of the stream was expensive, slow, and tedious work, but subsequently only three cases of malaria were reported in the town where during the previous years records show that 50 per cent of the sickness was due to malaria.

At the aviation field at Lonoke, Ark., as well as at Lake Charles, La., rice fields, which are probably the most prolific mosquito-breeding areas, are located within flight range of the cantonment and control was by no means easy.

One of the most efficient demonstrations was carried on along the Mississippi Gulf coast from Biloxi to Pass Christian, a distance of about 27 miles. The topography of this district is generally extremely flat and swampy, inundated depressions, most often parallel to the shore of Mississippi Sound, extending uninterruptedly for miles in an east and west direction and occurring in numbers as high as 14 or 15 in a strip a mile wide. The soil is practically pure sand with surface humus 15 to 30 inches deep except on the ridges. Most of the swamps contain a heavy root growth of palmetto, cypress, gum, and bay, which made drainage a very difficult problem. However, as a result of the malaria-control measures instituted along this strip, and due to the substantial financial support given by local and county authorities, the area has been made practically free from malaria. It is now the longest known area of the southern seacoast which is practically free from the malaria-conveying mosquito and without doubt will soon pay well as a financial investment.

In many places where it was not practicable to drain all mosquito-breeding areas it was necessary to control breeding by the use of oil applied to the surface of streams, ponds, and potential breeding

places. A mixture of kerosene and crude oil was found most efficacious and was applied to the water surface by the use of various methods—knapsack-spray pumps, by which the operator carried a spray pump strapped to his back fitted with a hose and nozzle which would throw a fine spray of oil. This method was particularly advantageous where stream edges could not be cleared, where there was no current, or where the current would not carry oil to the margin. The drip can was found very efficacious in slowly running streams, the oil being placed in a can and the dripping gauge so regulated as to allow the necessary amount of oil to pass out.

Still another method which proved very good was the use of oil-soaked sawdust or waste placed on the surface of the water or anchored beneath the surface.

Where oiling was used as a measure of malaria control regular applications were necessary at certain specified times, and in order to keep a check upon the effectiveness of antimalaria operations trained personnel were detailed to completely cover the flight zone once a week to determine whether the breeding of mosquitos was controlled. In this way the whole area was at all times under supervision.

Excellent results were accomplished by the Army Sanitary Corps within the military reservations. Most cordial relations existed between that corps, whose duty it was to prevent mosquito production within the military cantonment, and the officers of the Public Health Service, who directed measures in the 1-mile zone surrounding the reservation as well as in the cantonment town and the area surrounding the town. In addition, it was frequently necessary that the Public Health Service undertake similar control operations about distant amusement parks and other areas where military men and industrial employees congregated.

A further method of control which was instituted in many of the zones was the seeding of ponds with larvæ-eating top minnows. Assistance was rendered by the Bureau of Fisheries in detailing their experts to several of the zones to properly supervise this seeding.

A very interesting and instructive piece of work was done in the extra-cantonment zone about the aviation field at Lonoke, Ark., in which three of the four general methods of malaria-control measures were instituted and enforced. The control of mosquito breeding was carried on as in other zones; preventing the access of mosquitoes to well people was carried out by requiring all buildings within the zone to be properly screened, no entertainments or public gatherings being allowed in other than screened inclosures, hence all open-air night gatherings being eliminated; preventing the infection of mosquitoes, or human control, consisted in the detection and sterilization by quinine of human carriers of the malaria parasite, this being determined by blood examination. The fourth method, immunization against malaria was not instituted. The results of malaria-control work in that zone are very interesting when the mortality and history incidence in 1917 is compared with mortality and case reports in 1918. In 1917 four deaths from malaria occurred within the controlled area, giving the death rate of 160 per 100,000. During 1918 no deaths occurred. The history incidence in 1917 showed that 29 per cent, or 522 persons, suffered from the disease, whereas in 1918 only one case occured.

The results accomplished in antimalarial work in the extra-cantonment zones extending from Massachusetts to Texas and from Louisville, Ky., to Jacksonville, Fla., covering 40 areas in 15 States, have not been the absolute prevention of malaria, but certainly made the problem one of no consequence for the military authorities and for the civilian population within the controlled areas. As shown in table No. 2, following, the total area of over 1,227 square miles has been under supervision, giving protection to an average total of 1,140,800 military men at all times, the individual men being constantly changed as well as to a total of 3,757,848 of the civilian population.

Where cantonments were located in notoriously malarious sections very little malaria has been contracted by enlisted men and the malaria sick rate among enlisted men in camp, if from the South, was very much lower than had they stayed at home. When the Army and Navy sick-rate figures are published it will undoubtedly be shown that, due to the proper mosquito-control measues, practically very little, and in many instances, no malaria has been contracted at camps located in regions noted for malaria. In many of the extra-cantonment zones antimalaria work was in progress for two seasons, and the consensus of opinion of the results of this work can be well shown by the following statements based upon reports received from local physicians and supplied by medical officers in charge of the extra-cantonment zones:

Americus, Ga.—Only one case malaria at camp. That was recurrent. City physicians report marked reduction of cases in town this year.

Anniston, Ala.—One thousand two hundred blood specimens in 1918 extra-cantonment area, all negative, while in 1913 index showed 10. 8 per cent. No cases originated at camp. One hundred and forty-one cases in August, September, and October were imported.

Atlanta, Ga.—Army surgeon, Camp Gordon, thinks malaria-control work practically perfect. Very few if any cases of malaria of local origin at camp.

Augusta, Ga.—Insurance companies at Augusta report decrease of claims payments for malaria this year compared to last year. Only 13 cases contracted while at camp, including period of hikes.

Charlotte, N. C.—Cases reported mostly imported ones; total, 6 cases.

Columbia, S. C.—One case only contracted in camp. Marked decrease mosquito infestation. The 1914 index showed 11 per cent.

Englewood, N. J.—No cases of malaria contracted at camp. Thirty-three imported cases. Mosquito reduction very marked. Malaria not previously prevalent here.

Greenville, S. C.—Consensus opinion local medical profession and Army Medical Corps is that work has been thoroughly successful.

Gulfport, Miss.—Work has almost entirely prevented malaria infection among men at naval station—only one case contracted. In extra-cantonment area during August, 1917, there were 200 cases; September, 1917, 279; August, 1918, 62 cases; September, 1918, 39 cases.

Hattiesburg, Miss.—Town physicians report about 90 per cent reduction in malaria. Military authorities report no malaria traceable to extra-cantonment area.

Lake Charles, La.—All physicians report considerable reduction of malaria here. Doctor with most extensive practice states malaria has been reduced 90 per cent. The 11 cases reported this year by local physicians were chronic cases. Municipal authorities and citizens have expressed their satisfaction of work accomplished and results achieved.

Little Rock, Ark.—Concensus opinion data collected by service and Army show malaria-control work very effective. Base hospital, Camp Pike, cases give no history of disease contracted at camp or extra-cantonment. Amount malaria in control zone in 1917 extremely small.

Lonoke, Ark.—No case of malaria within extra-cantonment area. Several cases in camp, where less intensive work was done.

Louisville, Ky.—Marked relief from mosquito pest; very few malaria cases in zone; not malarious locality.

Jacksonville, Fla.—Natives report never have seen so few mosquitoes and so little malaria as this year. Camp Army medical officers report very few anopheles, but think malaria rate would have been high except for work in cantonment and extra-cantonment areas.

Macon, Ga.—Army states practically no malaria contracted in area this year. City authorities report very few cases in city this year. Marked decrease in mosquitoes.

Montgomery, Ala.—Medical and business men report fewer mosquitoes and less malaria than in previous years. Camp had excellent record.

Muscle Shoals, Ala.—Very few new cases in district. The two most prominent physicians, whose practice ran 50 per cent or more malaria in previous years, report seeing no new cases this year. Mosquitoes scarce.

West Point, Miss.—Concensus opinion civil, medical, and military is that work has practically eliminated mosquito pest and produced marked reduction in malaria.

Wilmington, N. C.—Reduction of mosquitoes followed progress of work.

The great volume of work which has been done would not have been possible had the individual communities, towns, and local organizations not contributed liberally for assisting and extending antimalarial activities. The railroad corporations gave strong support and willingly did such drainage work as was requested. The support given by the public of the South and the officials who represent them, even in the relatively poor and sparsely settled districts, deserve highest commendation and approximately half of the extra-cantonment towns of the South have planned to continue mosquito-control measures after the withdrawal of service officers.

As a result of the demonstration, one State legislature, for the first time in the history of this county, appropriated funds for carrying on antimalaria-control measures in the State. This should be followed in the next few years by all the States throughout the South and thus be a big step toward the prevention of the annual national loss due to malaria.

Table No. 2, on page 102, gives a summary showing the number of square miles under supervision in and around each extra-cantonment area, the number of miles of ditches dug, streams rechanneled, drained, etc., as well as the total amount of oil used as a larvacide. To carry out this work there was in the employ of the service 50 sanitary engineers and an average of 100 scientific assistants, 225 sanitary inspectors, 500 foremen, and 3,000 laborers.

Venereal disease control work was carried on in all the extra-cantonment zones. Report of the venereal disease activities is taken up under the Division of Venereal Diseases.

MORBIDITY REPORTS.

Without an accurate knowledge of the occurrence and location of communicable disease it was obviously impossible to put into effect efficient measures for control.

As soon as a disease was reported an inspector or public health nurse was detailed to make an investigation in order to collect all available epidemiological data and obtain the knowledge, if possible of when, where, and under what conditions the disease was contracted. If necessary, isolation and quarantine measures were enforced and the house placarded. Diagnosis of the disease was confirmed by laboratory examination where indicated, and in conditions such as diphtheria, meningitis, etc., a laboratory check was kept on those coming in contact with the patient in order to determine whether or not they were carriers and harboring the germ of the disease.

Special emphasis was placed upon morbidity reporting as the available records in most of the extra-cantonment zones showed that in practically all cases the mortality report from any specific disease exceeded the morbidity report of the same disease. As a result of this intensive work most of the doctors soon became very prompt in reporting disease, and consequently a much better check was kept on the incidence. Reciprocal notification was maintained with the military authorities, and all assistance possible rendered whenever needed. Universal inoculation against typhoid fever and vaccination against smallpox has been urged with the result that available records from 34 extra-cantonment zones show that 435,066 people have been inoculated against typhoid fever and 260,338 vaccinated against smallpox. Table No. 3, on page 103, shows the number of people inoculated at the different zones.

Effort was made to exercise supervision over schools in order to maintain the closest possible touch on the incidence of disease. Routine physical examinations of the students were made in as many places as possible, and in 18 zones 89,277 school children were examined. Cooperation was usually extended by the principals of the various schools to the extent of furnishing the medical officer on duty in the extra-cantonment zone with daily lists of absentees due to sickness. These lists were immediately checked and nurses and doctors sent out to investigate the condition. In many of the zones where vaccination of the school children was not already enforced, ordinances to that effect were passed by the local authorities and practically without exception all school children in extra-cantonment zones have now been vaccinated against smallpox and a goodly percentage against typhoid fever.

In order to control communicable diseases as effectively as was done it was necessary in many cases to install a complete laboratory and to furnish a bacteriologist for diagnoses. In some zones laboratories were already present, but the service rendered necessary assistance by supplying bacteriologists. Reports from the laboratories in 24 zones show that a total of 195,564 routine laboratory examinations were made. The laboratories were of very great assistance in the determination of carriers in those who had been exposed to infection and undoubtedly through the efficient laboratory diagnosis and subsequent isolation or quarantine of the carriers prevented the spread of infection.

There were occasional epidemics of individual diseases, such as measles, scarlet fever, diphtheria, meningitis, smallpox, and typhoid fever, none of which became more than of local importance, the only epidemic of alarming proportions being that of influenza, which spread over the whole country and the report of which is taken up separately. During the influenza epidemic, however, all extra-cantonment zone personnel, including service officers, doctors, and nurses on duty, were directed to devote all their energies toward combating the disease and giving relief to the sufferers.

PUBLIC HEALTH NURSING.

Another very important phase of extra-cantonment zone work and one which did a great deal for the prevention and control of disease was public health nursing. In the beginning all nurses were

detailed to the directors of sanitary units by the American Red Cross, but subsequently this number was increased by the service employing many local nurses. A further increase of nursing personnel was brought about by the coordination of all nursing agencies within the individual city or town in order that greater efficiency might be obtained and to prevent duplication of effort. This system, where inaugurated, proved very efficacious, as there was one directing head instead of a head for each previously existing organization.

The duty of the public health nurse was to investigate all cases of communicable diseases, to instruct members of the household in the proper care of patients in order to prevent the spread of the disease to other members of the family, to give instructions in the proper methods of nursing, disposition to be made of excreta, the use of disinfectants, etc. In addition to visiting cases of communicable disease the nurse assisted in school-inspection work and in follow-up visits of the absentees from school in order to determine if the cause of absence were due to communicable disease. In carrying out public health nursing it oftentimes happened that the nurses found and reported many cases of communicable disease, they being able to get closer to the families and being informed of cases of sickness in the neighborhood which had not been seen by a doctor.

Table No. 4 following, which does not give the total number of visits and revisits made in many of the zones, will tend to give some idea of the amount of work which they did.

FOOD, DRINK, AND RESTAURANT SUPERVISION.

Prior to the establishment of camps near the various extra-cantonment zone towns, food and restaurant supervision was carried on by the local authorities. In some instances excellent results were being accomplished, but in the great majority the accomplishment and results left much to be desired in ordinary times.

Upon the establishment of the camps, with the consequent increase in population, there was naturally a demand for a great many more food and drink establishments, which the local authorities with their limited means could not properly supervise. Included in the number of new food and drink establishments were also to be found many mushroomlike establishments, especially near the borders of the camp, of primitive construction, with few facilities and no regard for ordinary cleanliness. It was therefore realized that a special effort should be made to insure that all food and drink supply establishments be brought under rigid supervision. The local inspection force was therefore increased by service personnel and a system of inspection and certification inaugurated in practically all of the extra-cantonment zones as the result of an order sent out from the Surgeon General's Office of the Army under date of December 3, 1917, directing officers in command of the different camps to cooperate in every way possible with Public Health Service officials who were charged with the sanitation of the extra-cantonment zones. Orders were usually issued by the commanding officer allowing no men in uniform. to patronize a place not certified by Public Health Service officials. Where necessary this order was enforced by placing military police on guard in front of establishments not certified in order to prevent soldiers from patronizing them. The city organizations cooperated

to the extent of passing modern ordinances and regulations governing the operation of these establishments.

Inspections of all places within the zone where food or drink was prepared or offered for sale were made and instructions given for the necessary improvements to be made. All employees of such places were required to present a certificate or submit to a physical examination in order to determine whether or not they were suffering from communicable disease. Vaccination against smallpox and typhoid fever was also required. Reinspections of such places were made at regular intervals and their sanitary score kept up. Most excellent results were accomplished in this phase of the work, due to the cooperation extended by the local authorities and the Army officials. It was oftentimes slow and tedious, but as a result of the gradual education of the proprietors of such establishments, they usually in the end appreciated the advantage to be derived by maintaining their places in a sanitary condition.

The inspection and supervision of food and drink establishments as carried on under this heading included hotels, restaurants, cafés, grocery stores, delicatessens, bakeries, candy kitchens, and such like. Special emphasis was placed upon the establishments being screened; all food covered and protected from flies, dust, and dirt; proper sterilization of the utensils, glasses, spoons, etc.; ample washing and toilet facilities; necessary ventilation and general cleanliness.

It is impossible to tabulate results of the many and various kinds of improvements made, nor is it possible to give any estimate of the expenditures necessary, but the rusults of the improvements will continue to be active for many years to come.

Since milk is one of the very important sources of food, being used universally, and also a frequent medium for the spread of acute infectious diseases, it was necessary to exercise rigid supervision over the supply. About a majority of the camps throughout the South the milk is supplied by local producers and dealers; it very rarely coming from a distance greater than 75 miles. Taken as a whole, the dairies were not up to an approved standard and much supervision along educative and inspection lines was necessary. Cordial cooperation was extended by the Bureau of Animal Industry, Department of Agriculture, in detailing milk and dairy experts to the service for assistance. Specially trained men in milk and dairy work were also supplied by the American Red Cross. Necessary legislation was usually secured by the passage of modern ordinances governing the sale and production of milk and milk products, which resulted in great improvement of the supply.

Special emphasis was laid upon the sanitary condition of the dairies. It was demanded that the barns and milk houses be remodeled or rebuilt to meet an approved standard. A sanitary method of excreta disposal was instituted and general sanitary conditions bettered. A physical examination of all employees and milkers, together with vaccination against smallpox and typhoid fever, was also required. In many cases where tuberculine testing of cattle was not already required this was instituted.

Many improvements in the methods of producing milk were inaugurated, special emphasis being placed upon—1, all udders being thoroughly cleaned before milking; 2, all milking done with dry

hands or modern mechanical milking apparatus; 3, the use of the small top milk pail; 4, properly straining the milk; 5, proper cooling; 6, proper sterilization of utensils; 7, prompt delivery.

The importance of properly supervised pasteurization was made plain to the producers and handlers of milk, and in all instances possible this was insisted upon, which resulted in the establishment of many new pasteurizing plants and the remodeling and enlarging of previously existing ones. It was urged that all restaurants, soda fountains, cafés, hotels, etc., use pasteurized milk delivered in original containers.

SUPERVISION OF WATER SUPPLIES.

In view of the fact that the water supply of most of the cities in which extra-cantonment zone headquarters were located was also the supply for camps adjacent to the city, it was deemed advisable and very essential to exercise some supervision over these supplies. In many of the zones local officials requested the service to supervise their water supplies on account of the fact that the superintendents, engineers, etc., had in many cases gone into the Army. It was found necessary for officers of the service to make field surveys of watersheds, to superintend the operation of filter plants, and to see that the chemical treatment of the water was efficient.

In different extra-cantonment zones all varieties of water supplies were encountered, some of the zones having deep wells, some flowing artesian wells, some creek or river water, and others impounding reservoirs.

Water from the deep wells and artesian wells was usually of good quality, supervision being necessary only to prevent pollution by broken mains, faulty check valves in subsidiary supplies for fire purposes, leaky reservoirs, etc.

Many of the towns resorted to the use of creeks and rivers for their water supply, some of them having modern filter plants, but others only having settling basins and depending upon the use of chemicals for purification. In all zones it was urged that the cities using creek or river water not already having a modern water purification plant install one.

There were several of the zones which made use of an impounding reservoir, the water being collected from a watershed, usually municipally owned or supervised. Service supervision in these cases included a thorough sanitary survey of the whole watershed, and if sanitary nuisances were found their immediate abatement ordered and enforced. If the watershed was populated each home was required to install some approved method for sanitary disposal of human excreta.

A constant laboratory check was at all times kept on the bacteriological content of the supply. This, with the frequent field surveys of the watersheds and the intimate knowledge of the efficiency of the individual units of the plants, resulted in a constant index of the character of the water used being kept. In addition, there was a rigid check upon the sanitary purity of the water as delivered to the camps by the military authorities.

SEWAGE DISPOSAL.

It was realized that the inspection and supervision of sewage-disposal methods were very necessary. In those cases where supervision was lacking the service supplied trained personnel for this phase of the work. The extra-cantonment area was divided into urban and rural districts, the urban into the sewered and unsewered areas. Surveys were made in order to determine the existing conditions. This survey included data on the number of sewered homes in the sewered area and the number of homes not sewered, together with data on the number of homes in unsewered area which were not provided with a sanitary method of disposal of human excreta. Most of the cities previously had ordinances requiring all buildings within the sewered area to be connected to sewers where water and sewer mains were available, but regulations relative to unsewered districts were in the majority of instances extremely lax and inefficient. The service policy in these cases was to encourage the enforcement of existing ordinances and to insist upon the passage of ordinances demanding that homes outside of sewered areas be compelled to install a sanitary privy of some kind. The system recommended and the one which most of the ordinances called for was the installation of the box and can sanitary privy and the operation by the city of a scavenger service and disposal stations. Most of the towns and cities passed ordinances to this effect, and the results have been very gratifying, both in the operation of the system and in the lessening of typhoid fever and other intestinal diseases.

In the rural areas surrounding the camps it was realized that the individual homes should be provided with some sanitation method for the disposal of human excreta. Initial surveys showed conditions to be very primitive in many instances, and it was finally decided that the most satisfactory type of privy that could be installed was the double compartment concrete vault. These vaults were installed by a cooperative plan, the county or rural district supplying half the funds for the supervision and labor and the service the other half, the individual for whom work was to be done supplying the necessary materials for the construction of the vault. As a result of activities along these lines, double compartment concrete privy vaults have been installed at practically every home within the 5-mile zone surrounding a great many of the camps.

EDUCATION.

In extra-cantonment zone sanitation great stress has been put upon public health education. Lectures upon health subjects illustrated by slides and motion pictures were delivered. Hearty cooperation has usually been extended by the local newspapers in giving publicity to the work, what it meant for the community, and the results accomplished. Thousands and thousands of public health pamphlets and bulletins upon subjects pertaining to health and sanitation have been distributed and everything possible done to keep before the minds of the public the great importance and benefits to be derived from an active, alert, modern health department.

To carry out extra-cantonment zone work and the disease-control measures as outlined above, service supervision was maintained in 51

zones, the town most adjacent to the camp usually being selected as service headquarters and the extra-cantonment zone bearing the name of the town instead of the camp. Table No. 1, following, shows the areas under supervision in the different extra-cantonment zones, and Table No. 5 the expenditures made for carrying on the work as incurred jointly by the Public Health Service, American Red Cross, and local agencies.

As was stated in the beginning, aside from the protection of the health of the military, naval, and industrial forces, one of the aims of the service was to assist in building up local health organizations and to demonstrate the advantages to be derived from a full-time and efficient organization. The work done by the Public Health Service in cooperation with State and local health authorities in the 51 extra-cantonment zones was unquestionably the greatest public health demonstration that this country has ever seen, and demonstrated so clearly the advantages to be derived from a well-organized and fully equipped health department that when service activities were concluded 22 towns and cities in which the service had been operating created and made provision for a complete organization with full-time health officials, 13 zones having full-time organizations when service activities were instituted.

TABLE No. 1.—*Showing the location of extra-cantonment zone headquarters, the officers in charge, dates upon which station was opened and closed, and areas under supervision.*

Extra-cantonment area.	Officers in charge.	Opened and closed.	Areas under supervision.
Alexandria, La	Passed Asst. Surg. H. F. Smith.	July —, 1917 Feb. 28, 1919	Extra-cantonment area about Camp Beaureguard and city of Alexandria.
Alexandria, Va	Scientific Asst. W. L. Wood. Asst. Surg. R. P. Sandidge	July 15, 1918 June 30, 1919	Extra-cantonment area about Camp Humphreys, city of Alexandria, and city of Frederick.
Americus, Ga	Asst. Surg. R. L. DeSaussure. Asst. Sanitary Engineer W. D. Tiedeman.	Apr. 15, 1918 June 30, 1919	Extra-cantonment area about Souther Field and city of Americus.
Anniston, Ala	Passed Asst. Surg. J. R. Ridlon. Asst. Sanitary Engineer Sol Pincus.	Aug. —, 1917 Feb. 28, 1919	Extra-cantonment area about Camp McClellan and city of Anniston.
Atlanta, Ga	Passed Asst. Surg. R. M. Grimm. Surg. B. W. Brown. Passed Asst. Surg. H. J. Warner. Associate Epidemiologist C. C. Applewhite.	July 26, 1917 June 30, 1919	Extra-cantonment area about Camp Gordon, rifle range at Norcross, Fort McPherson, Camp Jesup, and city of Atlanta.
Augusta, Ga	Prof. C. W. Stiles	Nov. —, 1917 Feb. 28, 1919	Extra-cantonment area about Camp Hancock, rifle range, artillery range, remount station, and city of Augusta.
Ayer, Mass	Surg. E. K. Sprague	Jan. 1, 1918 Mar. 31, 1919	Extra-cantonment area about Camp Devens and 10 small towns in area.
Brunswick, Ga	Scientific Asst. Samuel Saunders. Asst. Surg. M. V. Ziegler	Aug. —, 1918 June 30, 1919	Area about picric acid plant and city of Brunswick.
Charleston, S. C	Passed Asst. Surg. W. H. Slaughter. Passed Asst. Surg. H. F. Smith. Asst. Surg. L. L. Williams	Aug. 15, 1918 June 30, 1919	Extra-cantonment area about Fort Sumter, Fort Moultrie, rifle range, navy yard, port terminal, and city of Charleston.
Charlotte, N. C	Surg. B. W. Brown Asst. Surg. P. M. Stewart	Sept. 19, 1917 Jan. 31, 1919	Extra-cantonment area about Camp Greene and city of Charlotte.
Chattanooga, Tenn	Passed Asst. Surg. C. P. Knight.	Sept. 10, 1917 Feb. 28, 1919	Extra-cantonment area about Chickamauga Park, Fort Oglethorpe, North Chattanooga, East Chattanooga, Alton Park, St. Elmo, Missionary Ridge, East Lake, and city of Chattanooga.

TABLE No. 1.—*Showing the location of extra-cantonment zone headquarters, the officers in charge, dates upon which station was opened and closed, and areas under supervision*—Continued.

Extra-cantonment area.	Officers in charge.	Opened and closed.	Areas under supervision.
Chillicothe, Ohio	Surg. D. E. Robinson Surg. H. G. Ebert	Oct. —, 1917 June 30, 1919	Extra-cantonment area about Camp Sherman and city of Chillicothe.
Columbia, S. C.	Passed Asst. Surg. Friench Simpson. Asst. Surg. R. L. DeSaussure	July —, 1917 June 30, 1919	Extra-cantonment area about Camp Jackson, Emerson Field, and city of Columbia.
Columbus, Ga.	Associate Sanitary Engineer J. K. Hoskins.	Sept. 16, 1918 June 30, 1919	Extra-cantonment area about Camp Benning and city of Columbus.
Des Moines, Iowa	Surg. E. K. Sprague Passed Asst. Surg. W. C. Witte.	Aug. —, 1917 Feb. 28, 1919	Extra-cantonment area about Camp Dodge, five small towns, and city of Des Moines.
Englewood, N. J.	Asst. Epidemiologist C. C. Applewhite. Scientific Asst. P. L. Rush Asst. Surg. R. E. Dyer	Feb. —, 1918 June 30, 1919	Extra-cantonment area about Camp Merritt and several small towns.
Fayetteville, N. C.	Passed Asst. Surg. A. R. Sweeney.	Sept. 17, 1918 June 30, 1919	Extra-cantonment area about Camp Bragg and city of Fayetteville.
Fort Worth, Tex.	Surg. J. H. Oakley Asst. Surg. J. G. Townsend Surg. L. L. Lumsden	Oct. —, 1917 Feb. 28, 1919	Extra-cantonment area about Camp Bowie, Carruthers Field, Barron Field, Hicks Field, and city of Fort Worth.
Greenville, S. C.	Surg. B. W. Brown Asst. Surg. D. J. Prather Passed Asst. Surg. H. F. White.	Aug. —, 1917 Feb. 28, 1919	Extra-cantonment area about Camp Sevier and city of Greenville.
Gulfport, Miss.	Associate Sanitary Engineer L. C. Frank.	Mar. —, 1918 June 30, 1919	Extra-cantonment area about naval training station; cities of Gulfport, Biloxi, and Pass Christian.
Hattiesburg, Miss.	Passed Asst. Surg. J. A. Watkins. Asst. Surg. C. E. Gibbs Asst. Epidemiologist F. E. Harrington.	Aug. —, 1917 Feb. 28, 1919	Extra-cantonment area about Camp Shelby and city of Hattiesburg.
Houston, Tex.	Surg. J. M. Holt	Oct. 11, 1917 Feb. 28, 1919	Extra-cantonment area about Camp Logan, Ellington Field, Reams Field, and city of Houston.
Jacksonville, Fla.	Passed Asst. Surg. O. H. Cox.	Jan. —, 1918 Feb. 28, 1919	Extra-cantonment area about Camp Joseph E. Johnston and city of Jacksonville.
Lake Charles, La.	Asst. Sanitary Engineer F. R. Shaw.	Apr. —, 1918 Feb. 28, 1919	Extra-cantonment area about Gerstner Field and city of Lake Charles.
Lawton, Okla.	Passed Asst. Surg. W. H. Slaughter. Passed Asst. Surg. L. O. Weldon.	Mar. —, 1918 Feb. 28, 1919	Extra-cantonment area about Fort Sill, Post Field, and city of Lawton.
Leavenworth, Kans.	Asst. Surg. J. G. Wilson Asst. Surg. T. B. H. Anderson	Aug. —, 1917 Feb. 28, 1919	Extra-cantonment area about Fort Leavenworth and city of Leavenworth.
Little Rock, Ark.	Senior Surg. C. C. Pierce Epidemiologist J. C. Geiger Associate Sanitary Engineer R. E. Tarbett. Passed Asst. Surg. J. G. Townsend.	July —, 1917 June 30, 1919	Extra-cantonment area about Camp Pike, picric acid reservation, and cities of Little Rock and North Little Rock.
Lonoke, Ark.	Passed Asst. Surg. L. O. Weldon. Epidemiologist J. C. Geiger	Aug. —, 1917 Feb. 28, 1919	Extra-cantonment area about Eberts Field and city of Lonoke.
Louisville, Ky.	Surg. L. D. Fricks	July —, 1917 June 30, 1918	Extra-cantonment area about Camp Taylor; Artillery camp, West Point; Quartermaster depot, New Albany, Ind; and city of Louisville.
Macon, Ga.	Passed Asst. Surg. C. L. Williams.	Jan. —, 1917 Feb. 28, 1919	Extra-cantonment area about Camp Wheeler and city of Macon.
Manhattan, Kans.	Senior Surg. C. E. Banks Surg. H. G. Ebert	Aug. 18, 1917 June 30, 1919	Extra-cantonment area about Camp Funston, Fort Riley, and city of Manhattan.
Millington, Tenn.	Asst. Surg. L. L. Williams Asst. Sanitary Engineer S. B. Bowne.	Aug. —, 1917 Jan. 1, 1919	Extra-cantonment area about Park Field and city of Millington.
Montgomery, Ala.	Passed Asst. Surg. H. F. White. Passed Asst. Surg. Robt. Olesen.	Aug. —, 1917 June 30, 1919	Extra-cantonment area about Camp Sheridan, Taylor Field, aviation repair shops, and city of Montgomery.

TABLE No. 1.—*Showing the location of extra-cantonment zone headquarters, the officers in charge, dates upon which station was opened and closed, and areas under supervision*—Continued.

Extra-cantonment area.	Officers in charge.	Opened and closed.	Areas under supervision.
Muscle Shoals, Ala	Asst. Surg. H. S. Mustard Asst. Surg. Thos. Parran Asst. Sanitary Engineer W. G. Stromquist.	Mar. —, 1918 June 30, 1919	Extra-cantonment area about nitrate plant and cities of Florence, Tuscumbia, and Sheffield.
Nashville, Tenn	Passed Asst. Surg. R. C. Derivaux.	July 24, 1918 June 30, 1919	Area about Old Hickory powder plant and city of Nashville, Tenn.
New London, Conn	Passed Asst. Surg. H. C. Cody.	Aug. 1, 1918 Dec. 31, 1918	Area about naval base and city of New London.
Newport News, Va	Surg. S. B. Grubbs Passed Asst. Surg. W. F. Draper. Passed Asst. Surg. C. H. Waring. Epidemiologist T. D. H. Griffitts.	Aug. —, 1917 June 30, 1919	Extra-cantonment area about Camp Alexander, Camp Stuart, Camp Morrison, Camp Hill, and city of Newport News.
Odenton, Md	Surg. E. A. Sweet Associate Sanitary Engineer Sol Pincus.	May – Aug., 1918. Apr.–June 30, 1919.	Extra-cantonment area about Camp Meade and several small towns.
Pensacola, Fla	Asst. Surg. P. D. Mossman Passed Asst. Surg. O. H. Cox.	Sept. —, 1918 June 30, 1919	Area about naval aviation station and city of Pensacola.
Petersburg, Va	Passed Asst. Surg. W. F. Draper. Asst. Surg. J. D. Applewhite.	July 14, 1917 June 30, 1919	Extra-cantonment area about Camp Lee and cities of Petersburg and Hopewell.
Portsmouth, N. H	Passed Asst. Surg. Paul Preble.	May —, 1918 Feb. 28, 1919	Area about naval base, Portsmouth, Kittery, York, and several smaller towns.
Portsmouth, Va	Acting Asst. Surg. G. M. Converse. Scientific Asst. Fred T. Foard.	Feb. —, 1918 June 30, 1919	Area about Norfolk Navy Yard, marine barracks, naval operating base, Army supply base, Pig Point Ordnance Depot, and cities of Portsmouth and Norfolk.
Raleigh, N. C	Passed Asst. Surg. C. E. Waller.	Sept. 18, 1918 June 30, 1919	Extra-cantonment area about Camp Polk, Wakefield County, and Durham County
San Antonio, Tex	Surg. C. H. Gardner	Nov. 11, 1917 June 30, 1919	Extra-cantonment area about Camp Travis, Fort Sam Houston, Kelly Fields 1 and 2, Camp Stanly, Camp Butler, Camp John Wise, Brooks Field, and city of San Antonio.
Seattle, Wash	Acting Asst. Surg. T. D. Tuttle.	Jan. —, 1918 Jan. 31, 1919	Extra-cantonment area bout Vancouver Barracks and towns of Vancouver and Bremerton.
Spartanburg, S. C	Passed Asst. Surg. H. C. Cody. Asst. Surg. H. D. Ward.	Sept. —, 1917 Feb. 28, 1919	Extra-cantonment area about Camp Wardsworth and city of Spartanburg.
Tacoma, Wash	Senior Surg. G. M. Magruder. Acting Asst. Surg. T. D. Tuttle. Acting Asst. Surg. S. W. Merritt.	Oct. 1, 1917 May 15, 1919	Extra-cantonment area about Camp Lewis and city of Tacoma.
Waco, Tex	Passed Asst. Surg. R. A. Herring.	Sept. 30, 1918 Jan. 15, 1919	Extra-cantonment area about Camp MacArthur, Rich Field, and city of Waco.
Washington, D. C	Asst. Surg. H. S. Mustard Surg. Edward Francis	Oct. 3, 1918 Dec. 31, 1918	Washington, D. C., during influenza epidemic.
West Point, Miss	Asst. Sanitary Engineer A. W. Fuchs. Asst. Sanitary Engineer M. G. Parsons.	Apr. 15, 1918 Nov. 15, 1918	Extra-cantonment area about Payne Field and city of West Point.
Wilmington, N. C	Asst. Sanitary Engineer A. W. Fuchs.	June —, 1918 June 30, 1919	Area about shipbuilding plant and city of Wilmington.

TABLE NO. 2.—*Showing extra-cantonment areas in which antimalarial work was conducted; the total number of square miles of territory under supervision in each extra-cantonment zone, as well as the number of miles of ditches dug, rechanneled, relined, cleared, etc.*

[There is also given the total number of miles of ditches under supervision during the mosquito season and the number of gallons of oil used as a larvacide.]

Extra-cantonment area.	Area controlled.	Ditches dug.	Relined, cleared.	Ditches supervised.	Oil used.	Miscellaneous.
	Square miles.	*Miles.*	*Miles.*	*Miles.*	*Gallons.*	
Alexandria, La	57.0	51.25	257.00	257.00	26,558	
Alexandria, Va	20.0	1.70	28.10	28.10	3,610	118 acres.
Americus, Ga	13.5	22.50	.....	22.50	12,200	
Anniston, Ala	50.0	128.00	.....	128.00	12,000	100 ponds stocked; top minnows.
Atlanta, Ga	44.0	161.00	.....	161.00	18,684	Ponds stocked; top minnows.
Augusta, Ga	25.0	169.00	.....	169.00	30,000	500 acres.
Ayer, Mass	4.5	9.50	.....	9.50	3,000	
Charleston, S. C	50.0	50.50	54.50	54.50	10,000	
Charlotte, N. C	6.0	20.00	.....	29.00	2,700	
Chattanooga, Tenn	55.0	20.00	.....	20.00	10,000	57,225 square feet clearing, 77,500 square yards subsawing.
Columbia, S. C	25.0	276.00	.....	276.00	23,323	
Columbus, Ga	14.5	18.70	.....	28.00	8,210	Used and did experimental work with niter cake.
Englewood, N. J	11.5	26.00	.....	26.00	(1)	
Fayetteville, N. C	28.0	53.60	.....	53.60	2,000	Drainage tile laid, 3.1 miles.
Fort Worth, Tex	38.0	11.30	100.00	141.00	7,000	
Greenville, S. C	25.0	20.00	46.00	46.00	1,585	
Gulfport, Miss	27.0	105.80	129.20	147.00	16,600	
Hattiesburg, Miss	28.5	117.00	29.00	90.00	52,000	
Houston, Tex	35.0	87.00	14.50	119.00	10,200	
Jackson, Miss	9.0	65.00	.....	65.00	(2)	
Jacksonville, Fla	12.0	106.00	.....	126.00	2,500	
Lake Charles, La	15.0	11.00	18.00	29.00	2,500	
Little Rock, Ark	65.0	252.00	.....	178.00	75,732	
Lonoke, Ark	12.0	76.00	.....	30.00	10,345	
Louisville, Ky	75.0	52.00	.....	65.00	1,500	
Macon, Ga	26.0	92.00	35.50	116.00	39,132	
Millington, Tenn	16.0	6.00	30.00	45.00	30,000	Brush cutting, 32 miles—logs hauled by mules, 25,000; stumps dynamited, 4,000.
Montgomery, Ala	85.0	129.00	177.00	120.00	23,260	
Muscle Shoals, Ala	57.0	11.10	35.70	46.80	14,500	300 ponds controlled.
Nashville, Tenn.[3]	.....	.....	.....	.....	.....	
Newport News, Va	50.0	50.00	110.00	65.00	15,000	
Odenton, Md	20.0	17.70	16.30	34.00	(1)	
Petersburg, Va	10.0	32.00	74.00	106.00	763	
Portsmouth, Va	23.3	71.00	65.30	104.80	1,830	
Raleigh, N. C	16.0	22.90	67.70	28.90	10,000	229.1 miles stream oiled.
San Antonio, Tex	52.0	4.30	70.00	20.00	650	
Spartanburg, S. C	20.0	12.80	45.00	57.80	[4] 5,000	
Waco, Tex	72.0	7.80	.....	10.00	1,372	
West Point, Miss	20.0	37.00	.....	40.00	8,000	
Wilmington, N. C	15.0	37.23	17.56	17.52	.....	1.5 miles dike constructed.
	1,227.8	2,441.68	1,420.36	3,110.02	289,754	

[1] Oil furnished by Army.
[2] Oil furnished locally.
[3] Control exercised within city and within area about Old Hickory powder plant.
[4] 870 miles.

TABLE No. 3.—*Giving available reports of vaccinations against smallpox and inoculations against typhoid fever in certain of the extra-cantonment areas as done by Public Health Service officials.*

Extra-cantonment area.	Vaccination.		Extra-cantonment area.	Vaccination.	
	Smallpox.	Typhoid.		Smallpox.	Typhoid.
Alexandria, La	1,368	3,596	Leavenworth, Kans	4,425	5,265
Alexandria, Va	1,459	5,391	Little Rock, Ark	50,716	50,639
Anniston, Ala	16,874	12,313	Lonoke, Ark	1,140	2,000
Atlanta, Ga	.....	20,029	Louisville, Ky	.....	10,675
Augusta, Ga	833	.....	Manhattan, Kans	24,241	16,326
Charleston, S. C	2,000	7,000	Montgomery, Ala	30,000	42,000
Charlotte, N. C	(1)	10,000	Muscle Shoals, Ala	40,000	44,778
Chattanooga, Tenn	282	17,452	Newport News, Va	10,839	258
Chillicothe, Ohio	.....	1,835	Pensacola, Fla	11	384
Columbus, Ga	6,866	1,218	Petersburg, Va	4,350	2,490
Des Moines, Iowa	25,000	6,668	Portsmouth, Va	897	6,141
Fayetteville, N. C	862	6,632	Raleigh, N. C. (Wake and Durham Counties)	456	1,210
Fort Worth, Tex	3,000	18,000	San Antonio, Tex	15,250	82,761
Greenville, S. C	600	115	Spartanburg, S. C	1,642	2,000
Gulfport, Miss	.....	12,512	Waco, Tex	350	.....
Hattiesburg, Miss	7,277	6,178			
Houston, Tex	.....	34,700			
Lake Charles, La	600	.....		260,338	435,066
Lawton, Okla	9,000	4,500			

[1] City and county schools vaccinated.

Miscellaneous report of vaccinations and inoculations done by service officers outside of the extra-cantonment areas.

Station.	Vaccination.		Station.	Vaccination.	
	Typhoid.	Smallpox.		Typhoid.	Smallpox.
Customhouse, Baltimore, Md	174	168	Norfolk, Va	363	10
Eagle Pass, Tex	27	.....	Perth Amboy, N. J	51	2
Eastport, Me	.....	56	Portland, Oreg	.....	2
Galveston, Tex	115	121	Providence, R. I	35	15
Honolulu	30	20	Richmond, Va	36	.....
Kansas City, Mo	64	.....	Saginaw, Mich	42	9
Los Angeles, Calif	21	.....	St. Louis, Mo	185	49
New Bern, N. C	91	101	San Juan, P. R	45	2
Newport, Ark	295	27	Savannah, Ga	1,246	730
			University of Illinois	.....	132

TABLE No. 4.—*Giving available reports of the number of visits made by public health nurses in certain of the extra-cantonment areas.*

Extra-cantonment area.	Number of visits made by nurses.	Extra-cantonment area.	Number of visits made by nurses.
Alexandria, La	7,916	Montgomery, Ala	4,876
Alexandria, Va	3,125	Muscle Shoals, Ala	5,304
Anniston, Ala	7,776	New London, Conn	1,603
Atlanta, Ga	5,292	Newport News, Va	3,844
Augusta, Ga	1,434	Petersburg, Va	5,129
Ayer, Mass	1,614	Portsmouth, N. H	2,000
Charlotte, N. C	14,000	Portsmouth, Va	2,059
Chattanooga, Tenn	9,579	Raleigh, N. C	1,770
Chillicothe, Ohio	6,793	San Antonio, Tex	25,128
Columbus, Ga	6,099	Seattle, Wash	1,276
Des Moines, Iowa	8,743	Spartanburg, S. C	14,468
Fayetteville, N. C	3,271	Tacoma, Wash	5,586
Greenville, S. C	1,401	Waco, Tex	5,141
Hattiesburg, Miss	8,754	Charleston, S. C	4,450
Houston, Tex	6,345		
Leavenworth, Kans	12,605	Total, 31 zones	201,577
Manhattan, Kans	14,196		

TABLE No. 5.—*Giving expenditures in the different extra-cantonment areas.*

Extra-cantonment area.	Local.[1]	American Red Cross unit number.[2]	United States Public Health Service.[3]
Alexandria, La	$16,246.36	22	$51,743.90
Alexandria, Va	14,000.00	31	14,715.59
Americus, Ga	3,500.00	.....	46,908.02
Anniston, Ala	16,876.65	8	62,375.02
Atlanta, Ga	6,000.00	11	96,574.65
Augusta, Ga	9,391.71	25	66,464.60
Ayer, Mass	1,000.00	10	14,346.51
Brunswick, Ga	5,000.00	.....	3,300.00
Charleston, S. C	38,500.00	33	30,718.76
Charlotte, N. C	20,000.00	20	32,753.89
Chattanooga, Tenn	15,000.00	16	36,185.25
Chillicothe, Ohio	.....	12	3,750.00
Columbia, S. C	6,983.32	1	65,719.08
Columbus, Ga	81,053.95	.....	33,339.91
Des Moines, Iowa	19,000.00	4	7,773.35
Englewood, N. J	6,075.50	24	15,375.35
Fayetteville, N. C	19,000.00	35	19,718.04
Fort Worth, Tex	14,542.16	23	47,471.77
Greenville, S. C	890.00	13	20,473.79
Gulfport, Miss	29,576.92	.....	43,082.59
Hattiesburg, Miss	34,000.00	6	89,300.00
Houston, Tex	10,500.00	27	97,000.00
Jackson, Miss [4]	15,000.00	.....	3,000.00
Jacksonville, Fla	19,500.00	29	66,915.69
Lake Charles, La	3,835.00	.....	12,119.28
Lawton, Okla	500.00	34	2,349.62
Leavenworth, Kans	5,000.00	5	10,522.46
Little Rock, Ark	78,768.81	2	120,317.18
Lonoke, Ark	6,000.00	.....	13,227.13
Louisville, Ky	22,772.00	3	29,809.31
Macon, Ga	12,576.44	14	119,165.57
Manhattan, Kans	.....	15	13,820.52
Millington, Tenn	40,000.00	.....	28,132.96
Montgomery, Ala	14,699.99	19	98,025.67
Muscle Shoals, Ala	18,500.00	.....	72,552.66
Nashville, Tenn	40,000.00	.....	3,606.72
New London, Conn	.....	32	8,566.06
Newport News, Va	30,705.00	9	108,607.50
Odenton, Md	.....	.....	19,655.75
Pensacola, Fla	.....	.....	3,037.79
Petersburg, Va	7,800.00	7	70,819.75
Portsmouth, N. H	8,000.00	30	4,462.26
Portsmouth, Va	60,352.47	28	51,635.42
Raleigh, N. C	30,000.00	.....	14,213.37
San Antonio, Tex	8,166.25	26	55,044.73
Seattle, Wash	5,000.00	.....	2,180.98
Spartanburg, S. C	2,700.00	17	29,384.49
Tacoma, Wash	7,372.62	18	19,798.93
Waco, Tex	32,241.85	21	27,672.52
Washington, D. C [5]	.....	26	.....
West Point, Miss	1,624.27	.....	21,221.81
Wilmington, N. C	33,709.59	.....	16,059.81
Total	871,960.86	.....	1,915,841.64

[1] Total funds which were appropriated locally and expended under direction of service officers in the extra-cantonment zones. This includes funds given by States, cities, chambers of commerce, corporations or business firms, and private agencies.

[2] Total funds expended by the American Red Cross for the establishment and maintenance of the Red Cross sanitary units as indicated, disbursed under direction of service officers as directors of units.

[3] Total funds expended by the Public Health Service in the different extra-cantonment zones exclusive of certain rural sanitation work and the salaries of commissioned officers.

[4] Anti-malaria work only.

[5] During the influenza epidemic.

TABLE No. 6.—*Giving prewar population of extra-cantonment zone cities, war-time population of zone, average military population, and health organization at beginning and at close of service activities.*

Extra-cantonment area.	Prewar population.[1]	Estimated war-time population.[2]	Average military population.	Health organization.[3]	
				Beginning.	Future status.
Alexandria, La	16,000	21,000	20,000	Part-time health officer	Full-time health officer; complete organization; $36,500 appropriated.
Alexandria, Va.:					
Alexandria	17,000	25,000	50,000	do	Full-time health officer; laboratory; $10,000 appropriated.
Fredericksburg	6,500	7,000			
Americus, Ga	8,000	9,000	1,800	do	Full-time health officer; complete organization.
Anniston, Ala	14,326	40,000	20,000	do	Do.
Atlanta, Ga	200,000	256,598	60,000	Full-time health officer	No change.
Augusta, Ga	61,000	65,000	30,000	Part-time health officer	Do.
Ayer, Mass	2,797	20,000	30,000	do	Do.
Brunswick, Ga	10,000	17,240	[4] 500	do	Full-time health officer; complete organization.
Charleston, S. C	60,734	134,606	20,000	Full-time health officer	No change.
Charlotte, N. C	40,000	60,000	30,000	None	Full-time health officer; complete organization.
Chattanooga, Tenn	105,000	135,000	40,000	Full-time health officer	No change.
Chillicothe, Ohio	15,000	25,000	20,000	Part-time health officer	Do.
Columbia, S. C	34,611	102,000	25,000	do	Full-time health officer; complete organization.
Columbus, Ga	26,306	35,000	None	Practically no organization.	Do.
Des Moines, Iowa	104,052	129,121	25,000	Part-time health officer	Do.
Englewood, N. J	9,924	12,501	18,000	do	No change.
Fayetteville, N. C	8,129	15,000	15,000	do	Full-time health officer; complete organization.
Fort Worth, Tex	109,597	145,655	40,000	do	Do.
Greenville, S. C	18,181	30,000	30,000	Full-time health officer	No change.
Gulfport, Miss	34,658	50,000	3,500	Part-time health officer	Full-time health officer; complete organization.
Hattiesburg, Miss	17,357	30,000	25,000	do	No change.
Houston, Tex	116,878	201,305	18,000	Full-time health officer	Do.
Jacksonville, Fla	100,000	125,000	8,000	do	Do.
Lake Charles, La	16,000	20,000	1,500	do	Do.
Lawton, Okla	7,788	25,700	10,000	Part-time health officer	Do.
Leavenworth, Kans	19,363	20,000	1,800	do	Do.
Little Rock, Ark	58,716	105,715	60,000	do	Full-time health officer; complete organization.
Lonoke, Ark	17,983	27,900	2,000	do	No change.
Louisville, Ky	240,808	400,000	50,000	Full-time health officer	Full-time health officer; $25,000 increase.
Macon, Ga	46,099	56,646	25,000	Part-time health officer	Full-time health officer; complete organization.
Manhattan, Kans	5,722	33,409	10,000	do	No change.
Millington, Tenn	700	6,000	3,000	None	None.
Montgomery, Ala	43,285	50,000	39,500	Part-time health officer	Full-time health officer; complete organization.
Muscle Shoals, Ala	33,762	53,000	[4] 150-200	Part-time health officer (Florence). Part-time health officer (Tuscumbia and Sheffield).	Do. No change.
New London, Conn	21,199	102,476	5,000	Part-time health officer	Do.
Newport News, Va	22,622	91,200	48,000	do	Full-time health officer; complete organization.
Odenton, Md	6,000	6,500	25,000	District health officer	No change.
Pensacola, Fla	26,280	40,000	4,000	Part-time health officer	Do.
Petersburg, Va	37,000	47,000	55,000	Full-time health officer	Do.
Portsmouth, N. H	11,730	136,224	10,000	do	Do.
Portsmouth, Va	40,693	184,585	50,000	Part-time health officer. Part-time health officer (Norfolk County).	Full-time health officer. Full-time health officer; complete organization.

[1] Prewar population of cities in which extra-cantonment zone headquarters were established, but not including the extra-cantonment zone area outside the city.

[2] Estimated war-time population of the whole of the extra-cantonment zone, including the city in which headquarters were established.

[3] Showing the health organization at beginning and at close of service activities. In cities where there was a complete organization at the beginning "No change" has been inserted to indicate "future status," but in all cases the Public Health Service believes local organizations have been greatly strengthened.

[4] Guards.

TABLE No. 6.—*Giving prewar population of extra-cantonment zone cities, war-time population of zone, average military population, and health organization at beginning and at close of service activities*—Continued.

Extra-cantonment area.	Prewar population.	Estimated war-time population.	Average military population.	Health organization.	
				Beginning.	Future status.
Raleigh, N. C.	25,000	35,000	600	Part-time health officer	Full-time health officer; complete organization.
Durham	25,000	30,000		Full-time health officer	New organization at close (Durham).
San Antonio, Tex.	125,000	210,000	50,000	Full-time health officer	No change.
Spartanburg, S. C.	21,365	107,000	35,000	Part-time health officer	Full-time health officer; complete organization.
Tacoma, Wash.	117,446	200,000	15,000	Full-time health officer	Do.
Waco, Tex.	34,015	50,000	26,000	Part-time health officer	Do.
Washington, D. C.	.....	.....	.....	Full-time health officer	No change.
West Point, Miss.	4,864	5,500	1,200	Part-time health officer	Do.
Wilmington, N. C.	30,400	40,207	.....	Full-time health officer	Do.
Total	.....	3,757,848	1,140,800		

MARITIME QUARANTINE.

During the fiscal year ended June 30, 1919, the service operations included, as in former years, the enforcement of United States quarantine laws and regulations providing measures to be undertaken for the prevention of the introduction of the various quarantinable diseases. In addition to these duties, officers in command of quarantine stations were charged with the supervision of the repair and preservation of station buildings and floating equipment.

At the national quarantine stations on the mainland of the United States there were inspected 11,424 vessels and 731,065 passengers and crew. At foreign and insular ports service officers inspected 5,510 vessels and supervised the fumigation of 1,848 vessels. For the destruction of rats and mosquitoes on vessels at the mainland stations 555 ships were fumigated with cyanide gas and 1,158 vessels with sulphur dioxide. The grand total of passengers and crews inspected was 1,252,959, and of vessels fumigated 3,561.

EXPANSION OF QUARANTINE ADMINISTRATION.

With the exception of a few small stations administered by the Texas State quarantine service, the Public Health Service has had control of all national quarantine operations. New York quarantine station continues to be administered by a service officer on leave status, appointed by the governor of New York as health officer of that port. The New York State Legislature on February 15, 1917, passed a joint resolution authorizing the transfer of the station to the United States Government, and while the project has on several occasions been presented to Congress for its consideration, as yet there has been no appropriation provided for the purchase of the New York station.

Baltimore quarantine station was operated by the Public Health Service through the terms of a lease between the city and the National Government. Negotiations are still pending for the purchase of this property, which will be consummated as soon as the necessary appropriation is provided for by Congress. In view of the established policy as set forth in the act of February 15, 1893, for the national control of all quarantine stations in the United States, it seems probable that Congress will in the end provide the necessary funds for the transfer of both the Baltimore and the New York State quarantine properties to the United States Government.

In the latter part of the fiscal year the Texas State Legislature passed a law providing for the abandonment of quarantine function by the State authorities and the transfer of State quarantine property to the National Government, provided the State be reimbursed according to the valuation of the property transferred. Negotiations are now under way, and it seems probable that the Texas quarantine stations will within the next year constitute part of the national quarantine system.

In an act approved November 4, 1918, Congress supplemented the appropriation of the previous year for quarantine facilities at Norfolk, Reedy Island, and Savannah, Ga., so as to provide for the completion of the work at those places as originally planned. The total appropriation for increased facilities at Boston, Reedy Island, Norfolk, and Savannah was somewhat in excess of $700,000 and permitted the construction at those places of thoroughly modern quarantine stations. Fisherman's Island station, on account of its inaccessibility and remoteness, has never satisfactorily served the purpose for which it was intended, and was transferred to the War Department in exchange for Craney Island. The latter is located midway between Old Point Comfort and Norfolk, and when all improvements are completed it will be a most excellently equipped quarantine station, with accommodations for detaining and treating 1,400 persons. The buildings will include barracks, mess halls, officers' quarters, laundry, hospital, and a central heating plant. Water of excellent quality and purity has been obtained on the island from a driven well. Lighting of the station will be by electric current from the city of Norfolk. The additional construction at the Boston quarantine station was completed in March, 1919, and it is estimated that the station's capacity and equipment will provide for the detention of some 1,600 persons.

Toward the end of the fiscal year arrangements were entered into with the State of Pennsylvania whereby the State abandoned its quarantine function at Marcus Hook and turned over the property there for a nominal rental of $1 per year. The readjustment of quarantine procedure at Delaware River provides for the operation of Marcus Hook station by the Public Health Service, all inspection of vessels to be performed at that place, and the continuance of Reedy Island as a detention station when necessary in the treatment of infected vessels, passengers, or crew. By this plan there has been eliminated the dual quarantine system which has so long been a source of vexation and a burden to the shipping interests of Philadelphia. A service officer was assigned to the command of the Marcus Hook station and will have charge of the entire Delaware River quarantine system, including work performed at Marcus Hook, Reedy Island, and at the city wharves.

The National Government now owns and operates 62 quarantine stations on the mainland of the United States. In the Philippine Islands and Hawaiian Islands, Porto Rico, and the Virgin Islands, 26 stations are administered by officers of the United States Public Health Service. Of the total, 42 have detention facilities or floating equipment and 46 have facilities for the conduct of inspections only.

MEDICAL OFFICERS ASSIGNED TO EUROPE.

On the cessation of hostilities it became evident that the events of subsequent months would involve possibilities of sanitary significance to the United States. On account of military operations in Europe, the sanitary conditions in Europe have been more or less veiled, and, while the areas occupied by the Allied forces were known to be fairly free of epidemic diseases, it was a matter of speculation as to the situation in the areas occupied by the Central Powers and

in the more easterly part of Europe. The movement of troops from the interior of Europe to the coast line and from European ports to the United States, together with the resumption of immigration and the attendant danger of the spread of epidemic diseases, caused grave concern to the Public Health Bureau.

To meet the situation, Asst. Surg. Gen. (Reserve) Hugh Cumming was sent to Europe, with instructions to investigate the sanitary conditions of all ports from which troops or immigrants would embark for the United States and to ascertain as far as possible the sanitary conditions of the interior of Europe and to otherwise keep the bureau informed of developments of a sanitary nature. As a result of these investigations, it was found that French ports and the back areas were safe and that no danger need be apprehended from the movement of troops or passengers from these places. Because of the prevalence of typhus at Rotterdam, however, Surg. G. M. Converse (Reserve) was detailed to the United States consulate at that place to carry out the requirements of the United States quarantine regulations at the port of embarkation. Later on Passed Asst. Surg. Linson relieved Surg. Converse and the latter preceeded to Antwerp. It soon became evident, however, that at Antwerp the situation did not warrant the assignment of an officer to that port, and Dr. Converse was thereupon transferred to the United States consulate general at Paris, France, to assist Asst. Surg. Gen. Cumming and to be in reserve in the event of an emergency.

In addition to keeping the bureau apprised of the sanitary situation in Europe and supervising the general service activities, Asst. Surg. Gen. Cumming attended as a service representative various important international sanitary conventions, more especially one at Cannes, France, in April, 1918, at which was created the League of the National Red Cross Societies of all neutral and allied countries. Dr. Cumming also served as service representative on the Interallied Sanitary Commission, and likewise in an advisory capacity at the headquarters of the League of Red Cross Societies, Paris, France, and formed one of the commission to investigate the typhus situation in Poland.

General Prevalence of Quarantinable Diseases.

The general prevalence of plague, yellow fever, cholera, typhus, and smallpox remains about the same as in the previous year, these infections appearing with varying severity at a number of ports having intimate commercial relations with the United States. At all times precautions were exercised to prevent their introduction.

Typhus fever.—Typhus fever continues to prevail in epidemic form throughout the central area of Mexico, although apparently on a very much lessened scale than formerly. On account of the severe epidemic in 1916 and 1917, it seems probable that the prevalence of typhus has been greatly reduced by the lack of infectible material, since all reports indicate that there has been no material improvement in the sanitary conditions in Mexico. At the service quarantine stations along the Mexican border precautionary measures were in force as formerly, chief attention being paid to the delousing of travelers. Several cases of typhus were reported from South America,

but the infection in those countries was not considered as seriously menacing the United States ports. A few scattered cases were reported in the British Islands, and an epidemic of serious proportions was reported in Rotterdam. Under the supervision of a service representative at that port, appropriate measures were taken against personnel of vessels departing for the United States, and no cases of the disease occurred on vessels from Rotterdam. In the latter part of the fiscal year the disease was reported in large numbers in the Italian cities, the majority of the cases, however, appearing among the Austrian military prisoners, to whom it was more or less confined. In Genoa and Naples, however, there were a number of cases scattered throughout the civilian population, and at both ports measures were taken, under supervision of the service representative, to prevent the spread of the disease to ports of the United States. Typhus continued to ravage Russia and Siberia, Poland, parts of Germany and Austria-Hungary, but, with the exception of Rotterdam and the Italian ports, the infection apparently did not gain a foothold at the maritime ports in Europe having commercial relations with the United States.

Cholera.—Cholera was reported chiefly in the Orient, especially in the Philippine Islands, the China coast, Java, and the East Indies. The disease was also reported as very prevalent in India, and in Russia it assumed serious epidemic form. In the latter part of the fiscal year it was reported as epidemic in Poland, from which territory it threatened France and the coast cities in western Europe. Some few cases were reported in the Balkans.

Plague.—As in the previous year, plague was reported in practically every section of the globe. In the Western Hemisphere it was especially prevalent in the city of Guayaquil, although cases were reported in other ports of Ecuador and Peru, with a few scattering cases also in Brazil and Argentina. The focus of rat infection in the vicinity of Caracas, referred to in the last annual report, was again reported as furnishing a number of cases during the latter part of 1918. Apparently the infection did not extend to the seacoast.

The disease continued to be reported during the year from the island of Hawaii, where a latent focus has probably existed for a number of years past. Plague was reported as more prevalent in Hongkong during the spring of 1919 than for a long period, and measures for preventing the extension of the infection from Hongkong to ports of the United States were carried out under the supervision of service representatives. Special precautions were likewise in force on the Pacific coast to prevent the introduction of rat plague from the Orient.

The disease was reported as prevalent among the rats in certain areas of Naples, and fumigation requirement was carried out against ships from that port upon their arrival in the United States. Plague was reported in Indo-China, East Indies, and, as usual, in India. Judging from the number of cases of plague reported on vessels arriving at various world ports, it appears that India holds its own as a distributing center of bubonic plague for the rest of the world.

Yellow fever.—During the year yellow fever infection was reported from Ecuador, Guayaquil particularly, Peru, Brazil, Colombia, Salvador, and various points in Ecuador. The epidemic which occurred in the summer of 1918 in Guatemala subsided in the fall of that

year, and up to the end of the fiscal year had not reappeared, although what was probably an extension was reported from Salvador, especially San Miguel and San Salvador. In the latter part of the fiscal year a very severe epidemic occurred in the northern part of of Peru, especially in Piura, the disease being alleged to have come from Guayaquil. On the seacoast of South America a rather notable epidemic of the disease occurred in the city of Bahia, although reports indicated that it was being energetically attacked and seemingly under control. Cases were again reported in the spring of 1919 from Merida, and, in fact, the increase in cases occasioned so much alarm in Mexico City that a very rigid quarantine was established at other ports on the Gulf of Mexico against Progreso, the seaport of Merida. Service representatives have been stationed at Tampico, Tuxpam, Vera Cruz, Puerto Mexico, and Progreso for the purpose of furnishing the bureau with information as to the sanitary condition of those ports and the surrounding territory and for the supervision of such quarantine measures as might be required against those vessels sailing for ports of the United States.

Senior Surg. J. H. White made an extensive tour of inspection along the eastern coast of Mexico, across the Isthmus of Tehuantepec, and down the west coast for the purpose of investigating local conditions as referring to presence of yellow fever and possibilities for its spread.

Smallpox.—Smallpox, as in former years, appeared to be world prevalent. In the south a very virulent type of the infection continued to be reported from Mexico, and the usual precautions were exercised at quarantine stations along the border, all travelers being required to be vaccinated unless possessing immunity from the infection either through previous successful vaccination or an attack of the disease. At various border stations there were vaccinated throughout the year 41,376 persons.

To the north there was a very considerable prevalence of smallpox in the Canadian Provinces, more especially New Brunswick, Nova Scotia, and Newfoundland, and upon the appearance of the infection on vessels from Canadian ports, modified quarantine was imposed against travelers from those Canadian Provinces. Inspection was instituted against vessels coming from those districts, and vaccination requirements imposed against all travelers, whether by overland or by water.

Quarantine Operations Along the Mexican Border.

The national quarantine stations at El Paso, Laredo, Eagle Pass, Brownsville, Rio Grande City, and Hidalgo continued in operation as in the previous year. Measures in force at these places were chiefly directed against the introduction of typhus and smallpox infection, although all incoming travelers were subject to inspection. No material change was made in the details of station operations. All travelers, Mexican and American alike, were required to be vaccinated, unless presenting evidence of immunity against smallpox, and all travelers were likewise required to pass through the disinfecting plant unless they were free of vermin. Antityphus measures instituted were entirely successful, and no cases of the disease were reported in the United States during the fiscal year as coming from Mexico.

Statistical data of quarantine transactions on the Texas-Mexican border points for the fiscal year ending June 30, 1919.

Title.	Brownsville.	El Paso.	Eagle Pass.	Hidalgo.	Laredo.	Rio Grande City.	Total.
Number inspected from interior Mexico	4,598	37,523	1,805	.....	25,757	488	70,171
Number local passengers inspected	203,110	1,867,987	372,024	.....	465,899	6,748	2,915,768
Total number persons disinfected	573	95,906	19,077	180	14,032	53	129,821
Total number persons passed without treatment	207,135	1,809,604	354,752	3,647	480,834	7,183	2,863,155
Total number persons vaccinated	3,600	15,666	1,541	295	19,594	680	41,376
Total number sick detained for observation	.....	.....	.....	.....	.....	6	6
Total number sick refused admission	.....	84	.....	.....	112	21	217
Total number pieces baggage disinfected	7,143	12,047	20,532	115	[1] 21,796	.....	61,633
Number of cases typhus fever from July 1, 1918, to June 20, 1919	.....	.....	.....	.....	.....	.....	.....

[1] By State of Texas.

Destruction of Rats on Vessels.

To prevent the introduction of plague, main reliance was placed on the fumigation of vessels for the destruction of rats. The provisions of bureau circular of April 19, 1918, continued in force, and there were fumigated at the various quarantine stations, mainland, insular, and foreign ports a total of 3,117 vessels, from which were recovered 11,032 dead rats. Quite often it is not practicable to institute a search for the destroyed rats, and for this reason the actual number of rodents killed far exceeded the number given. The fumigation of vessels was also practiced for the destruction of mosquitoes, bedbugs, and other vermin. There were 3,006 vessels fumigated by sulphur dioxide and 555 were fumigated by cyanide gas. During the year some consideration was given to the use of liquid hydrocyanic acid. Whether this form of the chemical will have any advantage over sodium cyanide in elaborating the gas remains to be seen. The advantages, if any, will probably be in the saving of labor. The danger of cyanide fumigation is attendant upon the dissipation of the fumes from the fumigated compartments. Regardless of how the gas is generated, the danger remains about the same with respect to the retention of the fumes in the holds of vessels.

The use of the device known as the "Aerothrust"—a motor with a large two-blade propeller—very satisfactorily served to dispel the cyanide fumes from compartments after fumigation, and the use of such captive animals as cats, rats, and guinea pigs effectively served to detect the gas if present in dangerous quantity.

Violation of Quarantine Laws.

During the fiscal year the department passed on 186 cases involving violation of the act of February 15, 1893, due to the failure of masters to present American consular bills of health. Of the total, 150 were dismissed without penalty because of the extenuating conditions, due in some cases to the lack of an American consular representative at the foreign port of departure and in other instances due to the diversion of the vessel from the original port of destination by orders received on the high seas after leaving the port of departure. The total amount of fines collected was $2,350.

Relocation of Maritime Quarantine Stations.

In quite a number of ports of the country the quarantine station was established by the local or State officials and in a period of time when the various factors entering into the spread of quarantinable diseases were not well known. Modern research has revealed the fact that most quarantinable diseases either are insect-borne or acquired through contaminated food or drink. Formerly, however, most of the diseases were supposed to spread by means of aerial transmission, and, as a consequence, remoteness was deemed to be the most essential factor in the location of the quarantine station. In the light of present-day knowledge of preventive medicine, it is realized that adequate isolation of an infected ship or personnel can be accomplished and rational preventive measures applied without having the quarantine station so far removed from the port. The inaccessibility and isolation of many of the quarantine stations today is productive of a totally unnecessary expense in maintenance. Not only is the maintenance of the station unnecessarily burdensome, but the isolation works a hardship alike on officers and employes at the station.

During the past year, at the suggestion of the department, the Legislature of the State of Alabama enacted a law transferring title to a small island in the mouth of the Mobile River to the Treasury Department as a site for a quarantine station. The present quarantine station is located 30 miles from the city of Mobile and, by reason of its open exposure to northerly winds and resulting damage that not infrequently occurs at the time of hurricanes on the Gulf, has on several occasions been almost completely wrecked. On account of the excessive cost of repairs to this station and the expensiveness of operation on account of its isolation, plans are under way to abandon the present station and to remove the buildings to the site donated by the State near the mouth of the Mobile River.

The removal of the quarantine station from Fisherman's Island (20 miles from the port of Norfolk) to Craney Island, which is within Norfolk Harbor, will result in a very *great* improvement in the quarantine system at that place.

Consideration has been given to the advisability of changing the location of the New Orleans quarantine station from its present site to one much nearer the city. The New Orleans quarantine station at present is located some 90 miles below the city of New Orleans and presents many features both inconvenient and detrimental to the shipping interests and the Government alike. There is no question but that a station located much nearer the city will have many points of advantage.

To a less extent the foregoing applies to the San Francisco quarantine station, which, because of its remoteness from the city of San Francisco and the quarantine anchorage, entails a needless expense in maintenance and operation. An ideal plan for San Francisco would be a general service reservation at the northern end of the peninsula, where all service functions at that port could be centralized and in part consolidated.

The bureau is of the opinion that as the present stations deteriorate it would be to the best interests of the Government and to the commercial agencies to abandon certain remote quarantine stations wherever it may be practicable and to reestablish them at a point nearer to the port which they are designed to protect.

Transactions at national quarantine stations for the fiscal year ended June 30, 1919.

Stations.	Vessels inspected.	Vessels fumigated.	Passengers and crews inspected.	Stations.	Vessels inspected.	Vessels fumigated.	Passengers and crews inspected.
Alexandria				Monterey			
Baltimore	788	120	33,321	Morgan City (Atchafalaya)			
Beaufort				New Orleans quarantine	1,694	74	73,377
Bellingham, Wash				New Orleans city		175	
Biscayne Bay	209	12	6,807	Newport	9		255
Bocagrande	22		773	Nome, Alaska			
Boston	468	79	119,028	Pascagoula	39	11	328
Brownsville	(1)		4,598	Pensacola	134	12	2,413
Brunswick	35	8	2,855	Perth Amboy	51	10	1,244
Cape Charles	1,641	157	71,132	Port Angeles	4		47
Cape Fear	27		5,054	Port San Luis	31		1,288
Cedar Keys				Portland, Me	163	5	18,474
Charleston	165	22	12,904	Port Royal			
Columbia River	19		284	Port Townsend	281	183	35,900
Coos Bay				Providence	22	1	1,487
Cumberland Sound	59		1,058	Provincetown			
Darien				Reedy Island	1,067	24	45,319
Delaware Breakwater	20		511	Rio Grande City, Tex	(1)		488
Delaware River (Philadelphia)		93		San Diego	666	3	8,862
Eagle Pass	(1)		1,805	San Francisco	762	525	87,339
Eastport	317		13,708	Santa Barbara (Los Angeles)			
El Paso	(1)		37,523	San Pedro (Los Angeles)	142		3,252
Eureka	2		39	Savannah	129	14	5,860
Fort Bragg				South Bend			
Galveston	474	33	16,263	St. Andrews	39	2	268
Georgetown				St. Georges Sound	1		
Gulf	48	13	955	St. Johns River	126	10	2,548
Hidalgo, Tex	(1)		3,827	St. Joseph	2		
Hoquiam				Tampa Bay	268	43	3,537
Key West	1,025	6	63,883	Washington, N. C			
Ketchikan	173		9,479				
Laredo	(1)		25,757				
Mobile	302	86	7,215	Total	11,424	1,721	731,065

[1] Border station. Statistics do not include "local" travelers, who, however, were subjected to cursory inspection. Through travelers were given close examination.

Composite table of detailed transactions at maritime quarantine stations on the mainland for the year ended June 30, 1919.

Total inspections:[1]	
Vessels	11,424
Crew	441,496
Passengers	212,250
Total personnel inspected	653,746
Vessels passed on certificate of ship's medical officer	306

VESSELS DETAINED FOR OBSERVATION OR TREATMENT.

[Detention for purposes of inspection only not to be included.]

Nature of infection.	Yellow fever.	Rodent plague.	Human plague.	Smallpox.	Typhus.	Cholera.	Leprosy.	Total.
Vessels from infected ports[2]	113	5		2	1	1		122
Infected vessels[3]	1			11	1			13
Number of cases	1			16				17
Number of crew detained	2,254	429		188	48			2,919
Number of passengers detained	715							715
Personnel disinfected				102	45	31		178
Personnel examined bacteriologically or vaccinated[4]	24			280				304
Vessels fumigated:[5]								
HCN	2	538			15			555
SO_2	26	1,129		2	1			1,158
Formaldehyde				8				8

[1] An inclusive figure, regardless of treatment or report elsewhere.
[2] Refers to vessels held for observation when from an infected or suspected port with no cases en route or on arrival.
[3] Vessels with cases on board at arrival or reported en route.
[4] To also include microscopical examinations of blood, excreta, tissue, etc.
[5] To include vessels fumigated after passing quarantine in accordance with provisional pratique.

Number of rats destroyed on ships	11,032
Rats examined	2,934

Reports From National Quarantine Stations.

Baltimore, Md.—Baltimore quarantine station is located at Leading Point, on the west side of the Patapsco River, 7 miles distant by water from Baltimore and 9 miles by overland road. Post-office, express, and telegraphic address, Baltimore, Md. Acting Asst. Surg. T. L. Richardson is in charge of the station.

The quarantine station at the port of Baltimore continued to be operated during the year by the Federal Government under the terms of the lease negotiated with the city officials in April, 1918.

Seven hundred and eighty-eight vessels were inspected during the year and three were passed on medical officer's certificate. Thirty-three thousand one hundred and twenty-two members of the crews of these vessels and 199 passengers were inspected. One hundred and eighteen vessels were fumigated to destroy rats and vermin, and two vessels were fumigated on account of the presence of smallpox on board. The American steamship *Achilles* was remanded from the Cape Charles quarantine to this station for the purpose of detaining the unprotected members of her crew, a case of smallpox having been removed from the vessel at Norfolk, Va. The British steamship *Greenwich* from Naples and the Azores had a case of smallpox develop after the vessel had been in port more than five days. The man was removed to the station hospital for isolation and treatment. There was no further spread of the disease in either instance.

In October last, in accordance with bureau instructions, the detention building was fitted up as a temporary hospital for care of influenza patients from the Coast Guard depot and other service patients that could not be accommodated in the United States marine hospital in Baltimore. The hospital was kept open until the epidemic subsided in November. Twenty-two cases of smallpox sent to the station by the city and county authorities and the Sparrows Point Ship Building Co. were treated in the hospital, all of which recovered. The leper who had been isolated at this station for the past three years died on June 6 and was buried in the cemetery on the reservation. The hut which had been occupied by him was destroyed by fire.

Owing to the impossibility of securing a civilian crew for the tug at this station, a request was made for the detail of six men from the Coast Guard Service. The commodore commandant directed that this number of men be sent here for duty and the tug has been operated by them since November last.

The interiors of the several buildings were repainted and some minor repairs made to the roofs of the hospital and detention building.

The only changes in personnel were the temporary detail of Pharmacist B. E. Holsendorf to duty at the station and the transfer of Acting Asst. Surg. J. C. Travers to Boston, Mass.

Biscayne Bay quarantine station.—Post-office and telegraphic address, Miami, Fla. Acting Asst. Surg. James M. Jackson in charge.

During the year 124 vessels were spoken and passed, 2 steamers, 104 sailing vessels, and 103 gas motor-driven vessels inspected and passed, and 12 sailing vessels disinfected for rats and passed. All vessels, as usual, were directed to rat guard all dock lines and to fend off. These vessels carried 1,417 crew and 5,390 passengers.

There has been quite an increase in shipping activities from this port, especially since the signing of the armistice, the shipping being mostly with the Bahama Islands, as before, but there is springing up considerable shipping to the eastern ports of Cuba in the carrying of lumber from this port and the return of fruits.

If predictions come true there will be a great increase of ship communications between this port and the Bahama Islands this winter. Much preparation is being made for the accommodation of the anticipated tourist influx into the Bahama Islands, which has been entirely obliterated during the past war.

There is now being completed a good channel of a minimum of 18 feet with good municipal docks, and, with the natural increase of trade to the United States from the south, it is but natural to believe that Miami, being nearer than most ports, will receive much benefit from same, at the same time considerably increasing the work at this station.

Boca Grande (Fla.) quarantine.—Post-office and telegraphic address, Boca Grande, Fla. P. L. McAdow in charge.

The station continues to be in charge of Custodian P. L. McAdow. The custodian attends to the general administration of quarantine affairs other than the purely professional. Inspection of vessels and supervision of fumigation are carried out by Acting Asst. Surg. Mart Hammond, who is notified by the custodian whenever his services are required.

During the year there were inspected 20 vessels, with a total personnel of 620, all of whom were crew. No vessels were fumigated and no quarantinable diseases were noted throughout the year.

Boston (Mass.) quarantine.—Post-office and telegraphic address of this station is Gallops Island, Boston, Mass. Passed Asst. Surg. William M. Bryan in charge.

Passed Asst. Surg. William M. Bryan assumed charge of this station on January 10, 1919, succeeding Surg. Donald H. Currie, who died of influenza on December 23, 1918. The only other change in officers of this station was the relief of Pharmacist Hayes by Pharmacist Van Ness. The force of attendants has been increased by an addition of two men. Difficulty has been experienced, as in the year preceding, in obtaining and holding competent employes.

The new structures begun during the previous fiscal year have been completed, so that at present this station can provide hospital facilities for the care of 100 patients and barracks for the detention of 1,300 persons.

The executive building has been remodeled, providing quarters for one officer, and these quarters, together with the new quarters, have been completely furnished. Minor repairs and alterations to other structures have been made during the year, but as many of the buildings are quite old considerable work of this sort remains to be done.

The floating equipment remains as previously reported.

Quarantine operations: The quarantine transactions of this port show a slight increase as compared with the past fiscal year.

A new steam chamber has been installed, which greatly facilitates delousing operations when these are necessary.

Assistance to the Navy: During the pandemic of influenza this station cared for 263 naval patients suffering with this disease. In

addition to the hospital care afforded these patients, the station was used by the United States Public Health Service conjointly with the Navy in certain clinical and bacteriological studies of this disease, especially in an unsuccessful effort to transmit the disease. During these experiments 118 volunteers of the Navy were cared for at this station. This influenza work necessitated the temporary employment of three additional nurses and four additional attendants.

The relations with the United States Navy have remained cordial, assistance being extended by the service and also received. The Navy during the period of the epidemic, and for some time afterwards, provided transportation to this station, and assisted by loaning a boarding boat while the *Vigilant* was being repaired.

The arrangements referred to in the last annual report for the care of nonquarantinable contagious diseases for the Immigration Service and the marine hospital have remained in force.

Transactions: During the fiscal year ending June 30, 1919, a total of 468 vessels entered quarantine, as follows:

Steamers	422
Motor ship	1
Schooners	20
Barks	15
Barkantines	2
Ships	8

Of this number 79 required fumigation and were treated as follows:

Fumigated with sulphur	58
Fumigated with hydrocyanic-acid gas	13
Fumigated with hydrocyanic-acid gas and sulphur	8

The above vessels carried crews numbering 39,058 and 79,970 passengers, making the total personnel inspected 119,028. It will be noted that the number of passengers has greatly increased over any preceding year. This is explained by the fact that this port has been used as a debarkation port. Transports passing through quarantine have their military personnel classed as passengers.

The following cases were treated in hospital:

Pneumonia	26
Influenza	268
Pleurisy	3
Diphtheria	1
Typhoid	1
Syphilis	1
Smallpox	1
Observation for smallpox	12
Observation for leprosy	1

Brownsville, Tex.—Acting Asst. Surg. George D. Fairbanks, in charge, reports as follows: There has been no change in quarantine methods at this port during the past fiscal year ending June 30, 1919. Measures against the introduction of typhus fever from Mexico have been continued and no cases have developed.

Special effort has been used through vaccination to prevent the introduction of smallpox and has resulted in splendid success in the number of "takes." Considerable smallpox has developed on the United States side of the river, but its origin has been traced to illegal crossings. Several of the cases crossed at this port, but they all had

been vaccinated and the disease had been decidedly modified by the vaccination.

Assistance rendered to the United States Coast Guard Service has consisted of 2 physical examinations, 1 pilot examination, 13 cases of sick and disabled surfmen. A deep-water port will probably be opened up at the coast near here before another year passes, which will greatly enhance the importance of the quarantine work in this district.

Assistance was rendered at various times during the year to the Department of Agriculture by fumigating bundles of merchandise which were too small to justify using their large freight-car equipment. This was done at no extra expense to the service. Also the service officer here served the war-recruiting board at times in their physical examinations. Since peace has been declared, one discharged sick soldier has been taken under the care of the service.

Transactions.

Vaccinations against smallpox performed	3,600
Pieces baggage inspected and fumigated	7,143
Persons bathed and cleaned	573
Persons entered at the port (majority daily passengers back and forth) between 7 a. m. and 7 p. m.	207,708
New aliens entered	4,598

Brunswick (Ga.) quarantine.—Acting Asst. Surg. R. E. L. Burford in charge.

During the year 2 vessels were spoken and passed; 22 steamers and 5 sailing vessels were inspected and passed; 1 steamer and 7 sailing vessels were inspected, fumigated, and passed. There were 1,043 crew on steamers, 92 crew on sailing vessels, 1,720 passengers on steamers. No vessel was quarantined and no quarantinable disease was found aboard any vessel in port.

Cape Charles quarantine—Post office and telegraphic address, Fort Monroe, Va. Passed Asst. Surg. F. M. Faget in charge.

During the passed fiscal year there has been no marked change in the number of ships handled at this station, 1,641 vessels being inspected as compared to 1,705 during the previous year.

Of these ships 18 were from suspected yellow fever ports and were detained the required time for observation, while 2 had on board cases of smallpox and 1 a case of typhus fever. One hundred and twenty persons were vaccinated.

One hundred and fifty-seven ships were fumigated for the destruction of rats and mosquitoes; a number of these at the requests of agents. Two thousand two hundred and twenty-seven rats were found dead after fumigations.

During the latter part of this year a considerable number of transports carrying returning troops were boarded at this station, and 12 of these were afterwards fumigated at Norfolk or Newport News with cyanide gas at the request of the United States Navy Department.

The inspection of arriving alien seamen was continued at this station as in previous years. Seven hundred and fifteen seamen were certified to for various conditions.

Transportation to and from the various vessels was furnished to the Immigration Service for the entire year and to the Customs Service for several months.

Various repairs were made to the hulk *Chase*. A fresh water supply and an electric light system were established and a telephone installed, much facilitating that part of the quarantine work carried on from that vessel. The addition of the tug *Murray* to the station equipment has also greatly helped quarantine operations and has made possible work which otherwise could not have been carried out.

The new station for Norfolk and Newport News, situated at Craney Island, is rapidly nearing completion and will soon be occupied. This station will be a very modern and well-equipped quarantine station.

Charleston (S. C.) quarantine.—Surg. F. H. McKeon in charge.

Neither the volume nor the character of the work done at this station during the past fiscal year has differed materially from that of the year immediately preceding. Shipping conditions at Charleston, so far as foreign trade is concerned, are stationary and bid fair to remain so unless an impetus of some kind is received.

A number of transports carrying troops from France arrived at the port terminal, but since they all carried medical officers of the Navy and were free from quarantinable disease they did not come under the jurisdiction of the service at this point.

No quarantinable diseases were encountered during the year nor were any ships or personnel detained for observation.

The increase in the number of passengers inspected during the year is accounted for in part by the fact that approximately 3,000 laborers were imported from the West Indies during the months of September, October, and November, 1918, to work on the port terminal. Passengers aboard ships which put in for shelter during the submarine scare also helped to swell the total.

One hundred and sixty-two vessels were inspected and passed and 3 vessels were spoken and passed. These carried 7,013 crew and 5,891 passengers.

Twenty-two vessels were fumigated for the destruction of rodents.

Columbia River quarantine.—Post-office and telegraphic address, Astoria, Oreg. Acting Asst. Surg. Jay Tuttle in charge.

While the volume of the work at the Columbia River quarantine station has been comparatively small during the year, it is believed this is but a temporary condition and that pending developments will greatly increase the shipping on the Columbia River.

During the year there were inspected 9 steamers, 9 sailing vessels, and 1 unrigged barge. No quarantinable diseases were noted and no vessels were fumigated or otherwise disinfected. These vessels carried 283 crew and 1 passenger.

The Port of Astoria Commission has completed the construction of a $2,000,000 project for the building and equipping of municipal docks and grain elevators. The construction of a marine railway (the largest one in the world, it is said) is now under way. Public projects completed, under way, and pending, all indicate material expansion in the commercial activity of the Columbia River, and the importance of the Astoria quarantine station promises to be materially increased.

Eagle Pass, Tex.—Acting Asst. Surg. Lea Hume in charge.

The service operations have been along the same line as that for the previous year, except that the disinfection plant has been worked to capacity during the last three months on account of the influx

of laborers for agricultural purposes. Vermin infestation on incoming travelers is noted much less than in former years, largely due, it is believed, to the service operations at the disinfecting plant. No contagious diseases gained entrance to the United States through Eagle Pass. Smallpox epidemic in Mexico declined during the year through the operation of natural causes, and with the vaccination requirements in ports along the border, it is assumed there is little danger of the spread of the disease to the American side of the Rio Grande River.

The latter part of the year the disinfecting plant was severely damaged by hailstorm; it was quickly repaired and the operation of the plant was not interfered with.

El Paso, Tex.—Asst. Surg. J. W. Tappan, in charge, reports that it has not been found necessary during the past year to impose any special quarantine measures at El Paso other than the usual routine in force at that station. The treatment of incoming travelers for louse infestation has been conducted as outlined in previous annual reports. No cases of typhus fever have been reported in El Paso and there has been very little smallpox.

While travel from Mexico has been curtailed for many reasons, it will be seen by comparing this with previous annual reports that the numbers of incoming laborers from that country are very materially increasing year by year. This year 37,523 persons from the interior of Mexico passed through the disinfecting plant, 15,666 of whom were vaccinated against smallpox, and 84 refused admission on account of sickness.

By reference to previous annual reports it will be seen that in addition to incoming travelers from the interior, residents of Juarez, Mexico, are inspected at each entry into the United States, and, if necessary, are required to pass through the disinfecting plant. Passengers, either locals from the neighboring settlements about Juarez or those from the interior of Mexico, however, who are obviously clean and are not louse infested, are permitted to pass after inspection without going through the plant; but all immigrants corresponding to the steerage class at the large seaports of entry are required to bathe, have their clothing and baggage disinfected, and submit, if necessary, to vaccination. The working classes from Juarez, known as "locals," are required to pass through the plant once a week. A bath certificate is issued to these and taken up at the expiration of a week, a new one being issued after each disinfection.

The total number of inspections of local passengers this year was 1,867,987, and of these 1,809,604 were passed without treatment in the disinfecting plant. It will be seen that conditions are improved as compared with previous years, and that but little interference, if any, with local travel is necessary to accomplish the inspection. In other words, but 58,383 local passengers, residents of Juarez or its neighborhood, out of a total of 1,867,987, were required to pass through the disinfecting plant at various times.

The system of night passes instituted two years ago still obtains and persons entering the port from Mexico after 8 p. m. are required to have a permit signed by the medical officer in charge. This works no hardship upon those having business in Juarez after closing hours, as the passes are readily obtained upon application at the sta-

tion. As it is obviously impossible to conduct medical inspections at the international bridge at night, and as the system now in vogue has the hearty approval of the Customs and Immigration Services, and is of value to them in limiting the number of night passengers, it has been continued.

Galveston (Tex.) quarantine.—Surg. R. L. Wilson in charge.

During the year 14 vessels arrived from ports infected or suspected of infection with yellow fever. One vessel was fumigated and detained on account of a suspected case of yellow fever. Two vessels had one case each of smallpox en route. One of these had one case after arrival. The number of crew on these vessels was 582; passengers, 207; vaccinations, 37. Thirty-three vessels were fumigated to kill rats, mosquitoes, or other vermin. One hundred and thirteen rats were collected after fumigation, being divided as follows: *M. norvegicus*, 47; *M. rattus*, 65; *M. alexandrinus*, 1.

In addition to 474 vessels inspected and passed, 45 vessels were spoken and passed.

According to an act of the legislature effective June 18, 1919, the State of Texas is to transfer to the United States all quarantine property along the Gulf of Mexico and Rio Grande.

Gulf quarantine.—Post-office and telegraphic address, Gulfport, Miss. Acting Asst. Surg. C. A. Sheeley in charge.

As in the previous year, the transactions of the station were carried out at Gulfport, vessels being inspected in the channel offshore. The station at Ship Island, maintained under a caretaker, was kept in readiness to be utilized in event it became necessary for treatment of infected vessels or detention of personnel.

Laredo, Tex.—Passed Asst. Surg. R. M. Grimm in charge.

The quarantine operations of the service at Laredo have been carried on throughout the year with no essential change from those described in the annual report of last year (p. 181). Passengers arriving from Mexico have, as formerly, been inspected for sickness, for scar of vaccination against smallpox, and for possible louse infestation. Persons showing fever or other symptoms of undetermined cause have been denied admission until such symptoms disappeared. Persons not showing a satisfactory scar of recent vaccination against smallpox have been vaccinated. Disinfection (delousing) of the person, clothing, and baggage of louse-infested passengers, and in general of all persons of the laboring class from the interior of Mexico, has been carried out. All of the work has been conducted in harmonious cooperation with the Texas State Board of Health. The disinfection and bathing have been done in cooperation with the State at its plant located at the international footbridge. In addition to cooperating with the service in the necessary delousing and bathing of passengers, the State authorities have systematically fumigated all baggage.

No case of smallpox or of typhus fever has been detected in any person arriving at the station during the year, and no case of either disease is known to have developed in any person after passing quarantine. Leprosy was diagnosed in two persons who presented themselve for admission. Needless to say, both of them were denied admission.

The possibility of quarantinable diseases being introduced by persons who cross the Rio Grande River and enter the country clandestinely has been the cause of some concern at the station. It is well

known that many persons, principally those of the laboring class, enter the country in this way, and thus avoid all quarantine restrictions. The only known instance of a quarantinable disease being introduced in this way during the year in the vicinity of Laredo was that of a case of typhus fever in a Mexican laborer, who stated that he had entered the United States by wading the river only a few days before he took sick. Thorough eradicative measures were taken and no secondary cases are known to have developed.

In the attempt to reduce the danger from typhus fever and other quarantinable diseases being introduced by persons who were evading quarantine restrictions by crossing the border at places other than at regular legal points of entry, a mounted guard was placed on duty January 17, 1919, to work in cooperation with the mounted watchmen of the Immigration Service. On the night of May 8 the force of guards, while on duty along the river bank, was attacked by four armed Mexicans, who came across the river in a boat. A fight ensued, in which three of the guards were wounded. Two of them, including Public Health Service Guard Ira T. Hill, died as a result of their wounds. Such an encounter clearly indicates the determination shown at times by persons who desire to enter the country illegally, and also the difficulties to be met in dealing with this phase of the station work.

Acting Asst. Surg. J. D. Stephens reported at the station for duty on May 17, 1919, and has remained on duty since that date.

New Orleans (La.) Quarantine.—Passed Asst. Surg. C. M. Fauntleroy in charge.

No quarantinable diseases were observed on vessels arriving during the year. One case of chickenpox in the person of a seaman was removed from a vessel and kept at the station until recovered. The procedure whereby vessels requiring fumigation for the destruction of rats have been released and allowed to proceed to New Orleans while undergoing sulphur fumigation in the holds has been continued at this station throughout the year with a view of expediting the movement of vessels and minimizing inconvenience to the shipping. This practice has been in operation for nearly two years and has proved to be very satisfactory to the shipping interests concerned. The disadvantage of such a procedure is the impracticability of determining the efficiency of the fumigations, as shown by the number of rats destroyed, there being no opportunity for a careful search of the vessels for dead rats at the completion of the fumigations. It has also been found that the fumigating pots employed in the fumigations, which are furnished by the New Orleans Steamship Association, and allowed to remain on the vessels, are not always promptly returned to the station, and owing to the careless manner in which the pots are handled by persons at New Orleans whose duty it is to return the pots, many of them are lost or broken.

Very considerable difficulty was experienced in the matter of obtaining desirable attendants during the first six months of the year, owing to the great scarcity of men available for such employment, and on several occasions it was necessary to send out recruiting parties from the station to the small settlements along the Mississippi River in order to secure men and maintain a force of attendants required for the proper operation of the station. The situation was rendered still more difficult by the advent of the influenza epidemic

during the autumn and winter of 1918, which attacked almost every individual living in the small towns scattered along the lower Mississippi River and made it impossible to secure a full complement of men for employment for a period of several months. This condition was further complicated by the occurrence of a number of cases of influenza among the already depleted force of station employes, including also one medical officer.

Influenza on arriving vessels: On September 14 the American steamship *Harold Walker* arrived at the station with six members of the crew sick with influenza, and a history was obtained of the occurrence of nine additional cases of illness and three deaths on the vessel during the voyage from Boston to New Orleans via Tampico, Mexico. A careful inquiry regarding the illness which had occured on board since leaving Boston made it almost absolutely certain that the infection on this vessel was gotten at Boston.

The cases observed on the vessel upon arrival at the station showed the typical clinical picture of influenza of the respiratory type.

Commencing with the arrival of the steamship *Harold Walker* on September 14, and continuing until about February 15, 1919, there arrived 38 vessels with a total of 270 cases of influenza among the personnel on board. One British steamship arrived with 57 cases of the disease among the crew.

Aid to civilian population during the influenza epidemic: Frequent calls were made by civilians for advice and assistance of the medical officers on the station during the influenza epidemic, and whenever it was practicable to do so every possible aid was given.

In many instances whole families living in the neighborhood of the station were confined to bed by this pestilence, and it was impossible to obtain the services of a practicing physician in very many cases.

The exceedingly rapid spread of the infection among the population of the small communities found every few miles along the Mississippi River from New Orleans to the Gulf was due very largely to poverty and overcrowding.

Aid furnished the United States Navy: At the request of the commanding officers of the patrol boats under the control of the United States Navy used in patrolling the waters adjacent to the mouth of the Mississippi River, the boats were repeatedly fumigated at the station by cyanide gas for the destruction of vermin. Typhoid vaccine was also administered a number of times to the men employed on the patrol boats, at the request of the commanding officers.

The inauguration of medical inspection of aliens for immigration: To promote increased efficiency and eliminate certain conditions affecting adversely the efficient conduct of the medical inspection of alien crews and passengers on vessels arriving at New Orleans, it was decided to institute a plan for the immigration inspections to be made at the quarantine station at the same time that the quarantine inspection of vessels was made. Accordingly, arrangements were made with the Commissioner General of Immigration with a view to having one or more immigrant inspectors regularly detailed for duty at the quarantine station to conduct examinations in conjunction with the medical inspection of aliens.

A total of 1,590 alien passengers and 15,553 alien crew men have been medically inspected for immigration, and 20 alien passengers

and 305 alien crew men have been certified for diseases and physical defects which call for certification in accordance with the immigration laws and regulations.

The detailed report of the medical inspection of aliens at the quarantine station during the year will be found elsewhere in this report.

TRANSFER OF THE LAUNCH "ORLEANS" TO TAMPA BAY QUARANTINE STATION.

The launch *Orleans*, which has been kept in reserve at the New Orleans Quarantine Station and only occasionally used for boarding purposes, was transferred to the Tampa Bay Quarantine Station in May, 1919.

Pensacola (Fla.) quarantine.—Acting Asst. Surg. S. R. Mallory Kennedy in charge.

During the year there were inspected 134 vessels and 2,413 crew and no passengers.

Twelve vessels were fumigated. One coming from Mexico in three days, and having failed to comply with the local regulations at port of departure, was detained three days to complete period of incubation and fumigated for the destruction of mosquitoes, the rest for rodent destruction.

No quarantinable diseases were noted.

Since November, 1917, the boarding and inspection of vessels has been carried out from the city of Pensacola, the quarantine station being maintained only for the purpose of detention. It is always possible to obtain advanced information from Fort Barrancas, located at the mouth of the harbor, as to whether or not vessels entering are flying the quarantine flag, and in this way boarding without delay to vessels is accomplished.

The medical officer in charge, in addition to administering the quarantine functions, has charge of the out-patient relief and the examination of aliens.

Port Townsend (Wash.) quarantine station.—Asst. Surg. C. J. McDevitt in charge.

Eighty-three steamers were inspected and passed and 2 detained, and 12 sailing vessels were inspected and passed and 5 detained. One hundred and sixty-six steamers and 10 sailing vessels, bound for Seattle and Tacoma, were granted provisional pratique with the understanding that they would be fumigated at these ports when empty, the service officers there being notified by telegraph or letter. These vessels carried a total of 20,047 members of crews and 15,853 passengers. One steamer, the American steamship *Bath*, en route to the Bremerton Navy Yard from Norfolk, Va., was passed on the certificate of the ship's medical officer, and 1 sailing vessel was spoken and passed. The Japanese steamship *Canada Maru*, en route to Puget Sound, Wash., from Hongkong, China, ran ashore at Cape Flattery. The passengers, crew, cargo, and papers were transferred to the Japanese steamship *Atsuta Maru* and inspected at this port. The disabled vessel, which was towed to the dry dock at Tacoma in distress, was passed by wireless. The vessels detained were fumigated with sulphur dioxide gas by the pot method for the destruction of rats and other vermin. The work was done in the bay of Port Townsend, except in the cases of the American schooner

King and Wing, which arrived from Juneau, Alaska, on March 15, 1919, with five members of the crew ill with smallpox, and the American gas boat *Petrel*, which arrived from Ketchikan, Alaska, on April 7, 1919, with a member of the crew ill with the same disease. Both vessels were sent to the quarantine station at Diamond Point and disinfected. The crews were moved ashore, bathed, and vaccinated, and their effects disinfected. The sick men were held until disquamation was completed. The American steamship *Victoria*, en route to Nome, Alaska, returned to this port with one case of influenza on board. After removing the patient to the marine hospital the quarters were fumigated with formalin.

Once a week vessels leaving Seattle for San Francisco, via Victoria, British Columbia, were boarded at Seattle by an officer from this station and discharged at Victoria for quarantine at San Francisco, the Canadian passengers being inspected as they went aboard at Victoria. The trip in each case took two days and was made at the expense of the vessel's owners. This was discontinued on April 1, 1919.

Two lepers were treated at the station during the year. One has been at the station since January, 1910, and is now totally blind. The other, an alien, is being held for the United States Immigration Service pending deportation to Austria. She is confined to her quarters and has given but little trouble in the past year.

The location of this station is undesirable because it is entirely too isolated. The water supply is inadequate, and during the winter months it is frequently impossible for a large vessel to land at or depart from the quarantine dock. A location somewhere on Port Townsend Bay would be much more desirable because of its close proximity to Admiralty Inlet, which is the gateway to Puget Sound. There are several suitable locations which might be obtained, one being Fort Townsend, which has been abandoned by the Army for many years. However, if the station is continued in its present location, an additional water supply and an electric light plant are urgently needed.

Reedy Island (Del.) quarantine.—Post office address, Port Penn, Del. Telegraph address, Reedy Island, Del. Passed Asst. Surg. J. R. Hurley in charge.

Twenty-four vessels in ballast were fumigated and 93 vessels with cargo given provisional pratique and fumigated by the service at Philadelphia after discharging their cargo.

As compared with the preceding year, the figures show an increase of 228 vessels entering quarantine this year, with an increase by 10,167 in the number of crew inspected.

There was but one vessel detained for observation purposes. The American steamer *Dellatrix* arrived April 12, 1919, from Rio de Janeiro, via Barbados, the bill of health showing the presence of bubonic plague in Rio. One of the members of the crew had a bilateral inguinal adenitis, with a history of having had fever en route. The ship was held in quarantine and the suspicious case brought ashore. Material aspirated from the buboes, however, when stained and examined microscopically, failed to show bipolar organisms. The man was returned aboard and the ship given provisional pratique conditional to fumigation at Philadelphia upon discharge of cargo after a detention of but little over an hour at Reedy Island.

Extensive repairs and new construction have been accomplished at this station during the year, among the most important of which may be mentioned the erection of four new buildings on the island under the supervision of the construction division of the Army, a new barracks building designed to quarter 350 detained steerage passengers, new laundry building with full equipment of machinery, new attendants' quarters building, and a new officers' quarters. At the same time the old attendants' building was remodeled inside and connections with the new attendents' building arranged by means of added porch and gangway.

The steam tug *Neptune* was given an extensive overhauling at the League Island Navy Yard during September and October, and a spare propeller wheel was secured for this vessel.

A new small boat was delivered for use between the island and Port Penn, which was constructed from plans and measurements furnished by the station office.

Cooperation with other Government services: Quarters on the station were furnished two inspectors from the Customs and Immigration Services, and the facilities of the *Neptune* afforded them in boarding incoming vessels until September, 1918, when, for adminstrative reasons, they were returned to Philadelphia.

Cooperation with the Navy: Quarters were furnished three officers and 21 men of the Naval Reserve Force on the station for something over half the year. Their patrol boats were supplied with fresh water, and during the temporary absence of the Navy boarding boat the facilities of the *Neptune* were afforded them in bringing their subsistence supplies to the island and the Navy boarding officers were transported to and from arriving vessels. The Naval Reserve Force ashore and afloat in these waters was given medical and surgical assistance in a number of instances, and during the Spanish influenza epidemic a number of cases of this disease, including secondary pneumonias, were given care and treatment until recovery in the station hospital. The Naval Reserve Force men were transferred from the island preparatory to discharge on January 16, 1919.

Army Construction Corps: During the period while the new buildings were under construction on the station, assistance was rendered this corps through the towing of barges of materials from Delaware City to the station by the *Neptune*, and this vessel transported workmen daily between Delaware City and the island. The towboat *Vera*, in use by the Construction Corps, which took fire from the explosion of a gasoline tank aboard, was saved from destruction by the prompt action of the *Neptune's* crew, who extinguished the flames.

Army Engineer Corps: Medical and surgical assistance on a number of occasions has been rendered ill or injured employes on the Engineers' dredges in this vicinity, and fresh water has been frequently supplied the Engineers' tugs and launches. Their mail has also been delivered to and from the island during the dredging season.

Supervising Architect's Office: A pile driver and considerable additional amount of supplies and materials were brought to the island by the *Neptune* to facilitate the repair work being done on the station by the above-mentioned office, and a representative of the Supervising Architect's Office has been furnished quarters and subsistence on the station from September, 1918, throughout the balance of the fiscal year.

Medical and surgical relief: Owing to the distance from the nearest marine hospital relief station, requests for emergency medical and surgical assistance to be rendered by the medical officers on this station are frequently received from those entitled to relief at the hands of the service. During the time the Naval Reserve Force was quartered on the station and their boats were patrolling these waters, sick call was held daily in the station dispensary for the benefit of these men, and during the influenza epidemic of the fall of 1918 three cases too ill to be transferred were given care and treatment for a total of 43 days in the station hospital. The station dispensary register shows that during the year 125 cases were given a total of 182 dispensary treatments, and 12 minor surgical operations were performed. Two men were given the complete course of antityphoid innoculations, and one man was given a prophylactic injection of antitetanic serum.

San Diego (Calif.) Quarantine.—Post-office and telegraphic address, Quarantine, Point Loma, Calif. Senior Surg. A. H. Glennan in charge.

During the fiscal year a total of 666 vessels, 375 passengers, and 8,487 crews were inspected; 4 vessels were disinfected; 225 gas masks disinfected for the United States Army at Fort Rosecrans, near by; and 579 pieces of bedding for the United States. Section Naval Base Training Station, temporarily located upon this quarantine reservation, used a part of the buildings, grounds, wharf, and gangways.

History of their activities: On May 21, 1917, Lieut. Todd, United States Coast Guard, assumed command of the harbor patrol and established his headquarters at the quarantine station located at the Playa, Point Loma, upon a tract of land of over 10 acres in extent. There were seven buildings along the water front, three of which were constructed upon a gangway and wharf jutting 600 feet into the bay. Daily routine inspections from a military point of view of all vessels entering and departing from the harbor were carried out. By the middle of June, 1917, six motor boats were located at the station upon this patrol service, and the title of the service changed from "Headquarters Harbor Patrol" to "Headquarters San Diego Section Patrol."

In August accommodations were made in the buildings to care for 250 men. Before that time each crew was quartered upon their respective boats, but on account of cramped quarters it was necessary to house them at some station, and this quarantine site was immediately available without considerable expenditure for erection of buildings and equipment.

On November 8 Capt. Cantwell took charge. At this time they had on duty and in training 9 commissioned officers and 118 men. Again it became necessary to enlarge the service and preparations were made to accommodate 500 to 600 men. In December the name of the station was again changed to "Section Naval Base."

In the year 1918 the new recruits were trained in the Officers' Material School in one of the buildings as port guards, gun crews, etc., together with boat drills, small arms, and use of rapid-fire guns. Although the station was intended to house the large number of men guarding this area, it grew steadily until August 30, 1918, when there were 1,275 on the station, and owing to the graduating classes in the Officers' Material School there were, on January 2, 1919, 60 officers of various ranks on the station.

The average number of men under training in 1918 was about 741, although about 1,400 have been housed in buildings and tents at one

time. There have been over 3,700 officers and men at the station and over 3,000 transferred to all parts of the world.

The sick rate was remarkably low. No deaths were recorded until the epidemic of influenza prevailed in this country, when only six deaths occurred.

While this large Naval Reserve Force was under training, the quarantine activities of the Public Health Service were carried on, but fortunately no detentions were necessary on account of quarantinable disease. On May 15, 1919, the station was completely evacuated by the Naval Training Service. Since that date the quarantine force has been busily engaged in placing the station in shipshape order, ready for any emergency.

The boarding steamer *Penguin* has been overhauled, repaired, painted, and is now in good condition. On her regular trips to the city for supplies, she carried 350 officers and 627 sailors; 236 hours under way; distances run, 1,804 miles; and 162 barrels of fuel oil consumed. The hull of the *Penguin* is not coppered, but it has been found that after thorough cleaning a coat of Woolsey copper paint followed by a coat of Racing Compound affords ample protection, as this 18-year-old hull shows. This information is for all young quarantine officers in charge of floating property.

San Francisco quarantine.—Surg. Friench Simpson, in charge, reports as follows:

During the current year two vessels—the American steamship *Royal Arrow* and the American steamship *Astral*—were detained in quarantine by reason of the occurrence of smallpox.

The *Royal Arrow*, from Shanghai, with a crew of 42, arrived January 21, 1919. A death, suspicious for smallpox, had occurred at sea, and a sick sailor, removed after arrival, developed smallpox. Five other sailors suffering from influenza were admitted to hospital. The crew of this ship was vaccinated and placed in quarantine during the period of incubation. No further cases of smallpox developed.

The American steamship *Astral*, from Manila, arrived with a crew of 41 on February 27, 1919. The captain had previously reported by wireless the occurrence at sea of a case strongly resembling smallpox, which he isolated and treated as such. The patient subsequently died and was buried at sea. On arrival the symptoms reported as having been present warranted the presumptive diagnosis of smallpox, and the vessel was placed in quarantine and fumigated with formaldehyde. The crew was sent ashore, vaccinated, and detained to complete the 14-day period. No other cases of smallpox developed. It is of interest to note that with one exception all of the crew except the case having smallpox had been previously vaccinated. This case, the ship's steward, had, it is reported, refused vaccination, and aside from his own death which resulted, exposed his shipmates to infection and caused delay and expense to the ship through quarantine restrictions.

During the year, in addition to quarantine duties, quarantine boarding officers have also assisted in the medical examination aboard ship of all arriving aliens. Thirty-five thousand seven hundred and seven passengers and 36,284 members of crews have been inspected, of which number 4 passengers and 18 of the crew were certified, while 17 passengers and 117 of the crew were held for further medical observation at the immigration station.

During the year 525 vessels have been fumigated, 295 with cyanide, 227 with sulphur, and 3 with formaldehyde. In carrying out this

work 19,764 pounds of cyanegg, 53,361 pounds of sulphuric acid, and 101,230 pounds of sulphur have been used.

As the result of the above fumigation work 2,937 rats were found dead, identified as follows: *Mus alexandrinus*, 1,079; *Mus rattus*, 411; *Mus norvegicus*, 2; unidentified (decomposed), 1,445. In this connection it must be noted that 131 vessels of the 525 sailed after fumigation before search for dead rats could be made, while many others, because of shifts to other wharves or due to the presence of cargo or dunnage, could not be thoroughly and adequately searched. Of the above rats, all obtained since May 1, 1919, have been sent to the plague laboratory for examination, a report as follows covering such examination:

Number of ships from which rats were obtained	26
Number of *Mus alexandrinus*	186
Number of *Mus ratus*	104
Total rats examined	290
Number found plague infected	0

From the above report on species of rats found it may be again noted that the *Mus norvegicus* (Norway or brown rat) is rarely a ship-borne rat.

Transactions at foreign and insular stations for fiscal year ended June 30, 1919.

Stations.	Total number of vessels inspected.	Number of vessels fumigated.	Total number of passengers and crews inspected.
Aguadilla, P. R.	1		6
Arecibo, P. R.			
Arroyo, P. R.			
Callao, Peru	184	162	26,326
Cavite, P. I.	13		1,077
Cebu, P. I.	73	114	4,801
Christiansted, Virgin Islands	9		54
Frajardo, P. R.	2		15
Frederiksted, Virgin Islands	24		2,944
Guanica, P. R.	122	1	5,775
Guayaquil, Ecuador	87	74	8,645
Habana, Cuba	1,528	420	118,739
Hilo, Hawaii	43	27	1,481
Hongkong, China	305	76	61,210
Honolulu, Hawaii	693	73	130,450
Humacao, P. R.	5		47
Iloilo, P. I.	34	191	1,886
Jobos (Aguirre), P. R.			
Jolo, P. I.	36		2,233
Kahului, Hawaii	8	1	205
Koloa, Hawaii	8	1	211
Lahaina, Hawaii	3		82
La Guaira, Venezuela	32		
Mahukona, Hawaii			
Manila, P. I.	597	5	91,789
Mayaguez, P. R.	60	1	2,865
Naples, Italy	102	4	820
Olongapo, P. I.	10	1	1,614
Palermo, Italy			
Ponce, P. R.	42		2,589
Progreso, Mexico	58	40	3,834
St. Thomas, Virgin Islands	243		17,812
San Juan, P. R.	214	21	27,091
Shanghai, China	166	24	6,633
Tampico, Mexico	618	617	
Tuxpam, Mexico	97		
Vera Cruz, Mexico	38	16	3,800
Zamboanga, P. I.	54		5,496
Amoy, China	17		
Total	5,526	1,869	530,530

Foreign and Insular Quarantine.

CALLAO, PERU.

Acting Asst. Surg. J. L. Castro-Gutierrez in charge.

Bubonic plague continued to prevail throughout Peru during the year, there occurring in the various localities 812 cases as reported, in contrast to 414 in the previous year. As there has been practically an average of 400 cases per year in 1915, 1916, and 1917, it is evident that no measures are being taken to control the spread of the infection, except, possibly, at Callao, where some measures have been taken to suppress the infection. There was a marked increase in cases reported in the Departments of Libertad, Lima, and Piura.

In the latter part of the fiscal year there was a sharp outbreak in Payta, the port of Piura, the origin of which appears to have been traced to Guayaquil.

During the year 192 vessels cleared for ports of the United States or its possessions, of which number 162 were fumigated prior to sailing for the destruction of rats or mosquitoes. Necessary inspections, vaccinations, disinfections, and other preventive measures have been carried out by the service representative.

HABANA, CUBA.

Acting Asst. Surg. Richard Wilson reports as follows:

Work in this office includes (1) issuance of bills of health in conjunction with the consulate general to all vessels bound to the United States or its dependencies; (2) reviewing the sanitary conditions of the city and environment; (3) the fumigation of vessels when necessary; (4) inspection of vessels, crews, and passengers when necessary; (5) medical relief to sick seamen on American vessels.

On account of the satisfactory sanitary condition of Habana, inspection of passengers and crews has not been carried out, but on passenger vessels going direct to the United States, a bill of health is delivered on board the vessel just prior to sailing, and the ship surgeon and purser are questioned as to any illness aboard.

During the fiscal year a number of general strikes seriously affected shipping at this port, and to this extent also interfered with the service operations. Commerce was paralyzed and travel held up. The question involved was more political than industrial, and most of the leaders, who were foreigners, were deported.

The water supply of Habana continued to be a serious question. Each year in the summer months there is a scarcity of water, and this year it has been somewhat worse than usual. During the fiscal year there were 590 cases of typhoid fever and 107 deaths; 27 cases of paratyphoid and 2 deaths. The general practice during the summer months, when there is a shortage of water from the normal source, is to increase the supply from the River Almendares, which is contaminated. During the year Habana suffered, as the rest of the world, from the pandemic of influenza, the epidemic reaching its peak about the end of December, 1918, from which it declined until practical disappearance in April. There were 675 cases of malaria, 6 ending fatally. Most of the cases were reported as coming from the interior. There were scattering cases of diphtheria, measles,

chicken pox, and cerebrospinal meningitis. During the year there were 315 vessels fumigated by the service and 105 vessels fumigated by the Cuban authorities under service supervision, to which latter class of vessels were issued certificates of fumigation.

The number of sick seamen from American vessels treated during the fiscal year was 224, practically double the number of the preceding year. This service has gradually increased during the past six years, and, with the increase in American shipping, promises to be an important function of this office. Of this number, 76 were sent to the hospital and 148 were treated either at the office or on board the vessel.

Tabulation of service transactions in Habana.

Vessels inspected	1,528
Vessels not inspected (via foreign ports)	545
Total bills of health issued	2,073
Vessels fumigated by service force	315
Vessels fumigated by the Cuban authorities under supervision of the service representative	105

OPERATIONS OF THE SERVICE IN HAWAII.

The activities of the United States Public Health Service in the Hawaiian slands for the fiscal year ended June 30, 1919, remained the same as for the preceding year, namely: (1) National quarantine, (2) marine hospital relief, (3) medical examination of immigrants, (4) plague laboratory, (5) physical examination of applicants for marine licenses and other Government positions.

General.—Six vessels arrived with histories of having smallpox on board during the voyage, and two vessels arrived with leprosy on board.

Vessels inspected.—Six hundred and seventy-seven vessels boarded and inspected upon arrival at the following ports of entry, namely: Honolulu, 615; Hilo, 43; Kahului, 8; Koloa, 8; and Lahaina, 3; there being no transactions at the subpoart of Mahukona.

Twenty-eight vessels were passed upon medical officers' certificates at Honolulu, 15 were spoken and passed, 13 were detained and fumigated for mosquitoes, and 22 were detained and allowed to transact business in quarantine.

Seventy-four thousand one hundred and seventy-seven passengers were inspected and passed at Honolulu, and 119 at the port of Hilo, while 56,273 crew were inspected at Honolulu, and 1,974 at the three subports.

Six hundred and sixty-two port sanitary statements were issued to departing vessels at Honolulu, 69 at Hilo, 58 at Kahului, 27 at Koloa, and 13 at Lahaina.

QUARANTINABLE DISEASES ON ARRIVING VESSELS.

Smallpox.—Six vessels arrived during the year with histories of having had smallpox on board during the voyage, but as all the cases had been landed at foreign ports, and the required precautions carried out, it was not considered necessary to detain any of them upon arrival.

Leprosy.—Two vessels arrived during the year with leprosy on board. As the travel in both cases had been duly authorized by the proper authorities and the necessary precautions were being enforced

on board the vessels, it was not necessary to take any action at this port.

CONTAGIOUS DISEASES ON ARRIVING VESSELS.

One hundred and forty vessels arrived during the year with contagious and infectious diseases on board, of which there were 90 cases of tuberculosis, 623 of influenza, 28 of varicella, 9 of measles, 22 of mumps, 2 of meningitis, 2 of typhoid, 3 of pertussis, and 1 of poliomyelitis.

Cases amongst the personnel of transports were removed to the department hospital at Fort Shafter, while those on other vessels were reported to the board of health for whatever action they deemed necessary.

Influenza first appeared on arriving vessels on the steamship *Vondel*, July 9, from Japanese and Chinese ports, a total of 14 cases having occurred during the voyage, followed by the steamship *Grotius* from the same ports, August 13, with a total of 11 cases.

No cases of influenza were reported on arriving vessels between August 13 and October 18, when the steamship *Meikai Maru* arrived from San Francisco with 31 of the crew ill and 3 dead from influenza.

Between October 18 and May 27, 1919, a total of 19 vessels arrived with influenza on board, 10 of which were from oriental ports and 9 from San Francisco.

A total of 623 cases of influenza were reported on arriving vessels during the year with a mortality of 21 deaths.

DEATHS AMONGST THE PERSONNEL OF ARRIVING VESSELS.

A total of 59 deaths occured on vessels arriving, of which 29 were from pneumonia, 11 tuberculosis, 2 nephritis, 3 cerebral hemorrhage, 1 meningitis, 2 beriberi, and 11 from other causes.

The remains of 16 persons were buried at sea, 17 were landed at ports touched at en route, and 26 were embalmed on shipboard and carried to the port of destination.

BOARDING OF ARRIVING VESSELS BY UNAUTHORIZED PERSONS.

During the year considerable annoyance and embarrassment was caused the quarantine officer by unauthorized persons boarding vessels during quarantine inspection for the purpose of extending diplomatic and social courtesies to foreign officials and distinguished visitors.

Adjustment of this matter was attempted through the admiral commanding the Pearl Harbor naval station, but without success, and it was finally necessary for the department to rule that the boarding of arriving vessels during quarantine by officials for the purpose of extending diplomatic and social courtesies was in violation of the United States quarantine laws and regulations.

PANAMA CANAL.

During the year 46 vessels arrived from Atlantic ports by way of the canal, while 34 vessels departed from the islands for ports on the eastern coast of the United States, via the canal. This is an increase of 61 vessels as compared with the record of the previous year.

The nationalities of the vessels were as follows: American, 44; British, 20; Japanese, 9; Danish, 4; French, 1; Dutch, 1; and Norwegian, 1.

QUARANTINE WHARF.

As stated in the report for the previous year, the necessary dredging, 104,000 cubic yards immediately in front of the new site for the wharf in order to permit of the construction of the latter, was completed. Work of reerecting the wharf was started in August, 1918, and was completed on March 12, 1919, final voucher in favor of the contractors being forwarded to the Supervising Architect by the United States district engineer officer on April 7, 1919.

Pending notification by the department of the completion of the contract, nothing has been done, except to maintain a watch for the protection of the wharf and equipment.

RAT QUARANTINE.

The vessels fumigated for the purpose of rodent eradication during the year were classified as follows:

1. Vessels bound for United States ports.
2. Vessels engaged in the interisland trade.

(1) Eighteen vessels bound for United States ports were fumigated with a resulting yield of 10 rats. The majority of these vessels are engaged in the lumber trade and ply regularly between Pacific coast ports and the islands.

(2) A total of 24 vessels engaged in the interisland trade were fumigated during the year with a resulting yield of 235 rats.

RATS ON TRANSPACIFIC LINERS.

Of the regular trans-Pacific liners touching this port, there were obtained during the year 739 rats as a result of the fumigation of these vessels at Hongkong, San Francisco, and Sydney, while in addition 129 rats were trapped by the crews.

For many years the trans-Pacific liners plying between San Francisco, Honolulu, and the Orient loaded and discharged all their cargoes at oriental ports by means of lighters and never touched a wharf, except when being dry-docked for cleaning and painting.

At the plague ports of Hongkong and Shanghai, the cargo lighters, or junks, were regularly fumigated for rodents, and only certified lighters were permitted to handle the cargo of vessels which were destined for United States ports.

During the present year all the steamers discharged and loaded at wharves at Manila and Yokohama, while the smaller vessels docked at Hongkong, Shanghai, and Kobe, and the same procedure will shortly be adopted at the port of Nagasaki.

Unless the quarantine regulations in regard to the fending off of vessels from the dock, the wearing of rat guards, and the inspection and rejection of freight, so packed as to be capable of affording a nesting place for rats, is strictly enforced in all plague ports, a large increase in the number of rodents on the trans-Pacific steamers is to be expected, with the consequent danger of the introduction of plague into insular and continental United States ports.

FUMIGATION OF VESSELS FOR MOSQUITOES.

The fumigation of all vessels arriving from ports of the west coast of Mexico and Central and South America, on request of the board of health for the eradication of mosquitoes, was continued throughout the year, a total of 13 vessels being so treated.

RAT-GUARD INSPECTION.

The rat-guard requirements for vessels docking at wharves at island ports, as specified in the Department circular letter of June 10, 1912, were strictly enforced.

This office had the hearty support and cooperation of all the steamship companies in carrying out the rat-guard regulations, which were complied with by all vessels without any trouble or opposition whatever.

A daily inspection is made of all vessels in port for the purpose of ascertaining whether the regulations have been complied with, and the results of the inspection are noted on a blackboard in the quarantine office for the information of the officer issuing the port sanitary statement as well as for the masters and agents of the vessels.

CREMATIONS.

The remains of eight persons were cremated at the quarantine station during the year, the causes of death being as follows: Leprosy, 7; diphtheria, 1.

These cremations were all done on request of the board of health.

PLAGUE ON THE ISLAND OF HAWAII.

For the second time during the 19 years that plague has been present on Hawaii, no human cases of the disease were reported, while only one plague-infected rodent was obtained. This rat was trapped in the stables of the Hamakua Mill Co., at Paauilo, on March 28, 1919, and in spite of a most intensive poisoning and trapping campaign in this locality by the board of health no further infection was found.

The last plague-infected rat obtained in the above locality was trapped in October, 1917.

The board of health has energetically continued their rat campaign in the Hamakua district of Hawaii throughout the year, with the result that 148,968 rats and mongoose were taken, of which, as stated above, only a single case of rodent infection was found.

RAT CAMPAIGN.

Sixteen thousand eight hundred and seventy rats and mongoose were trapped in the district of Honolulu during the year, of which, 16,521 were trapped, 173 were obtained as a result of the fumigation of vessels, while 172 mongoose were taken.

This was an increase of 597 rodents as compared with the number for the preceding year.

Seven trappers were employed and the area principally covered in trapping operations was the water front, warehouses, wholesale district, and adjacent sections.

AID RENDERED TERRITORIAL AND OTHER GOVERNMENT SERVICES.

Board of health.—One case of cerebrospinal meningitis from the Japanese steamer *Tenyo Maru*, one case of diphtheria (a resident of Honolulu), and 24 cases of influenza from the Japanese steamer *Moikai Maru* were admitted and cared for at the quarantine station upon request of the board of health.

The remains of seven persons dying from leprosy and one form diphtheria were cremated at the station. A large amount of media for bacteriological and water analysis was prepared in the laboratory for the board of health, as well as swabs and dishes prepared and sterilized.

All guinea pigs required by the board of health in their laboratory work were furnished by the station.

Thirteen vessels were fumigated upon arrival from ports on the west coast of Mexico and Central and South America for the destruction of mosquitoes.

Post-office.—Disinfectants were furnished during the year to the local post-office for the purpose of treating the mails from the Molokai leper settlement.

Foreign consuls.—Twenty-three seamen were admitted to the hospital and were furnished out-patient treatment upon the request of their respective agents or masters.

MARINE HOSPITAL.

This portion of the service work is included under two headings, namely: (1) Out-patent relief, (2) hospital relief.

Out-patient relief.—Nine hundred and thirty-two patients were treated, of which 892 were merchant seamen, 24 were employes of the Lighthouse Establishment, 9 were seamen from foreign vessels, 4 were employes of the post-office, 2 were patients of the Bureau of War Risk Insurance, and 1 was an employe of the service. Thirty-two applicants for the rating of able seamen were examined, of which 27 were passed and 5 rejected on account of physical defects.

Ten applicants for pilots licenses and renewals of certificates were examined.

Nine applicants for other government positions were examined.

Hospital relief.—A total of 346 patients were treated in hospital, of which 310 were merchant seamen, 14 were foreign seamen, 12 were employes of the Lighthouse Establishment, 5 were attendants of the service, 4 were patients of the War Risk Insurance Bureau, and 1 was an employe of the Postal Service.

Eighty-one surgical operations were performed during the year, while 33 Wassermann reactions were made and 27 injections of neo-arsphenamine were administered.

IMMIGRATION.

A total of 3,661 immigrants were inspected at this port during the year ending June 30, 1919, and 182 were certified for diseases or disabilities in accordance with the immigration law. The majority of arriving aliens were Japanese, the remainder being Chinese and Koreans.

The distribution of medical certificates according to nationality was as follows: Japanese—98 class A, 60 class B, and 11 class C. Chinese—7 class A, 4 class B, and 1 class C. Koreans—1 class C.

During the year 15 aliens were examined for uncinariasis and none were found to be afflicted with this disease.

Three fines of $200 each have been imposed against steamship companies for violations of the provisions of section 9 of the immigration law.

PUBLIC HEALTH IN ITALY.

The public health of Italy during the year has suffered from a grave epidemic of influenza, an outbreak of smallpox, which reached epidemic proportions in Naples and Bari, and an outbreak of typhus fever, which was severe in certain localities. The general public health also suffered from the privations imposed on the people through the excessively high cost of food, fuel, clothing, and shoes, the accompaniment and the aftermath of the war.

The American Red Cross did much to relieve the distress of the poor people throughout Italy, and in Naples it had the cooperation of the officers of the United States Public Health Service.

INFLUENZA EPIDEMIC.

The great pandemic of influenza was especially severe at Naples during September, October, November, and December, 1918, aggravated by the destitution due to war conditions. The local Italian sanitary authorities were overwhelmed by the magnitude of the epidemic. The epidemic reached its highest point during the latter half of October and the first half of November.

It is always difficult to get reliable morbidity and mortality statistics at Naples, especially during epidemics, but acting Asst. Surg. Buonocore estimates that about three-fifths of the population of Naples had influenza and that the mortality among those infected was about 4 per cent. Based on these estimates and the population of Naples at 726,000, the mortality of Naples during the influenza epidemic was 17,402. During the acute period of the epidemic there were about 11,000 deaths in Naples.

All classes were affected, but the mortality was far higher among the poor and destitute. The sanitary authorities found themselves unable to dispose of the dead often for many days after death. As the weather was then hot, many bodies became so decomposed that the living members of the families were forced to discontinue occupying the same (their only) room until the corpse was somehow removed.

During the latter part of November the influenza rapidly declined, until at the end of the month new cases almost ceased to occur; but from about the end of the first week of December new cases began to develop until, toward the end of December, a new outbreak was in progress. The type then was milder than before. A number of second attacks occurred. Allopecia was a rather common complication, or rather sequel, in young women. It generally occurred from three to five weeks after recovery and during convalescence. Occasionally the loss of hair was almost total. But regrowth took place almost invariably and as a rule luxuriantly.

The latest figures received from the Direzione Generale di Sanità Publica give the total number of deaths from influenza for all Italy as 1,580,400.

SMALLPOX EPIDEMIC.

A severe epidemic of smallpox was present in Naples during the year. Cases began to be reported quite regularly as early as July, 1918, steadily increasing until in December the numbers, official and unofficial, reached epidemic proportions. The type was extremely malignant, abounding in hemorrhagic and confluent cases, with a very

high mortality. The grave mortality was ascribed to the large number of unvaccinated persons in Naples. The official figures given in the table are below the actual figures, as many cases and even deaths were successfully hidden from the authorities. On December 26 the prefect issued an order requiring all persons to be vaccinated; also that all crews of vessels should be vaccinated. On that date there were 177 cases at the isolation hospital. A conservative estimate made on January 1, 1919, from reliable sources placed the average number of new cases at 30 daily. During the epidemic the Italian sanitary authorities requested the assistance of the United States Public Health Service in the vaccination of municipal employes and civilians. The service officers in rendering that assistance vaccinated 2,231 persons.

Among the approximate 800 war refugees under the charge of the service officers only two contracted smallpox. One of these was a very mild case, which developed before the positive vaccination scab had fallen off. The other case was the single exception that had avoided vaccination through misrepresentation by the mother. The patient was a girl 17 years old, and she died with confluent hemorrhagic smallpox.

TYPHUS FEVER.

Outbreaks of typhus fever appeared in many parts of Italy and were traced to Austrian prisoners of war and Italian soldiers returning from the Balkans and from ports on the Black Sea. The first appearance of the disease in Naples was in the latter part of January, 1919, in the person of an employe of the Arsenal of Naples, 65 years old. He died on February 7. Several days later his wife and daughter contracted typhus fever. Five other contacts were isolated, and one of these developed typhus fever two days after isolation.

On and about April 9, six cases of typhus fever appeared in the Ospedale Incurabile, with two deaths later.

On May 1 four sisters living in the Via San Mattia, occupied in unsewing old uniforms, took typhus fever. On May 24 four other young girls employed in handling rags and old clothing, living in a house in Via San Nicolo dei Caserti, were found to have typhus fever.

THE LEVANT.

Information regarding sanitary conditions in the Levant has been generally indefinite, with a strong bias toward a state of affairs that was unsatisfactory and suspicious. The armistice brought with it the anticipation of safer conditions in the near future, but also apprehension because of the increasing communication that inevitably followed. All official consular reports from the Levant have been considered practically worthless for the reasons that medical officers are not detailed at those consulates and that they are dependent for their information upon reports obtained from the foreign official sanitary authorities, who generally adhere to the old and bad custom of secrecy and concealment of quarantinable disease developments as long as possible. This observation does not apply to ports under British sanitary control. The American consul general at Athens furnishes this office regularly with sanitary reports, which give numbers of deaths but not cases, with the note "No official record kept"

of new cases. The death lists have never been known to state deaths from any of the quarantinable diseases, and the columns for Asiatic cholera and plague are canceled by black lines. This is a good sample of Balkan official sanitary information, and will apply to any Levantine port not under British or international control.

ITALIAN PRECAUTIONS.

The Italian sanitary authorities require detention of all Levantine steerage passengers for at least 12 days, bathing, and disinfection of their baggage and clothing. Where there were cases of diarrhea, stool examinations were made in the bacteriological laboratory. Vaccination was enforced.

UNITED STATES PUBLIC HEALTH SERVICE PRECAUTIONS.

Steerage passengers from the Levant.—The requirements were those enforced by the Italian authorities, namely, 12 days' detention, bathing, disinfection of baggage and clothing by steam, and vaccination. Stool examinations to be made in certain instances. All rags and secondhand clothing were required to be disinfected and so certified. Baggage of cabin passengers to be inspected and, if deemed necessary, disinfected.

Reservists.—This class was regarded as particularly dangerous in regard to typhus fever. The outbreak throughout Italy was apparently traced in some instances to Italian soldiers returning from Levantine and Black Sea ports, and specifically to imperfect disinfection of their uniforms and other clothing. Consequently detention for 12 days was required of reservists destined for the United States, bathing, and disinfection of baggage and clothing.

Ordinary emigration.—Emigration during the year was limited to Italian reservists. Their treatment is described under the heading reservists.

Rags, etc.—All rags and secondhand clothing were required to be disinfected by steam, and so certified.

Cargo steamers.—Vaccination of crews and fumigation of vessels to destroy rats. If refused, a note was made on the bill of health recommending that the vessel be fumigated and the crew vaccinated at the American port of arrival. Vessels were inspected and cleared by service officers.

Emigration.—During the last months of the war and during the armistice emigration was reduced to the lowest point in the history of this office. This was not because of lack of desire to emigrate to America on the part of the Italians but because of governmental restrictions. During March, 1919, the American consul received instructions from the State Department authorizing him to visé passports of Italian reservists who had come from America to join the Italian Army during the war. Members of their families were also included. In the cases of these reservists the United States Government made some notable exceptions to the immigration act of February 5, 1917, to the effect that reservists who had contracted diseases and disabilities while in war service, excludable under the law cited, were exempted and permitted to return to the United States. The physical and mental examinations of reservists applying for passports were done by officers of the United States Public Health Service, as required by law, but the special exemption clauses nec-

essarily involved more time than the examination of ordinary emigrants. A separate blank form with interrogations was provided for each person.

WAR ACTIVITIES.

Out-patient office.—The out-patient office of the Public Health Service at the American consulate, authorized after the United States entered the European war, continued during the fiscal year to furnish medical and surgical aid to American and allied seamen, soldiers, and other war workers. A campaign of prophylaxis against venereal disease was continued as in the preceding year. Circulars giving simple, definite, and brief instructions were given to such masters and seamen as presented themselves.

War refugees.—The Public Health Service at Naples continued during the fiscal year July 1, 1918, to June 30, 1919, to cooperate with the Italian Government and the American Red Cross in the medical care of Italian refugees from the districts invaded after Caporetta. The American Red Cross terminated its activities at Naples February 8, 1919. Service work with the Italian Government continued until May, but the number of cases was small and not deemed sufficient to make a record of.

Families of Italian soldiers.—Owing to the extremely high prices for fuel and food during the war, there was considerable destitution and sickness among the families of Italian soldiers absent at the various battle fronts. The allowance or subsidies granted by the Italian Government was insufficient for their maintenance. The American Red Cross endeavored to relieve this situation as far as possible by distribution of food, clothing, and shoes. They also established a medical and surgical clinic, of which the officers of the Public Health Service were asked to take charge. The most important part of the treatment of the sick and famished children consisted of condensed milk, which was issued by the American Red Cross on presentation of coupons signed by the Public Health Service surgeons. The record of the medical and surgical relief given by the service to the families of Italian soldiers is given in the table.

Additional duties.—Cooperation with the American military and naval attachés at the American Embassy at Rome was continued as during the previous year, those officers being furnished, at their requests, with weekly sanitary statistics of Naples, and the service officer at Messina furnishing crew lists and other information to the American naval attaché.

In the matter of United States Public Health Service propaganda, Acting Asst. Surg. Enrico Buonocore continued, as during previous years, to translate into Italian many articles and publications by service officers and others for publication in Italian medical journals.

OFFICIAL ACKNOWLEDGMENTS OF ASSISTANCE GIVEN BY UNITED STATES PUBLIC HEALTH SERVICE.

Official letters were received from the prefect of Naples, the director of the American Red Cross Commission for Italy, and the British consul general at Naples, acknowledging the cooperation and assistance given by the officers of the United States Public Health Service in the relief of Italian war refugees, families of Italian soldiers, victims of the influenza epidemic, and allied seamen and soldiers during the war.

OPERATIONS OF THE SERVICE IN THE PHILIPPINES.

Passed Asst. Surg. L. R. Thompson, chief quarantine officer, reports as follows:

The work of the quarantine service was carried on during the fiscal year 1919 in much the same manner as in previous years. The endeavor of the service has been to maintain at all times an efficient barrier against the entrance of quarantinable diseases into the Philippines Islands and at the same time, as far as possible, to eliminate objectionable delays to passengers and vessels.

The urgent need of the allied nations and the United States for the use of all available tonnage was taken into consideration, and all possible help was given shipping interests to the effect that a minimum amount of time was lost compatible with efficient quarantine procedure.

Service officers are stationed at Manila, Cavite, Cebu, Iloilo, Jolo, Mariveles, Olongapo, and Zamboanga. Two quarantine stations are maintained with full equipment for complete disinfection and fumigation of vessels. At these stations are facilities for the care and hospitalization of those sick with quarantinable disease and for the isolation of contacts and suspects. One of these stations is located at Mariveles, Bataan, at the north of Manila Bay, approximately 30 miles from the port of Manila, and is easily accessible to all incoming vessels. The other is at Cebu, located on the island of Cebu. This latter station, while separated from the mainland, is but 20 minutes launch ride from the usual anchorage of vessels entering the port of Cebu and is also connected with the mainland by telephone communication.

At both these stations are facilities for complete disinfection of vessels and cargoes; for sterilizing the effects and baggage of passengers and crew; and adequate bathing equipment and quarters for the passengers and personnel of the vessel.

At all the other quarantine stations vessels may be fumigated and disinfected, but on account of the small amount of shipping coming to those ports a full sterilizing equipment, with the necessary staff to operate it, is not maintained. Vessels entering such ports needing complete disinfection of the vessel and its cargo, and quarantine for the personnel and passengers, are remanded to Mariveles or Cebu for treatment.

It is noticeable that this procedure has caused neither hardship nor delay to shipping.

FUNCTIONS OF THE SERVICE IN THE PHILIPPINE ISLANDS.

1. National quarantine.
2. Consular quarantine.
3. Interisland quarantine.
4. Immigration inspections.
5. Sanitary supervision of vessels and ports.
6. Physical examination of applicants for marine licenses and for other Government positions.
7. Miscellaneous functions.

SANITARY CONDITION OF THE ORIENT.

Broadly speaking, the continued improvement in the sanitary condition of oriental ports has been, to no small extent, due to the requirements of the quarantine laws of the United States and their enforcement in the Philippine Islands and United States ports.

The special requirements of these regulations regarding the sanitary condition of the living quarters of passengers and crew, the ventilation and care of their quarters, requirements regarding the proper toilet facilities for passengers and crew, requirements regarding the sanitary condition of the vessel, and, lastly, the control of the food and water supplied to crew and passengers, has required vessels of other nations (whose laws are less strict) to keep apace with American ships in their sanitary standard in order to hold their place in the world commerce.

To some extent the same is true of those ports from which there is continuous shipping to the United States and Philippine ports. Special requirements ordered by the chief quarantine officer of the Philippines, to be observed at ports infected with typhus, cholera, smallpox, plague, etc., have necessarily interfered with passenger traffic, and in view of this fact, local authorities have taken measures to stamp out these diseases and improve the sanitary condition of the port in order to have such restrictions removed.

As is true of most sanitary measures, there is primarily a certain amount of objection to changes from the old routine, and this is especially true of changes in quarantine procedure. It has been observed, however, that once these changes have been put into actual operation they generally meet with favor and their necessity is appreciated. Sanitary requirements for vessels not only operate toward the safety of the passengers and crews but also toward their convenience and comfort.

The health conditions of the Orient are of vital importance to the Philippines. Epidemics of quarantinable or communicable diseases in ports from which there is active communication to the Philippines constantly involves the danger of the entrance of those diseases into the islands.

Quarantine procedure in United States ports against the Orient is much less complex than what must necessarily be observed in the Philippine Islands against the same ports. The reason for this is evident as an average time of at least 20 days is consumed en voyage by ships leaving the Orient for the United States. This time period is well beyond the incubation period of all communicable and quarantinable diseases so that we may expect that such diseases, if the infection were present, would appear prior to the vessel's arrival in a United States port. In the Philippines the converse is true. The sailing time from Hongkong is two and one-half to three days. From Amoy, a port where there is constantly present all the most dangerous quarantinable diseases, the sailing time is three to four days. Japan ports are five to six days distant, and Indo-China the same. India, the hotbed of plague, is, fortunately, sufficiently distant to make quarantine procedure against this dread disease a comparatively simple matter.

Plague, smallpox, typhus fever, and cholera were present in Java in epidemic and endemic form during the entire year.

Plague, while persistently present, did not assume the high epidemic prevalence found in some of the other oriental countries, and the same is true of smallpox.

However, private reports regarding the sanitary condition of the principal Javanese ports and the prevalence of quarantinable disease in these ports tend to confirm the suspicion that the figures given in various reports are too low and that a considerable proportion of the deaths among the native population are not reported to the Government officials.

While reports for the final months of the fiscal year are not at hand, it is possible to give a brief summary of the prevalence of quarantinable diseases in India for the greater part of the period covered by this report.

As in years past, plague continued to prevail in virulent epidemic form throughout the year.

During the first part of the year 1918, India suffered from one of the severest epidemics she had experienced, reaching in March to approximately 200,000 cases and 150,000 deaths. In July and August the epidemic had decreased to about 6,000 cases and 4,000 deaths. For the remaining months of 1918 there were approximately 20,000 deaths.

In January of 1919 there was a slight increase in the prevalence of the disease, 10,543 cases and 7,529 deaths being reported, but, as compared to January of 1918, when approximately 125,000 cases and 100,000 deaths occurred, it is not expected that this year will see any severe epidemic, although, as usual, further increase must be expected as the plague season advances.

Quite a serious epidemic of cholera occurred at Bombay, beginning the last week in December and continuing through January and February, there being reported during the last week in January 3,183 cases and 2,866 deaths.

Smallpox did not appear in true epidemic form during the year, although a considerable number of cases were reported from the principal ports.

Plague did not occur in epidemic form in Singapore during any month of the year, there being even fewer cases reported than in the same months of 1918.

Only a few sporadic cases of smallpox were reported during the year, and typhus and cholera were not reported at this port during the entire year.

Plague, smallpox, and cholera were reported as present in Indo-China continuously throughout the year. As in Java, it is probable that the actual number of cases and deaths, especially in the Provinces surroundings the ports, are considerably greater than the number reported by the Government officials, due to the difficulty of receiving correct reports concerning the native population.

It is difficult to discuss the general health conditions of China because of its many ports and large coast line. It may be said of China as a whole that plague, smallpox, typhus fever, and cholera were continually present but not in dangerous epidemic form.

The epidemic of plague in 1918 at Hongkong reached its height in the first week of July, when 40 cases and 28 deaths were reported.

From then on fewer cases were reported in each succeeding week until in the last three months of 1918 and the first two months of 1919 but one or two cases were reported each month.

In March of 1919 an increase in the number of cases was reported considerably higher than in the same period of time last year, and while no severe epidemic is expected it is probable the epidemic will reach higher proportion than in 1918.

No cholera or typhus fever was reported in Hongkong for the entire year.

In past years the port of Amoy has usually been a serious menace to the Philippines, due to severe epidemics of plague and smallpox. While no definite statistics are available from Amoy, it is known that smallpox and plague were present at Amoy and in the vicinity of the port during the entire year.

Also an unofficial report was had that a few cases of cholera had occurred in the port. However, during the entire year no quarantinable disease appeared in severe epidemic form, and for this reason it was not necessary to institute the special quarantine measures against Amoy port that were necessary in previous years.

Smallpox and typhus fever were the only quarantinable diseases reported at Shanghai during the year, and these diseases did not occur in epidemic form.

Typhus fever and smallpox were reported from Japan during the entire year.

One case of plague was reported at Yokohama in June.

Press reports in May stated that there were 800 cases of typhus fever in the city of Tokyo, but this report has not as yet been confirmed.

No plague or cholera was reported at Kobe, but typhus fever was reported present in the month of July.

In November smallpox began suddenly to increase at Kobe, 55 cases with 11 deaths being reported. In December the number had increased to 130 cases with 34 deaths; in January 250 cases with 59 deaths. In February the epidemic reached its peak, with 342 cases and 100 deaths being reported. In March, April, May, and June fewer cases and deaths were reported, but the disease has been continuously present.

A few cases of smallpox in Nagasaki were reported from time to time throughout the year. Typhus fever continued to be endemic at this port as in previous years, but no serious epidemic occurred.

QUARANTINABLE DISEASES.

The continuous improvement in sanitation on vessels from foreign ports coming to the Philippine Islands was especially noticeable in the decrease in the number of quarantinable diseases found on inspection. Another factor operating to cause this decrease is the thorough vaccination of crews and especially emigrants prior to their embarking for the Philippines.

Interisland quarantine continues to be of great service in controlling the spread of cholera and smallpox. At Manila, Cebu, and Iloilo a not inconsiderable number of vessels were held in quarantine on account of smallpox and cholera on board.

It is interesting to note in this connection that one of the passengers on an interisland boat held at Cebu on account of cholera gave a history of having been found a carrier several months previous. She was again found to be a carrier at the Cebu quarantine station,

and her stools gave positive cultures in five examinations on continuous days, becoming negative on the sixth day and remaining negative on all other examinations. She was allowed to depart from quarantine, but her name and address was furnished the district officer in order that she could be held under observation.

During the months of February and March, 1919, there occurred on vessels in Manila Bay several sporadic cases of smallpox. In each instance the vessel had been in the bay or in Philippine water over 14 days' time.

The first case occurred February 24 in a British seaman on the sailing vessel *Drumeltan*, which had been in port several months. On March 5 the second case occurred in the person of an American sailor on the steamship *Manoa*. This vessel had been at Manila and Iloilo and had returned to Manila. The same date two cases occurred on the steamship *Libbey Maine*, both in members of the crew. This vessel had been in port since February 13. The case from the ship *Drumeltan* recovered; the other three cases died from an extremely severe form of hemorrhagic smallpox.

In each instance the vessel was completely disinfected and the crew vaccinated, no other cases occurring.

Both the *Drumeltan* and the *Libbey Maine* had been in the port of Manila sufficiently over the ordinary incubation period of the disease so that it can not be questioned that the infection was contracted in the city of Manila.

With the aid of the Philippine Health Service a vaccination campaign was instituted especially directed toward the crews of lighters.

As no other cases have occurred on other vessels in the port, it is quite possible that the infection mentioned occurred from contact with unreported cases of smallpox on the lighters used in loading the ships named.

In order to protect the crews and vessels in Philippine ports where smallpox was epidemic, orders were issued to quarantine officers that the crews and steerage passengers of all vessels bound for United States ports must be vaccinated, and vessels bound for foreign ports were advised to follow the same procedure.

SANITARY CONDITION OF THE PORT OF MANILA.

The smallpox epidemic which began in March, 1918, and reached its height in the last week of May and the first week in June, materially decreased in severity in July and August. During the remaining months of 1918 and for the first half of 1919, the diseases continued to exist in endemic form, a few cases being reported weekly.

While there occurred no severe epidemic of cholera during the year, a slight flurry occurred, beginning in September, 1918, and continuing through October and November, as high as 31 cases in one week being reported. During the first six months of 1919 a few cases, averaging from three to nine weekly, have been reported.

Cases of so-called typhus fever are reported from time to time in Manila and elsewhere in the Philippines. The question of correct diagnosis in these cases always arises, and while it is not impossible that the disease might occur, the fact that medical men in Manila and elsewhere in the island with large native practices do not report seeing the disease, points strongly to the fact that it is not present.

Plague did not occur in the Philippine Islands during the year.

Antimosquito and antirat work was continued throughout the year with excellent results, and a special antirat campaign (as already referred to) was inaugurated on the riprap around the piers.

The statistics of outgoing quarantine are as follows:

Bills of health issued	225
Crew inspected	21,737
Passengers inspected, cabin	4,869
Passengers inspected, steerage	17,272
Crew and passengers vaccinated	2,763
Pieces of cargo certified	3,220,153
Vessels disinfected and fumigated	12
Vessels inspected	111

FUMIGATION AND DISINFECTION OF VESSELS.

Fumigation of vessels at the ports in the Philippines was accomplished, as in previous years, as an antirat measure. The continued presence of plague along the China coast, in Indo-China, Java, and India makes this measure a strict necessity. Secondarily, fumigation is beneficial as a measure of cleanliness, and lastly, but by no means a minor consideration, is the saving in cargoes that might be destroyed or damaged by rats, mice, and cockroaches, and also other insects.

All vessles from Saigon are regularly fumigated every three months and it has been noticed that with this frequent fumigation, the number of rats found dead after treatment has been considerably lessened. During the plague season vessels from Hongkong and Amoy are fumigated every other trip.

All interisland vessels are required to be fumigated twice yearly. At the time they are fumigated they are urged to clean up and paint up. An inspection follows fumigation. The sanitary arrangements for preparing food, water tanks, toilet facilities, etc., are investigated, and necessary changes are recommended.

While it is recognized that there still remains considerable room for improvement on interisland boats as compared to the condition of those boats before inspection was required, there has been a great change for the better.

There were 15 vessels disinfected by the service at Manila for having quarantinable diseases on board. This list includes launches, lorchas, and barges engaged in river traffic. Of these vessels six were disinfected in February and March, 1919, for smallpox during the period when this disease was prevalent in Manila.

Care has always been taken by the service to keep the crews of interisland vessels well vaccinated so as to prevent cases of smallpox among the personnel of these boats. Special precautions were taken during the epidemic at Manila.

As in previous years, the quarantine service was of aid to the Philippine Health Service in disinfecting vessels carrying lepers.

INTERISLAND QUARANTINE.

The policy of allowing interisland boats without sickness on board to enter ports without inspection was continued during the year. Masters and agents were, however, given to understand that any case of illness, whether or not suspicious of a quarantinable disease, would require them to call at a quarantine station for inspection.

By this method all delay to shipping interests, especially at the port of Manila, due to waits for inspection, were avoided, and from the number of vessels calling at the quarantine stations with cases of various illness it is believed that no case of a quarantinable disease was carried on an interisland vessel which was not reported to the service.

EXAMINATION FOR MARINE LICENSES.

A total of 449 physical examinations were made at the various ports of the Philippine Islands where service officers are stationed.

The law governing the granting of marine licenses requires that the applicant be physically sound as well as having normal color perception and vision within a certain limit. In compliance with these laws all persons presenting themselves for examination for marine licenses are given a complete physical examination.

Several cases of color blindness and a number of cases of defective vision outside the limit prescribed by the law have been detected among these men. The importance of the detection of pilots and seamen with defective vision and color blindness, especially those engaged in interisland trade, can be readily seen.

AID TO OTHER SERVICES.

Even with its small personnel, the quarantine service continues to be of service in aiding many of the other departments and bureaus of the Federal and Philippine Government and also in furnishing information to foreign consuls regarding shipments of certain cargoes to their countries and giving information regarding the health of the port.

CEBU QUARANTINE STATION.

At Cebu the inspection of arriving vessels is made in Cebu Harbor, not far distant from the quay. A quarantine station is maintained and operated on the Island of Cauit in the Cebu Harbor. The office of the service is in the customhouse and physical examinations of immigrants, issuing of bills of health, and office transactions of a similar character are performed in that office.

The year passed without any unusual demands being made on the quarantine station, which was very fortunate, as the buildings on the station in their present deteriorated condition would not be adequate or safe for the housing of a large number of persons in quarantine. There was, however, a certain amount of activity during the year fully justifying the maintenance of the station at Cebu. Two vessels arrived and were treated on account of having cholera on board, both of which were given appropriate treatement and the necessary detention to prevent the spread of the disease from the vessels or their personnel. The officer on duty at Cebu as well as the personnel of the station was also used in the efforts to improve the sanitary condition of the city and Province of Cebu; and, also, aid was given in the clinics of the Southern Islands Hospital. The transactions for the year at Cebu are partly shown by the following statistics:

Vessels inspected from United States ports	5
Vessels inspected from foreign ports	68
Vessels disinfected on account of diseases	2
Vessels in quarantine	2
Vessels fumigated	114

Crews inspected on arriving vessels	4,753
Cabin passengers inspected on arriving vessels	22
Steerage passengers inspected on arriving vessels	26
Persons detained in quarantine under observation	93
Persons vaccinated at quarantine	344
Cases of cholera at quarantine station	3
Cholera carriers held in quarantine	31
Cases of smallpox at quarantine station	0
Seamen examined for licenses	46
Bills of health issued for vessels for foreign ports	42
Bills of health issued to vessels for United States	15
Interisland vessels inspected in port	112

ILOILO.

The Quarantine Service at Iloilo moved its offices into the new customhouse upon its completion and now occupies quarters better adapted for quarantine purposes than heretofore. Iloilo is important from a quarantine standpoint, as vessels arrive there from many infected centers. At the present time the service is operated as an inspection station only. The building for the installation of the disinfecting facilities which are stored at Iloilo was not built this year as no appropriation was available for the purpose. Negotiations were in progress to obtain one of the buildings on the abandoned military reservation at Fort San Pedro, but so far they have been futile. It is most essential that steam disinfection facilities be available at Iloilo, and it is hoped that in the not far distant future a building can be erected to serve as a disinfecting station for quarantine and also municipal purposes. Vessels arrived with cholera and smallpox on board and were treated in accordance with regulations. One vessel with 250 passengers on board had five cases of cholera occur on the vessel and for a time promised to be of considerable interest from a quarantine standpoint in order to prevent the transmission of cholera from so large a number of exposed persons, but the measures taken proved effective and no spread of the disease outside of the contacts occurred. The interisland shipping received its usual six months' fumigation. The crews of the interisland vessels calling at the port were vaccinated and a very rigid inspection of interisland vessels while in port was maintained throughout the year. The quarantine statistics at Iloilo may be tabulated as follows:

Vessels inspected	34
Vessels disinfected and fumigated	210
Vessels in quarantine	2
Crew inspected	1,632
Passengers inspected:	
Cabin	4
Steerage	250
Persons bathed and effects disinfected	296
Cases of quarantinable diseases detected	2
Bills of health issued	77
Persons vaccinated	401
Sanitary inspection interisland vessels	142
Seamen examined for licenses	2

MARIVELES QUARANTINE STATION.

The practice of granting pratique to vessels at Mariveles quarantine station has been discontinued. It was stopped chiefly as a war measure and found to be very satisfactory to all parties concerned, particularly the Customs Service, and at the present time all

vessels are required to receive their pratique at the usual bay anchorage of the port of Manila or other ports of the islands to which the vessel is destined. There was not much actual detention and disinfection work accomplished during this year, the large part of the disinfection and fumigation work being carried out at Manila and at the other stations in the islands. The vessels of the Philippine Health Service which were engaged in transporting lepers to the colony of Culion received their usual disinfection and cleansing.

The station buildings have been kept in a fair state of repair, with the exceptions noted under needs of the service. A portion of the operations of the service at Mariveles are shown as follows:

Vessels calling at the station for treatment	6
Vessels disinfected or fumigated	6
Persons bathed and effects disinfected	687
Pieces of baggage disinfected	4,294
Persons vaccinated	532

MANILA.

The quarantine work at Manila was conducted during this year along the same general plan as heretofore. Vessels are inspected immediately upon arrival during the hours of daylight.

The specific transactions may be partially comprehended by the operations embraced by the following statistics:

Vessels inspected from United States ports	138
Vessels inspected from foreign ports	459
Vessels disinfected on account of diseases	11
Vessels disinfected and fumigated	89
Vessels given sanitary inspection in port	74
Crew inspected on arriving vessels	49,698
Cabin passengers inspected on arriving vessels	13,083
Steerage passengers inspected on arriving vessels	29,008
Persons vaccinated at quarantine	12,204
Applicants for marine licenses examined	403
Stool examinations made for hookworm	1,591
Stool examinations made for cholera carriers	169
Bills of health issued for United States ports	172
Bills of health issued for foreign ports	455

JOLO.

Jolo continues to be one of the ports of the Philippines where quarantine inspection is most necessary.

The near-by foreign ports of Borneo and the many adjacent islands, where but little is known of the prevalence of quarantinable diseases and where sanitary measures are entirely absent, constitute a continuing menace to the Philippine Islands. This is not entirely imaginary for epidemics during the latter part of the 1800's were known to be introduced through the port of Jolo. The quarantine work during this year was performed by the medical staff of the Jolo Hospital, this service paying the hospital the usual fees provided by law for inspection of vessels arriving direct from foreign ports.

The quarantine transactions for the year were as follows:

Vessels inspected	36
Crew inspected	1,860
Passengers inspected:	
Cabin	95
Steerage	278
Bills of health issued	45

ZAMBOANGA.

Zamboanga has increased in importance from a quarantine standpoint on account of the fact that a number of large liners now make Zamboanga a port of call on their way to and from Japan and Australia, in addition to the small coasting vessels that trade between Borneo, the adjacent islands, and the Straits Settlements. The quarantine operations were continued as heretofore. Statistics of the work during the year at Zamboanga have been tabulated as follows:

Vessels inspected	54
Crew inspected	3,279
Passengers inspected:	
Cabin	652
Steerage	1,565
Bills of health issued	58

OPERATIONS OF THE SERVICE IN PORTO RICO.

Service operations in Porto Rico for the fiscal year embraced quarantine, medical inspection of aliens, physical examinations, relief under war-risk insurance, the usual relief furnished by the marine hospital division, and assistance rendered to other services.

QUARANTINE.

The service maintains quarantine stations at San Juan, Ponce, Mayaguez, Aguadilla, Fajardo, Humacao, Arroyo, Arecibo, Guanica, and Jobos (Central Aguirre).

Quarantine is the most important phase of the service in Porto Rico. The medical officer in charge at San Juan is the chief quarantine officer for Porto Rico and has under his supervision and direction all quarantine matters at the subports. At San Juan is maintained the only quarantine station in Porto Rico, located on Miraflores Island, in San Juan Bay. It is equipped with quarters, disinfecting and fumigating apparatus, etc. An administrative office is located in San Juan in the old naval station, occupying a commodious building belonging to the service. Here are located also the out-patient dispensary and a small laboratory.

Under the provisions of the existing quarantine regulations bills of health are still issued from the subports of Porto Rico to vessels sailing to the United States.

PERSONNEL.

Surg. W. W. King was relieved on May 12, 1919, by Passed Asst. Surg. Carl Michel as chief quarantine officer for Porto Rico. The personnel at the San Juan quarantine station was increased by the addition of a stenographer-clerk at the headquarters office and an interpreter and station assistant at the station; also a gardener.

OUTGOING PLAGUE QUARANTINE.

After the eradication of plague in Porto Rico the outgoing quarantine restrictions here were modified on different occasions, until at present the measures are fumigation of vessels for the destruction of rats every six months and the use of rat guards on the lines when vessels are moored alongside of the piers.

BILLS OF HEALTH.

Bills of health are issued by service officers at Porto Rican ports to all vessels destined to ports in the United States.

SANITARY CONDITIONS.

Typhoid fever.—During last summer there had been several epidemics of typhoid fever. The disease is of mild type and the mortality very low. The disease was undoubtedly caused by the flies, for as the fly season passed the disease disappeared without any effort being made to improve sanitation.

Cerebrospinal meningitis.—Meningitis has been occurring in few instances in Porto Rico for a number of years, but the disease has rarely been recognized. Surg. King in 1915 made the diagnosis of this disease. During the month of May, 1918, several cases were reported under different names. Under careful investigation these proved to be cases of cerebrospinal meningitis. The disease usually occurred in members of one family and no different foci could be found. The disease gradually diminished in the number of cases. No attempt was made to determine the source of the infection.

Parotitis.—This disease is not a quarantinable disease in Porto Rico and therefore has attacked all the nonimmunes, and the number of cases has greatly diminished.

Leprosy.—Leprosy is endemic in Porto Rico. Lepers are isolated at Cabras Island, at the entrance of San Juan Bay, as soon as the diagnosis is positively made. At the present time there are 38 lepers, of whom 26 are men and 12 are women.

Other operations at this port have been greatly varied in the past year. During the influenza epidemic, which occurred in November, the service took active part in cooperation with the director of sanitation in giving medical assistance. The service immediately employed the doctors who had just been relieved from military service. These were assigned to districts by the department of health, and this proved to be of great aid to the population of many of the towns where no medical assistance was available.

Duting the months of July, August, and September, at the request of the naval recruiting officer, enlisted men who were drafted for naval service were maintained at the quarantine station. This rendered material assistance to the Navy. In all 2,656 rations were furnished.

The other operations consisted of routine matters, such as marine-hospital relief, medical inspection of aliens, physical examinations for able-bodied seamen, and also the medical officer in charge has been made district supervisor for district No. 15 for war-risk insurance work, and this has increased the activity of this office.

Effort is being made to secure the proper hospital facilities for the treatment of the war-risk insurance cases in Porto Rico, which presents entirely different conditions than in the United States, as all the transactions are in Spanish and a great many of the claimants are illiterates.

Active cooperation with the Red Cross and other offices in this line of work is continuous. In addition to his duties as chief quarantine officer and as district supervisor for the Bureau of War Risk Insurance, Passed Asst. Surg. Carl Michel has been requested by the gov-

ernor to be a member of the Institute of Tropical Medicine and Hygiene of Porto Rico, and this institution is actively continuing on researches of all tropical diseases as they exist in Porto Rico.

THE VIRGIN ISLANDS.

Passed Asst. Surg. Liston Paine, chief quarantine officer, St. Thomas.

The transfer of the quarantine function from local administration to the Federal Government was finally accomplished by an Executive order dated September 27, 1917. By virtue of that Executive order the United States quarantine laws and regulations were put into effect on November 1, 1917, superseding the Danish regulations. The Danish quarantine officer at St. Thomas retired, but the boarding fees continue to be collected in accordance with paragraph 23 of the ordinance of October 23, 1885, which was continued in force by the act of Congress March 3, 1917. In accordance with the above ordinance these fees are collected by the collector of customs, and by authority of the governor are turned into the colonial treasury at the end of each month.

The small quarantine station formerly maintained at St. Thomas by the Danish Government has been occupied for military purposes. On account of its prominent and commanding position at the harbor entrance, it affords a splendid location for signaling to ships and lighting up the harbor by its powerful searchlights for vessels entering at night.

Authority for the establishing of a second-class relief station was received September 21, 1918. Patients requiring hospital relief are sent to the local municipal hospital.

A site has been recommended for a new quarantine station at St. Thomas, together with designs and recommendations for buildings and equipment.

The office of the chief quarantine officer is at St. Thomas (Charlotte-Amalie). The inspection of vessels and the issuing of bills of health at the two subports, Fredericksted and Christiansted, St. Croix, are performed by the naval medical officers on duty there under the supervision and direction of the service officer at St. Thomas. Medical inspection of alien passengers and seamen is made at the three ports, but hospital relief is furnished only at St. Thomas.

FUMIGATION OF VESSELS.

During the coming fiscal year this station will be well equipped to fumigate any vessel, large or small, requiring fumigation. A large warehouse on the water front has been rented, where all fumigating material is being stored as it is received. Either cyanide or sulphur will be used, as the occasion demands. A small number of persons could be held in quarantine by the establishment of a temporary camp, using equipment from the old quarantine station and what might be obtained temporarily from the other services or purchased in the local market. Large vessels or a larger number of persons to be detained would have to be remanded to the station at San Juan, P. R., 75 miles distant.

On account of the presence of certain quarantinable diseases in some of the most frequently visited ports in South America, all ships coming from these ports have been required to anchor at the entrance

of the harbor and to remain anchored until after a thorough inspection of the ship's personnel and of the vessel itself was completed.

Typhoid fever.—There have been occasional cases of typhoid fever reported in all three ports. Every inhabitant below the age of 45 years in each of the three islands who had not been previously inoculated and who had not had typhoid fever received the series of three inoculations of triple antityphoid vaccine. The greater part of the vaccine was furnished by the Hygienic Laboratory to the municipal health department. The absence of any modern sewage-disposal system, the islands being dependent upon surface privies almost entirely, and the drinking water coming largely from shallow wells and poorly constructed cisterns; this, together with the lack of control of the milk supply previous to July 1, 1919, anyone being allowed to sell milk under self-appointed standards of cleanliness, offered a splendid field for the rapid propagation of typhoid fever.

Yellow fever.—There have been no cases of yellow fever reported, but the presence of the aedes calopus mosquitoes in considerable numbers may at any time cause alarm upon the arrival of an infected person, especially since there are so many nonimmune persons residing on the islands.

Leprosy.—Leprosy is endemic in the Virgin Islands. All cases are sent to the hospital at Richmond, near Christiansted, St. Croix, for isolation. The number at present confined there is 60, including 48 men and 12 women.

Immigration.—The great importance of having a Federal immigration officer established in the Virgin Islands to prevent the landing of persons capable of infecting the local populace has been recently emphasized by the result of physical examinations of alien passengers landing at St. Thomas on their way to the States. Several of these were found to be harboring uncinaria, schistosoma, or filaria.

Influenza.—During the four months from September to December, there were about 300 cases of influenza in the Virgin Islands. Quarantine restrictions were imposed against all persons coming from Porto Rico during the height of the epidemic on account of the widespread prevalence of this disease on that island. The local health authorities closed all schools, churches, and similar places in St. Thomas where crowds were accustomed to assemble during the same period of time.

Venereal diseases.—These are very prevalent throughout these islands, including both syphilis and gonorrhea, as well as their complications. No public lectures or the like have been given to combat these diseases. Plans are being formulated under the direction of the division of venereal diseases, United States Public Health Service, for the service representative to give illustrated lectures, explaining the debilitating and injurious effects of these diseases and how to prevent them. If possible, antivenereal treatment, including the administration of salvarsan, will be given free of charge to the natives requiring it at the out-patient dispensary of the service in cooperation with the local health authorities.

COOPERATION WITH OTHER GOVERNMENT SERVICES.

The service representative was appointed medical examiner of men drafted for the United States Army cantonment at Las Casas, P. R. Assistance was also given to the laboratory staff at the municipal hospital, St. Thomas.

OTHER OPERATIONS.

Other operations at this port include marine hospital relief, medical inspection of seamen, medical inspection of aliens, physical examinations of the personnel of the United States Coast and Geodetic Survey, of the United States Lighthouse Service, of drafted men for the United States Army, medical advice to persons rejected for military service, and treatment of injured United States civil employes.

QUARANTINE TRANSACTIONS.

During the fiscal year ending June 30, 1919, at St. Thomas, there were 243 vessels inspected, with a personnel of 12,051 crew and 5,761 passengers. At Christiansted there were 9 vessel inspected, including 53 crew and 1 passenger. At Fredericksted there were 24 vessels inspected, including 1,270 crew and 1,674 passengers.

During the same period of time there were the following number of bills of health issued: at St. Thomas, 160; at Christiansted, 7; at Frederiksted, 20.

St. Thomas has been for many years an important shipping center, but the number of vessels inspected has greatly diminished since the armistice was signed. This is largely due to many vessels, especially those of the Scandinavian countries, employed during the European war in carrying foodstuffs from South American ports being withdrawn. All vessels from the United States and from Porto Rico, as well as small sailing craft from the neighboring British islands, are exempt from the routine inspection. Vessels once inspected at one of the three ports are not again required to be inspected at the other ports.

Medical Inspection of Aliens.

During the fiscal year ended June 30, 1919, there were examined by medical officers of the United States Public Health Service 339,375 immigrants for the purpose of detecting disease and physical or mental defects in accordance with the provisions of the United States immigration laws. This number of immigrants, as compared with 278,736 for the previous year, shows an increase of 60,639. In addition to the immigrants examined there were also inspected 586,859 alien seamen, as provided in the act of February 5, 1917.

The total number of aliens certified was 20,420. Of the alien seamen found defective, there were 79 certified for tuberculosis or mental conditions, 3,882 as being afflicted with either loathsome contagious or dangerous contagious disease (chiefly trachoma, gonorrhea, and syphilis), 2,392 for conditions that affected their ability to earn a living, and 1,135 for minor defects. Of the passengers certified, 554 were found to be suffering with either mental defects or tuberculosis, 1,175 as being afflicted with loathsome contagious or dangerous contagious disease, 7,889 as having some physical defect which affected their ability to earn a living, and 3,314 for minor physical defects. The number certified was an increase of 6,986 over that of the preceding year.

The medical examination of alien crew for immigration purposes has presented many difficulties. Conditions on board ship have not been conducive to an efficient examination. The absence of privacy and the lack of equipment for a thorough physical examination and the necessarily hurried procedure have prevented the same degree of

effective examination as is generally carried out with respect to the immigrants. From the varied nature of conditions that obtain, however, it can not be expected that the examination of crews will ever be as satisfactory as the examination of alien passengers. It seems inevitable that certain concessions will be made for the expedition of commerce and the operation of ships. One saving feature of the situation, however, is that men who are satisfactorily following their trade as seamen are necessarily more or less physically fit. There may occasionally arise a case of mental defectiveness, a psychoneurosis of recent development, but the master of the vessel will generally make such report to the medical officer as will enable detection and detention of these cases.

The great difficulty in the examination of crew lies in the detection of venereal diseases. It is manifestly impracticable to perform a laboratory examination of every seaman, and main reliance must be placed in clinical examination; this, at least, for purposes of tentative diagnosis. The detection of active syphilis is comparatively easy and the same may be said of soft chancre. With respect to the detection of gonorrhea, it is perfectly apparent that if the seaman be apprised of the examination a few minutes previously he can, by evacuation of the bladder immediately before examination, deceive the examiner (the urethral discharge not being evident), and thus many cases of gonorrhea might well evade detection. To a less extent this will apply in cases of acute gonorrhea, but in subacute or chronic gonorrhea the avoidance of detection may be exceedingly easy if the afflicted seaman is so inclined.

From the results of examinations of the past year, however, it seems apparent that venereal disease is not as prevalent among seamen as has commonly been supposed. Probably the type of seafaring men has improved physically, mentally, and morally over the seamen of 20 or 30 years back, and, too, it must be taken into consideration that with the number of days spent on the high seas the seafarer is considerably less exposed to venereal hazards than is the landsman. At any rate the results of fairly dependable examination do not indicate any alarming prevalence of venereal disease in the deep-sea sailors. At Boston, where practically all alien seamen are given an intensive examination for evidences of venereal disease, there was detected among 27,605 alien seamen only 34 cases of gonorrhea, 22 cases of soft chancre, and 4 cases of active syphilis. At Ellis Island, N. Y., an intensive examination for the detection of venereal disease was not uniformly carried out. However, 6,152 seamen on 182 ships were given special examinations for the detection of venereal disease. This intensive examination revealed 189 cases of venereal disease, including gonorrhea, soft chancre, and syphilis, by no means an alarming figure. Out of a total of 297,000 alien seamen given routine examination at Ellis Island, 159 were certified to as having syphilis, 693 gonorrhea, and 309 soft chancre. At the Delaware River stations, of 43,000 alien seamen examined, 62 cases of soft chancre, 103 cases of gonorrhea, and 45 cases of syphilis were certified to, and at San Francisco there were detected some 24 cases out of 28,000 seamen examined.

The venereal incidence at the largest stations were: Boston, 1 case for each 400 examined; New York (Ellis Island), 1 case for each 240 examined; Delaware River, 1 case for each 250 examined; and San Francisco, 1 case per 1,000 seamen examined. The variation in the

number of cases detected at examination was probably due to the methods employed or neglected by the examiner more than to any actual difference in group or regional hygiene.

It has heretofore been apparent that there should be adequate Government-controlled hospitals for the reception and care of those aliens who are sick and require hospital care for reasons of humanity, as well as those aliens who require observation in the hospital for the purpose of clearing up diagnoses. This lack of facilities becomes considerably emphasized since the enactment of the immigration law of February 5, 1917, which provides for the temporary treatment in hospitals of alien seamen suffering from deportable conditions. At practically no port in the United States has there been during the past year satisfactory hospital facilities for this class of cases. The Ellis Island hospitals would have been sufficient for the port of New York, but they had previously been turned over to the War Department and were therefore not available for the reception of detained aliens. As a result of these conditions of affairs at various large ports sick aliens and those requiring hospital care for the puspose of establishing diagnoses were distributed throughout the city in those hospitals at which accommodations could be secured. The chief objection to this practice is that there is no way of absolutely controlling the movement of the alien, and yet the main reason for hospital treatment in most instances, and this especially applies to venereal disease, is to secure isolation. If the alien in an infectious condition be permitted street liberty, the chief object for his hospitalization is defeated. Another objection to the practice of distributing aliens to a number of different hospitals is that it necessitates a much larger force of medical officers to look after these hospital cases. Much time is needlessly consumed in visiting a large number of hospitals when, if the cases were centralized, one officer could do what now requires the services of several. What the situation demands is that aliens suffering from infectious diseases, mental defects, or conditions that would subject them to exclusion be placed under the care of service officers and in a hospital with such physical isolation as will prevent the infected alien from spreading the infection. At the end of the fiscal year the Ellis Island hospitals were returned to the control of the Labor Department, and it seems probable that, as far as New York is concerned, the method of handling hospital cases will be improved.

The number of officers assigned to the medical inspection of aliens has varied during the year, but on an average some 69 officers were exclusively engaged in this duty. In addition, a number of officers at marine hospital and quarantine stations also performed medical inspection of immigrants. Service officers at American consulates in several foreign ports made medical examinations of prospective immigrants in order that the latter might be appropriately advised as to any conditions, physical or mental, which might operate to their exclusion upon arrival at a port of the United States. The performance of this function was of considerable service, not only to the immigrants but also to steamship companies, a number of cases of prospective immigrants being saved time and expense and the steamship company being able to avoid penalties provided in the United States immigration law against common carriers for bringing into the Uuited States aliens suffering from specified physical or mental defects.

Aliens inspected and certified at all ports and places in the United States and its dependencies and in Canada.

	Number of aliens examined.[1]	Aliens certified.					Important diseases for which certification was made.										
		Class A. (1) Idiocy, imbecility, feeble-minded, insanity, epilepsy, and tuberculosis.	Class A. (2) Loathsome contagious or dangerous contagious.	Class B. Disease or defect which affects ability to earn living.	Class C. Disease or defects of less degree.	Total.	Trachoma.	Tuberculosis.	Insanity.	Idiocy.	Imbecility.	Epilepsy.	Feeble-minded.	Favus.	Syphilis.	Soft chancre.	Gonorrhea.
Astoria, Oreg	147		1			1											1
Baltimore, Md	23,780	7	354	617	182	1,160	15	5				1	1		49	108	175
Biscayne Bay (Fla.) quarantine	6,481																
Blaine, Wash	84	4	1	24	5	34		1				3					
Boston, Mass	28,290	3	99	133	86	321	37	1	2						4	22	35
Brownsville, Tex	4,638	6	413	375	74	868	5	2					1		3	1	5
Buffalo, N. Y	16,192	61	11	757	170	999	3	5	1	1		11	28		3		6
Calais, Me	90	1	2			3						1					2
Calexico, Calif	1,701	1	12	5	4	22		1									12
Charleston, S. C	4,313		7	11		18	2									3	2
Chicago, Ill	99	1	2	13	11	27							1		1		1
Del Rio, Tex	1,854		3	8		11	2										
Detroit, Mich	4,548	44	47	599	612	1,302	1	14	8		1	5	22	4	5		26
Douglas, Ariz	2,253	1	5			6	4		1						1		
Duluth, Minn	5,495	3		19	37	59		1	1			1					
Eagle Pass, Tex	9,047	10	22	17	34	83	3	4					6		17		1
Eastport, Idaho	1,835	5		155	4	164		4					1				
El Paso, Tex	37,523	20	61	406	228	715	14	9	2	1		2	3	8	24	3	11
Everett, Wash	106		5			5	3								1	1	
Galveston, Tex	10,843	1	201	375	174	751	14	1							18	51	106
Halifax, Nova Scotia	5,586	12	6	62	69	149		4				1	4			2	4
Hidalgo, Tex	3,827		28			28											
Honolulu, Hawaii	3,693	1	104	64	13	182	104	1									
Houlton, Me	26			2		2											
International Falls, Minn	929	3		77		80		1					2				
Ketchikan, Alaska	1,481	1	1			2			1								1
Key West, Fla	32,678																
Laredo, Tex	27,865	8	81	143	213	445	2	1	2	1			4		6	8	28

Lewiston, N. Y.	598	7			121	128		3				1					
Los Angeles, Calif.	219		1			1											1
Marcus, Wash.	557	4	1	59	28	92		2				1	1				1
Mobile (Ala.) quarantine	4,925		26	36	185	247	6								3	4	12
Montreal, Canada	10,220	77	41	861	605	1,584	8	36	4		1	6	29				28
Naco, Ariz.	2,979	3	14	2		19	10	1	1			1			2		2
New Orleans (La.) quarantine	17,143	1	172	147	5	325	19					1				32	110
New Orleans (city)	36,404	2	344	190	166	702	48	1			1		1		57	94	137
Newport News and Norfolk (quarantine)	53,017	20	600	95		715	369	15				2	2		74	41	125
Newport, Vt.	2,930	13	3	143	55	214		2	2		2	1	4				2
New York, N. Y.	359,424	52	1,517	801	1	2,371	303	36	7			10	13	2	170	317	722
Niagara Falls, N. Y.	5,422	17	14	254	100	385	2	6	6			1	4		1		11
Nogales, Ariz.	10,298		3	7		10	3										
Ogdensburg, N. Y.	525	5	4	32	30	71	1	3					1		1		1
Oroville, Wash.	150	1		5	12	18						1					
Pascagoula, Miss.	299	1	2		1	4											2
Pensacola, Fla.	775		15	28	4	47									3	7	4
Philadelphia, Pa.		8	187	241	131	567	57	4	1			1	2		36	22	67
Philadelphia quarantine (Reedy Island)	[2] 27,019																
Philippine Islands	10,360	1	4			5	1			1				1		1	1
Portal, N. Dak.	596	15		86	12	113		2				3	8				
Port Arthur, Tex.	6,018	7	189	307	101	604	18	1	3			3			42	23	85
Port Huron, Mich.	1,579	36	4	262	107	409	2	3	8		1	4	10				2
Portland (Me.) quarantine	18,474		61			61	3								11	12	30
Portland, Oreg.	16																
Port Townsend, Wash.	5,970	1	11	4		16	10		1						1		
Porto Rico (other than San Juan)	6,615	1			1	2					1						
Providence, R. I.	477	1	3	10	12	26			1								3
Quebec, Canada	2,259	8		29	11	48		2				1	3				
Rio Grande City, Tex.	493	1	8	3	1	13	7				1				1		
St. John, New Brunswick																	
San Diego, Calif.	1,926																
San Francisco, Calif.	46,160	11	119	142	127	399	39	3	5			2	1		3	12	13
San Juan, P. R.	14,743	4	34	18	9	65	2	1	1		1				19	4	8
Sault Ste. Marie, Mich.	1,205	5	1	89	49	144		1	1			1	2				1
Savannah, Ga.	3,258	1	41	49	43	134	2	1	1						5	5	17
Seattle, Wash.	15,317	4	67	583	4	658	16		3						18	12	18
Sweetgrass, Mont.	1,010	7	3	48	138	196	2	6			1		2				1
Sumas, Wash.	341	3	1	14	4	22	1		2				1				
Tacoma, Wash.	899		10			10	6								2		2
Tampa Bay (Fla.) quarantine	2,881																
Tia Juana, Calif.	962	2	4	1		7		1				1					2
Tucson, Ariz.	192	7	28	2	3	40			3			1	2		9	1	18
Vancouver, British Columbia	3,718	21	41	272	272	606	21	8	2			2	9		3		5
Victoria, British Columbia	3,199	10	1	37	33	81		1	1			1	7				
Wilmington, N. C.																	

[1] Includes alien seamen.
[2] Practically all alien seamen were examined at Reedy Island, but final certification was made at Philadelphia.

Aliens inspected and certified at all ports and places in the United States and its dependencies and in Canada—Continued.

	Number of aliens examined.	Aliens certified.					Important diseases for which certification was made.										
		Class A. (1) Idiocy, imbecility, feeble-minded, insanity, epilepsy, and tuberculosis.	Class A. (2) Loathsome contagious or dangerous contagious.	Class B. Disease or defect which affects ability to earn living.	Class C. Disease or defects of less degree.	Total.	Trachoma.	Tuberculosis.	Insanity.	Idiocy.	Imbecility.	Epilepsy.	Feeble-minded.	Favus.	Syphilis.	Soft chancre.	Gonorrhea.
Winnipeg, Canada	10,409	80	13	1,577	31	1,701	1	35	6	1	.....	14	5	.....	9	.....	5
Yarmouth, Nova Scotia	6,622	1	1	5	39	46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Brunswick, Ga	162	.....	2	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Gloucester, Mass	736	.....	5	24	36	65	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....
Van Buren, Me	47	1	.....	3	4	8	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Ponce, P. R	1,642	1	.....	.....	1	2	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Total	926,234	633	5,057	10,281	4,449	20,420	1,166	230	78	5	11	84	180	14	607	787	1,854

Aliens inspected and certified at all ports and places in the United States and its dependencies and in Canada—Continued.

ALIEN SEAMEN INSPECTED AND CERTIFIED.[1]

	Inspected.	Certified.	Important diseases for which certification was made.										
			Trachoma.	Tuberculosis.	Insanity.	Idiocy.	Imbecility.	Epilepsy.	Feeble-minded.	Favus.	Syphilis.	Soft chancre.	Gonorrhea.
Baltimore, Md	23,553	1,155	15	5	0	0	0	1	1	0	49	108	175
Boston, Mass	27,605	294	37	1	1	0	0	0	0	0	4	22	34
Newport News and Norfolk (quarantine)	53,017	715	339	16	0	0	0	2	2	0	74	33	121
New Orleans, La	15,553	305	18	0	0	0	0	1	0	0	0	40	113
New York, N. Y	297,171	1,684	289	18	2	0	0	6	1	1	159	309	693
Reedy Island (quarantine)	26,830	734	79	8	1	0	0	2	4	0	45	62	103
Port Townsend, Wash	3,363	14	9	0	1	0	0	0	0	0	1	0	0
San Francisco, Calif	28,146	32	0	0	0	0	0	0	0	0	2	11	12
Total	475,238	4,933	816	48	5	0	0	12	8	1	334	585	1,251

[1] Statistics are given only for the larger seaport stations.

Reports from Immigration Stations.

BALTIMORE.

Surg. J. A. Nydegger reports as follows:

Conditions governing the arrival of aliens at the port of Baltimore continued throughout the year as in the preceding years since the beginning of the European war. Those seeking admission consisted mainly of alien seamen who, having arrived at the port, desired to obtain their release for the purpose of securing more remunerative service whether on shore or afloat under the American flag.

Since the inauguration of medical inspection of passengers and crews aboard the ship the inability to obtain accurate advance information regarding prospective arrivals has necessitated the boarding of practically all arriving vessels. This included vessels coming via other domestic ports as well as those vessels arriving direct from foreign ports. It was thus necessary to have an officer continuously on boarding duty throughout the 365 days of the year. As a rule, one officer, though the hours on duty were frequently long, by occasional rotation of duties, was able to perform this work, although on varying periods it was necessary that two officers be on boarding duty.

The number of vessels arriving during the period covered by this report was slightly less than the preceding year, but all indications point to an increase in the number of arriving aliens and alien seamen after the signing of the peace treaty and the return to prewar conditions. Nine hundred and sixteen vessels subject to immigration inspection arrived during the year with a total of 227 alien passengers, 60 of these being in the cabin and 167 in the steerage. Two hundred and twenty-seven alien passengers were examined upon arrival, and 23,558 alien seamen. Of this number, 1,159 presented some physical or mental defect recorded by the medical examiner.

It should be especially noted that of the alien seamen examined there was detected 108 cases of soft chancre, 175 cases of gonorrhea,

49 cases of syphilis, and 15 cases of trachoma, and of the conditions affecting ability to earn a living there was detected 615 cases.

BROWNSVILLE, TEX.

Acting Asst. Surg. G. D. Fairbanks, in charge, reports as follows:

As in previous years, the medical examination of arriving aliens has been coordinated with the quarantine inspection. There were examined 4,638 aliens, of whom 868 were certified to as having some physical or mental defect. These figures are almost identical with those of last year. Eye infections continue to be the main trouble amongst the Mexicans.

A more strict examination has been practiced throughout the year for the detection of venereal disease, but there has not been noted any considerable number of this class of diseases. As a matter of fact the lower class of Mexicans appeared to be quite free from venereal disease. At Matamoros, a Mexican port across the Rio Grande River from Brownsville, a rigid supervision of examination and treatment of prostitutes is enforced, and as a general rule it is found that this class of women are free of disease.

BOSTON, MASS.

Surg. M. H. Foster, in charge, reports as follows:

For the fiscal year ending June 30, 1919, 28,290 persons were examined and 321 certificates issued. Of these, 685 were alien passengers and 27,605 alien seamen. The percentage of passengers certified was 3.8 and of alien seamen 1.06. The number of persons examined during this period shows a slight increase over last year. The number of certificates issued, however, is decidedly less owing chiefly to the improved physical condition of the seamen now found on vessels from foreign ports. The number of alien passengers arriving at the port of Boston still continues at a very low ebb on account of the war restrictions; hence the work of the station has consisted chiefly of inspecting the crews of vessels from foreign ports. This phase of the work necessitated the boarding of 623 vessels during the 12 months covered by the report.

As has been the custom in the past, the medical officers of the station have been detailed from time to time to proceed to Providence, New Bedford, and other points in the surrounding territory to make physical and mental examinations of passengers and crews. Considerable work has also been done on the outside in the way of reexamining aliens who have been admitted on bond or who have been detained in hospitals or institutions for the purpose of determining their status from time to time. Throughout the year all alien seamen who were found on inspection to be suffering from dangerous contagious or loathsome contagious diseases were sent to hospitals in the city for treatment. The conditions requiring such hospital isolation were chiefly venereal disorders and trachoma. Some of these patients were discharged as recovered, others as no longer infectious, and a few were returned to their homes under special provisions to prevent the dissemination of their disease during the return trip.

The medical officers of the station have furnished medical attention to the alien passengers, warrant cases, and seamen detained at the

station. The health of these persons thus detained has been good, on the whole, but they suffered from the widespread epidemic of influenza which swept over the country in the early fall, and their care at that time was a considerable problem for the medical force on account of the scarcity of hospital accommodations in the city and the surrounding territory.

During the year 195 aliens have been sent to different hospitals in the city, and of these 4 have died, 170 have been discharged, and 21 remain under treatment at the present time.

Practically all alien seamen arriving at this port have been stripped and thoroughly examined for evidences of venereal disease. All persons presenting suspicious lesions were brought to the station proper and the diagnosis confirmed by the usual laboratory procedures. This method of examination was adopted in the latter part of last year. It has been noted that the incidence of venereal disorders occurring among seamen now arriving is considerably less than it was some 12 months ago.

EL PASO, TEX.

Asst. Surg. J. W. Tappan reports that immigration at El Paso during the year has been practically confined to Mexicans, this being due to the same conditions that were reported for the preceding year. As predicted in the last report, the number of laborers has been considerably increased on account of the waiving of the head tax and illiteracy test for agricultural, railroad, and coal-mine workers.

During the year 37,523 immigrants were examined at the immigration station. There were 15,666 vaccinations performed in the regular routine of immigration work. Certificates for disease or defect, physical or mental, to the number of 715 were issued, as follows: Under class A (I): Insanity, 2; feeble-mindedness, 3; idiocy, 1; tuberculosis, 12; epilepsy, 2. Under class A (II): Leprosy, 1; trachoma, 14; favus, 8; venereal disease, 38. Under classes B and C there were issued 406 and 228, respectively. Especial care has been exercised in searching for the mentally deficient, but not many cases have been detected.

Aliens in detention at the immigration station have been given medical attention, and when necessary have been sent to a local contract hospital where treatment has been continued by the medical officer. Those presenting evidences of venereal disease have been treated for the purpose of rendering them noninfectious as soon as possible. Wassermann tests have been made and arsphenamine has been administered at the venereal clinic.

GLOUCESTER CITY, N. J.

Passed Asst. Surg. Louis Schwartz in charge.

Practically all the medical examinations of alien seamen were carried out at the quarantine station at Reedy Island at the same time that quarantine inspection was performed. Those certified by the medical officers on duty at the quarantine station were reexamined at Philadelphia, and final certification effected. Only a few immigrants arrived and those mostly on freight steamers and in small groups. During the year there were examined 517 immigrants at Philadelphia, of which number 4 were certified. In addition to those

certified to at the quarantine station there were a number of seamen who were passed on to the Philadelphia office as requiring observation pending final determination of diagnosis. The medical officer at Gloucester supervised the care and treatment of those diseased aliens that were sent to the hospital pending deportation or further disposition of their cases. The combined examination at the Delaware River stations resulted in the discovery of some 222 cases of venereal disease and 79 cases of trachoma, 8 cases of tuberculosis, and 6 cases of mental defectiveness.

Medical treatment was also given by the medical officer in charge to the Army personnel stationed at the immigration station and also to the employes of the neighboring shipyards of the Emergency Fleet Corporation. During the influenza epidemic in Gloucester City the United States Immigration Service opened up the detention house as an emergency hospital, the detained aliens being isolated on the first floor and the second floor being put in condition as a hospital for the accommodation of 100 patients. There were treated at this hospital 122 cases, of whom 18 died.

The present method of hospitalizing certified alien seamen is decidedly unsatisfactory. They are now being sent to the various city hospitals under the supervision of their respective consuls. To meet the situation a hospital should be provided in Philadelphia under direction of the medical officer in charge of the medical examination of arriving aliens where medical treatment can be furnished as well as the control assured of diseased aliens.

HALIFAX, NOVA SCOTIA.

Acting Asst. Surg. T. W. P. Flinn reports as follows:

During the fiscal year 5,586 aliens were examined, of which number 149 were certified to as having some mental or physical defects. This number was an increase in the total number of aliens inspected, but a decrease in the number certified to as compared with the previous year.

Of the number of aliens certified nearly 25 per cent were deported or returned to Canada.

In view of the requirements of the Immigration Service extra duties were imposed on the service in the examination of men discharged from the Canadian Expeditionary Force who were seeking admission to the United States. It has developed during the war that discharged soldiers after being admitted to the United States have in frequent instances become public charges on account of some physical or mental disability. At the request of the immigration authorities the service representative took upon himself the responsibility of obtaining careful hospital histories of all discharged Canadian soldiers applying for admission to the United States. By virtue of the joint resolution dated October 19, 1918, known as "P. R. 44," careful medical inspection was further emphasized in the case of returning Canadian soldiers who were being discharged for medical reasons.

Conditions pertaining to the Immigration Service at this port are still abnormal. The Canadian military forces occupy the new immigration building and pier, both being under the control of the British

Admiralty. All trans-Atlantic alien passengers were examined on board ship, as a consequence of which there were many vexatious delays and waste of time on the part of the medical examiners. At the present time there are no facilities provided for the detention and observation of arriving immigrants, the building formerly used for this purpose being now utilized as a military hospital. On account of the abnormal conditions incident to the constant arriving and departing of soldiers and sailors, as this port is the principal military naval station of Canada, together with the explosion of December 6, 1917, which has caused a large influx of laborers and mechanics from many parts of the United States and Canada, making Halifax a very much overcrowded city, smallpox infection increased until it became epidemic. Since March, 1919, there have been over a thousand cases registered by the city health board, and as a result of this condition of affairs general vaccination has been instituted. The disease is reported to be of a mild type without fatality.

HONOLULU, HAWAII.

Surg. F. E. Trotter in charge.

A total of 3,361 immigrants were inspected at this port during the year, of which number 182 were certified to for disease or mental or physical disability. The majority of the arriving aliens were Japanese, the remainder being Chinese and Koreans. Of the number certified to 12 were Chinese and 1 was a Korean, the others being Japanese. The chief defect noted among the Japanese was trachoma, there being some 73 cases of this disease noticed amongst the Japanese. During the year 15 aliens were examined for uncinariasis, none being found afflicted with that disease. There were 32 alien seamen examined and none certified.

LAREDO, TEX.

Passed Asst. Surg. R. M. Grimm, in charge, reports as follows:

Medical inspection of arriving aliens was conducted at Laredo throughout the year, as during previous years. A total of 27,865 aliens, mostly Mexicans, were inspected. Of this number 445 were certified. The diseases and defects justifying certification were classed as follows: Class A (1), 8; class A (2), 81; class B, 143; class C, 213. Of the total number certified, 245 were excluded by the immigration authorities. All of these inspections were made at the international footbridge, for the reason that there was no passenger service over the international railroad bridge during the year.

In addition to conducting the medical inspection of aliens as they arrived, the medical officers on duty rendered medical and surgical service to the aliens held in detention by the immigration authorities. Some of these aliens were held for long periods and at times their number exceeded 100. During the influenza epidemic a large proportion of them became ill and one death from influenza occurred

On May 17, 1919, Acting Asst. Surg. J. D. Stephens reported at the station for duty and has remained on duty since that date.

NACO, ARIZ.

Acting Asst. Surg. B. C. Tarbell, in charge, reports as follows:

During the year there were examined 2,979 aliens, of which number there were certified and debarred some 21 aliens. Ten of this number had trachoma, 2 had gonorrhea, and 2 had syphilis. Over 800 vaccinations were also performed at the station during the fiscal year. The cooperation between the medical examiner and the immigration inspector in charge and his subordinates has been effective and the relations cordial.

NEW ORLEANS, LA.

Acting Asst. Surg. J. T. Scott in charge.

Arrangements were effected whereby the bulk of the medical examinations of alien seamen was conducted at the quarantine station and the Immigration Service assigned for duty at the quarantine station the necessary inspectors. The result has been a very considerable elimination of unnecessary delay to commercial interests, a greater efficiency, and economy of administration to the Government. The examination of crew was performed at New Orleans, and the medical officer, as well as the immigration inpectors, had to cover a river front of some 21 miles, ships oftentimes docking at remote and inaccessible points.

The continuation of the war in Europe almost eliminated immigration as far as the port of New Orleans, La., is concerned. About 2,900 alien passengers arrived in the course of the past 12 months. Most of these were of the nonimmigrant class. A few immigrants arrived at irregular intervals from Mexico and the West Indies. Even these are tempted by high wages only, and when work slacks or wages are reduced they will return to their former homes.

The enforcement of rule 10, United States immigration laws, has more than made up for lack of work in examining immigrants.

About 34,000 seamen were examined during the year. Out of this number over 500 were sent to the immigration station for detention or treatment as required. For a while the marine hospital could not take these cases, and they had to be handled at the immigration station. They were given the best attention possible with the poor equipment on hand. This station was never intended for a hospital, and there is little on hand in the shape of equipment.

In view of the large numbers handled there without a supply of drugs and only the assistance of unskilled matrons instead of trained nurses, it is fortunate that there has been no cause of complaint.

There never has been a death at this station in spite of the influenza epidemic and its accompanying pneumonia complications.

Arsphenamine and neo-arsphenamine are given intravenously at frequent intervals with only an unskilled matron as an assistant. A great many cases of all kinds are treated at this station, and if this is to be continued, one or two small pavilion hospitals should be erected on the spacious grounds of the station.

At present there is little isolation of contagious and infectious cases from the other patients. They are all in one building—the venereal cases are in one room, the trachoma cases in another. The strong room is now and then used for a case of leprosy or tuberculosis. There should be several rooms to take care of both sexes as well as

the different kinds of contagious and infectious diseases. The only solution is a number of separate buildings of small size on the reservation. Many detained aliens complain of being confined with venereal cases, and the latter object to the association with warrant or arrest cases. Something should be done in the premises or sooner or later unpleasant criticism will be heard.

NEW YORK, N. Y.

Surg. J. W. Kerr, in charge, reports as follows:

During the year passengers and crews arrived at New York from foreign ports as follows:

Aliens in cabin	40,676
Aliens in steerage	21,577
Total aliens	62,253
Citizens (cabin)	28,474
Citizens (steerage)	3,060
Total citizens	31,534
Grand total aliens and citizens	93,787
Crew	297,171
Grand total aliens, citizens, and crew	390.958

The above represents a small increase over last year of passengers and a large increase of members of crews, the number for the previous year being 55,191 passengers and 166,833 members of crews. As compared with like periods during the previous decade, however, the operations of the year were much reduced. This is accounted for by war conditions and the consequent practical suspension of immigration from Europe.

The practice was continued of making all primary inspections aboard ship. On this account and because of lack of adequate laboratory facilities the work was performed under difficulties. These were added to by problems arising in connection with the examination of foreign seamen.

Under existing immigration law foreign seamen are required to be examined on arrival regardless of whether they intend to land in the country or not. As such landing may not be decided upon for an indefinite period after arrival, there is in the meantime opportunity of these seamen acquiring physical and mental defects which it is the purpose of the immigration law to exclude. Furthermore, on account of the large number subject to examination, almost a third of a million during the year, and the irregularity of arrivals, the detection of latent disability is hampered. Practically, the examination of seamen immediately before landing as bonafide immigrants could be made more effective in excluding the unfit.

Out of a total of 1,684 seamen certified for disability, 1,161, or practically 70 per cent, were for venereal diseases. This class of cases will continue in the majority among seamen. The exact percentage is unknown, but the records of the marine hospitals, which have been devoted entirely to the care of American seamen, show that over 22 per cent of all disabilities treated were due to venereal diseases.

With a view to determining the number of venereal diseases which may reasonably be detected by special methods, 6,152 seamen were specially examined aboard 182 ships during the year. One hundred and eighty-nine cases of venereal diseases were thus detected. This represents approximately 3 per cent of those examined. A large number of latent infections must remain undetected by any system of examinations that it is practicable to make under present conditions, and in order to care for the acute cases extensive hospital facilities become necessary.

As an aid in providing hospital facilities, arrangements were made by the medical officer in charge of the marine hospital in June, 1918, to set aside additional beds for venereal cases among American seamen who were aliens within the meaning of the immigration law. These facilities were continued for several months, but discontinued with the onset of the influenza epidemic, the beds being required for acute surgical and medical cases among seamen and war-risk patients.

In addition to the above, facilities were utilized wherever available in the hospitals throughout the city for immigration cases generally. Only two or three institutions, however, would accept persons suffering with venereal diseases.

On the whole the need of hospital facilities has been the most pressing problem connected with the medical examination of aliens during the year. On account of the small number of passengers, however, and the practical absence of outbreaks of minor communicable diseases aboard arriving ships, it has been possible to meet the situation by resorting to city hospitals. Cases were accordingly remanded to these hospitals by the immigration authorities on the advice of the medical officers.

During the year 175 visits were made by officers to 28 different hospitals in the vicinity of New York for the purpose of examining the physical conditions of the aliens treated therein. In addition visits were made to observe the progress of treatment; the names of the institutions visited are as follows:

Bayonne Hospital, New Jersey.
Bellevue Hospital, New York.
Broad Street Hospital, New York.
City Hospital, New York.
Central Islip Hospital, Long Island.
Christ Hospital, New Jersey.
Dr. Towne's Institute, New York.
French Hospital, New York.
Harlem Eye and Ear Hospital, New York.
Jersey City Hospital, New Jersey.
Kingston Avenue, New York.
Kings Park Hospital, New York.
Long Island College Hospital, New York.
Manhattan Eye and Ear Hospital, New York.
Marine Hospital, New York.
Metropolitan Hospital, New York.
Neurological Hospital New York.
Norwegian Hospital, New York.
New York Hospital, New York.
Rockefeller Institute, New York.
St. Vincent's Hospital, New York.
Sea View Hospital, New York.
Willard Parker, New York.
Ward's Island, New York.
St. Luke's Hospital, New York.
St. Joseph's Hospital, New York.
Skin and Cancer Hospital, New York.
West Side Dispensary, New York.

At the close of the year steps were being taken to reassemble the personnel for the conduct of the immigrant hospital as in previous years. On the night of June 30, 1919, the actual care of 23 alien patients was taken over preparatory to the resumption of complete operations July 1, 1919.

At the close of the year an increase of immigration was noticeable. With the improved facilities becoming available the character of inspection in the care of the sick should become satisfactory.

The general work accomplished during the year is presented below in tabular form.

Cause of death in aliens.

Influenza	4
Pneumonia, broncho	1
Rheumatism, chronic	1
Total	6

Nativity and race of immigrants certified for trachoma during fiscal year ending June 30, 1919.

Nativity.	Armenian.	French.	Greek.	Italy (South).	Mongolian.	Spanish.	Syrian.	Total.
China					5			5
France		2						2
Greece			1					1
Italy				1				1
Spain						1		1
Turkey	1						3	4
Total	1	2	1	1	5	1	3	14

Race of aliens certified for mental condition during fiscal year ending June 30, 1919.

Race.	Insane.	Feeble-minded.	Epilepsy.	Constitutional psychopathic inferiority.	Total.
English	4				4
French	1		1		2
Flemish			1		1
Scotch			1		1
Spanish		1	1		2
Welsh				1	1
Total	5	1	4	1	11

Report of alien seamen certified.

Class A (1):	
Constitutional psychopathic inferiority	1
Epilepsy	6
Insane	2
Tuberculosis	18
Total	27
Class A (2):	
Scabies	3
Favus	1
Sycosis barbæ	2
Syphilis	159
Gonorrhea	693
Chancroid	309
Trachoma	289
Total	1,456
Class B:	
Beriberi	1
Valvular disease of heart	10
Varix	2
Emphysema	1
Malaria, chronic	2
Rheumatism	3
Bronchial asthma	1
Asthma	1
Hernia	90
Hydrocele	3
Infantile paralysis	1
Paralysis of nerve, seventh cranial	1
Paralysis of leg	1
Paralysis of foot	1
Deformity of chest	1
Deformity of arm	1
Deformity of hand	1
Mutilation of hand	1
Dislocation of finger	1
Dislocation of hip	5
Dislocation of ankle	1
Class B—Continued:	
Atrophy of leg	3
Shortness of leg	5
Lameness	2
Loss of finger	3
Loss part of fingers	1
Loss of fingers	3
Ankylosis of hip	1
Ankylosis of knee	1
Curvature of spine	6
Enlarged glands of neck	1
Lymphadenitis, acute	1
Dermatitis, chronic	1
Cellulitis of arm	1
Hemorrhoids	1
Psoriasis	1
Sprain of ankle	1
Fracture of both arms	1
Fracture of patella	1
Wound of hand	1
Wound of foot	1
Otitis media	2
Deaf-mutism	2
Deafness	1
Blind	1
Defective vision	5
Blind in one eye	8
Iritis	2
Lack of sexual development	1
Senility	13
Total	200
Class C:	
Undescended testicle	1

RECAPITULATION.

Class A (1)	27
Class A (2)	1,456
Class B	200
Class C	1
Grand total	1,684

NOTE.—Members of crews are returned to their ships. In event permission to land is requested they are handled as alien passengers and are reported in the general list.

Information as per reports of immigration officials relative to cases of the different classes landed.

Class A (1):	
Landed on bond	4
Landed in transit	2
Landed by department	1
Escaped	1
Died	4
Total	12
Class A (2):	
Landed, United States citizens	4
Landed in transit	5
Landed, American seaman	1
Landed, reservists	4
Landed, after treatment in hospital recovered	10
Escaped	2
Died	1
Total	27
Class B:	
Landed on bond	8
Landed by department	1
Landed in transit	12
Landed by board of special inquiry or by immigration inspector	559
Died	2
Total	582

Races of immigrants deported on medical certificates during fiscal year ending June 30, 1919.

Race.	Men.	Women.	Children (female).	Total.
African (black)	5			5
Cuban	1	1		2
Chilean	1			1
China	3			3
Dutch and Flemish	5			5
English	1	1		2
Finn	2			2
French	9			9
Greek	4	2		6
Irish	4			4
Italy (South)	5	7	2	14
Lettish	2			2
Maltese	1			1
Polish	3			3
Portuguese	5			5
Russian	1			1
Scandinavian	7			7
Spanish	10	1		11
Syrian	3			3
Scotch	1			1
Welsh	1			1
Total	74	12	2	88

Summary of transactions, immigrant hospital, fiscal year ending June 30, 1919.

Number of patients in hospital at the beginning of year	17
Number of patients admitted to hospital during year [1]	434
Total treated (men, 348; women, 58; male children, 26; female children, 19)	451
Births (male, none; female, none).	
Deaths (men, 4; women, none; male children, 1; female children, 1)	6
Pay patients treated during year	243
Free patients treated during year	208
Number of days' treatment, pay patients	4,357
Number of days' treatment, free patients	2,606
Total number of days' treatment for hospital cases	6,963
Maximum number of patients in hospital at any time during year	49
Daily average number of patients in hospital	19
Number of patients in hospital at end of year	23

Hospital.	From previous year.	Admitted.	Total treated.	Recovered.	Improved.	Not improved.	Died.	Remaining.	Days' treatment.
Immigrant	17	434	451	278	47	97	6	23	6,963

Report of medical certificates relating to passengers.

Class A (1), including 5 insane, 1 feeble-minded, 4 epilepsy, 1 constitutional psychopathic inferiority, and 14 aliens certified for tuberculosis	25
Class A (2), loathesome contagious or dangerous contagious disease	61
Class B, disease or defect which affects ability to earn a living	601
Class C, disease or defect of less degree	None.

[1] 779 passengers and crew were treated in various outside hospitals, New York City, Brooklyn, and Jersey City, and are not included in this statement.

Disposition of immigrants certified.

Class A (1):	
Cases pending at beginning of year	24
Cases certified during year	25
Total to be accounted for	49
Cases deported	28
Cases landed	12
Cases pending close of year	9
Class A (2):	
Cases pending at beginning of year	14
Cases certified during year	61
Total to be accounted for	75
Cases deported	40
Cases landed	27
Cases pending close of year	8
Class B:	
Cases pending beginning of year	15
Cases certified during year	601
Total to be accounted for	616
Cases deported	22
Cases landed	582
Cases pending close of year	12
Class C	None.

Disposition of cases certified during the fiscal year ending June 30, 1919, including cases pending from preceding fiscal year.[1]

	From preceding year.	Certified.	Total.	Deported.	Landed.	Remaining.
Class A (1)	24	25	49	28	12	9
Class A (2)	14	61	75	40	27	8
Class B	15	601	616	22	582	12
Class C						
Total	53	687	740	90	621	29

[1] This table relates to alien passengers only.

PHILADELPHIA (REEDY ISLAND QUARANTINE STATION).

Passed Asst. Surg. J. R. Hurley, in charge, reports as follows:

During the year there were examined at this station for immigration purposes the following persons:

Alien seamen inspected	26,830
Alien passengers inspected	189
Alien stowaways inspected	36
Total number alien seamen certified	724
Alien passengers certified	None.

As reported last year, these figures do not give an accurate index of the actual number of different alien seamen inspected or defects certified, as through the administration requirements of the new immigration law alien seamen on regular liners are inspected each time they arrive from a foreign port. Hence, the same men are inspected repeatedly and their uncorrected defects are certified over and over again.

Two inspectors of the United States Immigration Service were quartered on the station at the beginning of the year, who boarded

incoming vessels and conducted the immigration inspection conjointly with the quarantine officers. They were returned to Philadelphia on or about September 12, 1918.

Since that time the medical inspection of arriving aliens has gone forward without their assistance, entries of those certified being made on the passenger manifest or alien crew list and the formal certificates transmitted later by mail. This arrangement is believed to have operated to the satisfaction of all concerned.

The total number of alien seamen inspected is but slightly greater than during the preceding year, and for reasons arising out of the war the alien passengers inspected were relatively few in number. However, with the signing of peace it is expected that the record of arriving alien passengers will show a great increase in the forthcoming fiscal year.

PHILIPPINE ISLANDS.

Passed Asst. Surg. L. R. Thompson, in charge, reports as follows:

The medical inspection of immigrants or arriving aliens is made in the Philippine Islands by the medical officers of the United States Public Health Service, who are on duty at the several ports of entry as quarantine officers and consular surgeons. No medical officers have been detailed for the special work of immigrant medical inspection. The immigration work is accomplished in addition to the duties performed in carrying out the quarantine function.

The immigration laws of the United States are in force in the Philippine Islands, and the method pursued in conducting the medical work follows the same scope as at continental United States ports. There are a number of modifications of the law in force in connection with domiciled aliens who travel considerably between China, Japan, and the Philippines; but such modifications do not modify the inspection work of the medical officer except that a general inspection of arriving aliens can not be made, it being necessary that the immigration authorities determine prior to examination whether an arriving alien is or is not subject to medical examination. The movement of passengers to and from foreign ports and the Philippines has been quite as heavy during the past year as heretofore, the removal of vessels on account of the war had very little effect in reducing the number of travelers, except perhaps in the purely tourist class of traveling domiciled aliens, a large number of whom make a habit of spending some time outside of the Philippine Islands during the year.

In conducting the medical inspection of arriving aliens there were 1,591 stool examinations made for hookworm, 18 of which were positive. The latter received appropriate treatment until cured, and were landed.

The nationalities represented by the alien arrivals during the last five calendar years were classed as follows:

Peoples.	1914.	1915.	1916.	1917.	1918.
Chinese	2,383	2,823	2,703	3,094	4,999
Dutch and Flemish	4	10	7	23	12
East Indian	61	60	46	63	16
English	134	101	122	149	98
French	23	6	21	11	21
German	83	17	7	4	1
Irish	7	2	3	.....	3
Italians	8	8	6	2	4
Japanese	1,029	744	1,374	3,453	3,559
Portuguese	7	11	21	20	16
Russian	26	25	20	18	18
Scandinavian	3	5	4	18	8
Scotch	24	16	7	.....	7
Spanish	207	204	252	62	67
Syrian	2	6	4	4	3
Turkish	5	1	2	.....	.....
Other peoples	26	28	32	18	34
Total	4,032	4,067	4,641	6,939	8,866

PASSENGER MOVEMENTS AND IMMIGRATION.

The figures in connection with the number of passengers arriving and landing in the Philippine Islands for the past calendar year showed a decided increase in the number of inward-bound passengers. The total number of passengers which landed in the Philippine Islands during the year 1918 was 21,668, and the number departing was 17,710. The figures for the year preceding were 19,635 arriving and 16,393 departing. These figures do not include the personnel of the Army or Navy. Of the arriving passengers 8,866 were immigrants—7,662 males and 1,245 females. During the same period 885 of the departing passengers were emigrants, which gives a net gain to the islands of 7,891 actual residents. The increase, it will be noted in the table of nationalities, appears in the number of Chinese, there being a total admittance of 10,376, of which number 4,999 were newly arriving aliens and 5,377 were domiciled residents returning from trips abroad. The arrival of Japanese immigrants also shows a slight increase, the number being 3,965, which was 455 more than the previous year. The departures from the islands numbered 1,561, making an increase in the Japanese population of 2,404. A total of 143 persons owing allegiance to the Spanish Crown arrived, 67 of whom were aliens and 76 returning residents. During the same period 129 citizens of Spain departed, making an increase of 14. There arrived 2,052 citizens of the United States and 3,011 departed, thus lessening the American population of the islands by 959. These figures do not include the personnel of the American military forces and their families. There were 3,438 citizens of the Philippine Islands who arrived at Philippine ports and 3,867 departed.

In this connection it may be observed that quarantine figures, which show the total personnel on an arriving vessel, do not indicate the number of passengers which are to be landed at a given port, nor does it suggest whether said arrivals are aliens or not. While quarantine figures show arrivals at Philippine ports of crew and passengers requiring inspection totaling 102,537, a study of the percentage

of this number who landed and the ports from which they originate, as well as whether they be aliens coming as actual settlers or as tourists, is interesting, and shows that almost 50 per cent of the passengers passing through quarantine are a menace from a quarantine standpoint and yet are of no benefit to the country by reason of being transit passengers, the majority of whom were not allowed to land during the shorter or longer time the vessel remains in port. During the year the arrivals of passengers totaled 42,749, and those landed 21,668, showing that there were 21,081 transit passengers.

SAN FRANCISCO, CALIF.

Asst. Surg. W. T. Harrison, in temporary charge, reports as follows:

During the fiscal year a total of 18,014 passengers were examined which closely approximates the number examined during the fiscal year 1917–18. Of this number a total of 367 were certified as against 632 for the previous fiscal year. This difference is accounted for by the material decrease in the number of Chinese steerage passengers, together with the improved methods of treatment for hookworm that are being applied to the Japanese steerage passengers at ports of embarkation. It is also observed that more careful examination for trachoma obtains at these ports, both among Chinese and Japanese. The 367 certified have been distributed among classes as follows:

Class A (1), 11, of which 8 were deported.
Class A (2), 94, of which 68 were deported.
Class B, 140, of which 20 were deported.
Class C, 122, of which 7 were deported.

A total of 28,146 alien seamen were examined with the assistance of officers assigned to the quarantine station at this port. This is but 59 per cent of the number examined during the previous year, which is a result of the decrease in shipping incident to the war. Thirty-two of these seamen have been sent to the hospital and certified for the following conditions: Gonorrhea, 14; soft chancre, 11; syphilis, 3; blindness one eye, 2; pterygium, 1; chronic eczema, 1.

The epidemic of influenza severely taxed the capacity of the hospital, all beds being full, and serious difficulty being avoided only for the reason that no large trans-Pacific steamers happened to arrive during the height of the epidemic. It is therefore urged that provisions be made to enlarge the hospital in order that communicable diseases may be cared for with proper means for isolation.

Hospital and dispensary facilities have been provided for the care of interned alien enemies being detained at the immigration station during the year, during which time hospital treatment was provided for 792 treatment days. Dispensary treatment for the detention division has also been continued during the year with an average of six out-patients per day.

A hearty spirit of cooperation has been continued by the commissioner's office and other divisions at this station.

The transactions for the immigration hospital for the fiscal year ending June 30, 1919, are as follows:

Number of immigrants in hospital July 1, 1918	14
Admitted during the year	659
Recovered	543
Improved	56
Unimproved	62
Deaths	2
In hospital June 30, 1919	10

WINNIPEG, MANITOBA.

Acting Asst. Surg. Harry J. Watson reports as follows:

During the year ending June 30, 1919, 10,409 alien passengers were inspected at this port.

One thousand seven hundred and one were certified on account of defects, as follows:

Class A (1)	80
Class A (2)	13
Class B	1,577
Class C	31
Total	1,701

Immigration to the United States shows a marked increase during the past two years, and this station is now one of the most important on the Canadian border.

A large number of tuberculosis cases are applying for admission, due to the severe climatic conditions during the winter months.

Trachoma was only found in one alien applying for admission.

Class B cases contain a large number who desire to consult specialists in the various surgical clinics in the United States.

Returned soldiers enlisted in the United States for the Canadian service are also going back home in large numbers with many disabilities, results of active service in France.

Attention is invited to the large number of goiters in this report, as follows: Sixty-one cases of simple goiter and 25 cases of exophthalmic.

All these cases were going to the States for surgical treatment.

Aliens with loss of arm or leg are also quite numerous, 47 being of this class.

Rheumatism cases are common, 82 suffering from this disability.

Gas cases are few in number, only two with slight temporary defects.

The examinations made for the past 10 years are as follows:

1910	5,964	1915	8,620
1911	5,372	1916	9,532
1912	4,661	1917	10,984
1913	5,403	1918	9,560
1914	7,116	1919	10,409

The equipment at this office is very inefficient and immediate steps should be taken for improvement.

SANITARY REPORTS AND STATISTICS.

The outstanding feature of the work of the fiscal year in the division of sanitary reports and statistics was the collection of information regarding the pandemic of influenza.

Reports of fevers of an undetermined nature, sometimes diagnosed as dengue, were received during April and May, 1918, at various points from Norfolk, Va., to Louisiana. An officer of the Public Health Service, who investigated these outbreaks, reported that an examination of the records and reports of the physicians who had treated these cases led to the belief that they were mainly influenza of a mild type.

The reported presence of influenza in Europe caused the regular reports to the Public Health Service to be scanned with more than ordinary interest, and special directions were sent to various field officers and hospitals of the service to report any appearance of a disease of an influenza-like nature. On August 16, 1918, the Public Health Service issued a circular letter to medical officers in charge of United States quarantine stations cautioning them to be on the alert in the inspection of vessels from European ports so as to detect any cases of influenza. On September 18 telegrams were sent to all State health officers to wire information concerning the appearance and prevalence of the disease and to keep the Public Health Service constantly advised as to its manifestations within their States. In response to these directions and requests, information, principally of a summarized nature, came daily. When it became apparent, on the 1st of October, that the epidemic was reaching nation-wide proportions, Congress appropriated $1,000,000 for use by the service in combating the disease. Telegrams were sent to State health officers requesting daily telegraphic reports from them giving the number of deaths in the principal cities. These telegrams were shortly supplemented by further telegrams which stated that the Public Health Service would assume the cost of the telegraphic reports from both State and local health departments concerning the prevalence of influenza. These telegraphic reports were continued for over three weeks, when, because of the evident decline of the epidemic in the country as a whole and because of the heavy cost of the telegrams, they were discontinued except for localities where the epidemic had not passed its peak. Daily summary statements from State health departments were continued, however, as long as it appeared necessary. These were in addition to the usual notification by wire and by mail of disease prevalence.

The data thus obtained served principally as an indication of the prevalence of the epidemic and did not afford complete enough statistics for analysis from any point of view, either for deaths or for cases, except for a comparatively small number of localities. Information of varying degrees of accuracy and completeness was received from several thousand localities and was summarized in the most practicable form in the Public Health Reports. In order to supplement

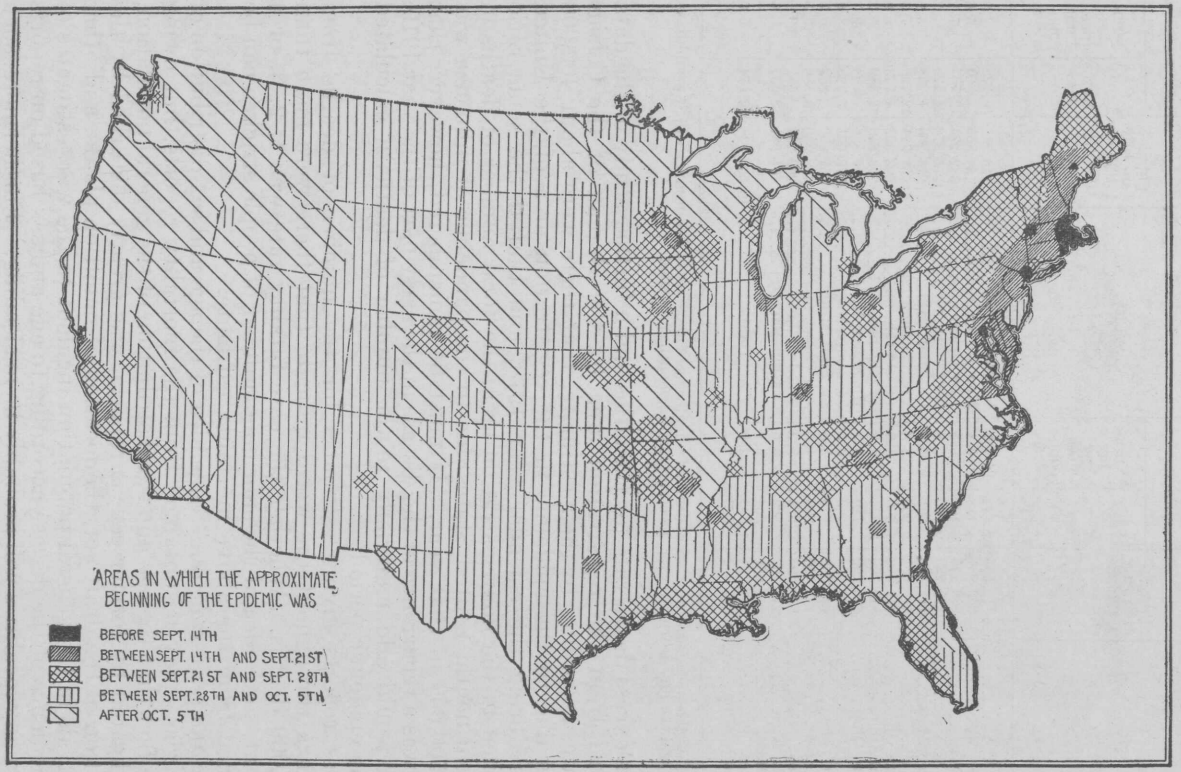
these data, requests, accompanied with blank forms, were sent to all local health subdivisions of the United States, through the cooperation of State health departments, asking for further detailed information for statistical purposes.

As early as June and July, 1918, influenza in mild form was epidemic in widely separated parts of the world, including Great Britain, parts of continental Europe, India, China, Africa, and Brazil.

Prior to the pandemic, influenza was not a reportable disease, and the reports to the Public Health Service were very incomplete, but such data as the service was able to collect suggest that the first area to be affected by the epidemic was the eastern part of Massachusetts and two or three other points near the north Atlantic coast. It may be stated that the disease reached an epidemic stage in some of these localities a week or more earlier than September 7. During the week ended September 21 the disease appeared to have reached an epidemic stage in a considerable area along the Atlantic coast from the southern part of Maine to Virginia, as well as in a number of localities well scattered over the entire country. During the week ended September 28 a number of areas adjacent to centers in which the epidemic had already appeared were affected, suggesting that there were radial movements from these centers, and epidemic proportions were attained in large portions of the New England States, the North Atlantic States, the Central States, and in areas bordering along the Gulf and Pacific coasts. During the week ended October 5 the epidemic apparently had appeared at points all over the country except in the more isolated rural sections and in large areas in the Central States, in the Mountain States, and in the Northwestern section. By the middle of October reports from even these sections indicated that the disease had attained epidemic proportions in practically all of the remaining areas, except in the more isolated rural sections.

The map on page 177 indicates roughly the chronological order in which certain localities and areas in the United States were attacked by the epidemic. This map is based upon information relating to the approximate date on which the disease reached an epidemic stage in 376 localities. For convenience these dates have been grouped into calendar weeks. The localities are fairly well distributed throughout the country, density of population considered. The localities, with their respective dates, were first spotted on an outline map of the United States, and lines were drawn inclosing the areas in which the disease apparently reached an epidemic stage in similar calendar weeks. The absence of data for many localities probably causes the map to be lacking in important details, especially with respect to centers and surrounding localities constituting areas in which radial movements of the epidemic might have occurred.

In the absence of reliable morbidity reports, the service utilized the weekly mortality reports as issued by the Bureau of the Census in arriving at an index of the prevalence of the disease. The Census Bureau issued weekly bulletins summarizing reports received from large cities in various parts of the United States. The prevalence of the disease and the severity of the epidemic are indicated by the excess of the death rate from all causes for the period of the epidemic over the corresponding months of the year 1917. This excess is shown for 31 cities in the table on page 178.



Chronological map of the influenza epidemic of 1918. Based on preliminary reports from 376 localities. Indicating the approximate dates on which the disease reached an epidemic stage.

Excess deaths[1] *from all causes in certain large cities of the United States, Sept. 8, 1918, to Mar. 1, 1919, inclusive (25 weeks), as compared with 1917.*

City.	Population July 1, 1918, estimated.	Excess deaths from all causes.		City.	Population July 1, 1918, estimated.	Excess deaths from all causes.	
		Number.	Number per 1,000 population.			Number.	Number per 1,000 population.
Albany, N. Y.	112,565	534	4.7	Nashville, Tenn.	119,215	928	7.8
Baltimore, Md.	669,981	4,118	6.1	New Haven, Conn.	154,865	860	5.6
Boston, Mass.	785,245	5,107	6.5	New Orleans, La.	382,273	2,767	7.2
Buffalo, N. Y.	473,229	2,766	5.8	New York, N. Y.	5,215,879	24,329	4.7
Cambridge, Mass.	111,432	661	5.9	Oakland, Calif.	214,206	1,268	5.9
Chicago, Ill.	2,596,681	9,956	3.8	Philadelphia, Pa.	1,761,371	12,790	7.3
Cincinnati, Ohio	418,022	1,670	4.0	Pittsburgh, Pa.	593,303	4,743	8.0
Cleveland, Ohio	810,306	3,254	4.0	Providence, R. I.	263,613	1,389	5.3
Columbus, Ohio	225,296	710	3.2	Rochester, N. Y.	264,856	703	2.7
Dayton, Ohio	130,655	460	3.5	St. Louis, Mo.	779,951	2,323	3.0
Fall River, Mass.	128,392	749	5.8	St. Paul, Minn.	257,699	852	3.3
Grand Rapids, Mich.	135,450	206	1.5	San Francisco, Calif.	478,530	3,586	7.5
Los Angeles, Calif.	568,495	2,968	5.2	Toledo, Ohio	262,234	561	2.1
Louisville, Ky.	242,707	869	3.6	Washington, D. C.	401,681	2,637	6.6
Lowell, Mass.	109,081	554	5.1				
Milwaukee, Wis.	453,481	1,333	2.9	Total	19,504,136	96,674	5.0
Minneapolis, Minn.	383,442	1,023	2.7				

[1] Excess deaths means the number of deaths from all causes in excess of the number which would have occurred had the 1917 death rates for the corresponding months prevailed.

This excess death rate for the cities and a further study of the data received from the registration area by the Bureau of the Census indicate, according to their estimate, that there were about 400,000 deaths due to the epidemic in the registration area of the United States during the calendar year 1918, and that if the same ratio prevailed in the nonregistration area, the total number of deaths in the continental United States due to the pandemic of influenza was over 500,000 in that year. It must be remembered, however, that there was a recurrence of the disease in the early part of the year 1919, which would add materially to the number of deaths if calculated for the epidemic period.

Press reports giving estimates for the number of deaths from influenza throughout the world indicate that there were more than 6,000,000 deaths. Whether the case fatality rate was 1, 2, 3, or 4 per cent, some idea of the enormous number of people stricken can be obtained from the above mortality estimate.

Age and sex incidence.—Some idea of the age and sex distribution of the disease may be obtained from the mortality reports, but owing to the fact that the age and sex distribution of the general population, as indicated by former census reports, was greatly disturbed by the operation of the draft act, the location of munition plants, and other upheavals in the general population incident to the war, estimates of the incidence of the disease according to age and sex based on reports from many localities will probably be misleading. Furthermore, such estimates of the age and sex incidence would be liable to error and misinterpretation owing to the fact that some of the investigations made indicate that whereas the morbidity rate was high in certain age groups the mortality rate was lower in the same age groups.

Intensive studies were made in certain areas in different parts of the United States and the data collected were analyzed for age and sex.

Surveys were made in certain sections of Little Rock, Ark.; San Francisco, Calif.; New London, Conn.; Augusta and Macon, Ga.; Des Moines, Iowa; Louisville, Ky.; Spartanburg, S. C.; San Antonio, Tex.; Baltimore, Md.; and in a number of rural sections and smaller towns in Maryland.

The case incidence was found to be highest in children from 5 to 14 years of age, and progressively lower in each higher age group. It was slightly higher in females than in males of corresponding age.

The death rate was notably high in children under 1 year old, in adults from 20 to 40, and in persons over 60, and it was higher in males than in females of comparable ages.

The case fatality was likewise higher in children under 1 year of age and in the age groups 20 to 40 and over 60 years.

Number of persons canvassed in different sections of the United States, cases of influenza and pneumonia (all forms), and deaths from these diseases, by age and sex.

Age period.	Both sexes.			Males.			Females.		
	Persons.	Cases.	Deaths.	Persons.	Cases.	Deaths.	Persons.	Cases.	Deaths.
Under 1 year	2,849	584	39	1,417	304	23	1,432	280	16
Under 5 years	14,914	4,653	108	7,472	2,404	52	7,442	2,249	56
5 to 9 years	14,871	5,823	31	7,423	2,880	13	7,448	2,943	18
10 to 14 years	14,305	5,468	31	7,048	2,670	10	7,257	2,798	21
15 to 19 years	13,067	4,508	42	6,113	2,027	22	6,954	2,481	20
20 to 24 years	12,587	4,059	76	4,626	1,327	30	7,961	2,732	46
25 to 29 years	12,530	4,227	119	5,159	1,687	66	7,371	2,540	53
30 to 34 years	11,896	3,891	94	5,562	1,786	51	6,334	2,105	43
35 to 39 years	11,268	3,328	71	5,702	1,677	45	5,566	1,651	26
40 to 44 years	9,562	2,257	40	4,717	1,141	19	4,845	1,116	21
45 to 49 years	8,278	1,715	23	4,346	867	15	3,932	848	8
50 to 54 years	6,701	1,169	19	3,381	559	11	3,320	610	8
55 to 59 years	4,378	706	11	2,175	341	7	2,203	365	4
60 to 64 years	3,788	545	16	1,872	241	5	1,916	304	11
65 to 69 years	2,472	334	12	1,187	157	5	1,285	177	7
70 to 74 years	1,712	190	8	750	85	1	962	105	7
75 and over	1,649	143	5	703	58	4	946	85	1
Unknown	4,267	564	14	1,929	244	6	2,338	320	8
All ages	148,245	43,580	720	70,165	20,151	362	78,080	23,429	358

Influenza and pneumonia (all forms).—Cases and deaths per 1,000 persons canvassed in different sections of the United States, by age and sex, and fatalities per 100 cases.

Age period.	Case rate per 1,000.			Death rate per 1,000.			Case fatality rate per 100.		
	Both sexes.	Male.	Female.	Both sexes.	Male.	Female.	Both sexes.	Male.	Female.
Under 1 year	205.0	214.5	195.5	13.7	16.2	11.2	6.7	7.6	5.7
Under 5 years	312.0	321.7	302.2	7.2	7.0	7.5	2.3	2.2	2.5
5 to 9 years	391.6	388.0	395.1	2.1	1.8	2.4	.5	.5	.6
10 to 14 years	382.2	378.8	385.6	2.2	1.4	2.9	.6	.4	.8
15 to 19 years	345.0	331.6	356.8	3.2	3.6	2.9	.9	1.1	.8
20 to 24 years	322.5	286.9	343.2	6.0	6.5	5.8	1.9	2.3	1.7
25 to 29 years	337.4	327.0	344.6	9.5	12.8	7.2	2.8	3 9	2.1
30 to 34 years	327.1	321.1	332.3	7.9	9.2	6.8	2.4	2.9	2.0
35 to 39 years	295.3	294.1	296.6	6.3	7.9	4.7	2.1	2.7	1.6
40 to 44 years	236.0	241.9	230.3	4.2	4.0	4.3	1.8	1.7	1.9
45 to 49 years	207.2	199.5	215.7	2.8	3.5	2.0	1.3	1.7	.9
50 to 54 years	174.5	165.3	183.7	2.8	3.3	2.4	1.6	2.0	1.3
55 to 59 years	161.3	156.8	165.7	2.5	3.2	1.8	1.6	2.0	1.1
60 to 64 years	143.9	128.7	158.7	4.2	2.7	5.7	2.9	2.1	3.6
65 to 69 years	135.1	132.3	137.7	4.9	4.2	5.4	3.6	3.2	4.0
70 to 74 years	111.0	113.3	109.1	4.7	1.3	7.3	4.2	1.2	6.7
75 and over	86.7	82.5	89.9	3.0	5.7	1.1	3.5	6.9	1.2
Unknown	132.2	126.5	136.9	3.3	3.1	3.4	2.5	2.5	2.5
All ages	294.0	287.2	300.1	4.9	5.2	4.6	1.7	1.8	1.5

State Morbidity Reports.

Telegraphic reports.—State health officers have continued to report to the Public Health Service by telegraph cases of unusual dangerous contagious diseases and sudden outbreaks of communicable diseases, including smallpox, typhoid fever, scarlet fever, poliomyelitis (infantile paralysis), diphtheria, and cerebrospinal meningitis.

At the close of the fiscal year the following named (24) States were sending weekly telegraphic reports giving summaries of the prevalence of communicable diseases:

Alabama.	Indiana.	New York.
Arkansas.	Iowa.	North Carolina.
California.	Kansas.	Ohio.
Connecticut.	Louisiana.	Oregon.
Delaware.	Maine.	Vermont.
Florida.	Massachusetts.	Virginia.
Georgia.	Minnesota.	Washington.
Illinois.	New Jersey.	West Virginia.

The data contained in these telegrams are tabulated and published each week in the Public Health Reports.

Monthly reports, giving more nearly complete information and with more detail, were received from 39 States. These data are also published currently in the Public Health Reports.

Annual summaries of the cases of communicable diseases reported in the several States and the deaths registered as due to these diseases during the calendar year 1918 have been received, compiled, and published. For the purpose of comparison, averages of the number of cases reported during previous years have been computed

MORBIDITY REPORTS FROM CITIES.

Cards for making weekly reports of cases of communicable diseases and deaths from these diseases were sent to 711 cities, including all cities of 10,000 population or more in the United States. Reports were received from about 475 cities regularly, and a number of others reported irregularly. This is a slight increase over the number of cities which reported during the preceding fiscal year and more than twice as many as were reporting two years ago.

Summaries of the prevalence of the more common communicable diseases in cities of the United States during the calendar year 1918 have been prepared, and for cities of more than 100,000 population comparisons have been made with the average number of cases reported during the previous years for which data were available.

MORBIDITY REPORTS FROM EXTRA-CANTONMENT ZONES.

The work of collecting morbidity data from the areas surrounding Army camps, which was begun during the year 1917, was continued during the fiscal year 1919. These reports were received from the Public Health Service officers in charge of the health work in the zones, and daily summaries showing the prevalence of dangerous communicable diseases in the zones were furnished to the Surgeons General of the Army and Navy and to the medical section of the Council of National Defense as long as the information was needed for the protection of the health of the men in the camps. Current information of the prevalence of disease in the vicinity of shipyards

was also given to the sanitation section of the Emergency Fleet Corporation. By June 30, 1919, all of the extra-cantonment zones were closed, and the publication of the reports from these zones was discontinued.

MORBIDITY REPORTS FROM FOREIGN COUNTRIES.

In order to make it possible to prevent the introduction of communicable diseases from other countries with the least practicable interference with commerce, regular reports which have been received from Public Health Service officers stationed abroad, American consular officers, and other sources, showing the prevalence and geographic distribution of cholera, plague, smallpox, typhus fever, yellow fever, and other diseases are tabulated and published currently.

COLLABORATING AND ASSISTANT COLLABORATING EPIDEMIOLOGISTS.

Operations have been continued and expanded under the plan whereby the Public Health Service has been cooperating with and assisting State health authorities in the work of collecting and publishing data relating to reportable diseases. In pursuance of this plan collaborating epidemiologists or acting assistant surgeons have been appointed for duty with State health organizations, and assistant collaborating epidemiologists for duty with district, county, or city health agencies. These appointees are officers of the respective health departments and are able to furnish to the Public Health Service information of the prevalence of communicable diseases which is of great value in the work of preventing the interstate spread of disease.

During the year collaborating epidemiologists have been appointed in Delaware, Florida, and West Virginia, thus making 26 States in which collaborating epidemiologists are now on duty. These States are: Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, New Jersey, North Carolina, Ohio, Oklahoma, South Carolina, Vermont, Virginia, Washington, and West Virginia.

At the close of the last year 8 assistant collaborating epidemiologists were on duty in Alabama, 4 in Georgia, and 93 in North Carolina, making a total of 105. Additional appointments have been made whereby the list of assistant collaborating epidemiologists on duty in the several States now stands as follows: Alabama, 8; Georgia, 11; Kansas, 109; Kentucky, 36; Maryland, 83; North Carolina, 106; Vermont, 10; Washington, 19; West Virginia, 77; making a total of 459. Appointments are made at nominal salaries of $1 per year.

Action is now pending whereby it is expected that appointments of collaborating epidemiologists and assistant collaborating epidemiologists will soon be made in several other States.

The processes involved in the scheme of collecting morbidity data through collaborating epidemiologists and assistant collaborating epidemiologists is indicated in the following general outline:

1. Reports of the occurrence and location of individual cases of communicable diseases, by practicing physicians, to the assistant collaborating epidemiologists on duty at the local health office, where

the information becomes available for primary use by the local health officer for the control of disease within his jurisdiction.

2. Reports of cases of communicable disease and local health status, by the assistant collaborating epidemiologists, to the collaborating epidemiologist on duty at the State health office, where the information may be used, in turn, by the State health officer.

3. Reports of cases of disease and general health conditions within States, by the collaborating epidemiologists, to the Bureau of the Public Health Service, for use in the prosecution of interstate health activities. The reports to the Public Health Service include special telegraphic reports of epidemic or unusual health conditions, weekly summary reports by telegraph of general health conditions of States, and monthly reports of diseases arranged by the places of their occurrence within the States. All of the reports received by the Public Health Service are compiled and published each week in the Public Health Reports. In addition, each State which cooperates furnishes an annual report giving prevalence of reportable diseases, with the mortality from each of these diseases.

In further pursuance of the policy of cooperation with the States in the work of protecting the public health, in accordance with the provisions of the act of February 15, 1893, and other acts of Congress, the service has detailed regular officers as epidemiologic aides to eight States. It is intended that these regular officers shall do everything possible to encourage the physicians in their States to report promptly all of the important communicable diseases.

Publication of Sanitary Data.

Through the Public Health Reports information has been furnished to health officers, sanitarians, and others interested regarding the latest developments in health work and the prevalence and distribution of communicable diseases in the United States and foreign countries. The more important articles relating to health subjects are issued as reprints and are thus made available to all who are interested in the particular subject treated.

Prevalence of Disease in the United States.

The reported prevalence of the principal communicable diseases during the calendar year 1918 in those States for which data in comparable form are available is shown in the tables which follow. The information was furnished, for the most part, by State health officers. Wherever possible comparisons with similar data for previous years have been made.

It should be borne in mind in using these tables that morbidity reports are generally far from complete in the United States. A low case rate, especially when the fatality rate is comparatively high, may mean that the cases of the disease are not well reported and is not proof that few cases existed.

ANTHRAX.

For the calendar year 1918, 115 cases of anthrax in man were reported. Fifty-seven deaths were registered in 1918, while 62 were registered in 1917. Anthrax is a reportable disease in 29 States.

A table showing the number of cases reported during the calendar years 1916, 1917, and 1918, by States, follows:

Anthrax—Cases reported by States during 1916, 1917, and 1918.

State.	1916	1917	1918	State.	1916	1917	1918
California	12	23	19	New Jersey	7	21	5
Colorado		4		New York	15	32	20
Connecticut	1	1	1	Ohio	1	3	2
Hawaii			(1) 2	Pennsylvania	31	25	11
Illinois	(2)	2		Porto Rico	(2)		4
Indiana			(1) 3	South Carolina			1
Iowa			(1) 3	Texas	(2)	3	4
Kansas	4	2	2	Vermont		2	
Louisiana	4	27	13	Wisconsin		(1) 2	
Maine			1				
Maryland		1	1	Total	106	202	115
Massachusetts	31	54	23				

[1] Deaths, cases not reportable. [2] No report received.

CEREBROSPINAL MENINGITIS.

In 23 States during 1918, 4,662 cases of cerebrospinal meningitis were reported, with a case rate of 0.080 per 1,000 population, while in 1917, 3,738 cases were reported, with a rate of 0.065. The average number of cases reported per annum during the years 1913–1917 in these States was 2,198, with a rate of 0.040.

Deaths registered in 20 States during 1918 were 2,168, with a rate of 0.040 per 1,000 population. The number of fatalities per 100 cases reported in these States is 50.35.

Cerebrospinal meningitis.—Average number of cases reported per annum and average indicated morbidity rates, 1913–1917; cases reported, deaths registered, and indicated morbidity and mortality rates, 1918.

State.	Average.			1918			
	Years included.	Cases reported per annum.	Cases per 1,000 population.	Total cases reported.	Cases per 1,000 population.	Total deaths registered.	Deaths per 1,000 population.
Alabama	1913, 1915–1917—4 years	79	0.034	188	0.078	82	0.034
California	1913–1917—5 years	76	.027	225	.072	160	.051
Connecticut	1913–1917—5 years	96	.078	118	.092	44	.034
District of Columbia	1913–1917—5 years	11	.031	118	.294	28	.070
Illinois	1913, 1914, 1917—3 years	274	.045	389	.062	164	.026
Indiana	1914–1917—4 years	66	.024	140	.049	45	.016
Kansas	1913–1917—5 years	62	.034	231	.123	131	.070
Louisiana	1914–1917—4 years	36	.020	394	.209	82	.044
Maryland	1915–1917—3 years	86	.063	244	.176	108	.078
Massachusetts	1913, 1916, 1917—3 years	175	.048	378	.099	224	.058
Minnesota	1913–1917—5 years	96	.043	68	.029	23	.010
Mississippi	1914–1917—4 years	49	.025	125	.062	6	.003
Montana	1913, 1914, 1916, 1917—4 years	12	.027	18	.037		
New York	1913–1917—5 years	376	.037	670	.063	443	.042
Ohio	1914–1917—4 years	292	.057	342	.065	161	.031
Rhode Island	1916, 1917—2 years	42	.068	64	.100	38	.060
South Carolina	1913–1917—5 years	44	.027	359	.216	207	.125
South Dakota	1913, 1914, 1917—3 years	13	.019	45	.061	43	.058
Texas	1915, 1917—2 years	63	.014	188	.041	164	.036
Vermont	1916, 1917—2 years	6	.016	5	.014	3	.008
Virginia	1915–1917—3 years	198	.090	314	.141		
West Virginia	1917—1 year	40	.028	24	.017		
Wyoming	1913, 1914, 1916, 1917—4 years	6	.034	15	.078	12	.063
All above States		2,198	.040	4,662	.080	2,168	.040

DENGUE.

Dengue was reported as follows: California, 1 case; Florida, 12 cases; Louisiana, 74 cases; Porto Rico, 345 cases; Texas, 127 cases and 4 deaths. During the month of May 72 cases were reported in Louisiana, but upon investigation by an officer detailed from the service a majority of the cases were believed to be an influenzalike disease rather than dengue.

DIPHTHERIA.

In 36 States during 1918, 89,231 cases of diphtheria were reported, with a case rate of 1.03 per 1,000 population, while in 1917, 113,961 cases were reported, with a rate of 1.34. The average number of cases reported per annum during the years 1913–1917 in these States was 110,992, with a case rate of 1.34.

Deaths registered in 32 States during 1918 were 10,107, with a rate of 0.13 per 1,000 population. The number of fatalities per 100 cases reported in these States is 11.67.

Diphtheria.—Average number of cases reported per annum and average indicated morbidity rates, 1913-1917; cases reported, deaths registered, and indicated morbidity and mortality rates, 1918.

State.	Average.			1918			
	Years included.	Cases reported per annum.	Cases per 1,000 population.	Total cases reported.	Cases per 1,000 population.	Total deaths registered.	Deaths per 1,000 population.
Alabama	1913, 1915-1917—4 years	647	0.28	747	0.31	195	0.08
Arkansas	1917—1 year	288	.16	173	.10	104	.06
California	1913-1917—5 years	2,731	.96	3,117	1.00	204	.07
Colorado	1914, 1916, 1917—3 years	566	.59	620	.61	.....	.....
Connecticut	1913-1917—5 years	2,343	1.91	2,348	1.83	201	.16
District of Columbia	1913-1917—5 years	681	1.90	517	1.29	40	.10
Illinois	1913, 1914, 1917—3 years	12,247	2.03	8,075	1.28	1,152	.18
Indiana	1913-1917—5 years	3,528	1.26	2,839	.99	417	.15
Iowa	1913, 1914, 1916, 1917—4 years	752	.34	911	.41	211	.09
Kansas	1913-1917—5 years	1,564	.87	1,293	.69	129	.07
Louisiana	1914-1917—4 years	1,054	.58	1,201	.64	102	.05
Maine	1916, 1917—2 years	354	.46	262	.33	60	.08
Maryland	1915-1917—3 years	2,007	1.47	1,261	.91	137	.10
Massachusetts	1913, 1916, 1917—3 years	8,113	2.20	6,921	1.81	594	.15
Michigan	1913-1917—5 years	5,480	1.82	5,912	1.89	658	.21
Minnesota	1913-1917—5 years	3,306	1.47	3,600	1.53	274	.12
Mississippi	1914-1917—4 years	1,057	.55	1,138	.57	137	.07
Montana	1913, 1914, 1916, 1917—4 years	228	.51	309	.64	.....	.....
New Jersey	1913-1917—5 years	6,261	2.17	4,465	1.45	485	.16
New York	1913-1917—5 years	20,361	2.02	16,501	1.55	1,772	.17
North Dakota	1917—1 year	539	.70	391	.49	35	.04
Ohio	1914-1917—4 years	8,551	1.67	5,507	1.04	497	.09
Oregon	1913-1917—5 years	291	.36	182	.20	27	.03
Pennsylvania	1916, 1917—2 years	15,297	1.78	12,378	1.41	1,770	.20
Porto Rico	1914, 1915, 1917—3 years	143	.12	138	.11	55	.04
Rhode Island	1914, 1916, 1917—3 years	1,083	1.77	895	1.40	100	.16
South Carolina	1913-1917—5 years	1,747	1.09	1,039	.63	81	.05
South Dakota	1913, 1914, 1917—3 years	254	.38	273	.37	25	.03
Texas	1915, 1917—2 years	1,871	.42	833	.18	197	.04
Utah	1913-1915, 1917—4 years	336	.80	594	1.31	68	.15
Vermont	1914-1917—4 years	447	1.23	241	.66	23	.06
Virginia	1913-1917—5 years	3,188	1.47	1,367	.61	.....	.....
Washington	1913-1917—5 years	453	.31	862	.52	83	.05
West Virginia	1917—1 year	927	.66	345	.24	.....	.....
Wisconsin	1913-1917—5 years	2,251	.91	1,774	.69	250	.10
Wyoming	1913-1917—5 years	46	.26	202	1.06	24	.13
All above States		110,992	1.34	89,231	1.03	10,107	.13

INFLUENZA AND PNEUMONIA (ALL FORMS).

In 35 States 4,114,810 cases of influenza and pneumonia (all forms) were reported during October, November, and December, 1918. The States of Arkansas, Iowa, Montana, North Carolina, Rhode Island, Virginia, West Virginia, and Wisconsin reported only cases of influenza, while in Massachusetts and Ohio influenza and lobar pneumonia cases were reported. The States mentioned are included in the 35 States. In September, 21 States reported 57,243 cases.

The deaths registered as due to influenza and pneumonia (all forms) in 38 States during September, October, November, and December, 1918, were 376,696. This total includes influenza deaths only for the State of Michigan and influenza and lobar pneumonia for the State of Massachusetts.

Influenza was not reportable at the beginning of the epidemic, and the morbidity figures are obviously incomplete.

Influenza and pneumonia (all forms).—Cases reported in certain States during the last four months of 1918.

State.	September.	October.	November.	December.	Total.
Alabama	430	130,356	14,282	8,600	153,668
Arkansas [1]	.....	39,724	5,008	3,943	.....
California	.....	110,396	72,108	54,753	.....
Colorado	.....	22,159	16,318	8,325	.....
Connecticut	9,098	83,521	6,980	8,265	107,864
Florida	43	9,681	1,918	652	12,294
Illinois	796	155,442	43,080	45,900	245,218
Indiana	.....	47,649	28,184	28,519	.....
Iowa [1]	.....	42,797	18,827	31,638	.....
Kansas	317	46,537	41,308	47,002	135,164
Louisiana	224	138,243	21,906	25,899	186,272
Maine	3,011	20,529	7,596	12,013	43,149
Maryland	1,794	53,305	17,012	14,189	86,300
Massachusetts [2]	.....	92,311	15,366	43,220	.....
Michigan	.....	44,887	27,559	46,936	.....
Minnesota	.....	62,606	45,446	22,976	.....
Montana [1]	.....	19,980	12,193	5,471	.....
Nebraska	40	45,646	33,780	45,892	125,358
New Jersey	.....	273,719	16,421	20,726	.....
New York	2,555	419,492	72,120	43,625	537,792
North Carolina [1]	.....	103,349	10,126	11,092	.....
North Dakota	18	8,013	5,509	4,950	18,490
Ohio [2]	.....	53,606	55,150	69,303	.....
Oregon	3	8,710	10,661	9,015	28,389
Porto Rico	.....	19,397	58,292	116,067	.....
Rhode Island [1]	9,645	16,581	1,702	3,607	31,535
South Carolina	2,773	77,747	18,450	2,772	101,742
South Dakota	268	22,212	12,102	10,534	45,116
Texas	487	47,724	9,311	14,883	72,405
Utah	.....	16,952	17,067	10,103	.....
Vermont	5,825	27,016	1,454	3,369	37,664
Virginia [1]	19,512	139,439	46,563	54,302	259,816
Washington	260	21,531	19,922	16,272	57,985
West Virginia [1]	138	16,323	4,849	3,528	24,838
Wisconsin [1]	6	15,122	9,866	15,312	40,306

[1] Influenza cases only. [2] Cases of lobar pneumonia only included with influenza.

Influenza and pneumonia (all forms).—Deaths registered in certain States during the last four months of 1918.

State.	September.	October.	November.	December.	Total.
Alabama	125	3,703	2,221	1,805	7,854
Arizona	20	848	1,008	376	2,252
Arkansas	91	1,708	1,021	1,345	4,165
California	203	5,381	6,505	3,658	15,747
Connecticut	448	5,823	1,297	1,062	8,630
Delaware	75	1,223	97	110	1,505
District of Columbia	88	1,809	199	476	2,572
Florida	88	2,711	935	383	4,117
Hawaii	32	28	40	49	149
Illinois	1,233	14,077	5,525	5,263	26,098
Indiana	200	3,358	2,628	2,835	9,021
Iowa	111	2,770	2,063	3,010	7,954
Kansas	90	2,902	1,526	2,302	6,820
Kentucky	162	5,201	4,468	1,940	11,771
Louisiana	102	4,575	2,127	907	7,711
Maine	195	1,841	631	800	3,467
Maryland	210	7,689	826	769	9,494
Massachusetts [1]	2,293	11,449	1,558	2,647	17,947
Michigan [2]	22	2,451	1,866	2,104	6,443
Minnesota	120	2,277	3,329	2,014	7,740
Nebraska	43	1,615	1,197	1,477	4,332
New Jersey	522	12,465	2,200	1,650	16,837
New York	1,185	31,246	9,411	5,151	46,993
North Dakota	1	745	987	634	2,367
Ohio	314	9,219	6,866	5,700	22,099
Oklahoma	37	2,540	1,424	1,303	5,304
Oregon	26	649	818	570	2,063
Pennsylvania	1,404	36,938	17,301	9,081	64,724
Porto Rico	101	214	2,502	4,338	7,155
Rhode Island	253	2,218	344	390	3,205
South Carolina	155	3,611	1,615	1,330	6,711
South Dakota	27	519	897	665	2,108
Texas	119	6,009	4,425	3,568	14,121
Utah	23	588	756	461	1,828
Vermont	104	1,268	182	215	1,769
Washington	86	1,389	1,571	1,742	4,788
Wisconsin	164	2,616	2,260	2,982	8,022
Wyoming	9	203	364	237	813
Total	10,481	195,876	94,990	75,349	376,696

[1] Deaths from lobar pneumonia only included with influenza deaths.
[2] Influenza deaths only.

LEPROSY.

Special schedules were sent to the health departments of States, Territories, and to cities having a population of over 10,000 asking for information regarding the known occurrence of leprosy in their respective jurisdictions during the calendar year 1918. The following tables give the information of the prevalence of the disease collected in this way. It is probable that there were a few known cases in cities from which no reports were received. Undoubtedly there were also a number of cases which were not reported because their existence was unknown to the health departments.

Sixty-three cases of leprosy were reported in continental United States during the calendar year 1918, and at the close of that year 209 cases were reported as present. On December 31, 1918, 657 cases were reported as present in Hawaii, 5,298 cases in the Philippine Islands, and 37 cases in Porto Rico.

Reports of leprosy, by States, for 1918.

State.	Present Jan. 1, 1918.	Reported during 1918.	Died or removed 1918.	Present Dec. 31, 1918.	Isolated under State control.	Isolated under local control.
Arizona		1	1			
California	31	27	24	34		34
Los Angeles				5		
Montrey County				2		
Oakland				8		
San Francisco				19		
Connecticut	1	2		3	2	1
Bridgeport hospital				1		
New Haven hospital				2		
District of Columbia	1		1			
Florida	7	7	1	12	11	
Dade County				1		
Hillsboro County				[1] 1		
Monroe County				9		
St. Lucie County				1		
Seminole County				1		
Hawaii	639	93	75	657	657	
Kalawao County				577		
Honolulu (Kalihi hospital)				80		
Indiana	1		1			
Louisiana:						
Carville (State leper home)	91	15	[2] 21	85	85	
Massachusetts:						
Dukes County, Penikese Island (leper colony)	11	3	[3] 3	11	11	
Minnesota	8	2		10		10
Brown County				1		
Chippewa County				1		
Faribault County				1		
Freeborn County				2		
Grannt County				1		
Hennepin County				2		
Ramsey County				1		
Wright County				1		
Mississippi	3		2	1		1
Biloxi				1		
Missouri:						
St. Louis	2			2		2
Montana:						
Alberton, Mineral County	1			1		1
New Jersey	2	3	2	3		3
Passaic				1		
Phillipsburg				2		
New York [4]	22	2	1	23		13
North Dakota:						
Nelson County	1			1		1
Ohio:						
Dayton	1	1		2		2
Philippine Islands	5,129	1,015	1,835	5,298	4,781	33
Culion Leper Colony				4,692		
San Lazaro Hospital				89		
In various provinces				122		
Estimated in various provinces				395		

[1] No symptoms of leprosy in February, 1919.
[2] Six of these said to be cured.
[3] One case discharged within the State because not a menace.
[4] Leprosy is not reportable in New York State outside of New York City.

Reports of leprosy, by States, for 1918—Continued.

State.	Present Jan. 1, 1918.	Reported during 1918.	Died or removed 1918.	Present Dec. 31, 1918.	Isolated under State control.	Isolated under local control.
Porto Rico	41	4	8	37	37	
Isla de Cabra				37		
South Carolina	2			2		2
McCormick County				1		
Marlboro County				1		
Texas:						
Cameron County				1		
Bexar County				1		
Kendall County				1		
Liberty County				1		
Galveston				8		
San Antonio				6		
Virginia:						
Richmond	1			1		1

Reports of leprosy, by cities, for 1918.

City.	Present Jan. 1, 1918.	Reported during 1918.	Died or removed 1918.	Present Dec. 31, 1918.	Isolated under local control.
Baltimore, Md	1			1	1
Bay City, Mich	1			1	1
Boston, Mass		3	3		
Bridgeport, Conn		1		1	1
Brownsville, Tex	1			1	1
Chicago, Ill	1	2	3		
Dayton, Ohio	1	1		2	2
Galveston, Tex	1	4		5	
Jacksonville, Fla		1		1	
Los Angeles, Calif	4	6	6	4	
Louisville, Ky		1		1	1
Milwaukee, Wis	1			1	
Minneapolis, Minn		1	1		
New Haven, Conn	2			2	2
New Orleans, La		12	12		
New York, N. Y	22	2	1	23	13
Oakland, Calif		2	2		
Passaic, N. J	1			1	1
Philadelphia, Pa	1	2	3		
Phillipsburg, N. J	2			2	2
Richmond, Va	1			1	1
Riverside, Calif	1			1	1
St. Louis, Mo	2			2	2
St. Paul, Minn		1	1		
San Antonio, Tex				[1] 15	
San Francisco, Calif	19	7	7	19	19
Syracuse, N. Y	1		1		
Vallejo, Calif		1	1		
Washington, D. C	1		1		
Williamsport, Pa	1		1		

[1] Cases reported present Apr. 29, 1919.

MALARIA.

Owing to the unsatisfactory current reports of the prevalence of malaria, and the fact that the nature of the disease is such that the mortality does not always give a true index of the number of cases in a community, the Public Health Service has for several years carried on an investigation through the health departments of those States in which malaria was known to exist for the purpose of securing data regarding its prevalence. This work was continued during the first half of the fiscal year 1919 in certain States.

During the calendar year 1918, deaths from malaria were reported to the Public Health Service as follows:

Malaria.—Deaths registered, 1917 and 1918.

State.	Deaths registered.		State.	Deaths registered.	
	1917	1918		1917	1918
Alabama	530	376	Massachusetts	5	4
Arizona	.....	1	Minnesota	1	1
Arkansas	616	404	Mississippi	999	791
California	46	54	Missouri	.....	222
Colorado	2	.....	Nebraska	.....	1
Connecticut	.....	3	New Jersey	5	12
Florida	.....	217	New York	.....	24
Illinois	168	77	Ohio	14	20
Indiana	.....	31	Oklahoma	.....	163
Iowa	.....	2	Pennsylvania	15	12
Kansas	26	28	Porto Rico	1,805	1,534
Kentucky	.....	109	Rhode Island	.....	1
Louisiana	425	510	South Carolina	282	289
Maine	.....	2	Texas	.....	435
Maryland	6	6	Vermont	.....	1

MEASLES.

In 34 States during 1918, 388,127 cases of measles were reported, with a case rate of 4.8 per 1,000 population, while in 1917, 516,666 cases were reported, with a rate of 6.5. The average number of cases reported per annum during the years 1913–1917 in these States was 404,548, with a case rate of 5.2.

Deaths registered in 30 States during 1918 were 8,340, with a rate of 0.11 per 1,000 population. The number of fatalities per 100 cases reported in these States is 2.3.

Measles.—Average number of cases reported per annum and average indicated morbidity rates, 1913–1917; cases reported, deaths registered, and indicated morbidity and mortality rates, 1918.

State.	Average.			1918			
	Years included.	Cases reported per annum.	Cases per 1,000 population.	Total cases reported.	Cases per 1,000 population.	Total deaths registered.	Deaths per 1,000 population.
Alabama	1915–1917—3 years	6,915	3.0	6,220	2.6	470	0.20
Arkansas	1917—1 year	7,845	4.4	5,335	3.0	336	.19
California	1913–1917—5 years	9,997	3.5	23,194	7.4	154	.05
Colorado	1914, 1916, 1917—3 years	6,319	6.6	2,080	2.1	.....	.....
Connecticut	1913–1917—5 years	6,518	5.3	5,450	4.2	85	.07
District of Columbia	1913–1917—5 years	3,010	8.4	7,001	17.4	48	.12
Illinois	1913, 1914, 1917—3 years	32,199	5.3	7,575	1.2	341	.05
Indiana	1914–1917—4 years	18,211	6.5	5,583	2.0	120	.04
Kansas	1913–1917—5 years	11,002	6.1	10,793	5.8	313	.17
Louisiana	1914–1917—4 years	3,866	2.1	3,525	1.9	254	.13
Maine	1916, 1917—2 years	2,082	2.7	1,647	2.1	103	.13
Maryland	1915–1917—3 years	9,393	6.9	14,660	10.6	155	.11
Massachusetts	1913, 1916, 1917—3 years	25,822	7.0	29,212	7.6	519	.13
Michigan	1913–1917—5 years	9,076	3.0	5,906	1.9	259	.08
Minnesota	1913–1917—5 years	5,864	2.6	3,727	1.6	89	.04
Mississippi	1914–1917—4 years	18,008	9.3	42,045	21.0	732	.37
Montana	1913, 1914, 1916, 1917—4 years	3,025	6.8	1,288	2.6	.....	.....
New York	1913–1917—5 years	60,697	6.0	74,395	7.0	1,293	.12
North Dakota	1917—1 year	1,135	1.5	615	.8	7	.01
Ohio	1914–1917—4 years	29,379	5.7	14,065	2.7	270	.05
Oregon	1913–1917—5 years	2,288	2.8	4,742	5.3	57	.06
Pennsylvania	1916, 1917—2 years	65,420	7.6	51,836	5.9	802	.09
Porto Rico	1917—1 year	7,001	5.7	1,746	1.4	425	.34
Rhode Island	1914, 1916, 1917—3 years	1,223	2.0	3,647	5.7	128	.20
South Carolina	1913–1917—5 years	2,792	1.7	2,245	1.4	81	.05
South Dakota	1913, 1914, 1917—3 years	1,327	2.0	1,320	1.8	33	.04
Texas	1917—1 year	4,746	1.1	4,356	.9	1,009	.22
Utah	1913–1915, 1917—4 years	7,011	16.6	5,274	11.6	34	.07
Vermont	1914–1917—4 years	3,442	9.5	1,086	3.0	15	.04
Virginia	1915–1917—3 years	17,749	8.1	20,546	9.2	.....	.....
Washington	1913–1917—5 years	9,036	6.1	5,166	3.1	102	.06
West Virginia	1917—1 year	3,922	2.8	1,438	1.0	.....	.....
Wisconsin	1913–1917—5 years	7,689	3.1	19,376	7.6	100	.04
Wyoming	1913–1917—5 years	539	3.1	1,033	5.4	6	.03
All above States	.....	404,548	5.2	388,127	4.8	8,340	.11

POLIOMYELITIS (INFANTILE PARALYSIS).

In 30 States during 1918, 2,436 cases of poliomyelitis were reported, with a case rate of 0.031 per 1,000 population, while in 1917, 4,112 cases were reported, with a rate of 0.053. The average number of cases reported per annum during the years 1913–1917 in these States was 9,083, with a case rate of 0.12. This includes the epidemic of 1916.

Deaths registered in 25 States during 1918 were 782, with a death rate of 0.011 per 1,000 population. The number of fatalities per 100 cases reported in these States is 33.88.

Poliomyelitis (infantile paralysis).—Average number of cases reported per annum and average indicated morbidity rates, 1913–1917; cases reported, deaths registered, and indicated morbidity and mortality rates, 1918.

State.	Average.			1918			
	Years included.	Cases reported per annum.	Cases per 1,000 population.	Total cases reported.	Cases per 1,000 population.	Total deaths registered.	Deaths per 1,000 population.
Alabama	1913, 1915–1917—4 years	64	0.028	15	0.006	12	0.005
California	1913–1917—5 years	81	.028	75	.024	18	.006
Colorado	1916, 1917—2 years	12	.012	6	.006		
Connecticut	1913–1917—5 years	211	.172	53	.041	8	.006
District of Columbia	1913–1917—5 years	13	.036	2	.005		
Illinois	1913, 1914, 1917—3 years	374	.062	303	.048	144	.023
Indiana	1913–1917—5 years	93	.033	68	.024	24	.012
Iowa	1913, 1914, 1916, 1917—4 years	121	.054	176	.079	42	.019
Kansas	1913–1917—5 years	68	.038	30	.016	11	.006
Louisiana	1914–1917—4 years	26	.014	39	.021	12	.006
Maryland	1915–1917—3 years	169	.124	90	.065	16	.012
Massachusetts	1913, 1916, 1917—3 years	821	.223	99	.026	38	.010
Michigan	1913–1917—5 years	173	.057	103	.033	55	.018
Minnestoa	1913–1917—5 years	241	.107	82	.035	26	.011
Mississippi	1914–1917—4 years	131	.068	57	.028	9	.004
Montana	1913, 1914, 1916, 1917—4 years	35	.078	8	.016		
New Jersey	1913–1917—5 years	857	.297	43	.014	12	.004
New York	1913–1917—5 years	2,896	.287	233	.022	58	.005
North Dakota	1917—1 year	36	.047	26	.033	8	.010
Ohio	1914–1917—4 years	357	.070	152	.029	55	.010
Oregon	1913, 1915–1917—4 years	15	.018	4	.005	1	.001
Pennsylvania	1916, 1917—2 years	1,368	.159	302	.034	90	.010
Rhode Island	1917—1 year	9	.014	12	.019	6	.009
South Dakota	1913, 1917—2 years	21	.031	24	.033	3	.004
Texas	1915, 1917—2 years	9	.002	46	.010	35	.008
Vermont	1914–1917—4 years	145	.399	6	.016	1	.003
Virginia	1913, 1915–1917—4 years	271	.125	82	.037		
West Virginia	1917—1 year	332	.235	30	.021		
Wisconsin	1913–1917—5 years	130	.053	268	.105	87	.034
Wyoming	1916, 1917—2 years	4	.022	2	.011	1	.005
All above States		9,083	.120	2,436	.031	782	.011

RABIES IN MAN.

Deaths from rabies registered in 1918 were as follows: Ohio, 10; Texas, 6; Louisiana, 5; Alabama, Missouri, New Jersey, and Pennsylvania, 3 each; Illinois and South Carolina, 2 each; Kentucky, Nebraska, Porto Rico, Utah and Wisconsin, 1 each; total, 42.

ROCKY MOUNTAIN SPOTTED (OR TICK) FEVER.

In five far western and northwestern States during 1918, 20 cases of Rocky Mountain spotted fever were reported, while in 1917 56 cases were reported from seven States. Ten deaths from the disease were registered in 1918 in four of these States, giving a fatality rate of 66.67 per cent.

The highest case rates were reported from Montana (0.010 per 1,000 population), Utah (0.011), and Wyoming (0.021).

The reported cases of Rocky Mountain spotted fever all occurred in the months from March to September, as follows: March, 1; April, 2; May, 13; June, 1; July, 2; and September, 1.

SCARLET FEVER.

In 35 States during 1918, 82,738 cases of scarlet fever were reported, with a case rate of 1 per 1,000 population, while in 1917, 118,510 cases were reported, with a rate of 1.4. The average number of cases reported per annum during the years 1913–1917 in these States was 100,321, with a case rate of 1.2.

Deaths registered in 30 States during 1918 were 2,173, with a death rate of 0.03 per 1,000 population. The number of fatalities per 100 cases reported in these States is 2.8.

Scarlet fever.—Average number of cases reported per annum and average indicated morbidity rates, 1913–1917; cases reported, deaths registered, and indicated morbidity and mortality rates, 1918.

State.	Average.			1918			
	Years included.	Cases reported per annum.	Cases per 1,000 population.	Total cases reported.	Cases per 1,000 population.	Total deaths registered.	Deaths per 1,000 population.
Alabama	1913, 1915-1917—4 years	681	0.3	439	0.2	12	0.005
Arkansa	1917—1 year	254	.1	389	.2	17	.009
California	1913-1917—5 years	3,147	1.1	3,196	1.0	54	.017
Colorado	1914, 1916, 1917—3 years	959	1.0	1,624	1.6	.....	.....
Connecticut	1913-1917—5 years	1,770	1.4	1,550	1.2	35	.027
District of Columbia	1913-1917—5 years	555	1.5	883	2.2	16	.040
Illinois	1913, 1914, 1917—3 years	14,161	2.3	4,025	.6	154	.024
Indiana	1913-1917—5 years	4,427	1.6	3,670	1.3	117	.041
Iowa	1913, 1914, 1916, 1917—4 years	1,298	.6	2,730	1.2	123	.055
Kansas	1913-1917—5 years	1,917	1.1	3,118	1.7	72	.038
Louisiana	1914-1917—4 years	194	.1	150	.1	3	.002
Maine	1916, 1917—2 years	180	.2	371	.5	13	.017
Maryland	1915-1917—3 years	1,908	1.4	1,313	.9	23	.017
Massachusetts	1913, 1916, 1917—3 years	6,761	1.8	4,490	1.2	76	.020
Michigan	1913-1917—5 years	5,658	1.9	6,116	2.0	168	.054
Minnesota	1913-1917—5 years	4,272	1.9	3,768	1.6	157	.067
Mississippi	1914-1917—4 years	488	.3	568	.3	7	.003
Montana	1913, 1914, 1916, 1917—4 years	867	1.9	1,609	3.3	.....	.....
New Jersey	1913-1917—5 years	4,969	1.7	2,817	.9	57	.019
New York	1913-1917—5 years	15,600	1.5	10,139	1.0	300	.028
North Dakota	1917—1 year	529	.7	689	.9	19	.024
Ohio	1914-1917—4 years	8,928	1.7	7,299	1.4	170	.032
Oregon	1913-1917—5 years	611	.8	553	.6	15	.017
Pennsylvania	1916, 1917—2 years	8,260	1.0	7,308	.8	174	.020
Rhode Island	1914, 1916, 1917—3 years	867	1.4	593	.9	28	.044
South Carolina	1913-1917—5 years	268	.2	91	.1	3	.002
South Dakota	1913, 1914, 1917—3 years	566	.8	898	1.2	25	.033
Texas	1915, 1917—2 years	1,464	.3	1,045	.2	28	.006
Utah	1913-1915, 1917—4 years	1,242	2.9	1,723	3.8	47	.104
Vermont	1914-1917—4 years	579	1.6	312	.9	10	.027
Virginia	1914-1917—4 years	1,600	.7	707	.3	.....	.....
Washington	1913-1917—5 years	786	.5	2,876	1.7	71	.043
West Virginia	1917—1 year	586	.4	372	.3	.....	.....
Wisconsin	1913-1917—5 years	3,786	1.5	4,401	1.7	179	.07
Wyoming	1913-1917—5 years	183	1.1	906	4.8	.....	.....
All above States	.....	100,321	1.2	82,738	1.0	2,173	.03

SEPTIC SORE THROAT.

For 1918, 640 cases of septic sore throat were reported in nine States, while in 1917 1,128 cases were reported for the same States. The number of deaths registered in 1918, in these States was 174, giving a fatality rate of 27.18 per cent.

The highest case rates were 0.088 per 1,000 population in Connecticut, with a fatality rate of 3.5 per cent; 0.084 in South Carolina, with a fatality rate of 1.4 per cent; and 0.028 in Massachusetts, with a fatality rate of 24.3 per cent.

The cases were reported in 1918, by months, as follows: January, 70; February, 68; March, 36; April, 56: May, 157; June, 54; July, 19; August, 28; September, 15; October, 39; November, 31; December, 67.

SMALLPOX.

In 35 States during 1918, 69,819 cases of smallpox were reported, with a case rate of 0.81 per 1,000 population, while in 1917, 41,558 cases were reported, with a rate of 0.50. The average number of cases reported per annum during the years 1913–1917 in these States was 37,085, with a case rate of 0.45.

Deaths registered in 27 States during 1918 were 345, with a rate of 0.005 per 1,000 population. The number of fatalities per 100 cases reported in these States is 0.54.

The figures show a considerable increase in the number of cases of smallpox during the year 1918, but reports for the first half of the calendar year 1919 indicate a falling off in the number of cases except in a few States, notably the Pacific Coast States, where the disease appears to be increasing.

Smallpox.—Average number of cases reported per annum and average indicated morbidity rates, 1913–1917; cases reported, deaths registered, and indicated morbidity and mortality rates, 1918.

State.	Average.			1918			
	Years included.	Cases reported per annum.	Cases per 1,000 population.	Total cases reported.	Cases per 1,000 population.	Total deaths registered.	Deaths per 1,000 population.
Alabama	1913, 1915–1917—4 years	624	0.27	3,647	1.52	16	0.007
Arkansas	1917—1 year	2,016	1.14	2,590	1.44	21	.012
California	1913–1917—5 years	475	.17	1,069	.34	3	.001
Colorado	1913, 1914, 1916, 1917—4 years	289	.31	1,680	1.66		
Connecticut	1913–1917—5 years	181	.15	94	.07		
District of Columbia	1913–1917—5 years	64	.18	48	.12		
Illinois	1913, 1914, 1917—3 years	3,819	.63	3,842	.61	14	.002
Indiana	1913–1917—5 years	3,271	1.17	5,582	1.96	24	.008
Iowa	1913, 1914, 1916, 1917—4 years	2,233	1.00	3,307	1.49	10	.004
Kansas	1913–1917—5 years	1,999	1.11	7,130	3.80	26	.014
Louisiana	1914–1917—4 years	647	.36	950	.50	16	.008
Maine	1917—1 year	600	.78	585	.75		
Maryland	1915–1917—3 years	87	.06	219	.16		
Massachusetts	1913, 1916, 1917—3 years	85	.02	27	.01		
Michigan	1913–1917—5 years	1,725	.57	4,417	1.41	11	.004
Minnesota	1913–1917—5 years	2,082	.93	2,252	.96	6	.003
Mississippi	1914–1917—4 years	1,641	.85	3,601	1.80	16	.008
Montana	1913, 1914, 1916, 1917—4 years	991	2.22	1,104	2.27		
New Jersey	1913–1917—5 years	51	.02	65	.02		
New York	1913–1917—5 years	427	.04	535	.05	1	
North Dakota	1913, 1917—2 years	480	.67	345	.44	1	.001
Ohio	1913–1917—5 years	3,547	.70	10,227	1.94	22	.004
Oregon	1913–1917—5 years	460	.57	493	.56		
Pennsylvania	1916, 1917—2 years	238	.03	612	.07	2	
Porto Rico	1917—1 year	85	.07	27	.02		
South Carolina	1913–1917—5 years	383	.24	214	.13		
South Dakota	1913, 1914, 1917—3 years	1,064	1.58	1,050	1.43	5	.007
Texas	1913, 1915, 1917—3 years	1,718	.40	4,338	.94	124	.027
Utah	1913–1915, 1917—4 years	1,234	2.93	2,263	4.99	10	.022
Vermont	1913–1917—5 years	118	.33	55	.15		
Virginia	1913–1917—5 years	1,379	.64	1,605	.72		
Washington	1913–1917—5 years	730	.50	1,676	1.01	4	.002
West Virginia	1917—1 year	413	.29	1,266	.88		
Wisconsin	1913–1917—5 years	1,858	.75	2,592	1.01	7	.003
Wyoming	1913–1917—5 years	81	.47	312	1.64	6	.032
All above States		37,085	.45	69,819	.81	345	.005

VACCINATION HISTORY OF SMALLPOX CASES.

For several years a number of State departments of health have obtained data regarding the vaccination history of smallpox cases.

During the calendar year 1918 seven States reported 23,890 cases of smallpox, of which 72.9 per cent had never been vaccinated; 0.6 per cent gave histories of vaccination within seven years, 2.6 per cent gave histories of vaccination more than seven years preceding the illness, and in 23.9 per cent of the cases the vaccination histories could not be obtained or were uncertain.

The figures for the years 1913 to 1918, inclusive, from nine States, so far as the reports are available in comparable form, give the following results: 64 per cent never vaccinated, 1.5 per cent vaccinated within seven years preceding attack, 3.9 per cent vaccinated more than seven years before the illness, and 31.6 per cent in which the vaccination history was not obtained or was uncertain.

Vaccination history of smallpox cases, 1918.[1]

Place.	New cases reported.	Deaths.	Vaccination history of cases.			
			Number vaccinated within 7 years preceding attack.	Number last vaccinated more than 7 years preceding attack.	Number never successfully vaccinated.	Vaccination history not obtained or uncertain.
California	1,017	.....	6	61	881	69
Kansas	7,098	.....	22	164	6,840	72
Maryland	178	.....	.....	5	125	48
Massachusetts	27	.....	.....	1	22	4
Michigan	4,356	.....	30	78	3,535	713
Minnesota	2,254	.....	22	143	1,989	100
Ohio [2]	8,960	.....	69	175	4,023	4,693
Total	23,890	.....	149	627	17,415	5,699

[1] This table was compiled from monthly reports, and includes all cases for which the vaccination histories were given in the reports from the States to the Public Health Service.
[2] No report for June.

Vaccination history of smallpox cases, 1913–1918.

Place.	New cases reported.	Deaths.	Vaccination history of cases.			
			Number vaccinated within 7 years preceding attack.	Number last vaccinated more than 7 years preceding attack.	Number never successfully vaccinated.	Vaccination history not obtained or uncertain.
California [1]	2,558	.....	54	213	1,890	401
Kansas [2]	14,544	.....	61	361	11,446	2,676
Maryland [2]	424	.....	.....	9	367	48
Massachusetts [3]	312	19	39	53	161	59
Michigan [3]	11,595	2	90	294	9,584	1,627
Minnesota [3]	12,419	11	187	774	10,302	1,156
New York [4]	1,585	.....	72	138	1,057	318
Ohio [5]	23,214	13	121	415	10,170	12,508
Wisconsin [2]	7,635	17	505	613	2,591	3,926
Total	74,286	62	1,129	2,870	47,568	22,719

[1] 5 years. [2] 4 years. [3] 6 years. [4] 3 years. [5] 5 years, not including June, 1918.

TUBERCULOSIS (ALL FORMS).

For a number of years prior to 1917 there was a steady decrease in the death rate from tuberculosis in the United States. The morbidity from the disease is not well reported, and accurate data regarding its prevalence are available in very few communities. Reports from 25 States showed 96,827 deaths registered as due to tuberculosis (all forms) in 1918. In 1917 the same States reported 91,255 deaths from tuberculosis.

TYPHOID FEVER.

In 35 States during 1918 40,148 cases of typhoid fever were reported, with a case rate of 0.5 per 1,000 population, while in 1917 51,422 cases were reported, with a rate of 0.6. The average number of cases reported per annum during the years 1913–1917 in these States was 59,103, with a case rate of 0.7.

Deaths registered in 31 States during 1918 were 9,100, with a rate of 0.12 per 1,000 population. The number of fatalities per 100 cases reported in these States is 25.09.

It is probable that if all the cases of typhoid fever were reported the case fatality rate would be considerably lower. This, however, is true of other diseases also. The case and death rates from typhoid fever have been decreasing for a number of years. The disease is controllable, and the results of the efforts which have been and are now being made to control it afford a striking example of the possible saving of suffering and lives as the result of intelligent work for the protection of the public health. The records of this disease also show the advantage of having data on which to compute the values of health work.

Typhoid fever.—Average number of cases reported per annum and average indicated morbidity rates, 1913–1917; cases reported, deaths registered, and indicated morbidity and mortality rates, 1918.

State.	Average.			1918			
	Years included.	Cases reported per annum.	Cases per 1,000 population.	Total cases reported.	Cases per 1,000 population.	Total deaths registered.	Deaths per 1,000 population.
Alabama	1913, 1915–1917—4 years	2,642	1.1	2,094	0.9	598	0.25
Arkansas	1917—1 year	774	.4	473	.3	243	.14
California	1913–1917—5 years	1,409	.5	1,049	.3	194	.06
Colorado	1914, 1916, 1917—3 years	534	.6	404	.4	.....	.....
Connecticut	1913–1917—5 years	743	.6	443	.3	75	.06
District of Columbia	1913–1917—5 years	361	1.0	217	.5	48	.12
Illinois	1913, 1914, 1917—3 years	3,741	.6	1,344	.2	533	.08
Indiana	1913–1917—5 years	2,523	.9	1,127	.4	396	.14
Kansas	1913–1917—5 years	1,799	1.0	1,811	1.0	284	.15
Louisiana	1914–1917—4 years	1,009	.6	1,922	1.0	691	.37
Maine	1916, 1917—2 years	242	.3	112	.1	58	.07
Maryland	1915–1917—3 years	2,736	2.0	1,701	1.2	237	.17
Massachusetts	1913, 1916, 1917—3 years	1,819	.5	1,065	.3	158	.04
Michigan	1913–1917—5 years	1,956	.6	915	.3	321	.10
Minnesota	1913–1917—5 years	1,150	.5	614	.3	88	.04
Mississippi	1914–1917—4 years	5,926	3.1	5,141	2.6	599	.30
Montana	1913, 1914, 1916, 1917—4 years	492	1.1	210	.4	.....	.....
New Jersey	1913–1917—5 years	1,455	.5	739	.2	162	.05
New York	1913–1917—5 years	5,175	.5	3,330	.3	576	.05
North Dakota	1917—1 year	231	.3	124	.2	26	.03
Ohio	1914–1917—4 years	4,174	.8	2,918	.6	771	.15
Oregon	1913–1917—5 years	257	.3	183	.2	70	.08
Pennsylvania	1916, 1917—2 years	6,880	.8	4,559	.5	924	.11
Porto Rico	1914, 1915, 1917—3 years	345	.3	275	.2	157	.13
Rhode Island	1914, 1916, 1917—3 years	244	.4	132	.2	35	.06
South Carolina	1913–1917—5 years	976	.6	763	.5	482	.29
South Dakota	1913, 1914, 1917—3 years	129	.2	92	.1	37	.05
Texas	1915, 1917—2 years	1,147	.3	1,621	.4	1,057	.23
Utah	1913–1915, 1917—4 years	621	1.5	231	.5	39	.09
Vermont	1914–1917—4 years	227	.6	143	.4	31	.08
Virginia	1913–1917—5 years	4,391	2.0	2,141	1.0	.....	.....
Washington	1913–1917—5 years	776	.5	694	.4	98	.06
West Virginia	1917—1 year	1,529	1.1	1,127	.8	.....	.....
Wisconsin	1913–1917—5 years	623	.3	368	.1	94	.04
Wyoming	1913–1917—5 years	67	.4	66	.3	18	.09
All above States	.....	59,103	.7	40,148	.5	9,100	.12

TYPHUS FEVER.

During 1918 a total of 29 cases of typhus fever was reported, with 6 deaths, from the States of Colorado, Connecticut, Florida, Maryland, Massachusetts, New York, Pennsylvania, and Texas. In 1917, 58 cases were reported from 5 States.

Texas reported 11 cases and 1 death for 1918, giving a case rate of 0.002 per 1,000 population and a fatality rate of 9.1 per cent. Maryland reported 4 cases and 3 deaths, giving a case rate of 0.003 per 1,000 and a fatality rate of 75 per cent. Massachusetts reported 2 cases and 1 death, giving a fatality rate of 50 per cent.

Prevalence of Disease in Extra-Cantonment Zones.

The following tables show the cases of communicable diseases reported in the civil zones around military camps during the fiscal year ended June 30, 1919. Work in several of the zones was commenced during the summer and fall of 1918, and the work was discontinued in the several zones at different times during 1919, as the camps were abandoned.

The following tables show the reported cases of cerebrospinal meningitis, diphtheria, influenza, malaria, measles, smallpox, and typhoid fever:

Cases of cerebrospinal meningitis reported in extra-cantonment zones.

State and zone.	Cases reported during the 8 weeks ended—						4 weeks ended June 28.
	Aug. 24.	Oct. 19.	Dec. 14.	Feb. 8.	Apr. 5.	May 31.	
Alabama:							
McClellan		1					
Muscle Shoals sanitary district					2		
Sheridan	1				1		
Arkansas:							
Eberts Field	2	1	4				
Pike		4	1	2		1	
Connecticut:							
New London sanitary district			2				
Florida:							
Joseph E. Johnston	3						
Georgia:							
Gordon	1		2	2	3	3	
Hancock		1	3	2			
Picric acid plant				1			
Souther Field							
Wheeler	1						
Georgia and Alabama:							
Gas and flame school						2	1
Georgia and Tennessee:							
Oglethorpe	7	2	3				
Iowa:							
Dodge	1				1		
Kansas:							
Funston		1		1			
Leavenworth		1					
Kentucky and Indiana:							
Zachary Taylor	3	2	2	1	5		
Louisiana:							
Beauregard	1		2	2			
Gerstner Field							
Massachusetts:							
Devens		1		1			
Mississippi:							
Gulfport health district	1				2		
Shelby							
New Hampshire and Maine:							
Portsmouth-Kittery sanitary district	1						
New Jersey:							
Dix							
Merritt				1	2		
New York:							
Upton					1		
North Carolina:							
Fayetteville sanitary district					2		
Greene	1		1	2			
Polk				2	1	2	
Wilmington sanitary district				3			
Ohio:							
Sherman	1						
Oklahoma:							
Doniphan	2						
South Carolina:							
Charleston sanitary district				1			
Jackson				1			
Sevier			3				
Wadsworth							
Texas:							
Bowie	1			4			
Logan		1	1				
MacArthur							
Travis	3			1	2	4	
Virginia:							
Humphreys					1	1	
Lee				1			
Portsmouth and Norfolk County healh district	4	2	4	4	3		1
Tidewater health district	4	1	2		3		
Washington:							
Bremerton							
Lewis							
Vancouver							

Cases of diphtheria reported in extra-cantonment zones.

State and zone.	Cases reported during the 8 weeks ended—						4 weeks ended June 28.
	Aug. 24.	Oct. 19.	Dec. 14.	Feb. 8.	Apr. 5.	May 31.	
Alabama:							
McClellan	6	1					
Muscle Shoals sanitary district					12	2	
Sheridan	9	12	12	1			
Arkansas:							
Eberts Field	1	5	7	2			
Pike	1	8	5	11	2	1	2
Connecticut:							
New London sanitary district		21	53				
Florida:							
Joseph E Johnston	3	5	12	3			
Georgia:							
Gordon	11	37	28	16	13	8	4
Hancock		10	8	1			
Picric acid plant			2	1			
Souther Field							
Wheeler	6	44	33	3			
Georgia and Alabama:							
Gas and flame school			2	2	14	2	
Georgia and Tennessee:							
Oglethorpe	5	23	11	7			
Iowa:							
Dodge	18	79	50	32	24		
Kansas:							
Funston	3	13	2	16	17	13	
Leavenworth	15	6	11	21			
Kentucky and Indiana:							
Zachary Taylor	21	82	71	60	52		
Louisiana:							
Beauregard	4	7	1	1			
Gerstner Field			1				
Massachusetts:							
Devens	1		4		1		
Mississippi:							
Gulfport health district	8	10	18	8	4	2	1
Shelby	6	8	15				
New Hampshire and Maine:							
Portsmouth-Kittery sanitary district	1		2	1			
New Jersey:							
Dix		4		4	4	5	
Merritt				8	10	3	1
New York:							
Upton	1	8	9	7	12	9	2
North Carolina:							
Fayetteville sanitary district					1	1	
Greene	1	17	7	2			
Polk			5	5	7	5	3
Wilmington sanitary district				3	3	8	2
Ohio:							
Sherman	8	28	18	8	5	6	
Oklahoma:							
Doniphan		3	1	6			
South Carolina:							
Charleston sanitary district			7	12	1		
Jackson	1	5	3	5	5	3	
Sevier		6	10	5			
Wadsworth	3	56	6	1			
Texas:							
Bowie	13	10	17	3			
Logan	10	13	16	14			
MacArthur		4	5	5			
Travis	6	4	6	2	10	11	5
Virginia:							
A. A. Humphreys			2	1	1	3	
Lee	1	4	13	2	3	1	
Portsmouth and Norfolk County health district	4	15	26	27	10	8	5
Tidewater health district	3	19	11	8	6		
Washington:							
Bremerton	1	10	1				
Lewis		3		1	2		
Vancouver		3	13	3			

Cases of influenza reported in extra-cantonment zones.

State and zone.	Cases reported during the four weeks ended—						
	Oct. 5.	Nov. 2.	Nov. 30.	Dec. 28.	Jan. 25.	Feb. 22.	Mar. 22.
Alabama:							
McClellan	69	1,749	462	334	115	19	.....
Sheridan	9	606	212	783	53	.....	.....
Arkansas:							
Eberts Field	139	1,742	270	476	326	46	.....
Pike	1,319	8,411	474	1,073	1,568	287	53
Connecticut:							
New London sanitary district	1,634	1,619	310	.....	.....	.....	.....
Florida:							
Joseph E. Johnston	201	5,468	21	95	356	.....	.....
Georgia:							
Gordon	.....	3,521	571	717	613	341	101
Hancock	44	1,233	735	139	2,048	78	.....
Picric acid plant	.....	521	85	273	90	95	9
Wheeler	26	2,486	1,704	835	257	25	.....
Georgia and Alabama:							
Gas and flame school	.....	3,986	671	1,360	601	203	22
Georgia and Tennessee:							
Oglethorpe	34	3,683	77	221	148	70	.....
Iowa:							
Dodge	13	1,889	1,701	3,840	27	4	.....
Kansas:							
Funston	25	962	483	1,027	191	61	172
Leavenworth	9	595	775	727	124	63	.....
Kentucky and Indiana:							
Zachary Taylor	383	10,620	2,739	4,030	889	611	2,967
Louisiana:							
Beauregard	224	3,474	124	605	646	43	.....
Gerstner Field	.....	.....	846	1,567	259	83	.....
Massachusetts:							
Devens	18	170	41	305	176	5	1
Mississippi:							
Gulfport health district	453	4,978	934	1,088	2,527	531	63
Shelby	50	948	270	.....	.....	.....	.....
New Jersey:							
Dix	.....	274	95	20	71	13	12
Merritt	.....	.....	.....	137	391	209	53
North Carolina:							
Fayetteville sanitary district	.....	.....	.....	193	539	122	18
Greene	546	1,576	374	1,053	238	.....	.....
Polk	.....	.....	1,154	1,546	1,771	672	202
Wilmington sanitary district	.....	.....	.....	109	730	198	20
Ohio:							
Sherman	732	1,379	176	221	95	54	244
Oklahoma:							
Doniphan	6	302	19	342	40	.....	.....
South Carolina:							
Charleston sanitary district	.....	.....	495	724	929	324	41
Jackson	1,255	6,488	107	468	1,113	279	9
Sevier	429	3,053	402	813	1,259	678	.....
Wadsworth	76	1,330	431	734	397	.....	.....
Texas:							
Bowie	624	757	120	576	44	.....	.....
Logan	24	785	5	115	40	3	.....
MacArthur	67	1,231	102	128	37	.....	.....
Travis	268	6,357	912	2,999	695	66	19
Virginia:							
A. A. Humphreys	.....	.....	46	111	408	413	172
Lee	2,488	5,332	88	1,718	992	300	87
Portsmouth and Norfolk County health district	5,137	6,312	24	1,394	1,105	356	87
Tidewater health district	816	3,835	4	928	210	56	4
Washington:							
Bremerton	.....	610	235	650	500	.....	.....
Lewis	3	204	95	84	88	16	.....
Vancouver	.....	798	504	578	703	.....	.....

Cases of malaria reported in extra-cantonment zones.

State and zone.	Cases reported during the 8 weeks ended—						4 weeks ended June 28.
	Aug. 24.	Oct. 19.	Dec. 14.	Feb. 8.	Apr. 5.	May 31.	
Alabama:							
McClellan	7	4		1			
Muscle Shoals sanitary district					1	12	7
Sheridan	10	5					
Arkansas:							
Eberts Field	274	129	50	14			
Pike	213	94	21	12	19	20	13
Florida:							
Joseph E. Johnston	43	30	6				
Georgia:							
Gordon	8	13	4		4	3	1
Hancock	47	57	1				
Picric acid plant					1		2
Wheeler	19	13					
Georgia and Alabama:							
Gas and flame school			5	7		2	16
Georgia and Tennessee:							
Oglethorpe	3	2					
Kansas:							
Leavenworth	2						
Kentucky and Indiana:							
Zachary Taylor	4	4					
Louisiana:							
Beauregard	45	48	7	12			
Gerstner Field			5				
Mississippi:							
Gulfport health district	182	119	100	56	105	152	136
Shelby	42	23	3				
North Carolina:							
Fayetteville sanitary district							1
Greene	2	2					
Wilmington sanitary district					2	2	13
South Carolina:							
Jackson	1	2					
Sevier		9					
Wadsworth	11	4					
Texas:							
Bowie	5	3	2				
Logan	6	1					
MacArthur	5						
Travis	9	2		1		1	3
Virginia:							
A. A. Humphreys					1		
Lee	4	5			1		1
Portsmouth and Norfolk County health district	26	22	1				
Tidewater health district	3	24	1				

Cases of measles reported in extra-cantonment zones.

State and zone.	Cases reported during the eight weeks ended—						Four weeks ended June 28.
	Aug. 24.	Oct. 19.	Dec. 14.	Feb. 8.	Apr 5.	May 31.	
Alabama:							
McClellan		5	5	1			
Muscle Shoals sanitary district					45		
Sheridan	1	7	6	2			
Arkansas:							
Eberts Field	13	12		1			
Pike	6	6	32	60	19	6	
Connecticut:							
New London sanitary district			1				
Florida:							
Joseph E. Johnston	4	7	13	220			
Georgia:							
Gordon	10	23	5	11	82	91	20
Hancock	3	2	2	1			
Picric-acid plant			17	48	69	15	
Wheeler	1		2	11			
Georgia and Alabama:							
Gas and flame school			3	25	40	56	34
Georgia and Tennessee:							
Oglethorpe		2	1	10			
Iowa:							
Dodge	4	1			6		
Kansas:							
Funston		12	36	11		2	
Leavenworth	5	2		1			
Kentucky and Indiana:							
Zachary Taylor	10	15	21	30	109		
Louisiana:							
Beauregard			2	13			
Massachusetts:							
Devens	22	8	1	9	50		
Mississippi:							
Gulfport health district	4	1	3	3	25	41	20
Shelby	1	8	7				
New Hampshire and Maine:							
Portsmouth-Kittery sanitary district	27	9		1			
New Jersey:							
Dix	3				9	5	1
Merritt				1	2	48	3
New York:							
Upton	19				3	17	1
North Carolina:							
Fayetteville sanitary district				2	139	42	1
Greene	5	1	1	3			
Polk				15	49	48	5
Wilmington sanitary district				2	6	4	5
Ohio:							
Sherman		2	10	13		1	
South Carolina:							
Charleston sanitary district			7		3		
Jackson		5	10	19	10	2	
Sevier		3		16			
Wadsworth	3		2	29			
Texas:							
Bowie	10		1	9			
Logan	3	6	2	15			
MacArthur			3	4			
Travis	1	2	6	7	19	11	1
Virginia:							
A. A. Humphreys				3	3	2	
Lee	3		1	10	13	12	
Portsmouth and Norfolk County health district	7	3	8	38	64	37	20
Tidewater health district	4	13	7	28	15		
Washington:							
Bremerton	17	5	3	9			
Lewis	2	1		2	21		
Vancouver	2	3		1			

Cases of smallpox reported in extra-cantonment zones.

State and zone.	Cases reported during the eight weeks ended—						Four weeks ended June 28.
	Aug. 24.	Oct. 19.	Dec. 14.	Feb. 8.	Apr. 5.	May 31.	
Alabama:							
McClellan	12	8		3			
Muscle Shoals sanitary district					34	19	
Sheridan	3				1		
Arkansas:							
Eberts Field		9					
Pike	1	6	1	1	7	2	3
Connecticut:							
New London sanitary district			2				
Georgia:							
Gordon	32	16	34	131	270	249	42
Hancock				1			
Picric-acid plant				5	5	1	
Souther Field					1		1
Wheeler				3			
Georgia and Alabama:							
Gas and flame school			10	24	74	53	4
Georgia and Tennessee:							
Oglethorpe	2			1			
Iowa:							
Dodge	17	15	20	13	17		
Kansas:							
Funston	1	7	1	5	9	5	
Leavenworth	6		2	1			
Kentucky and Indiana:							
Zachary Taylor	15	1	2	1	10		
Louisiana:							
Beauregard				1			
Gerstner Field			24	90			
Mississippi:							
Gulfport health district						3	
Shelby	1						
New Hampshire and Maine:							
Portsmouth-Kittery sanitary district	1						
New York:							
Upton							
North Carolina:							
Fayetteville sanitary district				1	5	10	
Greene		1	3	1			
Polk			1	27	17	22	7
Wilmington sanitary district				1		1	
Ohio:							
Sherman				1		2	1
Oklahoma:							
Doniphan			2	5			
South Carolina:							
Jackson						14	5
Sevier			1	7			
Wadsworth	1	4	1	4			
Texas:							
Bowie	23	1	7	4			
Logan	1	3	6	2			
MacArthur							
Travis		4	2	2	20	5	
Virginia:							
Humphreys			2	3	8	13	
Lee	1						
Portsmouth and Norfolk County health district	1	3	11	27	27	42	6
Tidewater health district	10	8	2	1	17		
Washington:							
Bremerton	3						
Lewis			1		13		
Vancouver		2	2	1			

Cases of typhoid fever reported in extra-cantonment zones.

State and zone.	Cases reported during the 8 weeks ended—						Four weeks ended June 28.
	Aug. 24.	Oct. 19.	Dec. 14.	Feb. 8.	Apr. 5.	May 31.	
Alabama:							
McClellan	48	18	1				
Muscle Shoals sanitary district					2	2	
Sheridan	61	23	5		3		
Arkansas:							
Eberts Field	8	18	6				
Pike	38	13	7	1	4	2	4
Connecticut:							
New London sanitary district		15	2				
Florida:							
Joseph E. Johnston	66	20	10	4			
Georgia:							
Gordon	66	17	13		3	6	12
Hancock	9	25	1				
Picric acid plant			1			4	6
Souther Field							
Wheeler	22	24	2				
Georgia and Alabama:							
Gas and flame school			8			2	7
Georgia and Tennessee:							
Oglethorpe	35	23	1	4			
Iowa:							
Dodge	21	3					
Kansas:							
Funston	1	5					
Leavenworth	6	12					
Kentucky and Indiana:							
Zachary Taylor	74	74	11	1	5		
Louisiana:							
Beauregard	40	20	5	3			
Gerstner Field			16	1			
Massachusetts:							
Devens		1					
Mississippi:							
Gulfport health district	49	16	2	1	8	1	4
Shelby	35	10	3				
New Hampshire and Maine:							
Portsmouth-Kittery sanitary district	2						
New Jersey:							
Dix	2	1					
Merritt				4	1		
New York:							
Upton	2	1				2	1
North Carolina:							
Fayetteville sanitary district						2	5
Greene	110	62	3	1			
Polk			16	8	1	6	17
Wilmington sanitary district				14	10	20	5
Ohio:							
Sherman	7	18	4	2			1
Oklahoma:							
Doniphan	13	7	3	7			
South Carolina:							
Charleston sanitary district			8	2	1		
Jackson	15	7	2	3	3	5	3
Sevier	19	15	1				
Wadsworth	34	17	3				
Texas:							
Bowie	93	35	6	4			
Logan	26	6	6	4			
MacArthur	12	6	2	3			
Travis	131	52	8	7	4	6	2
Virginia:							
Humphreys			6		8	9	
Lee	26	13	1	1	1	1	4
Portsmouth and Norfolk County health district	68	68	2	1	1	2	9
Tidewater health district	50	38	13	5			
Washington:							
Bremerton	1	1					
Lewis		1					
Vancouver	4	5	1				

World Prevalence of Cholera, Plague, Typhus Fever, and Yellow Fever.

The following statement of the world prevalence of cholera, plague, typhus fever, and yellow fever for the period from July 1, 1918, to June 30, 1919, is based on reports received from medical officers of the Public Health Service, American consuls, and other sources. The information contained in these reports has been published as received in the Public Health Reports in the form of current and cumulative tables and represents disease conditions as reported at the time. For many localities the reports are manifestly incomplete. As regards especially the countries of central and eastern Europe and those regions of Asia which were the scene of military operations and occupation, the reports are of value as indicating the existence of certain diseases within those areas rather than the actual extent of their prevalence, for which complete data are not available.

CHOLERA.

EUROPE.

In Europe cholera was reported present in Albania, Austria, Germany, Hungary, Poland, Roumania, Russia, Sweden, and the Ukraine.

Albania.—Cholera was reported present in Albania August 7, 1918.

Austria.—On July 31, 1918, 4 cases of cholera were reported in the Province of Galicia, Austria.

Germany.—During the week ended September 28, 1918, 7 cases of cholera were reported at Berlin; to October 5, a total of 17 cases was reported. During the month of October, 1918, 1 case was reported at Bremen, occurring on a river vessel and 1 case at Marienwerder on a canal barge.

Hungary.—From July 8 to August 25, 1918, 26 cases were reported in Hungary.

Poland.—In July, 1918, 4 cases were reported at Warsaw; cholera was again reported at Warsaw in October. A few cases were reported in the Plonsk district in October, 1918.

Roumania.—At Braila, a port on the Danube, cholera was reported present in September, 1918.

Russia.—In the Province of Courland cholera was reported present in July and August, 1918, with 8 cases, and in Lithuania in July and August with 8 cases. At Petrograd, to July 16, 1918, 3,388 cases were reported, and from July 17 to September 11, 1918, 3,479 cases, in civil and military hospitals. In military hospitals from July 5 to August 21, 1918, 884 cases were reported, and in municipal hospitals on October 1, 1918, there were stated to be 279 cases. At Moscow in August, 1918, 281 cases were reported.

Sweden.—At Stockholm, Sweden, 5 cases of cholera were reported in July, 1918. The cases were stated to have originated on the steamship *Angermanland* from Petrograd, Russia.

Ukraine.—From July 6 to August 10, 1918, 250 cases of cholera were reported. In September, 1918, 7 cases were reported at Ekaterinaslav and at Odessa 25 cases, of which 11 cases occurred on the steamship *Helena*.

On vessels.—Steamship *Angermanland.* Five cases at Stockholm, Sweden, stated as having originated on the *Angermanland,* were reported in July, 1918. The port of departure of this vessel was Petrograd.

Steamship "Helena."—Eleven cases of cholera were reported in September, 1918, as occurring on this vessel at Odessa, Russia.

ASIA.

In continental Asia cholera was reported present in China, India, Indo-China, Mesopotamia, Persia, Siam, and Provinces of Asiatic Turkey. In the Asiatic islands the disease was present in Ceylon, Java, and the Philippine Islands.

China.—At Amoy from June 17 to 23, 1919, three fatal cases of cholera were reported. At Canton, June 8 to 21, 10 cases were reported. At Foochow cholera was reported present early in July, 1919. At Swatow, in June, 1919, 118 cases were reported.

India.—In India cholera was reported in cities as follows: Bombay, August to December 28, 1918, 1,354 cases; December 29, 1918, to April 26, 1919, 9,739 cases; Calcutta, from September to December, 1918, 340 fatal cases (approximately) were reported and from December 29, 1918, to May 3, 1919, 2,377 fatal cases; Karachi, a few cases notified in the period January to March, 1919; Madras, October to December, 1918, 273 cases, and from January 5 to May 24, 1919, 438 cases; Rangoon, from October 5 to December 21, 1918, 35 cases, and from December 29, 1918, to June 7, 1919, 144 cases.

Indo-China.—From July 1 to October 31, 1918, 853 cases of cholera were reported, the distribution according to Provinces being: Anam, 37; Cambodia, 324; Cochin-China, 436 (including cases in Saigon, city and district, 75); Kwangchow-wan, 50 cases; Tonkin, 6 cases. The occurrence of cholera was reported in December, 1918, with 225 cases, of which 13 cases were reported in Cambodia, and 212 in Cochin-China. In Saigon (city and district), Province of Cochin-China, from December 3, 1918, to April 20, 1919, 573 cases were reported.

Mesopotamia.—In October, 1918, 8 cases of cholera were reported.

Persia.—In Persia there were notified in July, 1918, 60 fatal cases of cholera at Ispahan and 5 cases in Koum and vicinity. In April and May, 1919, cholera was reported present at Ardebil, Enzeli, Khorramahab, and Mianedge, and at Zindjan with 49 fatal cases.

Siam.—From March 23 to April 5, 1919, 6 cases of cholera were reported.

Turkey in Asia.—At Trebizond cholera was reported present in October, 1918.

ASIA (INSULAR).

Ceylon.—At Colombo, Ceylon, 4 cases of cholera were reported in November, 1918, and from April 20 to 26, 1919, 10 cases.

Java.—In east Java from October 7 to December 31, 1918, there were reported 381 cases of cholera, and from January 1 to April 1, 1919, 1,171 cases. In mid-Java, from September 25 to December 18, 1918, 3, 282 cases were reported, and from January 24 to March 27, 1919, 3,375 cases; in west Java, from December 27, 1918, to April 17, 1919, 41 cases. Of these, 28 cases were reported at Batavia.

Philippine Islands.—During the period from June 29 to December 28, 1918, 4,309 cases of cholera with 2,933 deaths were reported in the Provinces of the Philippine Islands. In the city of Manila, from September 28 to December 28, 1918, 176 cases were reported. During the period from December 29, 1918, to June 28, 1919, a total of about 2,719 cases, with 1,895 deaths, was reported. In the city of Manila 60 cases were reported.

PLAGUE.

EUROPE.

Great Britain.—At the port of London, in August, 1918, 5 cases of plague were reported from a vessel arrived from Calcutta, India.

ASIA.

In Asia plague was reported in China, India, Indo-China, Japan, Mesopotamia, Siam, Straits Settlements, and in the Asiatic islands of Ceylon and Java.

China.—Plague was reported present at Amoy from July 22 to December 8, 1918; at Canton in April, May, and June, 1919; in the Hing-ningh district in March, 1919. At Hongkong plague was reported as follows: June 30 to October 19, 1918, 132 cases; October 21 to December 28, 1918, 4 cases; January 1 to May 3, 1919, 21 cases; and from May 4 to 17, 65 fatal cases; May 18 to 31, 71 cases; June 1 to 28, 126 cases.

India.—Preliminary statements of plague prevalence in the Provinces of India show the occurrence from June 30 to September 21, 1918, of 19,261 cases; September 23 to December 28, 1918, 24,279 cases; December 29, 1918, to March 1, 1919, 25,506 cases; March 9 to 15, 1919, 13,981 cases; March 30 to June 28, 26,968 cases. The reported occurrence in cities was: Bombay, June 30 to December 28, 1918, 116 cases, and January 12 to June 28, 1919, 644 cases; Calcutta, June 30 to December 28, 1918, 111 fatal cases, and from January 12 to May 3, 1919, 193 fatal cases; Karachi, June 30 to December 28, 1918, 80 cases, and from May 18 to 24, 1919, 43 cases; Madras, in September, 1918, 1 case; from December 8 to 28, 1918, 26 cases; and from December 29, 1918, to April 5, 1919, 208 cases; Madras Presidency, from July 14 to December 28, 1918, 2,449 cases, and from December 29, 1918, to April 19, 1919, 3,166 cases; Rangoon, June 30 to December 31, 1918, 352 cases, and from May 11 to June 21, 1919, 14 cases.

Indo-China.—Plague was reported in the French Provinces of Indo-China during the period July 1 to October 31, 1918, with 161 cases. The cases were distributed in the Provinces of Anam, Cambodia, Cochin-China, and Kwang-Chow-Wan. In Saigon City and district plague was reported with 5 cases in October and November, 1918; in April, 1919, with 1 case; and from April 28 to June 22, 1919, with 44 cases.

Japan.—In Japan a fatal case of plague was reported during the second week in June, 1919.

Mesopotamia.—At Bagdad, 5 cases of plague were reported in November, 1918, and from February 22 to May 18, 1919, 222 cases. From May 19 to June 6, 1919, 317 cases were reported. At Basra

during the month of March, 1919, an outbreak of plague was reported with 288 cases occurring in the city and suburb of Ashar from date of outbreak to May 19, 1919.

Siam.—At Bangkok, from July 2 to October 12, 1918, 114 cases of plague were reported and from January 19 to May 17, 1919, 9 cases.

Straits Settlements.—At Penang from June 30 to September 28, 1918, 8 cases of plague were reported; at Singapore from June 30 to August 17, 12 cases; and from April 13 to 20, 1919, 2 cases.

ASIA (INSULAR).

Ceylon.—At Colombo, from June 30 to August 5, 1918, 2 cases of plague were reported and from January 4 to April 5, 1919, 5 cases.

Java.—In east Java plague was reported from June 25 to September 4, 1918, with 60 cases; from October 7 to November 18, with 297 cases; and from January 1 to April 22, 1919, with 297 cases. The reported occurrence was in the district of Surabaya. In mid-Java the occurrence was 94 cases from September 25 to October 16, 1918, and from January 30 to May 14, 1919, 220 cases. At Batavia the occurrence was 73 cases in August, 1918.

AFRICA.

In Africa plague was reported present in Algeria, British East Africa, and Egypt.

Algeria.—At Algiers 1 case of plague occurred in September, 1918.

British East Africa.—A case of plague was reported at Nairobi during the third week in June, 1918. Plague was reported continuously present at Kisumu from May 18 to June 28, 1919.

Egypt.—From January 1 to November 21, 1918, 357 cases of plague were reported in Egypt. The provinces affected were: Assiout, Beni-Souef, Fayoum, Gizeh, Keneh, and Minieh. At Alexandria 1 case was reported in September, 1918, and at Port Said 1 case in July, 1918. Five cases of septicemic plague were reported in the Province of Minieh and 1 case of pneumonic plague. From January 1 to June 25, 1919, 691 cases were reported, occurring in the Provinces of Assiout, Beni-Souef, Fayoum, Menoufia, and Minieh. In the city of Alexandria 1 case was reported in March, 1919; at Cairo, 1 case in May, 1919; at Kantarah, 4 cases in June; at Suez, 125 cases from January 1 to June 11, 1919.

SOUTH AMERICA.

In South America plague was reported present in Brazil, Chile, Ecuador, and Venezuela.

Brazil.—At Porto Alegre plague was reported present in April, 1918.

Chile.—Plague was reported present during the period from January 5 to June 28, 1919.

Ecuador.—At Guayaquil from July 4 to December 31, 1918, 20 cases of plague were reported and from January 1 to April 30, 1919, 55 cases. During the month of June, 1919, 3 cases were reported. At Posorja, a bathing resort 65 kilometers distant from Guayaquil, 2 cases were reported during the first two weeks of June, 1919. At Taura from December 16 to 31, 1918, 1 fatal case was reported.

Venezuela.—In September, 1918, plague was reported present in the vicinity of Charallave, where plague prevalence had been reported from January, 1918.

ON VESSELS.

The occurrence of 5 cases of plague from a vessel arrived from Calcutta, India, was reported at the port of London, England, August 7, 1918.

Steamship "Hector."—From August 10 to 21, 1918, 6 cases of plague were reported at Gravesend, England, occurring in members of the crew of the steamship *Hector.*

Steamship "Japan."—On January 14, 1919, a case of plague was reported at Suez quarantine station, Egypt, on the steamship *Japan,* from Bombay, India.

Steamship "Mora."—At Dundee, Scotland, 3 cases of plague from the steamship *Mora* from Calcutta were reported August 31, 1918. Of these cases 1 was pneumonic in form.

Steamship "Sunning."—At Shanghai, China, a case of plague was reported on the local steamer *Sunning,* August 14, 1918.

Steamship "Sparta."—On May 21, 1919, a case of plague was reported at Liverpool, England, on the steamship *Sparta* from Bombay. Previous history of the vessel showed that a fatal case of plague occurred on the *Sparta,* at sea, in the person of a soldier, during the week ended April 21, 1919, and that a fatal case occurred May 17, 1919, in a native member of the crew.

RAT EXAMINATION AND PLAGUE IN RODENTS.

Rat examination continued to be carried out, but data are available only for Hongkong and Shanghai, in China; Liverpool, Great Britain; and in the Territory of Hawaii, for Honolulu and Hilo.

At Hongkong from July 1 to December 31, 1918, 47,947 rats were reported examined and 84 plague-infected rats found. The largest number of plague rats were found in July and August, 1918, viz, 56 and 22, respectively, and the lowest number in September and November, viz, 1 each. No plague-infected rats were found in the month of December, 1918. From January 1 to June 30, 1919, 48,657 rats were reported examined and 167 plague rats found, the largest number of plague rats being found in May and June, viz, 58 and 71, respectively. The lowest number, viz, 18, were reported found in March, 1919.

For Shanghai complete reports are not available. During the period from July to December, 1918, inclusive, 8,001 rats were reported examined. From March 22 to April 26, 1919, 2,152 rats were reported examined. No plague infection was found.

At Liverpool, Great Britain, in December, 1918, 673 rats were examined. From January 1 to June 26, 1919, 3,368 rats were examined. No plague infection was found.

In the Territory of Hawaii rat examination continued to be reported with an average of about 400 rats examined per week at Honolulu and about 1,200 at Hilo. A plague-infected rat was reported found at Paauilo, Hilo, March 27, 1919.

At Manila, Philippine Islands, during the period July to December, 1918, inclusive, 34,623 rats were received at the laboratory for examination. No plague-infected rat was found. Reports of rat examina-

tion at Manila for the months of January, February, March, and April show 37,454 rats examined. No plague infection was reported found.

TYPHUS FEVER.

EUROPE.

In Europe typhus fever was reported in Austria, Bulgaria, Czecho-Slovakia, Finland, France, Great Britain, Greece, Hungary, Italy, Lithuania, Netherlands, Poland, Russia, Serbia, Spain, Sweden, and the Ukraine.

Austria.—From December 1, 1918, to January 11, 1919, 125 cases of typhus fever were reported in Austria and from January 12 to April 5, 1919, 597 cases. At Vienna during the period first named, 110 cases were reported, and during the second period, 410 cases. These cases occurred almost exclusively in repatriated soldiers and their contacts.

Bulgaria.—At Prague from May 18 to June 29, 1919, 11 cases were reported.

Finland.—From January 1 to June 30, 1919, 127 cases of typhus fever were reported in Finland. The cases were distributed in the Provinces of Abo Och Bjorneborg, Nyland, Uleaborg, and Viborg, with the greatet prevalence in the Province of Viborg. There were some urban cases reported, but the greater prevalence was reported from country districts.

France.—At Marseille during March, 1919, 31 cases of typhus were reported, the occurrence being in 1 civil and 2 military hospitals. During May, 1919, 6 cases were reported, the occurrence being confined to prison inmates.

Germany.—During the period from September 29 to November 7, 1918, 34 cases of typhus were reported in Germany. The reported occurrence in cities was: Breslau, 12 cases; Dresden, 1 case; Konigsberg, 3 cases. From January 12 to April 12, 1919, 897 cases were reported. Of these, 344 were stated to have occurred among the military, 220 in the civil population, and 333 among soldiers, prisoners of war, deserters, and the civil population.

Great Britain.—At Dundee, Scotland, 3 cases were reported during the week ended July 5, 1919. At Glasgow 3 cases were reported from July 21 to August 3, 1918, and in December, 1918, 5 cases. From January 5 to March 15, 1919, 10 cases were reported at Glasgow, and from June 8 to July 5, 13 cases. In May, 1919, a case of typhus was reported at Liverpool, England, from a vessel. At Queenstown, Ireland, a case was reported in October, 1918, and in February and March, 1919, a total of 4 cases was reported.

Greece.—In August, 1918, 15 cases of typhus were reported at Janin and in the vicinity, and a Saloniki from June 30 to December 21, 1918, 127 fatal cases. From December 23, 1918, to May 10, 1919, 117 fatal cases were reported at Saloniki. As regards other points in the Province of Macedonia, Greece, typhus was reported present at Drama in March, 1919, at Epirus during the same month, and at Kavala with 300 estimated cases. Two cases were reported in March, 1919, at Athens.

Hungary.—From June 24 to November 6, 1918, 125 cases were reported, and from November 27, 1918, to February 2, 1919, 473

cases. From February 24 to May 9, 1919, 258 cases were reported. Of these reported cases 119 were notified at Budapest during the first-named period, 131 during the second, and 124 during the third period. Other localities at which typhus was reported present in Hungary were Debreczin, Pressburg, Szatmarnenti, and Tyrnau.

Italy.—In August, 1918, typhus fever was reported at Corato, Province of Bari, Italy. During the late winter and the spring and early summer of 1919 extensive typhus prevalence was reported in Italy. From February 3 to May 11, 241 cases were reported occurring in 15 Provinces and the cities of Genoa, Leghorn, Naples, and Taranto. From June 9 to 15 typhus was reported present in 14 Provinces, with 757 cases, of which 631 occurred among Austrian prisoners of war and 10 in the civil population, with 23 among Italian soldiers and 93 among Roumanian soldiers. From June 16 to 22 12 Provinces were reported infected, 127 cases being reported, 102 being among Austrian prisoners. From June 23 to 29, 14 Provinces were stated to be infected, 117 cases being reported, of which 107 were among Austrian prisoners. From June 23 to 29, 7 cases were reported at Naples.

Lithuania.—From June 28 to August 31, 1918, 1,280 cases of typhus fever were reported in Lithuania, and from September 26 to October 26, 1918, 539 cases.

Netherlands.—During the first week in December, 1918, a case of typhus was reported in Amsterdam, Netherlands; from January 12 to April 12, 1919, 6 cases were reported. In February, 1919, typhus was reported at Delft, Harlem, Leiden, and in the mining district of Limburg. At Naaldwijk, from March 30 to April 19, typhus was present, with 4 cases; at Rotterdam, February 2 to April 12, with 507 cases. At Schiedam typhus was reported present, and at Wateringen during the first week in April.

Poland.—Typhus was reported present during the summer of 1918. From September 29 to October 26, 1918, 572 cases were reported, 55 of these occurring at the industrial center of Lodz and 111 at Warsaw.

Portugal.—In March, 1919, typhus fever was reported present at Braga. At Oporto, March 8 to May 10, 1919, 889 cases were reported; during the first two weeks in June, 52 cases.

Russia.—At Archangel, from January 15 to April 15, 1919, 224 cases of typhus were reported.

Serbia.—On February 5, 1919, 62 cases of typhus were reported among soldiers and prisoners at Belgrade.

Spain.—At Cadiz, in August, 1918, a fatal case of typhus was reported; at Huelva, in October, 1918, 2 fatal cases were reported; at Madrid, in December, 1918, 1 fatal case was reported; in May, 1919, 1 fatal case each occurred at Barcelona and Madrid.

Sweden.—At Stockholm a case of typhus was reported in August, 1918.

Ukraine.—In the Ukraine, early in April, 1919, typhus fever was reported to be spreading.

ASIA.

In Asia typhus was reported in China, Chosen (Korea), Japan, Manchuria, Mesopotamia, and Siberia.

China.—At Antung, from July 8 to October 27, 1918, 15 cases; in December, 1918, 2 cases; and from January 6 to April 20, 1919.

3 cases were reported. At Shanghai a case was reported in July, 1918; at Tsingtao 2 cases were reported in September, 1918; at Changsha, May 11–17, 1918, 1 fatal case was reported.

Chosen (Korea).—At Seoul, during the two months ended August 31, 1918, 5 cases were reported, and during the two months ended February 28, 1919, 12 cases; at Fusan, in February, 1919, 1 case was reported; at Chemulpo, April 1 to May 31, 1919, 54 cases were reported; Fusan, May, 1919, 4 cases; Seoul, April 1 to May 31, 1919, 79 cases.

Japan.—Ten cases of typhus were notified at Kobe, Japan, July 7 to August 3, 1918; at Nagasaki, July 3 to November 3, 1918, 32 cases; November 10 to December 29, 1918, 13 cases; June 16 to July 1, 1919, 1 case was notified; at Tokyo, June 24 to July 7, 1918, 1 case was notified.

Manchuria.—On the Chinese Eastern Railway line typhus fever was reported at Harbin, with 1 case, in July, 1918, and at Manchuria station, July 1 to 14, 1918, with 3 cases.

Mesopotamia.—At Bagdad, June 30 to July 12, 1918, 5 cases were reported; October 5 to December 27, 2 cases; December 28, 1918, to April 11, 1919, 15 cases; April 19 to June 6, 1919, 34 cases.

Palestine.—At Jaffa, from October 22 to December 22, 1918, 8 cases were reported.

Siberia.—At Irkutsk, in November, 1918, 600 cases were reported; at Vladivostok, in August, 1918, 5 cases; from September 1 to December 30, 1918, 43 cases; and from June 9 to 15, 1919, 90 cases.

AFRICA.

Typhus fever was reported present in Africa in Algeria, Egypt, Tunis, and Union of South Africa.

Algeria.—At Algiers there were reported, November 1 to 30, 1918, 1 case, and from May 1 to 31, 1919, 76 cases.

Egypt.—At Alexandria, from August 1 to December 31, 1918, 1,924 cases of typhus were reported, and from January 1 to June 24, 1919, 1,392 cases; at Cairo, January 2 to March 4, 1919, 150 cases; at Port Said, January 9 to March 4, 1919, 6 cases.

Tunis.—From June 29 to November 8, 1918, 4 cases of typhus fever were reported at Tunis, and from April 12 to June 21, 1919, 3 cases.

Union of South Africa.—Typhus was reported present in Cape of Good Hope State in July and August, 1918. In September the disease was reported to be spreading among natives in several interior towns of Port Elizabeth district.

AMERICA.

North America—Canada.—At Toronto a case of typhus fever was reported in September, 1918.

Mexico.—At Aguascalientes a case of typhus was reported in July, 1918; from February 2 to April 13, 1919, 4 cases were reported. In the State of Chihuahua, at Parral, typhus was stated to be epidemic July 10, 1918. At Guadalajara, from July 1 to December 31, 1918, 14 cases were reported, and from January 1 to April 30, 1919, 9 cases. At Mexico City, from June 30 to December 28, 1918, 840

cases were reported, and from December 29 to June 28, 1919, 918 cases.

South America—Brazil.—At Ceara a case of typhus was reported in September, 1918. At Rio de Janeiro, July 7 to September 21, 1918, 6 cases were reported, and from December 28, 1918, to February 22, 1919, 29 cases. At Sao Paulo, January 13 to 19, 1919, 3 cases were reported.

Colombia.—From August 25 to November 2, 1918, 4 cases were reported at Barranquilla.

INSULAR.

Philippine Islands.—At Manila during the week ended May 17, 1919, a case of typhus was reported.

YELLOW FEVER.

AMERICA.

Yellow fever was reported in Central and South America.

Central America.—In Central America yellow fever was reported in Guatemala and Salvador.

Guatemala.—In the autumn of 1918 yellow fever was stated to be present at Escuintla with 40 cases reported to November 1, 1918. At San Jose, in September and October, 1918, a total of 15 fatal cases was reported, and on November 4 the disease was reported still present.

Salvador.—On January 9, 1919, a case of yellow fever was reported at San Salvador, and during the last week in June, 1919, 1 fatal case was reported. At San Miguel, June 24, 1919, 1 case was reported.

South America.—In South America yellow fever was reported in Brazil, Colombia, and Ecuador.

Brazil.—At Bahia, from June 30 to July 27, 1918, 6 cases of yellow fever were reported; from January 12 to March 1, 1919, 5 cases; and from April 12 to June 14, 1919, 48 cases. At Pernambuco, in August 1918, 1 fatal case was reported, and in October and November, 1918, yellow fever was reported still present.

Ecuador.—At Guayaquil, from July 1 to December 31, 1918, 326 cases of yellow fever were reported; from January 1 to March 31, 1919, 124 cases; and from May 1 to 31, 1 fatal case was reported. Yellow fever was reported at other localities in Ecuador as follows: At Babahoyo, present in November, 1918, with 1 case, and in March, 1919, with 1 case; at Catamara, February, 1919, 1 case was reported; at Chobe, January, 1919, 1 case; at Daule, January, 1919, 1 case; at Duran, from November 1 to December 31, 1918, 3 cases were reported, and from January 16 to March 15, 1919, 5 cases; at Hacienda Vainilla, February, 1919, 1 case; at Milagro, November 1 to 15, 1918, 1 case, and February 1 to March 15, 2 cases were reported; at Naranjal, August 1 to November 15, 1918, 2 cases were reported; at Naranjito, November 1 to 15, 1918, 1 case was reported, and from May 1 to June 15, 1919, there were reported 2 cases; at Pago Hacienda, in November, 1918, 1 case was reported; at Punta de Piedra, August 1 to November 30, 1918, there were reported 2 cases; at Vinces, August 1 to September 30, 1918, 6 cases.

On vessels.—On January 30, 1919, a case of yellow fever was reported at the quarantine station, Canal Zone, Panama.

SECTION OF PUBLIC HEALTH EDUCATION.

The importance of the educational activities of the Public Health Service was never better exemplified than during the nation-wide epidemic of influenza. To meet the many urgent appeals for authoritative information, a series of special articles was supplied to newspapers throughout the country. Through the courtesy of the other departments concerned, an illustrated poster was displayed in all post offices and railroad stations. Millions of copies of a four-page bulletin were distributed through State and local health officers and through the Red Cross. This undoubtedly did much to check the spread of alarmist reports called forth by the epidemic, among them that the disease was really pneumonic plague or "black death" and that health authorities were suppressing the facts.

In order to extend and better coordinate this important educational work, a section of public health education was organized April 7, 1919. In the short period the section has been in operation a number of promising features have been inaugurated, and there is reason to believe that the organization of this section will contribute greatly to the promoting of the public health.

As at present carried on, the section aims to constitute itself a national center or clearing house on the subject of public health education. Plans are under way whereby all the ordinary vehicles of publicity and education will be utilized. This will involve the preparation of press bulletins and the utilization of stereo mats and plates, the publication of lithographed health posters, the organization of a lecture service, the administration of a loan library of stereopticon slides and moving pictures, the preparation and organization of traveling exhibits, the maintenance of a public health information bureau, and the employment of such other educational methods as the circumstances may indicate. It is planned to carry on these activities in close cooperation with State and local health authorities and with important national health organizations.

During the year, 161 new publications were issued, compared with 75 issued during the preceding year. The total number of copies of these publications and of reprints of previous documents aggregated 9,532,392, as compared with 4,364,850 copies during the preceding fiscal year and 2,891,050 for the fiscal year before that. This large number of leaflets sent in response to public requests is entirely additional to the publications printed and distributed by the Division of Venereal Diseases. These special publications aggregated 14,125,000 during the fiscal year, and of these 10,120,772 were mailed from the Public Health Service and 4,004,228 were mailed from State boards of health.

In its efforts to make its publications of greater service to the people, the section of public health education inaugurated a new series of popular health leaflets under the general designation "The Keep Well Series." In addition to this, a selected list of the bureau's popular leaflets was published under the name of "Uncle Sam's Guides to Health." These new publications have been very well

received and appear admirably to meet the purpose for which they were intended.

The following list of service publications issued during the fiscal year 1919 gives a general idea of the scope and character of documents of the various series:

HYGIENIC LABORATORY BULLETINS.

This series comprises the technical bulletins of the service previously mentioned. Much aid is given by this series to laboratories and technical workers. The following were published during the fiscal year 1919:

113. I. **An Experimental Investigation of the Toxicity of Certain Organic Arsenic Compounds.** By George B. Roth.
   II. **On the Toxicity of Emitine Hydrochloride, with Special Reference to the Comparative Toxicity of Various Market Preparations.** By Gleason C. Lake.
114. **Index Catalogue of Medical and Veterinary Zoology. Subject: Roundworms (Nematoda, Gordiacea, and Acanthocephali) and Corresponding Diseases.** By Ch. Wardell Stiles and Albert Hassall.
115. I. **Notes on the Detection of B. tetani.** By G. W. McCoy and Ida A. Bengtson.
   II. **The Standardization of Pituitary Extracts.** By Reynold A. Spaeth.
116. I. **The Influence of Vitamines on the Course of Pellagra.** By Carl Voegtlin.
   II. **The Chemical Composition of the Blood of Pellagrins.** By Robert C. Lewis.
   III. **The Amino Acid Fractions and Hippuric Acid in the Urine of Pellagrins.** By John R. Murlin.
   IV. **The Occurrence of Pellagra in Nursing Infants.** With observations on the chemical composition of the human milk from pellagrous mothers. By Carl Voegtlin and H. R. Harris.
117. **Filiariasis in Southern United States.** By Edward Francis.
118. **Digest of Comments on the Pharmacopœia of the United States of America and on the National Formulary for the Calendar Year Ending December 31, 1915.** By A. G. DuMez.
119. **Digest of Comments on the Pharmacopœia of the United States of America and on the National Formulary for the Calendar Year Ending December 31, 1916.** By A. G. DuMez.

PUBLIC HEALTH BULLETINS.

These bulletins are less technical in character than the preceding series. Many are popular in style and have proved valuable for distribution to the general public in connection with campaigns to improve health in various localities. Practically all of the bulletins of this series are of value to health officers, who frequently find in them the solution of local health problems. The following were issued during the year:

94. **Rural Sanitation.** A report on special studies made in 15 counties in 1914, 1915, and 1916. By L. L. Lumsden. October, 1918.
95. **Infectious Diseases of Children.** A study of 6,078 cases among immigrants with special reference to cross infection and hospital management. By J. G. Wilson. October, 1918.
96. **Transactions of the Sixteenth Annual Conference of State and Territorial Health Officers with the United States Public Health Service.** Held at Washington, D. C., June 3 and 4, 1918.
97. **Studies on the Treatment and Disposal of Industrial Wastes.** (Made under the supervision of Earle B. Phelps.)
   I. **The Treatment and Disposal of Strawboard Waste.** By Harry B. Hommon.
   II. **The Determination of Biochemical Oxygen Demand of Industrial Wastes and Sewage.** By Emery J. Theriault and Harry B. Hommon. October, 1918.

98. **Health Almanac for 1919.** Compiled by R. C. Williams.
99. **Studies of the Medical and Surgical Care of Industrial Workers.** By C. D. Selby.
100. **Studies on the Treatment and Disposal of Industrial Wastes.** (Made under the supervision of Earle B. Phelps.)
    III. **The Purification of Tannery Wastes.** By Harry B. Hommon. (Final Report of Studies. See Public Health Bulletin No. 97.)
101. **Studies of Methods for the Treatment and Disposal of Sewage.** (Made under the supervision of Earle B. Phelps.) **The Treatment of Sewage from Single Houses and Small Communities.** By Leslie C. Frank and C. P. Rhynus. April, 1919.
102. **A Home-Made Milk Refrigerator.** Simple method of constructing a satisfactory refrigerator with materials usually on hand in the home. By C. Bolduan. April, 1919.

WEEKLY PUBLIC HEALTH REPORTS.

These reports are issued every Friday and in conformity with law are distributed to "health officers," "collectors of customs," and "other sanitarians." The reports of the occurrence and prevalence of disease, together with other public health statistics, appearing each week in this series give the health officer definite information of the existence and extent of epidemics of disease and thus materially aid him in protecting the health of his community. Each issue also contains one or more timely articles in popular style on current health topics. These articles are then reprinted in large quantities. The weekly editions during the past year have averaged 13,000 copies.

REPRINTS FROM THE PUBLIC HEALTH REPORTS.

These documents are reprints of the leading articles appearing each week in the Public Health Reports as above mentioned. By reissuing them in pamphlet form it is possible to make a wide distribution at small cost. The scope and character of these reprints and their value to health officers, technical workers, and the public become evident from a reading of the following list of those issued during the fiscal year 1919:

466. **The Problem of Acute Infectious Jaundice in the United States.** By M. H. McNeill. May 10, 1918.
467. **Some Observations on the Personality of Feeble-Minded Children in the General Population.** By Walter L. Treadway. May 17, 1918.
468. **Progress in Venereal Disease Control.** By J. G. Wilson. May 24, 1918.
469. **Biological Products.** Establishments licensed for the propagation and sale of viruses, serums, toxins, and analogous products. May, 1918.
470. **Development of County Health Work.** By K. E. Miller. June 14, 1918.
471. **The Dietary Deficiency of Cereal Foods with Reference to Their Contents in "Anti-Neuritic Vitamine."** By Carl Voegtlin, G. C. Lake, and C. N. Myers. May 3, 1918.
    The Growth-Promoting Properties of Foods Derived from Corn and Wheat. By Carl Voegtlin and C. N. Myers. May 31, 1918.
    Phosphorus as an Indicator of the "Vitamine" Content of Corn and Wheat Products. By Carl Voegtlin and C. N. Myers. June 7, 1918.
472. **Qualitative and Quantitative Tests for Arsphenamine and Neo-Arsphenamine.** By C. N. Myers and A. G. Du Mez. June 21, 1918.
473. **Dried Milk Powder.** A review of British experience. June 28, 1918.
474. **State and Federal Cooperation in Combating the Venereal Diseases.** By J. G. Wilson. June 28, 1918.
475. **Control of Diseases in Establishments for the Manufacture and Loading of High Explosives.** Report of divisional committee on industrial diseases, poisons, and explosives, section of sanitation, committee on welfare work, committee on labor (including conservation and welfare of workers), advisory commission, Council of National Defense. July 5, 1918.

476. **Malaria Control.** Results obtained by a local community following antimosquito demonstration studies by the United States Public Health Service in cooperation with the International Health Board. Direction: J. E. Sparks, M. D.; advisory supervision, R. C. Derivaux and H. A. Taylor, M. D. July 12, 1918.
477. **Venereal Disease Control.** Standards for discharge of carriers. July 19, 1918.
478. **Susceptibility to Hay Fever and Its Relations to Heredity, Age, and Seasons.** By William Scheppergrell, A. M., M. D. July 19, 1918.
479. **A Portable Privy for Use in Field Service.** By T. H. D. Griffitts. July 26, 1918.
480. **The Relation of the Railroads in the South to the Problem of Malaria and Its Control.** By R. C. Derivaux. August 2, 1918.
481. **Official Control of Antipneumococcus and Antimeningococcus Serums.** By G. W. McCoy and J. P. Leake. August 9, 1918.
482. **How Industrial Fatigue May be Reduced.** Preliminary report of divisional committee on industrial fatigue, section on sanitation, national committee on welfare work, committee on labor (including conservation and welfare of workers), advisory commission, Council of National Defense. August 16, 1918.
483. **The Complement Fixation Test for Syphilis (Modified Wassermann).** Description of a method at present in use at the Hygienic Laboratory. By M. H. Neill. August 23, 1918.
484. **Industrial Morbidity Statistics.** Report of committee on industrial morbidity statistics, American Public Health Association, section on vital statistics. (To be presented at the annual meeting to be held in Chicago, Oct. 14–17, 1918.) August 30, 1918.
485. **Regulations Governing Allotment of Funds for Venereal Disease Prevention Work.** Promulgated by the Secretary of the Treasury, under which State boards of State departments of health receive the allotment of funds provided in section 6, Chapter XV, of the act approved July 9, entitled "An act making appropriations for the support of the Army for the fiscal year ending June 30, 1919." September 13, 1918.
486. **War Program of the Public Health Service.** Intended especially for extracantonment areas and war industrial centers. September 27, 1918.
487. **Sanitation of Rural Workmen's Areas.** With special reference to housing. Report of the divisional committee on village and public sanitation, section on sanitation, committee on welfare work, committee on labor (including conservation and welfare of workers), advisory commission, Council of National Defense. September 6, 1918.
488. **State and Insular Health Authorities, 1918.** Directory with data as to appropriations and publications. October 18, 1918.
489. **Carbon Tetrachloride Vapor as a Delousing Agent.** By M. H. Foster. October 25, 1918.
490. **Public Health Administration in New Mexico.** By J. W. Kerr. November 15, 1918.
491. **Winter Hibernation of Anopheles Larvae.** By T. H. D. Griffitts. November 15, 1918.
15, 1918.
492. **Disabling Sickness Among the Population of Seven Cotton-Mill Villages of South Carolina in Relation to Family Income.** By Edgar Sydenstricker, G. A. Wheeler, and Joseph Goldberger. November 22, 1918.
493. **Use of Dynamite in Antimalarial Drainage Operations.** By J. K. Hoskins and W. E. Hardenburg. November 22, 1918.
494. **City Health Officers, 1918.** Directory of those in cities of 10,000 or more population. November 29, 1918.
495. **Anopheles Crucians.** Habits of larvae and adults. By C. W. Metz, Ph. D. December 6, 1918.
496. **Treatment and Disposal of Creamery Wastes.** By Earle B. Phelps. December 6, 1918.
497. **Safe Milk for the Small Town.** By K. E. Miller. December 13, 1918.
498. **The Notifiable Diseases.** Prevalence during 1917 in cities of over 100,000. Cerebrospinal meningitis, diphtheria, gonorrhea, malaria, measles, pellagra, poliomyelitis, rabies in man, rabies in animals, scarlet fever, smallpox, syphilis, tuberculosis (pulmonary), tuberculosis (all forms), and typhoid fever. Cases reported, indicated case rates per 1,000 population, and indicated fatality rates per 100 cases. December 20, 1918.
499. **Code of Lighting for Factories, Mills, and Other Work Places.** Report of the divisional committee on lighting, section on sanitation, committee on wel-

fare work of the committee on labor, advisory commission, Council of National Defense. January 24, 1919.

500. **The Notifiable Diseases.** Diseases and conditions required to be reported in the several States. February 7, 1919.

502. **A Comparison of the Mortality Rates by Weeks During the Influenza Epidemic of 1889-90 and During the Primary Stage of the Influenza Epidemic of 1918 in 12 Cities in the United States.** December 31, 1919.

503. **The Reserve of the United States Public Health Service.** February 7, 1919.

504. **The Treatment of Sewage from Single Houses and Small Communities.** By Earle B. Phelps. February 14, 1919.

505. **The Notifiable Diseases.** Reported prevalence during 1917 in States. Anthrax, cerebrospinal meningitis, diphtheria, malaria, measles, poliomyelitis, rabies in man, Rocky Mountain spotted fever, septic sore throat, smallpox, tuberculosis (pulmonary and all forms), typhoid fever, and typhus fever. Cases and deaths reported, 1917; average number of cases reported during recent years (1912 to 1916); case rates, fatality and mortality rates, 1917. February 21, 1919.

506. **A Unified Health Service.** By B. S. Warren. February 28, 1919.

507. **A Note on the Flight of Mosquitoes Through Horizontal Water Pipes.** By W. W. King. February 28, 1919.

508. **Lethargic Encephalitis.** A notifiable disease in England. February 21, 1919.

509. **Standards for Measuring the Efficiency of Exhaust Systems in Polishing Shops.** By C. E. A. Winslow, L. Greenburg, and H. C. Angermyer. March 7, 1919.

510. **Influenza in Maryland.** Preliminary statistics of certain localities. By W. H. Frost and Edgar Sydenstricker. March 14, 1919.

511. **Mosquito Control about Cantonments and Shipyards.** By J. A. A. LePrince. March 21, 1919.

512. **Water-borne Typhoid Fever Outbreak in Herkimer, N. Y.** By Theodore Horton, chief engineer New York State Department of Health. March 28, 1919.

513. **The New Science of Industrial Physiology.** By Frederic S. Lee. April 11, 1919.

514. **Some Observations on Mental Defectiveness and Mental Retardation Among Children.** By Walter L. Treadway. April 11, 1919.

515. **The Place of "Early Treatment" in the Program of Venereal Disease Control.** April 18, 1919.

516. **Health Insurance, the Medical Profession, and the Public Health.** By B. S. Warren and Edgar Sydenstricker. April 18, 1919.

517. **Is Your Community Fit?** April 25, 1919.

518. **Mental Hygiene Leaflet for Teachers.** April 25, 1919.

519. **The Thick Blood Film Method for Malaria Diagnosis Applicable to Present Field Conditions.** By Bruce Mayne, April 25, 1919.

520. **Determination and Distribution of Arsenic in Certain Body Fluids After the Injection of Arsenobenzol, Salvarsan, and Neosalvarsan.** By C. N. Myers. May 2, 1919.

521. **Hospitals and Dispensaries for the Free Treatment of Venereal Diseases.** May 2, 1919.

522. **The Notifiable Diseases.** Prevalence in cities of 10,000 to 100,000. May 2, 1919.

523. **Anthrax and the Sterilization of Shaving Brushes.** May 9, 1919.

524. **Public Health Service Program for Nation-Wide Control of Venereal Diseases.** By C. C. Pierce. May 16, 1919.

525. **The Schick Test and Active Immunization Against Diphtheria.** May 16, 1919.

526. **Biochemical Studies of the Saliva in Pellagra.** By M. X. Sullivan and K. K. Jones. May 16, 1919.

527. **Fishes in Relation to Mosquito Control in Ponds.** By Samuel F. Hildebrand. May 23, 1919.

528. **Antenatal and Neonatal Factors in Infant Mortality.** May 23, 1919.

529. **Important Precautions in Administering Arsphenamine and Neoarsphenamine** May 23, 1919.

530. **The Dust Hazard in the Abrasive Industry.** By C. E. A. Winslow, Leonard Greenburg, and David Greenberg. May 30, 1919.

531. **War Activities of the United States Public Health Service.** By Benjamin S. Warren and Charles F. Bolduan. June 6, 1919.

532. **A Disposal Station for a Can-Privy System.** By E. B. Johnson. May 30, 1919.

533. **Pitfalls in Determining the Prophylactic or Curative Value of Bacterial Vaccines.** By G. W. McCoy. May 30, 1919.

534. **Trinitrotoluene Poisoning.** By Carl Voegtlin, C. W. Hooper, and J. M. Johnson. June 13, 1919.

535. **Infectivity of Anopheles Crucians in Nature.** The occurrence of malaria parasites in anopheles crucians in nature: Percentage of infection of anopheles quadrimaculatus and latest date found infected in northern Louisiana. By Bruce Mayne. June 20, 1919.
536. **Anopheles Crucians Wied.** As an agent in malaria transmission. By C. W. Metz. June 20, 1919.
537. **Epidemic Influenza in Foreign Countries.** By W. H. Frost and Edgar Sydenstricker. June 20, 1919.
538. **Observations on the Bacteriology of Influenza.** By Edwin O. Jordan. June 27, 1919.

KEEP WELL SERIES.

The Keep Well publications constitute a new series of health leaflets which aim to present, in popular form, important facts concerning various phases of the public health. The publications are in pocket size, 4 by 5⅜ inches, and are printed in large editions for wide distribution.

1. **The Road to Health.** A 16-page pamphlet giving concise directions for keeping well. Includes a table of average weights for men and women.
2. **Adenoids.** A brief description of what they are and how to treat them.
3. **How to avoid Tuberculosis.** The essential facts concerning the cause, recognition, and prevention of tuberculosis.
4. **Diphtheria.** How to recognize the disease. How to keep from catching it. How to treat those who do catch it.

(Others in preparation.)

MISCELLANEOUS PUBLICATIONS.

This series comprises certain documents of the service, such as administrative regulations, lists of reference, and others not properly classified under the preceding series.

18. **Manual of the Mental Examination of Aliens.** Prepared under direction of the Surgeon General. 1918.
19. **Instructions to Medical Officers in Charge of State Control of Venereal Diseases.** 1918.

POSTERS.

Use the Handkerchief. Illustrated poster. Urges the use of the handkerchief by the public when coughing or sneezing in order to prevent as much as possible the spread of colds, influenza, pneumonia, and tuberculosis.

Influenza Poster. Contains information relative to the manner of spread of this disease, with suggestions for its control through the cooperation of the public.

Keep Well. A hanging card, giving 18 simple rules of health.

RECOMMENDATIONS.

The section of Public Health Education should be expanded and specific appropriation should be provided in order to carry on educational work through posters, exhibits, moving pictures, lectures, and extension activities carried on in cooperation with State and local boards of health, such as special health campaigns, health exhibits, etc.

DIVISION OF MARINE HOSPITALS AND RELIEF.

RELIEF STATIONS.

The activities of the marine hospital division have expanded more during the past fiscal year than ever before in the history of the service. This expansion is due primarily to the fact that patients who are compensable under the provisions of the war-risk insurance act are beneficiaries of the Public Health Service. On March 3, 1919, Congress passed Public Act 326, Sixty-fifth Congress, authorizing the Secretary of the Treasury to provide hospital and sanatorium facilities for discharged sick and disabled soldiers, sailors, and marines; Army and Navy nurses, male and female; patients of the War Risk Insurance Bureau; and other legal beneficiaries of the Public Health Service.

To adequately provide the greatest possible excellence in the standards of care and treatment provided for beneficiaries of the service, the United States has been divided into 14 districts. In nominal charge of each district is an officer of the Public Health Service, known as the district supervisor. In his organization there are State supervisors and inspectors, hospitalization units in larger centers, smaller subsidiary units in smaller centers, and a designated examiner in each county. The hospital units in the larger centers are formed about a nucleus consisting of a full-time or part-time representative of the service; a modern civilian hospital, together with its staff; and such additional consultant specialists as may be deemed necessary. By this plan the greatest number of patients receive attention in the most efficacious manner. It is not necessary to send patients any considerable distance from their homes for examination, patients are hospitalized within a reasonable distance of their homes so that relatives may visit them, and each patient receives careful consideration before he is referred to a hospital operated by the service where he is to receive prolonged treatment, if such is necessary. While this scheme was originated primarily for War Risk Insurance patients, it is believed that it will be possible to provide for all other beneficiaries of the service in the same manner.

Medical officers of the Public Health Service are now making physical examinations upon requests made by the district vocational officers of the Federal Board for Vocational Education, of disabled men discharged from the military forces desiring to enter upon a course of vocational training, to determine the feasibility of their entering upon such a course.

During the latter part of the year the Canadian Government requested the Secretary of the Treasury to extend to discharged Canadian soldiers resident in the United States the facilities of the hospitals of the Public Health Service. In accordance with this request the Secretary of the Treasury authorized the admission of discharged Canadian soldiers to the hospitals of the service, reimbursement to be made at a per diem rate the same as is now charged

for foreign seamen at first-class stations and contract rates at contract hospitals.

During the fiscal year ending June 30, 1919, the service operated 20 marine hospitals, all of which were owned by the Government, and in addition maintained a sanatorium at Fort Stanton, N. Mex., for the care and treatment of patients suffering from tuberculosis. The marine hospital at Cairo, Ill., was reopened June 1, 1919. Ten new hospitals, known as United States Public Health Service Hospitals, were opened during the last three months of the fiscal year, in the following order:

Palo Alto, Calif. (*United States Army base hospital, Camp Fremont*).—Ground leased; bed capacity, 1,000; opened April 1.

Greenville, S. C. (*United States Army base hospital, Camp Sevier*).—Ground leased; bed capacity, 1,235; opened April 5.

Alexandria, La. (*United States Army base hospital, Camp Beauregard*).—Ground leased; bed capacity, 1,000; opened April 18.

Dansville, N. Y. (*United States Army General Hospital No. 13*).—Leased; bed capacity, 250; opened May 1.

Norfolk, Va. (*Sewells Point*) (*United States Army Quartermaster terminal*).—Owned; bed capacity, 213; opened June 2.

Chicago, Ill. (*United States Army General Hospital No. 32*).—Leased; bed capacity, 550; opened June 13.

Corpus Christi, Tex. (*United States Army General Hospital No. 15*).—Owned; bed capacity, 235; opened June 22.

Washington, D. C.—Leased; bed capacity, 80; opened June 24.

Jacksonville, Fla. (*United States Army base hospital, Camp Joseph E. Johnston*).—Ground leased; bed capacity, 830; opened June 27.

East Norfolk, Mass. (*United States Army General Hospital No. 34*).—Leased; bed capacity, 300; opened June 30.

There were 118 other relief stations maintained under the authorization of T. D. 37671. During the latter part of the fiscal year plans were perfected and partially put into operation for a marked increase in the number of relief stations, particularly for the benefit of Bureau of War Risk Insurance patients.

RELIEF TO SEAMEN AND OTHER PATIENTS.

There were 93,719 patients treated at the various marine hospitals and relief stations of the service during the year, including the patients treated at the tuberculosis sanatorium at Fort Stanton, N. Mex. This number also includes patients treated by local physicians (93 in number) who were appointed to furnish professional services during the year to members of certain Coast Guard stations. Of the above-mentioned number 38,355 patients were treated in hospitals a total of 757,018 days, and 55,364 patients were treated at dispensaries a total of 104,763 times. In addition to the foregoing, medical officers detailed for duty on board various vessels of the Coast Guard furnished a great deal of medical relief both to beneficiaries of the service and to the natives of Alaska.

PHYSICAL EXAMINATIONS.

The medical officers of the service made 41,185 physical examinations of candidates for various positions during the year, as noted under the special headings given below:

United States Coast Guard.—Three thousand three hundred and ninety-seven applicants were examined, of whom 924 were rejected.

Post Office Department.—One thousand two hundred and eighty-eight applicants were examined, of whom 273 were rejected.

Coast and Geodetic Survey.—Four hundred and seventy-six applicants were examined, of whom 91 were rejected.

Lighthouse Service.—Two hundred and thirty-three applicants were examined, of whom 12 were rejected.

Civil Service Commission.—One thousand seven hundred and sixty-two applicants were examined, of whom 95 were rejected.

Philippine Islands.—Four applicants were examined and passed.

Alaska Engineering Commission.—Seven applicants were examined, of whom one was rejected.

United States Navy.—Thirty-one applicants were examined, of whom two were rejected.

United States Army.—One hundred and twenty-four applicants were examined, of whom two were rejected.

Merchant seamen of the United States.—Ten thousand three hundred and six applicants were examined, of which number 908 were rejected.

Foreign seamen.—One thousand seven hundred and forty-nine foreign seamen were examined for service, of whom 80 were rejected.

United States Employees' Compensation Commission.—Twenty-nine persons were examined on account of the United States Employees' Compensation Commission, of whom eight were rejected.

Bureau of War Risk Insurance.—Nine thousand six hundred and sixteen persons were examined on account of the Bureau of War Risk Insurance.

United States Shipping Board.—One thousand three hundred and eight applicants were examined, of whom 536 were rejected.

PURVEYING DEPOT.

The following statistics show the transactions of the purveying depot during the fiscal year:

Supplies purchased.

Alcohol and wines	$1,289.39
Adding machines	738.25
Arsphenamine	35,000.00
Bandages, gauze, cotton, etc	21,358.56
Beds	4,905.00
Bedspreads	20,869.95
Blankets	16,782.50
Bottles	949.20
Books and journals	1,101.03
Chinaware	55,826.76
Corks	326.73
Dry goods	947.50
Drugs and chemicals	46,071.85
Electric fans	1,537.82
Electric lamps	2,545.15
Furniture	9,114.32
Garden and lawn implements	1,637.72
Hardware	496.53
Hospital equipment	22,102.72
Hospital suits	7,720.00
Kitchen and dining room supplies and equipment	16,730.04
Laboratory equipment and supplies	2,208.06

Ligatures	$3,119.70
Miscellaneous	2,903.43
Mattresses	7,470.00
Nightshirts	2,756.25
Packing material	1,029.60
Pillowcases	8,875.80
Plasters	2,745.83
Refrigerators	4,950.88
Rubber goods	4,542.31
Sheets, bed	13,124.92
Steel lockers	2,386.60
Surgical instruments and appliances	10,647.02
Tablecloth	2,650.00
Toweling	2,010.00
Thermometers	1,624.00
Typewriters	3,742.10
X-ray equipment	291.26
X-ray supplies	7,658.19
Total	352,786.96

Credit.

By bills paid direct from funds:		
Care of seamen	$1,493.64	
Maintenance of marine hospitals	73,693.24	
Furniture	2,160.38	
Suppressing Spanish influenza	10,860.03	
Furniture and equipment, 1918	11,759.59	
Venereal diseases	23,000.00	
Field investigation	161.08	
Quarantine service	2,890.12	
Pay of personnel and maintenance of hospitals	145,158.61	
		271,176.69
		81,610.27
By transfer of funds to the credit of purveying depot supplies, Public Health Service, on account of articles furnished from stock:		
Contingent expenses, Treasury Department, miscellaneous items	19.59	
Field investigation	4.20	
Care of seamen	4.38	
Treasury relief room	8.31	
Studies of rural sanitation	149.92	
Shipping Board, salaries and expenses	1.73	
Armament and fortifications, War Department	521.07	
Protecting health military forces	240.72	
Coast Guard	49.61	
Salaries and expenses, War Risk Bureau	156.71	
Quarantine service	367.97	
Collecting the war revenue	69.11	
Preventing spread of epidemic diseases	1,118.56	
Venereal diseases	285.29	
Interstate quarantine	807.70	
		3,804.87
Net expenditures chargeable to the appropriation for purveying depot supplies, Public Health Service, 1919 (in amount of $80,000)		77,805.40
Operating expenses:		
Salaries	11,223.76	
Equipment (furniture, etc.)	239.96	
Cartage of supplies	644.04	
Removal of ashes and rubbish	24.00	
		12,131.76
Total net expenditures		89,937.16

Tuberculosis Sanitorium at Fort Stanton, N. Mex.

REPORT FOR FISCAL YEAR ENDING JUNE 30, 1919, BY W. A. KORN, SURGEON.

General information.

Number of patients present July 1, 1918	236
Number of patients admitted during the year	364
Total number treated during the year [1]	600
Number of patients discharged during the year	400
Number of deaths (included in the preceding item)	81
Number of bodies interred in the sanatorium cemetery	68
Number of patients present June 30, 1919	200
Maximum number of patients during the year	299
Minimum number of patients during the year	181
Total number of days' treatment furnished patients	90,085
Number of officers and attendants	108
Number of patients who left against advice	129
Number of patients who deserted	10
Number of patients discharged for causes affecting discipline	5
Number of patients transferred to other stations	6
Number of patients transferred to other sanatoria by Bureau of War Risk Insurance	34
Number of physical examinations during the year	1,682
Number of patients who returned at their own expense	15
Number of patients retransferred	7
Total number readmitted	22

Average duration of stay of patients discharged, 9 months 19 days.
Minimum stay, 1 day.
Maximum stay, 10 years 7 months 20 days.

Prognosis on arrival of patients discharged.

Favorable for apparent cure	1
Favorable for arrest	137
Favorable	73
Favorable for prolongation of life by living under proper conditions	127
Doubtful	6
Unfavorable	30
Not examined	15
Nontuberculous	10
No prognosis	1
Total	400

Patients discharged during the year, with stage of disease and result of treatment.

	Apparently cured.	Arrested.	Apparently arrested.	Quiescent.	Improved.	Unimproved.	Died.	Total.
Incipient	10	28	1	8	9	8	3	67
Moderately advanced		25	1	9	9	15	3	62
Far advanced		7	1	18	81	69	69	245
Nontuberculous								10
Not examined						9	6	15
Still under treatment [2]								1
Total	10	60	3	35	99	101	81	400
Average stay in days	72	159	389	436	245	148	614	

[1] Of the patients admitted, 289 were beneficiaries of the Bureau of War Risk Insurance.
[2] One patient was discharged as a seaman and admitted as War Risk patient.

Sixty and one-tenth per cent of the cases were far advanced when admitted. Of the 81 who died, 22 remained over 2 years, 12 between 1 and 2 years, 16 between 6 and 12 months, 8 between 3 and 6 months, and 23 less than 3 months. Five necropsies were performed.

The causes of death were as follows:

Tuberculosis of lungs with usual terminal degenerative change of viscera	42
Tuberculosis of lungs with pulmonary hemorrhage	10
Tuberculosis of lungs with pulmonary hemorrhage and pneumonia	2
Tuberculosis of lungs with pulmonary hemorrhage and influenza	1
Tuberculosis of lungs with influenza	13
Tuberculosis of lungs with pneumonia	5
Tuberculosis of lungs with valvular disease of heart	1
Tuberculosis of lungs with gangrene of lung	1
Tuberculosis of lungs with convulsions	1
Tuberculosis with bone disease and amputation of arm	1
Tuberculosis of lungs with tubercular meningitis	1
Tuberculosis of lungs with mental delusions (fixed)	1
Tuberculosis of lungs with chronic Brights disease	1
Tuberculosis of lungs with pneumo-thorax	1
Total	81

Treatment by artificial pneumo-thorax has been continued in selected cases, with generally beneficial results.

Patients under treatment July 1, 1918	11
Patients beginning treatment during year	2
Total	13
Total treatments given	99
Largest number to one patient	14

Eye, ear, nose, and throat department.

Total treatments for year	8,729

Most of the eye cases were refraction, acute and chronic conjunctivitis, and foreign bodies in conjunctiva and cornea.

Ear cases were principally tuberculosis of middle ear.

Nasal cases were principally chronic catarrhal conditions of various types, the majority complicated by deflections of septum and hypertrophied or deformed turbinates.

The principal throat conditions were tubercular laryngitis and pharyngitis, acute and chronic tonsillitis, and chronic catarrh of pharynx and nasopharynx.

LABORATORY.

The routine work of the laboratory included 1,893 sputum examinations, 441 urinalyses, 5 blood counts, 1 each examination of stomach contents and feces for tuberculosis.

A class in heliotherapy was formed early in the year but dwindled rapidly to such a small number that no conclusions of any value could be drawn.

Proteal treatment in tuberculosis has been carried out in a number of cases, and while no final conclusions have been reached, the results thus far have not been encouraging.

The dispensary has continued, as heretofore, to supply the station with soap for the kitchens to the amount of 400 gallons. Liquid soap, 26 gallons; baking powder, 57 pounds; lemon extract, 6 gallons; and vanilla extract, 10 gallons.

The treatment of patients of the Bureau of War Risk Insurance has added greatly to the work of the station, but in spite of the handicaps under which the station labors, the results attained have been generally satisfactory.

The employment of Chinese in the various kitchens has been a source of great satisfaction, and complaints which formerly were numerous have practically ceased.

In the drives which have been made during the past year for the Red Cross, United War Workers, and the various Liberty loans, the station has gone over the top in each instance.

Earnings of patients and ex-patients during the fiscal year ended June 30, 1919.

Patients	$12,451.18
Ex-patients	3,101.67
Total	15,552.85

Private enterprises of patients during the year.

Occupation.	Hours.	Amount.	Occupation.	Hours.	Amount.
Tailor shop	2,428	$552.20	Clerk in post store	2,920	$480.00
Barber shop	1,383	427.20	Clubroom attendants	2,920	416.00
Shoemaker	834	323.15	Poultry farm	1,460	250.00
Watchmaker	127	59.00	Seamen's social club room receipts	.....	832.00
Photographer	245	29.00			
Strikers	7,274	1,168.00	Total	19,591	4,557.10

In addition to the above there were miscellaneous details of 3,629 hours and walking exercises of 3,973 hours.

AMUSEMENTS.

As in the past, the amusement association, an organization composed of officers, attendants, and patients, has provided amusements, consisting principally of motion-picture performances. On March 16, 1919, the Army Y. M. C. A. took over the activities of the association and is now furnishing two feature pictures each week. The association, however, remains intact, having loaned their property, which consists of an up-to-date motion-picture equipment, to the Y. M. C. A. Forty-one picture shows were presented by the association and 30 by the Y. M. C. A. during the year. During the past 12 months the association received in the form of donations, receipts from special shows, and electric piano, $1,141.77, and expended $915.60. It now has on hand a balance of $226.17, a fund sufficiently large to start operation at any time that the Y. M. C. A. may withdraw. The amusement hall provided by the Government is now too small to accommodate the crowds and steps have been taken to give outdoor performances, which will provide relief during the summer months, but some steps will be necessary to comfortably take care of the crowds during the winter months. The work of the association is supplemented by the Seamen's Social Club and the Sphynx Club, social organizations composed of patients and attendants. These clubs provide for Fourth of July and Christmas entertainments and give numerous smokers. All of this appeals to the

patients and adds to their contentment. The Seamen's Social Club have outfitted a small building with equipment for pool playing and other light amusement. It is their intention to erect an extension to this building at an early date.

The library consists at present of 3,021 volumes. Seven hundred and twenty-five books have been discarded because of bad condition. Three hundred and fifty-two books were donated by the American Library Association. During the year 7,680 books and 15,860 magazines were issued to patients and attendants.

Items of expenditures.

Item.		Per annum.	Per patient per day.
Salaries:			
Medical officers		$15,486.94	$0.1719
Office force		5,815.71	.0646
Nurses and orderlies		7,711.91	.0856
Cooks and waiters		11,366.77	.1262
Power plant		3,366.05	.0374
Laundry		1,614.90	.0179
Mechanics		3,379.66	.0375
Dairy		2,485.88	.0276
Farm		4,388.70	.0487
Range		2,885.50	.0320
Corral		547.50	.0061
Hogs		540.00	.0060
Electrician		309.10	.0034
General		6,253.57	.0694
Total		66,152.19	.7343
Materials:			
Subsistence supplies		54,041.93	.5999
Electrical supplies		672.11	.0075
Table and kitchenware		508.93	.0057
Laundry supplies (materials and machinery)		10,052.79	.1116
Fuel (wood and coal)		28,143.58	.3124
Power plant		891.11	.0099
Freight and transportation		6,103.19	.0677
Building materials (maintenance)		714.74	.0079
Carpenters', painters', and plumbers' tools		66.56	.0007
Dairy supplies		1,387.85	.0154
Forage		39,525.50	.4388
Range supplies		5,128.72	.0569
Farm and garden		632.83	.0070
Hog yard		33.55	.0004
Burial of patients		550.80	.0061
Miscellaneous supplies		4,448.62	.0494
Total		152,902.81	1.6973
Supplies from purveying depot (incomplete accounting)		12,883.50	.1430
Total expenditure from bureau funds		231,938.50	2.5746
Supplies paid for from funds under control of Supervising Architect:			
Mechanical equipment for public buildings	$12,995.81	$0.1442	
Repairs and preservation of public buildings	4,368.93	.0485	
Furniture and repairs to same	26.80	.0003	
		17,391.54	.1930
Total expenditures for year		249,330.04	2.7676
Reimbursements:			
Bureau of War Risk Insurance	$43,448.00	$0.4823	
United States Coast Guard patients	466.00	.0052	
Foreign seamen	547.50	.0061	
Sale of subsistence supplies to officers and attendants	2,852.44	.0316	
Sale of grain sacks	140.40	.0016	
Sale of beef hides	907.43	.0101	
Sale of hogs	3,377.06	.0375	
Sale of old rubber	3.70	.....	
Sale of scrap iron	48.82	.0005	
Total reimbursements		51,791.35	.5749
Net expenditures		197,538.69	2.1927

Items of expenditures—Continued.

Item.		Per annum.	Per patient per day.
Rations furnished:			
American seamen	58,917		
Foreign seamen	365		
Coast Guard	1,653		
Bureau of War Risk Insurance beneficiaries	29,130		
United States Army	20		
		90,085	
Acting assistant surgeons, nurses, clerks, attendants, etc		27,643	
Total		117,728	
Average cost of purchased ration			$0.4201
Average cost of station raised ration			.4351
Total cost of ration			.8552

Annual report of farm department for the fiscal year ending June 30, 1919.

Alfalfa hay:		
Labor and rations—		
Farm attendants		$703.19
Sanatorium attendants		141.07
Total cost, labor and rations		844.26
Proportion corral expense—expense of all horses used in haying		277.41
Proportion of account No. 7—general overhead expense, including repairs to farm machinery and office expense		15.69
Supplies as per voucher—repairs to wagons and machinery, rope, etc		217.34
Total cost of alfalfa hay		1,354.70
Alfalfa hay produced:		
August, 1918, 40,200 pounds, at $26 per ton	$522.60	
September, 1918, 37,650 pounds, at $29 per ton	545.92	
October, 1918, 21,300 pounds, at $29 per ton	308.85	
June, 1919, 32,730 pounds, at $25 per ton	409.12	
Total credit, 65.94 tons		1,786.49
Earning on alfalfa hay		431.79
Other hay, barley, and rye:		
Labor and rations, farm attendants		154.28
Proportion corral expense—expense of all horses used in seeding crop		122.78
Proportion of account 7A—plowing, fertilizing, and harrowing		32.48
Proportion of account No. 7—general overhead expense, including repairs to farm machinery and office expense		4.28
Supplies as per vouchers, including proportion of repairs to farm machinery, seed rye and barley		215.56
Total expense		529.38
Hay produced, none; 1918 crop total failure; deficit		529.38
Ensilage:		
Labor and rations—		
Farm attendants		749.07
Sanatorium attendants		7.78
Total labor and rations		756.85
Proportion corral expense—expense of all horses used		449.15
Proportion of account 7A—plowing, harrowing, and fertilizing		48.76
Proportion of account No. 7—general overhead expense, including repairs to farm machinery and office expense		17.12
Supplies as per vouchers—seed corn, repairs to machinery, etc		188.65
Total expense		1,460.53
Ensilage produced: October, 1918, 53,550 pounds, or 26.775 tons, at cost price, $54.55		1,460.53

The corn and sorghum crop of 1918 was a failure, due to drought. A large part of corn crop was destroyed by hot winds, so a large acreage was replanted, but this planting was so late and the drought so extended that only a few loads of corn and sorghum were gathered. All ensilage is charged to the dairy at the actual cost of production. The above costs include the cost of cultivation and seeding of the crop now in the fields and which will be credited to the present fiscal year.

Annual report of hog department for fiscal year ended June 30, 1919.

Labor and rations:	
Farm attendants	$1,664.71
Sanatorium attendants	81.15
Total labor and rations	1,745.86
Proportion of corral costs, including feed and care of all horses used	323.47
Feed used for hogs	11,811.39
Proportion of account 1F—cost of feed, storage, and distribution	63.70
Proportion of account No. 7—general overhead expense, repairs to farm machinery, office expense, and other general expense	196.86
Supplies purchased as shown by voucher	20.29
Total cost	14,161.57
Total credits, as shown below	15,777.48
Total earnings	1,615.91
Credits—meat products and hogs sold:	
250 pigs sold Oct. 15, 1918	$932.06
202 pigs sold Mar. 13, 1919	2,445.00
317 pounds dressed chicken, at 36 cents	114.12
34½ dozen eggs, at 40 cents	13.80
Proportion of sacks sold	35.10
785 pounds fresh pork, at 25⅞ cents	203.12
25,351 pounds fresh pork, at 28 cents	7,098.28
6,705 pounds fresh pork, at 27 cents	1,810.35
915 pounds sugar-cured ham, at 35 cents	320.25
275 pounds sugar-cured ham, at 31⅝ cents	86.97
1,336 pounds sugar-cured ham, at 33½ cents	447.56
806 pounds sugar-cured ham, at 37 cents	298.22
478 pounds sugar-cured ham, at 38 cents	181.54
106 pounds sugar-cured shoulder, at 39 cents	41.34
350 pounds sugar-cured shoulder, at 35 cents	122.50
708 pounds sugar-cured shoulder, at 31⅝ cents	246.67
1,067 pounds sugar-cured shoulder, at 33½ cents	357.45
305 pounds sugar-cured shoulder, at 37 cents	112.85
230 pounds sugar-cured shoulder, at 38 cents	87.40
280 pounds sugar-cured bacon, at 45 cents	126.00
165 pounds sugar-cured bacon, at 38 cents	62.70
710 pounds sugar-cured bacon, at 35¾ cents	253.82
275 pounds sugar-cured bacon, at 38½ cents	105.88
285 pounds sugar-cured bacon, at 42 cents	119.70
390 pounds salt pork, at 30 cents	117.00
135 pounds salt pork, at 28 cents	37.80
Total credits	15,777.48

Average cost per pound of pork produced, 0.2545 cent.
Average price received per pound, 0.293 cent.

Cost of garden for the fiscal year ended June 30, 1919.

Labor and rations:	
Farm attendants	$854.10
Sanatorium attendants	2.75
Total labor and ration charge	856.85
Proportion of corral costs, including feed and care of all horses used in garden	373.21
Proportion of account 7A—plowing, harrowing, and fertilizing	16.24
Proportion of account No. 7—general overhead expense, including cost of repairs to farm implements, expense of office clerk, and other general expenses	17.11
Supplies purchased, as shown by vouchers, including garden seeds, proportion of wagon and harness repairs, and farm tools	164.39
Total cost	1,427.80
Credits—garden products:	
Beets—	
2,190 pounds, at 6 cents	131.40
430 pounds, at 7 cents	30.10
Lettuce—	
139 pounds, at 18 cents	25.02
110 pounds, at 20 cents	22.00
Spinach—	
354 pounds, at 12 cents	42.48
44 pounds, at 10 cents	4.40
Turnips, 514 pounds, at 5 cents	25.70
Radishes, 6 pounds, at 22 cents	1.32
Cabbage—	
9,903 pounds, at 5 cents	495.15
17,677 pounds, at 8 cents	1,414.16
Rhubarb—	
24 pounds, at 10 cents	2.40
45 pounds, at 12 cents	5.40
Cauliflower—	
680 pounds, at 12 cents	81.60
1,220 pounds, at 20 cents	244.00
Onions, dry—	
1,796 pounds, at 6 cents	107.76
3,177 pounds, at 8 cents	254.16
Onions, green, 344 pounds, at 14 cents	48.16
Carrots, 118 pounds, at 6 cents	7.08
Squash, 745 pounds, at 7 cents	52.15
Corn, green, 60 dozen, at 35 cents	21.00
Apples—	
619 pounds, at 3 cents	18.57
813 pounds, at 4 cents	32.52
	3,066.53
Earning on garden products	1,638.73

Annual report of dairy department for fiscal year ended June 30, 1919.

Labor and rations:	
Dairy and farm attendants	$4,729.45
Sanatorium attendants	147.94
Total labor and rations	4,877.39
Proportion of corral expense, including feed and care of all horses used	451.27
Feed in dairy used	14,867.52
Ensilage used	1,460.53
Proportion of account 1F—cost of feed storage and distribution	63.70
Proportion of account No. 7—general overhead expenses	288.15

Supplies purchased, as per voucher	$819.34
Live stock purchased, 2 bulls	625.00
Total cost of dairy	23,452.90
Total credits, as shown below	22,399.58
Deficit	1,053.32

Cost of milk per gallon, 51.46 cents.

Credits—milk and beef produced:	
44,105 gallons milk, at 49.08 cents per gallon	21,646.73
Beef produced from slaughter of 37 bull calves, 5 cows, and 1 bull	682.65
Proportion of sacks sold	70.20
Total credits	22,399.58

Annual report of range department for the fiscal year ended June 30, 1919.

Labor and rations:	
Range hands, farm attendants, and expert farmer	$4,990.87
Sanatorium force	47.24
Total cost of labor and rations	5,038.11
Proportion of corral costs, including feed and care of all horses used on range	2,770.79
Feed used on range—cake, hay, and grain fed to range cattle and bulls	3,982.59
Proportion of account 1F—cost of feed storage and distribution	63.68
Proportion of account No. 7—general overhead expenses, including cost of repairs to farm machinery and vehicles, expense of office clerk, and other general expense	168.33
Supplies as per voucher, including 2 months' pasturage for 500 head of cattle on Indian reservation, at $125 per month	450.49
Live stock purchased, 15 head bulls; expense includes cost of bulls, cost of caretaker, cost of feed in transit, and expenses of expert farmer	5,099.36
Cost of boundary fence and two cross fences to make bull pasture in north pasture	664.06
Total cost	18,237.41
Total credits, as shown below	14,905.88
Deficit	3,331.53

Range products:	
93,089 pounds beef from slaughter of 246 head, at 15 cents	13,963.35
3,685 pounds hide sold Feb. 7, 1919, at 24⅝ cents	907.43
Proportion of sacks sold	35.10
Total credits	14,905.88

Cost of beef in cold storage, 18.578 cents per pound.

System of symbols for farm accounts, effective July 1, 1918.

Symbol.	Department and work.
1	All forage accounts.
1A	Alfalfa hay.
1H	Other hay.
1C	Silage.
1F	Purchased forage, distribution, storage, etc.
2	Range herd.
3	Dairy herd.
4	Garden.
5	Hog herd.
6	Horse corral.
7	Overhead expense on farm accounts not otherwise distributed; includes repairs to farm wagons, plows, manure spreader, general farm machinery, office expense, etc.

7A.....Plowing, harrowing, and general preparation of land, to be distributed to proper account at end of year.
8.....Roads and bridges.
9.....All labor loaned to sanatorium.
10.....Fences.
10A....Range fences.
10B....Farm fences.
10C....New division range fence.
10D.....New boundary range fence.

Recapitulation of farm accounts for the fiscal year ended June 30, 1919.

	Total labor, farm, and sanatorium forces.	Corral expenses.	Feed expenses.	Total labor, rations, and feed.			Total labor, feed, corral 1F, 7, 7A.	Supplies, live stock.	Total.
				District 1F.	District 7A.	District 7.			
Alfalfa hay (1A)	$844.26	$277.41	.....	$1,121.67	.....	$15.69	$1,137.36	$217.34	$1,354.70
Other hay (1H)	154.28	122.78	.....	277.06	$32.48	4.28	313.82	215.56	529.38
Ensilage (1C)	756.85	449.15	.....	1,206.00	48.76	17.12	1,271.88	188.65	.....
Range (2)	5,038.11	2,770.79	$3,982.59	11,791.49	63.68	168.33	12,023.50	5,549.85	18,237.41
Dairy (3)	4,877.39	451.27	14,867.52	20,196.18	63.70	288.15	20,548.03	1,444.34	23,452.90
Garden (4)	856.85	373.21	.....	1,230.06	16.24	17.11	1,263.41	164.39	1,427.80
Hog (5)	1,745.86	323.47	11,811.39	13,880.72	63.70	196.86	14,141.28	20.29	14,161.57
Roads (8)	144.46	25.38	.....	169.84	.....	1.43	171.27	32.22	203.49
Sanatorium (9)	1,210.85	3,473.02	.....	4,683.87	.....	65.63	4,749.50	178.23	4,927.73
Forage distribution (1F)	167.02	24.06	.....	191.08	.....	.....	.....	.....	.....
Overhead (7)	763.10	21.49	.....	784.59	.....	.....	.....	.....	.....
Plowing (7A)	41.42	56.06	.....	97.48	.....	.....	.....	.....	.....
Boundary fence (10D)	74.41	13.10	.....	87.51	.....	1.43	88.94	.....	.....
Division fence (10C)	441.27	125.29	.....	566.56	.....	8.56	575.12	.....	.....
Corral expense (6)	1,071.15	.....	7,435.33	.....	.....	.....	.....	.....	.....
	18,187.28	8,506.48	38,096.83	56,284.11	288.59	784.59	56,284.11	8,010.87	64,294.98

	Farm operations.	
	Expenses.	Credits.
Alfalfa hay	$1,354.70	$1,786.49
Other hay	529.38	.....
Range	18,237.41	14,905.88
Dairy	23,452.90	22,399.58
Garden	1,427.80	3,066.53
Hogs	14,161.57	15,777.48
Total expenses	59,163.76	57,935.96
Total credit	57,935.96	.....
Total loss	1,227.80	.....

It will be noted on the recapitulation sheet that the total expense for all operations was $64,294.98, of which the sum of $59,163.76 covers the actual expense of the various departments of farm work, and the sum of $5,131.22 covers the cost of road work and all labor performed by the farm force for the sanatorium.

The total labor and ration charge for the year was $18,187.28, of which the sum of $672.83 was for work performed by the sanatorium force for the farm. This charge includes all work done by carpenters, plumbers, painters, or utility men on farm machinery or buildings.

The summary shows that the total expense of all actual farm work was $59,163.76, and the total credits from all departments was $57,935.96. This leaves a deficit for the year of $1,227.80 for the entire farm operations.

In general, the cause of this deficit was the very arid conditions that prevailed throuhgout the southwest for the last two or three years. Dry-farming crops were total failures, due to the lack of rain. The sorghum and corn crops grown for ensilage were failures, as will be noted on the detailed report covering these crops.

The first crop of alfalfa was pastured off by range cattle, horses, hogs, and dairy cattle. This was done to save a large number of stock that would otherwise have perished from starvation. No credit is taken for this first crop nor is any charge made against any of the departments for the pasturage. The second and third crops of alfalfa were very light, as no water was available for irrigation. At times there was no flowing water in the Bonito for several weeks at a time, and the question of obtaining a supply of stock water was a serious one for a while.

The dairy department shows a loss of $1,053.32 for the year. This was due largely to the very heavy feed bill. All forage was purchased at unprecedented prices, as very little was raised on the station. There was no green pasture until the middle and latter parts of July. Milk production fell off at a time when the station was crowded with patients and when the demand for milk was great, so increased rations were fed with the view of increasing production. Many cows, nearly dry, were kept under feed in order to meet the demand for milk. Again, two registered bulls were purchased for the dairy at a cost of $625, which is included in the cost for this year. Ordinarily, the cost of bulls would be charged out over a period of years instead of at one time.

Milk bottles were purchased during the year, a large number of which are on hand at the present time. One new milk cooler was purchased during the year and the old one was overhauled at considerable expense. It was necessary to purchase dairy suits and other supplies, which increased the expense materially. The cost of milk for this year was 51.46 cents per gallon, which is an increase of 2.38 cents over the cost for last year.

All milk produced was credited to the dairy at 49.08 cents per gallon, which was far below the market price of milk in this part of the country. No credit is taken for the increase of the herd.

The hog department shows a small earning for the year. Feed to the amount of $11,811.39 was used, and this was all purchased at high prices. During the early part of last year the hogs were as drought stricken as the crops, and it was necessary to sell 250 pigs at auction to reduce the herd. These pigs were in poor condition, but at that only brought about half their value. Later in the year 202 pigs were sold at a good price, but these were excellent animals and in good condition. The curing of meat on quite an extensive scale was undertaken during the fall and winter with considerable success, considering the poor facilities. The cost of pork per pound, all classes figured together, was 25.45 cents. The average price received for the pork produced was 29.3 cents per pound. The price of fresh pork as credited was far below the market prices.

The range department shows a deficit of $3,331.53 for the year. Due to the drought, it was necessary to pasture about 500 head of cattle on the Indian reservation. The cost of two months' pasture is included in this year. The gathering of these cattle and returning them to the station pastures added to the year's expenses.

Fifteen registered range bulls were purchased late in May and their cost is included in this year's expense. Ordinarily, this expense would be spread out over the number of years the bulls would be in service, instead of charging them in a lump sum.

Authority was asked of the bureau to sell about 14 bulls and several months' accumulation of beef hides, but authority to do so was received too late to enable us to sell them during this year. The credits for these sales would have helped to reduce the deficit to a considerable extent. The construction of a part of the boundary fence and the cost of constructing two cross fences to make a bull pasture is included in the expense.

The cost of beef for the year was 18.578 cents per pound, an increase of 3.578 cents per pound over the selling price.

It should be remembered that all farm labor received an increase of pay equal to about 30 per cent, and that the cost of rations was higher than on preceding years, all of which has increased the cost of farm operation to a considerable extent.

Mention should be made of the fact that we had intended selling about 200 range cows during the last year, which would have increased our earnings to a considerable extent. It was, however, thought advisable to hold these cattle, as there was some probability of enlarging the capacity of the station and the cattle could then be used for beef.

The past year has been a very hard and trying one, but, considering the many difficulties that have had to be overcome, it is my opinion that we have come through it very creditably.

The present year promises to be a good one, both for the stock and for the farm, and the earning should be large enough to make up for the poor showing of last year.

DIVISION OF VENEREAL DISEASES.

The division of venereal diseases was created by the Chamberlain-Kahn Act, which became law on the 9th of July, 1918.

THE CHAMBERLAIN-KAHN ACT.

Under the provisions of the Chamberlain-Kahn Act an Interdepartmental Social Hygiene Board was created, consisting of the Secretaries of War, Navy, and Treasury as ex-officio members, and of the Surgeons General of War, Navy, and Public Health Service or representatives approved by the respective Secretaries.

The duties of this board are fourfold:

1. To recommend rules and regulations for the expenditure of money allotted to the States to assist them in caring for civilians whose detention, isolation, quarantine, or commitment to institutions may be found necessary for the protection of the military and naval forces of the United States against venereal diseases. To carry on this work $1,000,000 was appropriated for the two fiscal years of 1919 and 1920, to be spent under the joint direction of the Secretaries of War and Navy.

2. To select certain universities, colleges, or other suitable institutions or organizations, to which allotment of money may be made for the purpose of discovering more effective medical measures in the prevention and treatment of venereal diseases; and for the purpose of discovering and developing more effective educational measures in the prevention of venereal diseases, and for the purpose of sociological and psychological research of the problems involved. The sum of $400,000 was appropriated annually for two years to cover these allotments—$300,000 for the development of educational measures, $100,000 for the discovery of more effective medical measures.

3. To recommend to the Secretaries of the Treasury, War, and Navy general measures to promote the correlation and efficiency of the work in venereal-disease control in their departments.

4. To direct the expenditure of the sum of $100,000 to be used for any purpose for which any of the appropriations made by the act are available.

The Chamberlain-Kahn Act also provided for the establishment of a division of venereal diseases in the Bureau of the Public Health Service to be under the charge of a commissioned medical officer of the United States Public Health Service, which officer shall be an assistant surgeon general.

The duties of this division are threefold:

1. To study and investigate the cause, treatment, and prevention of venereal diseases under rules and regulations prescribed by the Secretary of the Treasury.

2. To cooperate with State boards or departments of health for the prevention and control of such diseases within the States.

3. To control and prevent the spread of these diseases in interstate traffic.

For the administration of the division of venereal diseases the sum of $200,000 was appropriated for the fiscal year ending June 30, 1919.

The sum of $1,000,000 was appropriated annually for two years to be allotted to the States for the use of their respective boards of health in the prevention, control, and treatment of venereal diseases. The allotment to each State is to be made in accordance with the rules and regulations prescribed by the Secretary of the Treasury in the proportion which its population bears to the population of the continental United States. Except for the fiscal year ending June 30, 1919, the allotment to any State depends on the appropriation of an equal amount by the State for the prevention, control, and treatment of venereal diseases. The word "State" in the act includes the District of Columbia.

REGULATIONS GOVERNING ALLOTMENTS TO STATES.

The regulations governing the allotment of funds for venereal-disease prevention work were promulgated by the Secretary of the Treasury and published in the Public Health Reports for September 13, 1918. They are as follows:

State boards or departments of health receiving their respective allotments shall agree to the following cooperative measures under which their appropriation shall be expended:

1. There shall be put into operation through a legislative enactment or a State board of health regulation having the effect of law regulations in conformity with the suggestions approved by the Surgeons General of the Army, Navy, and United States Public Health Service for the prevention of venereal diseases. The minimum requirements of these rules are:

(*a*) Venereal diseases must be reported to the local health authorities in accordance with State regulations approved by the United States Public Health Service.

(*b*) Penalty shall be imposed upon physicians or others required to report venereal infections for failure to do so.

(*c*) Cases shall be investigated, so far as practicable, to discover and control sources of infection.

(*d*) The spread of venereal diseases should be declared unlawful.

(*e*) Provision shall be made for control of infected persons that do not cooperate in protecting others from infection.

(*f*) The travel of venereally infected persons within the State shall be controlled by State boards of health by definite regulations that will conform in general to the interstate regulations to be established.

(*g*) Patients shall be given a printed circular of instructions informing them of the necessity of measures to prevent the spread of infection and of the importance of continuing treatment.

2. An officer of the Public Health Service shall be assigned to each State receiving an allotment for the general purpose of cooperating with the State health officer in supervising the venereal-control work in the State. This officer shall be selected by the State health authorities and approved and recommended for appointment by the Surgeon General of the Public Health Service. The salary of this officer will be paid by the State out of the funds made available from the allotment, except a nominal sum of $10 per month, which will be paid by the United States Public Health Service. In those States where a bureau of venereal diseases has already been established, with a full-time medical officer in charge, the present incumbent may be recommended for appointment by the State health officer, and, with the approval of the Surgeon General, United States Public Health Service, he will be appointed as an officer of the Public Health Service. The general plan of work for the State bureau of venereal diseases will be:

(*a*) Securing reports of venereal infections from physicians and others required to report in accordance with State laws.

(*b*) Suppressive measures, including the isolation and treatment in detention hospitals of infected persons who are unable or unwilling to take measures to prevent their becoming a menace to others, the establishment of free clinics for the treatment of venereal diseases, and the elimination of conditions favorable to the spread of venereal infections.

(*c*) Extension of facilities for early diagnosis and treatment through laboratory facilities for exact diagnosis and scientific determination of condition before release as noninfectious in accordance with the standardized procedure that will be prescribed by the United States Public Health Service.

(*d*) Educational measures to include informing the general public, as well as infected individuals, in regard to the nature and manner of spread of venereal diseases and the measures that should be taken to combat them.

(*e*) Cooperation with local civil authorities in their efforts to suppress public and clandestine prostitution. The clinics referred to under (*b*) will form centers from which the other measures may be conducted by discovering the presence of infections, the securing of data for enforcing the regulations for reporting these diseases, and the institution of educational measures appropriate to particular communities. The immediate reduction in venereal-disease foci resulting from clinic treatment will result in a marked decrease in the prevalence of such diseases in both the military and civil population.

(*f*) Keeping of accurate detailed records of all the activities of the venereal-disease work. These will include careful records of each case treated, amount of arsphenamine used, final results, and disposition made of patients. Copies of these records must be forwarded to the Surgeon General, United States Public Health Service, as a report at such intervals as they may be requested, and in accordance with instructions regarding the form of report.

3. Local funds that may be available, or that may become available from legislative appropriations or any other source for venereal-disease control, shall be used by the State or city health authorities having jurisdiction for the extension of the work, and such local funds must not be conserved through the expenditure of the funds that are allotted by the Congress through the United States Public Health Service.

4. In extension of the educational measures the State's health authorities and its bureau of venereal diseases shall exert their efforts and influence for the organization of a State venereal-disease committee that will be unofficial in character, but a valuable cooperative agency for furthering the comprehensive plan for nation-wide venereal-disease control.

5. The State health authorities shall take such measures as may be found practicable and decided upon in conference between the Public Health Service and State board of health representatives for the purpose of securing such additional legislation as may be required for the development of control of the spread of venereal infections. Action shall be taken to limit or suppress the activities of advertising "specialists" and quacks by prosecuting them under State laws, or such other measures as may be applicable and effective.

6. In expending the sum allotted a State, the rules and regulations to be promulgated by the Interdepartmental Social Hygiene Board for the expenditure of the $1,000,000 civilian quarantine and isolation fund under control of the Secretary of War and Secretary of the Navy shall be given consideration by Public Health Service and State board of health representatives, so that the military necessities of each particular State may receive the consideration due its relative importance, and so that funds from the two sources may be correlated.

7. The State allotment shall be expended along general standard lines for all States and in accordance with an accounting system, to be forwarded by the Interdepartmental Social Hygiene Board, approximately as follows:

(*a*) For treatment of infected persons in hospitals, clinics, and other institutions, including arsphenamine and other drugs, 50 per cent of the allotment.

(*b*) In carrying out educational measures, 20 per cent.

(*c*) In carrying out repressive measures, 20 per cent.

(*d*) In general administration and other activities of venereal-disease control work, 10 per cent.

(This distribution is provisional and subject to modification after conference and agreement between each State and the United States Public Health Service to meet best the needs of the particular State.)

8. In carrying out the general Government program the administrative organization of the United States Public Health Service will be available at all times to State organizations in cooperative work, and assistance will be given to States whenever possible through the detail of employees, the securing of arsphenamine, providing literature for the educational measures, and in such other ways as may be found practicable as the work develops.

ALLOTMENTS TO STATES.

At the close of the fiscal year 1918–19, 46 States have adopted regulations, either by statute or State board of health regulations, having the force of law similar to those outlined by the Secretary of the Treasury, and have received their allotments from the Chamberlain-Kahn funds.[1] A list of these States, giving the amount of the allotment made to each and the date on which checks covering these amounts were mailed to each State, follows:

State.	Allotment.	Date.	State.	Allotment.	Date.
Alabama	$23,247.15	Oct. 1, 1918	Nebraska	$12,962.75	Dec. 4, 1918
Arizona	2,221.91	Nov. 12, 1918	New Hampshire	4,681.54	Oct. 3, 1918
Arkansas	17,118.74	Oct. 28, 1918	New Jersey	27,586.22	Oct. 21, 1918
California	25,850.72	Oct. 1, 1918	New Mexico	3,558.70	May 17, 1919
Colorado	8,687.66	Oct. 3, 1918	New York	99,090.89	Oct. 1, 1918
Connecticut	12,120.57	Oct. 4, 1918	North Carolina	23,988.61	Nov. 14, 1918
Delaware	2,199.81	Oct. 1, 1918	North Dakota	6,274.24	Oct. 21, 1918
Florida	8,183.11	Nov. 15, 1918	Ohio	51,832.16	Oct. 15, 1918
Georgia	28,368.56	Oct. 1, 1918	Oklahoma	18,017.99	Oct. 28, 1918
Idaho	3,540.13	Mar. 13, 1919	Oregon	7,314.87	Oct. 24, 1918
Illinois	61,307.51	Oct. 1, 1918	Rhode Island	5,899.72	Oct. 15, 1918
Indiana	29,366.20	Oct. 5, 1918	South Carolina	16,476.71	Oct. 3, 1918
Iowa	24,189.58	Oct. 4, 1918	South Dakota	6,348.52	Oct. 7, 1918
Kansas	18,385.42	Oct. 2, 1918	Tennessee	23,754.87	June 26, 1919
Kentucky	24,897.77	Do.	Texas	42,366.49	Oct. 15, 1918
Louisiana	18,009.65	Oct. 29, 1918	Utah	4,059.39	Feb. 25, 1919
Maine	8,071.68	Oct. 15, 1918	Vermont	3,870.26	Nov. 20, 1918
Maryland	14,084.09	Oct. 24, 1918	Virginia	22,415.58	Nov. 2, 1918
Massachusetts	36,602.51	Oct. 15, 1918	Washington	12,416.68	Oct. 21, 1918
Michigan	30,554.57	Dec. 23, 1918	West Virginia	13,277.04	Oct. 4, 1918
Minnesota	22,568.85	Oct. 15, 1918	Wisconsin	25,375.70	Oct. 2, 1918
Mississippi	19,539.74	Do.	Wyoming	1,587.05	Do.
Missouri	35,807.91	June 14, 1919			
Montana	4,088.76	Oct. 4, 1918	Total	912,168.58	

The allotments not accepted are as follows:

District of Columbia	$3,599.66
Nevada	890.21
Pennsylvania	83,341.55
Total	87,831.42

At the close of the year all but 4 of the 46 States which received their allotments have an organized bureau for venereal-disease control with a service officer in charge of the work. These four States are Idaho, Missouri, New Mexico, and Tennessee. (Since June 30 Missouri and Tennessee have organized bureaus.) The 42 States having organized bureaus are:

Alabama.
Arizona.
Arkansas.
California.
Colorado.
Connecticut.
Delaware.
Florida.
Georgia.
Illinois.
Indiana.
Iowa.
Kansas.
Kentucky.
Louisiana.
Maine.
Massachusetts.
Michigan.
Minnesota.
Mississippi.
Missouri.
Montana.
Nebraska.
New Hampshire.
New Jersey.
New York.
North Carolina.
North Dakota.
Ohio.
Oklahoma.
Rhode Island.
South Carolina.
South Dakota.
Tennessee.
Texas.
Utah.
Vermont.
Virginia.
Washington.
West Virginia.
Wisconsin.
Wyoming.

[1] For tables analyzing State laws and regulations see p. 289.

Of the 46 States which received their allotments for the past fiscal year, 34 have appropriated funds to entitle them to receive the Federal allotment for 1919–20. The amounts of these appropriations will be found on page 288 of this report.

INTERSTATE QUARANTINE REGULATIONS.

Regulations for the interstate travel of persons infected with venereal diseases were promulgated November 19, 1918, as amendment No. 7 to the Public Health Service Interstate Quarantine Regulations of 1916. Under the provisions of these regulations gonorrhea, syphilis, and chancroid are declared contagious and infectious, and persons who have been exposed to these diseases or infected with them shall be regarded as contagious or infectious.

The regulations governing the actions of such persons are as follows:

1. Any person infected with syphilis, gonorrhea, or chancroid who wishes to engage in interstate travel must first obtain a permit, in writing, from the local health officer under whose jurisdiction he resides. This permit shall state that, in the opinion of the health officer, such travel is not dangerous to the public health.

2. Any person infected with syphilis, gonorrhea, or chancroid who wishes to change his residence from one State to another must first obtain his release, in writing, from the local health officer. He shall inform the local health officer as to the place where he intends to reside and shall agree, in writing, to report in person to the proper health officer within one week after arrival at his new residence.

It shall be the duty of the health officer who issues the release to notify the health officer promptly under whose jurisdiction the infected person is to enter of its issue. This release shall contain the name and address of the infected person.

The receiving health officer shall, in turn, report the arrival of the infected person to the health officer who issued his release and notify the State health officer of his State that a person infected with venereal disease has entered his jurisdiction.

3. Any person infected with syphilis, gonorrhea, or chancroid who wishes to engage in interstate travel or change his residence shall agree to continue treatment, under the direction of a reputable physician, until the health officer shall have certified that he is no longer infectious. A certificate of noninfection shall not be issued until the health officer or his accredited representative shall have complied with the State board of health requirements for release of infected persons.

DIVISION PERSONNEL.

Asst. Surg. Gen. C. C. Pierce has been in charge of the division of venereal diseases throughout the year, with one commissioned officer and three section chiefs as his assistants.

In addition to the officers mentioned there have been employed by the division for office work 1 administrative assistant, 1 nurse, 10 assistant directors of educational work, 1 abstractor and correspondent, 1 financial clerk, 1 artist, 1 statistician, 1 library assistant, 3 file clerks, 6 clerks, 22 stenographers, 6 typists, 2 multigraph operators, and 5 messengers.

The field personnel, including the State venereal-disease control officers, include 107 acting assistant surgeons, 18 scientific assistants, 1 technical assistant, 9 regional consultants, 3 bacteriologists, 6 nurses, 1 lecturer, 5 stenographers, and 2 attendants.

THE VENEREAL-DISEASE PROGRAM.

The program of attack which has been developed by the division for the control of venereal diseases has been divided into three main phases—medical, educational, and law-enforcement. The work of the division during the first year has been largely one of organization and of securing the cooperation of the State boards of health in developing and putting into operation the threefold program. In order to facilitate the work the division has used, in addition to the State venereal-disease control officers, regional consultants who have been specially trained to act as liaison officers between the States and the division and who have rendered valuable assistance in stimulating the work in the various States and in eliminating possible causes of misunderstanding.

The proper correlation of the three phases of the program in the various States has been one of the most important problems which the division and the State boards have had to solve. In order that adequate medical facilities may be provided for the treatment of persons having venereal diseases, funds must be appropriated by city and State authorities. In order that the spread of venereal diseases through prostitution may be controlled, adequate laws for the suppression of vice must be passed.

MEDICAL MEASURES.

The medical phase of the program involves the establishment of clinics, securing hospital facilities for persons infected with venereal diseases, making available laboratory facilities for the scientific diagnosis of venereal diseases, securing wide distribution of arsphenamine or similar products, treating persons infected in accordance with the best modern methods, obtaining the support of the entire medical profession in reporting their cases to the State boards of health in accordance with law, urging medical and allied colleges to improve and enlarge the courses offered their students in the diagnosis and treatment of venereal diseases, and securing the cooperation of druggists in refusing to dispense venereal nostrums and directing prospective purchasers of such remedies to venereal-disease clinics or reputable physicians.

CLINICS.

Purpose.—Clinics established by the service and the State boards of health have a fourfold purpose:

1. To provide measures for the discovery, treatment, and, where necessary, control of individuals infected.
2. To provide measures for the protection of individuals not yet infected.
3. To collect data and keep records which will form a basis for the study of venereal infections and for the discovery of new methods for combating these diseases.
4. To give physicians an opportunity to discuss syphilis and gonorrhea in consultation, to give special opportunities for the instruction of students and nurses, and for the education of the public in the nature of these diseases.

Standards for clinics.—In its program for establishing clinics, standards governing their personnel, equipment, and methods of procedure have been decided upon by the service and the State boards of health and are embodied in Miscellaneous Publication No. 19, "Instructions to Medical Officers in Charge of State Control of Venereal Diseases." According to these standards, venereal-disease clinics are to be organized under the direct supervision of the medical officer, acting as the representative of the State board of health, who shall advise the service of the organization of the clinic. These clinics should have a close relation to the city and county health officers and the local medical profession, and to the community in general.

1. *Personnel.*—At least two physicians whose character, training, and ability will make the best grade of work possible shall be attached to each clinic. No clinic should be established where such men can not be secured. One of these physicians shall be the director of the clinic and the other the assistant director. They shall supervise the diagnosis and treatment of all cases and shall arrange for the proper treatment of patients who are temporarily unable to attend. Other local physicians shall be encouraged to attend the clinic for their own instruction as well as for the more adequate treatment of the patients. The director shall be responsible to the medical officer for the conduct of the clinic, for its results, and for the safety of its property when there is no separate fiscal agent.

There shall be at least one female nurse to assist at the examination and treatment of female patients. After careful instruction, she may, if qualified, give the simpler routine treatments. She may also take female case histories.

There shall be at least one female social worker to see patients on their first visit and investigate their social relations and home conditions. She shall endeavor to bring in for examination the members of the patient's family who are likely to have been infected. She shall follow up all patients who absent themselves from the clinic, and she shall especially endeavor to make possible the rehabilitation of persons of previously immoral life. Social history records of each case should be kept.

There shall be at least one male attendant, who shall assist with male patients. There shall also be a clerk.

When it is impossible to secure the services of separate individuals for all of these positions, it may be possible to secure one or more on part time. All persons, however, paid or unpaid, shall be under the director of the clinic and shall conform to these regulations.

Strict discipline shall be maintained among the personnel of the clinic. A dignified and professional attitude must constantly be observed with the patients. Joking upon sex subjects should be unthinkable; undue familiarity of any kind will be sufficient cause for instant dismissal. The medical officer and the director of the clinic shall endeavor to promote a hopeful and inspiring atmosphere, maintaining toward the patients a humane attitude combined with the scientific spirit.

2. *Location.*—The clinic shall be in a decent location. There should be not less than two rooms; if possible there should be separate waiting rooms for male and female patients; if large enough there should also be separate treatment rooms for male and female patients. The races shall be separated or not, according to local custom.

3. *Clinic hours.*—The clinic shall be open daily for as long a period as necessary to treat all cases, and on at least four evenings each week after 5 p. m. It is especially desirable that women patients should not be required to attend evening clinics. If this is necessary, they should be treated first in order that they may leave for home as early as possible. Where separate waiting rooms can not be provided for women, they should, if possible, have separate hours.

4. *Laboratory.*—The medical officer shall make arrangements with a qualified local laboratory or with the State board of health for the examination of specimens. Smears for gonococci and blood specimens for Wassermanns shall be procured in all cases, both for diagnosis and as a guide to treatment. Subsequently, similar specimens shall be taken in all cases before final discharge. In order to discover as many as possible of the latent cases, every case of gonorrhea shall have one or more blood Wassermanns taken, and every clinical case of syphilis shall have prostatic (or cervical and urethral) smears examined for gonococci. Every genital sore and suspicious sore elsewhere shall be examined repeatedly for spirochetes, and all such cases as are negative shall have a blood Wassermann taken weekly for six weeks before being pronounced nonsyphilitic. Uranalysis shall be made before every administration of arsphenamine.

5. *Records.*—Accurate and legible records on forms provided for the purpose shall be kept of all cases applying for diagnosis or treatment. This is necessary not only because of their value to the State board of health and to the clinic, but because they are desired for use in future studies of venereal diseases. These records shall include history, symptoms, and physical signs on admission, condition, and treatment at each visit, and final result; also reports of all laboratory and other special examinations, and the reports of the social service worker, visiting nurse, and others dealing with the case, including a report on the source of infection, home conditions, and to what agencies, if any, the case was referred.

6. *Educational measures.*—The doctor, nurse, and social-service worker shall fully inform all patients of the seriousness of their disease, the necessity of treatment until cured, and the precautions necessary to prevent the spread of their disease to others. In addition they shall give the patient literature on the venereal diseases approved by the State board of health and the Public Health Service. Occasionally lectures may profitably be given. Posters stating essential facts concerning the venereal infections should be posted on the walls of waiting rooms. Clinics which reach large numbers of foreigners should secure posters and literature printed in the languages of their patients.

7. *Hospital cases.*—The medical officer shall make arrangements with local hospitals, or, if necessary, in the nearest large city, for the care of patients needing hospital treatment. Urological and gynecological operations, and intraspinal injections for syphilis of the nervous system shall not be attempted except in cases of the greatest emergency, unless authorized in writing by the medical officer, and then only after being transferred to a hospital approved by him. Milder cases, needing short periods of bed treatment, may be accommodated in a nursing home or in their own homes under the care of a visiting nurse.

142671°—19——16

8. *Regulations regarding arsphenamine.*—Arsphenamine shall be administered to every case of syphilis where there are no contraindications, but not until after a positive Wassermann has been obtained, or the spirochetes found, or until the medical officer has authorized it in writing, because the case is clinically one of undoubted syphilis. The results shall be checked up by frequent Wassermann examinations. Arsphenamine shall be given only by the director of the clinic or a qualified physician under his direction.

Requisitions for arsphenamine shall be made by the medical officer and countersigned by the State health officer. Every dose of arsphenamine shall be accounted for on blank forms. In no instance will the division furnish arsphenamine for distribution to private physicians.

9. *Discharge of patients.*—The standards for the discharge of carriers are given in Reprint No. 477 from the Public Health Reports, July 19, 1918, pages 1189–1190. The discharge of a venereal patient as cured or noninfectious is an act to be seriously regarded both from the standpoint of public health and human happiness, and the examining physician should be fully aware of the responsibility resting upon him.

10. *Standards of treatment for venereal diseases.*—Recognized standards and approved methods of diagnosis and treatment should be followed. The "Manual of Treatment of the Venereal Diseases," issued by the Surgeon General of the Army and revised for the bureau to include venereal infections in woman, is recommended as a guide.

11. *Publicity.*—Every veneral disease clinic should be given proper publicity by explaining its purpose to the local medical profession, officials, police authorities, draft boards, officials of rescue societies, Y. M. C. A's, associated charities, and other similar organizations. Signs placed in public toilets have proved a valuable measure, and in the larger cities an advertisement in the newspapers may be placed with those of the advertising "specialists," if they occur.

12. *Financing the clinics.*—It is the desire of the Service and the State boards of health that clinics be financed as far as possible with local funds. For this reason it is necessary for the State venereal-disease control officer to visit the communities in which it is desirable that clinics be established, interview the local authorities, and the influential and public-spirited citizens and organizations of the town. An estimate of the probable expense of the clinic should always be given at this conference. In order that each town shall be made to feel that the clinic really belongs to it and is for its service, it is highly desirable that a responsible and broad-minded business man shall act as its fiscal officer.

Administration and equipment of clinics in operation.—The data available to show how extensively the clinics established have adopted the standards recommended are incomplete. It is believed, however, that they are being generally followed as closely as local conditions will permit. In May, questionnaires were sent to each venereal-disease control officer, which were to be filled out by the directors of all clinics. These questionnaires were returned by 34 States from 202 clinics.

The following is a summary of the data given:

Free clinics	157
Pay clinics	8
Clinics, both pay and free	37
Total	202
Full-time clinics	4
Clinics open eight hours or more a day	21
Clinics open less than eight hours	177
Total	202
Clinics having night hours	126
Clinics having separate hours for men and women	51
In day clinic	51
In night clinic	47
Clinics having separate division for gonorrhea and syphilis	65
Clinics having separate vaginitis division for children	20
Clinics reporting a social-service division	162
Workers in social-service division—	
Physicians	96
Nurses	162
Lay workers	131
Clinics reporting nurses engaged in clinic	152
Number of nurses engaged	268
Clinics reporting nurses with special training	51
Number of specially-trained nurses engaged	75
Clinics reporting free beds for hospitalization	62
Number of hospital beds available	1,532
Clinics reporting detention homes operating in cooperation with the clinic	89
Bed capacity of detention homes	3,995
Detention homes accepting female carriers	24
Detention homes accepting both male and female carriers	65
Clinics doing reconstruction work	49
Clinics having radiating clinics	15
Clinics doing educational work	165

The supervision of these clinics with their source of funds, as reported on the questionnaires received, are shown on the accompanying table, which may be summarized as follows:

Supervision and funds.	Number of clinics.
Public Health Service	7
Public Health Service and State	7
Public Health Service, and State with other supervision and funds	35
Public Health Service, with other supervision and funds—no State supervision	15
State	11
State, with other supervision and funds—no Public Health Service supervision	66
County, city, private, Chamberlain-Kahn, all or in part	57
Red Cross	1
Total	199

Three clinics made no report on supervision and funds.

The following summary of the 86 clinics receiving Chamberlain-Kahn funds is of interest:

Public Health Service and State, with other supervision and funds	31
State, with other supervision and funds—no Public Health Service supervision	34
County, city, or private supervision and funds	21
Total	86

Inasmuch as all clinics receiving Chamberlain-Kahn funds, whether in the form of arsphenamine, personnel, or other financial support, are indirectly under the direction of the Public Health Service, the service supervision might be correctly extended to all 86. It is probable also that a number of the clinics not reporting Chamberlain-Kahn funds are receiving it indirectly through the State board of health, in the form of arsphenamine or in other ways. A study of the table should, therefore, be made with these reservations in mind.

Report of the auspices under which 200 venereal-disease clinics are operating, showing Chamberlain-Kahn funds, July 1, 1918–June 30, 1919.

Name.	United States Public Health Service.	State.	County.	City.	Private.	Chamberlain-Kahn fund.
Total	64	118	26	102	51	86
Alabama:						
Huntsville	×	×	×			
Mobile	×	×	×			
Montgomery	×					
Talladega		×	×			×
Tuscaloosa		×				
Arkansas:						
Hot Springs	×	×			×	×
Little Rock	×	×				
Pine Bluff	×	×			×	
Texarkana					×	
California:						
Bakersfield	×	×				
Los Angeles—						
711 Eastlake St		×	×	×		
304 North Boyle St		×			×	×
737 Broadway, North		×				×
Temple Block		×			×	
Oakland					×	×
Pasadena		×			×	×
Sacramento		×				×
San Bernardino	×	×				×
San Diego		×	×	×		
San Francisco—						
344 14th St		×			×	
3700 California St		×				
1083 Mission St		×		×		×
Sacramento and Webster Sts		×				×
3d and Parnassus Sts		×			×	×
Scott and Post Sts					×	
901 Porter Ave		×			×	×
Santa Barbara		×				×
Stockton		×		×		
San Jose		×			×	×
Fresno		×		×		×
Connecticut:						
New Haven		×		×		
New London		×		×		×
Stanford						×
Georgia:						
Atlanta	×				×	×
Columbus	×			×		
Indiana:						
Anderson				×	×	×
Columbus	×	×		×		
East Chicago		×		×		×
Evansville	×	×		×		×
Indianapolis—						
Corner Market and Senate Sts		×		×		×
Locker, Margart St	×	×		×		×
Michigan City	×			×		
Muncie				×		×
Terre Haute	×	×	×	×		×
Iowa:						
Carroll					×	
Clinton	×	×				
Council Bluffs		×	×	×		×
Davenport	×	×	×			
Des Moines					×	
Sioux City		×				×

Report of the auspices under which 200 venereal clinics are operating, showing Chamberlain-Kahn funds, July 1, 1918–June 30, 1919—Continued.

Name.	United States Public Health Service.	State.	County.	City.	Private.	Chamberlain-Kahn fund.
Kansas:						
Atchison	×	×				×
Eldorado	×	×	×	×		×
Leavenworth						
Rosedale		×				×
Topeka		×		×		×
Wichita				×		×
Louisiana:						
Alexandria		×	×	×		×
New Orleans—						
Pyrtania St					×	
Tulane Ave		×				
Maine:						
Augusta		×				×
Bangor		×			×	
Bath	×	×		×		
Calais					×	
Portland—						
Congress Ave					×	
1151 Brighton Ave				×		
65 India St		×				
Maryland:						
Baltimore—						
Johns Hopkins Hospital					×	
1220 McCulloh St				×		
Calvert and Saratoga Sts	×	×				×
Paco and Fayette Sts		×		×	×	
Cumberland		×		×		×
Michigan:						
Battle Creek		×				
Bay City				×	×	
Detroit—						
33 Mullett St				×		
500 John R. St					×	
Flint				×		
Grand Rapids		×		×		
Jackson				×		
Kalamazoo				×	×	
Minnesota:						
Duluth		×		×		
Minneapolis—						
City Hospital		×		×		
Sixth St				×		
Washington and Union Sts		×				×
St. Paul		×			×	×
Mississippi:						
Columbia		×			×	
Hattiesburg	×	×				
Jackson		×				
Laurel		×				
Meridian		×	×	×		
Natchez		×	×	×		
Missouri:						
Joplin				×		
Kansas City		×		×		
St. Louis				×		
Montana:						
Billings			×	×		×
Butte			×			
Nebraska:						
Lincoln				×		×
Omaha—						
Fourteenth and Davenport Sts					×	×
1716 Dodge St		×				×
New Jersey:						
Asbury Park				×	×	
Bayonne					×	
Camden	×	×				×
Jersey City				×		×
Newark	×			×		
Orange					×	
Plainfield	×			×		
Trenton	×			×		

Report of the auspices under which 200 venereal-disease clinics are operating, showing Chamberlain-Kahn funds, July 1, 1918–June 30, 1919—Continued.

Name.	United States Public Health Service.	State.	County.	City.	Private.	Chamberlain-Kahn fund.
New York:						
Albany					×	×
Amsterdam		×		×		
Batavia		×		×		×
Binghamton		×		×		
Buffalo	×	×		×		
Dunkirk		×				×
Gloversville		×		×		
Ithaca		×		×		
Jamestown				×		×
Johnstown				×		
Kingston				×		×
Middleton		×		×		
Niagara Falls		×		×		
Oswego	×			×		
Poughkeepsie		×		×		
Rochester—						
82 Chestnut St			×			
501 West Main St		×		×	×	
160 Baden St		×		×	×	×
Rome				×		
Schenectady		×		×		
Syracuse		×		×	×	
Troy		×				
Utica		×				
Yonkers		×		×		
North Carolina:						
Asheville		×		×		×
Charlotte		×		×		
Fayetteville	×	×	×	×		×
Rocky Mount	×	×		×		
Samarcand		×				×
Wilmington		×	×	×		×
Winston-Salem	×			×		×
Ohio:						
Akron	×	×		×		×
Alliance				×	×	
Chillicothe	×	×	×		×	
Cincinnati—						
General Hospital		×			×	
514 Maine St	×	×		×		×
625 Kenyon Ave					×	
Cleveland—						
Lakeside Ave. (G. U.)					×	
Lakeside Ave. (Syphilis)					×	
Scranton Road					×	×
Columbus		×		×		
Dayton	×					
Hamilton	×	×		×		×
Lima	×	×	×	×		×
Lorain	×	×		×		
Portsmouth		×		×		
Springfield				×		
Toledo				×		
Youngstown	×	×		×	×	×
Oklahoma:						
Ardmore	×	×	×	×		
Chickasha	×					
El Reno	×					
Enid		×				
Holdenville		×				
Hugo	×	×				
Lawton	×	×				×
Miami						×
Muskogee	×	×				
Oklahoma City	×	×				
Picher—						
Comell Hospital Building				×		×
206 Cornell St	×	×		×		×
Tulsa		×	×			×
Oregon:						
Portland			×	×	×	
Rhode Island:						
Pawtucket	×	×			×	×
Providence—						
Eaton St	×	×		×		×
Eddy St	×	×			×	×
Broad St	×	×			×	×

Report of the auspices under which 200 venereal-disease clinics are operating, showing Chamberlain-Kahn funds, July 1, 1918–June 30, 1919—Continued.

Name.	United States Public Health Service.	State.	County.	City.	Private.	Chamberlain-Kahn fund.
South Carolina:						
Charleston	×			×		×
Columbia	×				×	×
Florence				×		×
Greenville	×			×		×
Orangeburg				×	×	×
Spartanburg	×		×	×		×
South Dakota:						
Aberdeen						×
Texas:						
Austin				×		
El Paso		×	×	×		×
Galveston	×	×		×		×
Houston		×		×		
Utah:						
Salt Lake City—						
159 Regent St	×	×				×
Twenty-first and State Sts			×			×
Ogden			×	×		
Washington:						
Seattle				×		
Spokane				×		
West Virginia:						
Bluefield	×					
Charleston	×					
Clarksburg	×	×		×		
Davis	×				×	×
Elkins					×	×
Fairmont		×				×
Huntington	×					
Parkersburg	×					×
Wheeling	×					

Establishment of clinics—Prior to the 1st of July, 1918, the Public Health Service and the American Red Cross were operating 25 clinics for the free treatment of venereal diseases in the following extracantonment zones:

Alexandria, La
Anniston, Ala.
Atlanta, Ga.
Chattanooga, Tenn.
Charlotte, N. C.
Chillicothe, Ohio.
Augusta, Ga.
Columbia, S. C.
Des Moines, Iowa.
El Paso, Tex.
Fort Worth, Tex.
Greenville, S. C.
Hattiesburg, Miss.
Houston, Tex.
Jacksonville, Fla.
Louisville, Ky.
Leavenworth, Kans.
Macon, Ga.
Montgomery, Ala.
Newport News, Va.
Petersburg, Va.
Portsmouth, Va.
San Antonio, Tex.
Spartanburg, S. C.
Waco, Tex.

These clinics were under the direct supervision of the service officer having charge of the sanitation of the area. The Red Cross furnished necessary equipment and certain personnel, including laboratory technicians and nurses. In some instances it also provided arsphenamine. The Public Health Service furnished the necessary medical officers. With the establishment of the division, the control of these clinics was taken over, and they have remained under service control until the close of the year, when they are being transferred to State and municipal authorities.

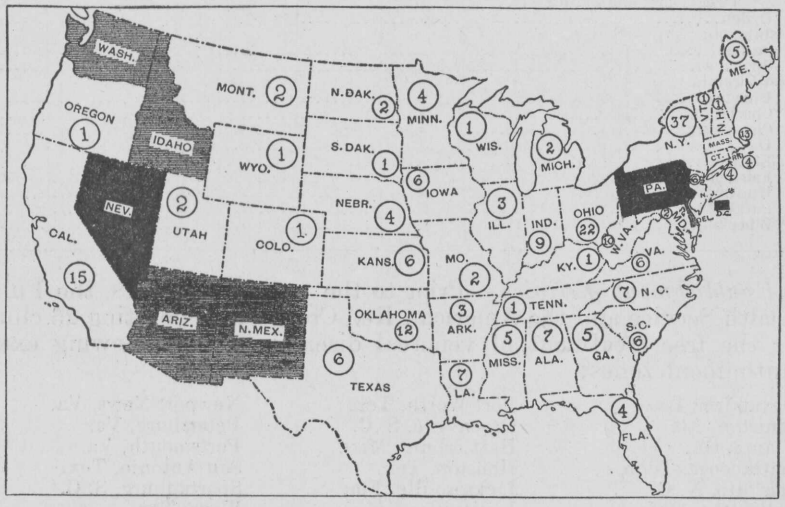
At the close of the fiscal year there are in active operation under Federal and State supervision approximately 237 clinics for the free diagnosis and treatment of venereal infections. Of these, 145 have been established during the year. Of the remaining 92, 25 are the

Government clinics in extra-cantonment zones, and the others by receiving Federal funds have come under service and State supervision. The map below shows the distribution of these clinics by States.

Clinic reports.—The service has continually urged upon the State venereal-disease officers and the clinic physicians the importance of rendering accurate reports. Some difficulty has been encountered in deciding upon a standard form to be used by clinics which shall furnish data that will be of value for research purposes and which at the same time will not require an undue amount of clerical work in keeping the clinic records. Several forms have been tried out, and it is believed that the form now in use furnishes a satisfactory basis for a standard. With this standard form in general use, the problem of securing accurate reports will be greatly simplified.

MAP SHOWING STATES HAVING CLINICS UNDER THE JOINT CONTROL OF THE STATE BOARDS OF HEALTH AND THE U.S P.H.S.

JULY 1, 1918 - JUNE 30, 1919



☐ STATES WHICH HAVE ACCEPTED THE CHAMBERLAIN-KAHN ALLOTMENT AND WHICH HAVE ESTABLISHED CLINICS.
▨ STATES WHICH HAVE ACCEPTED THE CHAMBERLAIN-KAHN ALLOTMENT BUT WHICH HAVE NOT ESTABLISHED CLINICS.
■ STATES WHICH HAVE NOT ACCEPTED THE CHAMBERLAIN-KAHN ALLOTMENT.
○ NUMBER OF CLINICS

The following table has been compiled from the records available, showing 64,164 persons coming under treatment in 167 of the clinics under the joint control of the Public Health Service and the State boards of health. This table may be summarized as follows:

Persons under treatment July 1, 1918		5,072
Persons admitted since July 1, 1918		59,092
Total persons coming under treatment		64,164
Persons discharged as—		
Cured	1,932	
Probably cured	5,424	
Noninfectious but not cured	6,922	
Total persons discharged		14,278

Persons discontinuing treatment—	
With permission	10,091
Without permission	15,147
Total persons discontinuing treatment	25,238
Persons remaining under treatment June 30, 1919	24,648
Total	64,164

Report of persons coming under treatment at clinics operating under the joint control of the Public Health Service and the State boards of health July 1, 1918–June 30, 1919.

States and clinics.	Total persons coming under treatment.	Persons under treatment July 1, 1918.	Admitted since July 1, 1918.	Discharged as—			Discontinuing treatment—		Remaining under treatment June 30, 1919.	Months covered by report.
				Cured.	Probably cured.	Noninfectious but not cured.	With permission.	Without permission.		
United States	64,164	5,072	59,092	1,932	5,424	6,922	10,091	15,147	24,648	.....
Alabama	2,461	2	2,459	102	195	249	505	535	875	.....
Anniston[1]	464	2	462	10	48	46	134	115	111	12
Montgomery[1]	1,997	.....	1,997	92	147	203	371	420	764	12
Arkansas	859	54	805	12	41	171	163	276	196	.....
Hot Springs	114	.....	114	1	6	9	14	9	75	6
Little Rock[1]	724	54	670	4	35	162	142	267	114	.....
Pine Bluff	21	.....	21	7	.....	.....	7	.....	7	4
California	1,860	.....	1,860	30	89	30	203	261	1,247	.....
Fresno	33	.....	33	.....	12	4	4	.....	13	1
Los Angeles—										
Boyle Avenue D	131	.....	131	.....	8	4	35	25	59	.....
Temple Block	513	.....	513	25	34	3	32	62	357	3
University of California medical department	209	.....	209	1	.....	1	4	10	193	4
Oakland	37	.....	37	3	2	.....	5	2	25	3
Pasadena	24	.....	24	.....	1	5	1	2	15	3
San Francisco—										
University of California	361	.....	361	.....	4	.....	23	72	262	4
Stanford University	272	.....	272	.....	2	8	50	57	155	.....
Santa Barbara	63	.....	63	.....	14	1	5	3	40	5
San Bernardino	15	.....	15	.....	.....	.....	.....	1	14	1
San Diego	71	.....	71	.....	.....	.....	.....	5	66	3
San Jose	27	.....	27	.....	.....	.....	.....	2	25	3
Stockton	104	.....	104	1	12	4	44	20	23	5
Colorado	419	.....	419	.....	52	25	58	58	226	.....
Denver	419	.....	419	.....	52	25	58	58	226	11
Connecticut	812	.....	812	95	37	159	75	77	369	.....
Bridgeport	97	.....	97	11	10	4	22	21	29	3
New Haven	696	.....	696	84	24	155	53	54	326	5
New London	19	.....	19	.....	3	.....	.....	2	14	2
Florida	2,725	357	2,368	.....	15	304	142	118	2,146	.....
Arcadia	20	.....	20	.....	2	.....	6	1	11	2
Jacksonville[1]	2,375	357	2,018	.....	.....	301	12	47	2,015	7
Miami	35	.....	35	.....	2	.....	6	4	23	3
Tampa	295	.....	295	.....	11	3	118	66	97	6
Georgia	6,627	840	5,787	81	823	614	801	1,594	2,714	.....
Brunswick	166	.....	166	45	11	14	28	8	60	.....
Atlanta[1]	3,142	419	2,723	.....	446	355	307	494	1,540	12
Augusta[1]	593	127	466	.....	26	35	103	163	266	12
Macon[1]	1,755	294	1,461	8	208	196	294	747	302	12
Savannah	971	.....	971	28	132	14	69	182	546	6

[1] Extra-cantonment zone.

Report of persons coming under treatment at clinics operating under the joint control of the Public Health Service and the State boards of health July 1, 1918–June 30, 1919—Continued.

States and clinics.	Total persons coming under treatment.	Persons under treatment July 1, 1918.	Admitted since July 1, 1918.	Discharged as—			Discontinuing treatment—		Remaining under treatment June 30, 1919.	Months covered by report.
				Cured.	Probably cured.	Non-infectious but not cured.	With permission.	Without permission.		
Illinois	1,068	.....	1,068	31	122	23	144	309	439	.....
Chicago—										
Illinois Social Hygiene League	549	.....	549	26	88	.....	98	105	232	6
Central Free Dispensary	294	.....	294	.....	2	2	23	160	107	4
East St. Louis	225	.....	225	5	32	21	23	44	100	6
Indiana	2,434	.....	2,434	17	46	92	1,055	647	577	.....
Anderson	35	.....	35	.....	.....	.....	2	3	30	2
East Chicago	97	.....	97	10	7	3	9	12	56	3
Evansville	108	.....	108	1	.....	1	19	15	72	5
Columbus	10	.....	10	.....	.....	.....	.....	.....	10	1
Indianapolis—										
City Hospital	92	.....	92	[2] 2	.....	79	.....	1	10	3
Market Street and Senate Avenue	1,649	.....	1,649	.....	35	8	1,001	599	6	8
Michigan City	54	.....	54	.....	.....	.....	.....	.....	54	1
Muncie	156	.....	156	1	4	1	11	16	123	4
Terre Haute	233	.....	233	3	.....	.....	13	1	216	3
Iowa	2,002	127	1,875	5	176	558	473	412	378	.....
Davenport	128	.....	128	1	.....	.....	43	68	14	6
Des Moines[1]	1,397	127	1,270	.....	149	413	325	279	231	.....
Carroll	67	.....	67	.....	.....	.....	44	13	10	4
Clinton	74	.....	74	4	8	2	6	5	49	4
Council Bluffs	106	.....	106	.....	17	23	20	28	18	9
Sioux City	165	.....	165	.....	.....	95	31	9	30	5
Waterloo	65	.....	65	.....	.....	25	4	10	26	.....
Kansas	1,878	158	1,720	5	636	331	121	348	437	.....
Eldorado	70	.....	70	5	2	12	1	.....	50	2
Leavenworth[1]	1,435	158	1,277	.....	630	318	76	99	312	12
Rosedale	373	.....	373	.....	4	1	44	249	75	12
Kentucky	4,646	1,258	3,388	.....	14	55	1,486	2,557	534	.....
Louisville[1]	4,646	1,258	3,388	.....	14	55	1,486	2,557	534	12
Louisiana	495	.....	495	9	13	12	9	92	360	.....
Alexandria[1]	62	.....	62	8	.....	.....	1	13	48	3
New Orleans	355	.....	355	8	.....	12	7	64	264	3
Shreveport	78	.....	78	1	13	.....	1	15	48	1
Maine	77	.....	77	3	.....	3	2	5	64	.....
Augusta	13	.....	13	.....	.....	.....	.....	.....	13	2
Bangor	46	.....	46	3	.....	.....	2	5	36	4
Bath	8	.....	8	.....	.....	3	.....	.....	5	3
Calais	10	.....	10	.....	.....	.....	.....	.....	10	2
Maryland	1,048	.....	1,048	8	133	12	135	135	625	.....
Baltimore	843	.....	843	8	68	11	107	92	557	.....
Cumberland	205	.....	205	.....	65	1	28	43	68	7
Michigan	311	.....	311	300	.....	.....	.....	.....	11	.....
Battle Creek	311	.....	311	300	.....	.....	.....	.....	11	12

[1] Extra-cantonment zone.

Report of persons coming under treatment at clinics operating under the joint control of the Public Health Service and the State boards of health July 1, 1918–June 30, 1919—Continued.

States and clinics.	Total persons coming under treatment.	Persons under treatment July 1, 1918.	Admitted since July 1, 1918.	Discharged as—			Discontinuing treatment—		Remaining under treatment June 30, 1919.	Months covered by report.
				Cured.	Probably cured.	Non-infectious but not cured.	With permission.	Without permission.		
Minnesota	958	.....	958	64	43	1	126	280	444	.....
Duluth	183	.....	183	18	25	.....	22	40	78	7
Minneapolis—										
City hospital	164	.....	164	10	.....	1	34	35	84	10
University	281	.....	281	15	.....	.....	18	180	68	9
St. Paul	330	.....	330	21	18	.....	52	25	214	10
Mississippi	1,150	.....	1,150	171	52	224	77	222	404	.....
Columbia	312	.....	312	121	.....	.....	4	67	120	4
Hattiesburg[1]	645	.....	645	48	43	224	61	125	144	11
Jackson	142	.....	142	.....	8	.....	8	18	108	4
Laurel	51	.....	51	2	1	.....	4	12	32	5
Missouri	410	.....	410	46	139	26	56	29	114	.....
Joplin	86	.....	86	.....	1	.....	3	4	78	3
Kansas City	324	.....	324	46	138	26	53	25	36	5
Montana	132	.....	132	.....	.....	10	5	16	101	.....
Billings	53	.....	53	.....	.....	.....	1	16	36	.....
Butte	79	.....	79	.....	.....	10	4	.....	65	5
Nebraska	327	.....	327	.....	6	36	5	26	254	.....
Lincoln	30	.....	30	.....	6	5	5	7	7	2
Omaha—										
University of Nebraska	100	.....	100	.....	.....	.....	.....	.....	100	4
Creighton Medical College	197	.....	197	.....	.....	31	.....	19	147	4
New Hampshire	66	.....	66	.....	.....	.....	14	7	45	.....
Manchester	66	.....	66	.....	.....	.....	14	7	45	5
New Jersey	1,283	.....	1,283	99	30	64	66	311	713	.....
Camden	206	.....	206	37	.....	2	9	43	115	.....
Jersey City	284	.....	284	13	26	31	45	48	121	12
Newark	576	.....	576	34	.....	11	6	187	338	12
Plainfield	25	.....	25	.....	.....	.....	.....	1	24	2
Trenton	192	.....	192	15	4	20	6	32	115	.....
New York	3,098	.....	3,098	16	224	86	288	434	2,050	.....
Albany	9	.....	9	.....	.....	.....	.....	4	5	2
Amsterdam	12	.....	12	.....	1	.....	.....	.....	11	2
Binghamton	87	.....	87	.....	4	.....	8	8	57	3
Buffalo	213	.....	213	.....	38	30	1	4	199	2
Dunkirk	11	.....	11	.....	1	.....	.....	.....	10	2
Gloversville	14	.....	14	.....	.....	.....	2	1	11	3
Ithaca	73	.....	73	2	11	.....	5	10	45	5
Jamestown	25	.....	25	.....	1	.....	1	10	13	4
Johnstown	10	.....	10	1	5	.....	.....	.....	4	5
Middletown	7	.....	7	.....	.....	.....	1	.....	6	2
New York City Skin and Cancer Hospital	916	.....	916	.....	113	29	140	164	470	8
Niagara Falls	110	.....	110	.....	.....	.....	41	29	40	6
Poughkeepsie	36	.....	36	.....	.....	2	.....	1	33	3
Rochester—										
Health Bureau	660	.....	660	1	4	[2]1	5	9	640	6
160 Badin St	74	.....	74	.....	5	16	5	9	39	2
General Hospital	60	.....	60	.....	.....	.....	9	4	47	2
Rome	41	.....	41	.....	2	.....	.....	4	35	6
Schenectady	149	.....	149	3	16	3	19	8	100	6

[1] Extra-cantonment zone.

[2] Died.

Report of persons coming under treatment at clinics operating under the joint control of the Public Health Service and the State boards of health July 1, 1918–June 30, 1919—Continued.

States and clinics.	Total persons coming under treatment.	Persons under treatment July 1, 1918.	Admitted since July 1, 1918.	Discharged as—			Discontinuing treatment—		Remaining under treatment June 30, 1919.	Months covered by report.
				Cured.	Probably cured.	Non-infectious but not cured.	With permission.	Without permission.		
New York—Continued.										
Syracuse	359	.....	359	.....	.....	.....	13	160	186	5
Troy	97	.....	97	8	21	4	23	1	40	6
Utica	52	.....	52	.....	1	1	15	8	27	5
Yonkers	73	.....	73	1	1	.....	.....	.....	71	4
North Carolina	1,626	261	1,365	73	127	134	607	304	381	.....
Asheville	124	.....	124	39	2	1	10	26	46	5
Charlotte [1]	1,097	261	836	8	23	116	573	160	217	12
Fayetteville	105	.....	105	6	21	.....	8	23	47	6
Rocky Mount	34	.....	34	.....	2	3	.....	.....	29	2
Wilmington	178	.....	178	10	62	.....	11	62	33	3
Winston	88	.....	88	9	17	14	6	33	9	4
Ohio	1,867	10	1,857	57	155	190	203	344	918	.....
Akron	617	.....	617	36	6	102	34	189	250	11
Alliance	22	.....	22	.....	.....	.....	1	1	20	.....
Chillicothe [1]	429	10	429	.....	105	79	115	111	19	12
Cincinnati	209	.....	209	4	7	.....	10	19	169	7
Dayton	59	.....	59	1	.....	8	5	3	42	2
Lima	87	.....	87	3	13	1	16	3	51	3
Lorain	49	.....	49	4	1	.....	1	.....	43	4
Portsmouth	285	.....	285	9	17	.....	15	13	231	4
Springfield	26	.....	26	.....	6	.....	1	.....	19	.....
Youngstown	84	.....	84	.....	.....	.....	5	5	74	3
Oklahoma	2,899	.....	2,899	241	118	143	535	398	1,464	.....
Ardmore	334	.....	334	5	2	.....	8	20	299	2
Chickasha	44	.....	44	18	8	.....	3	.....	15	2
El Reno	64	.....	64	8	10	37	2	.....	7	2
Enid	31	.....	31	8	18	.....	2	1	2	3
Holdenville	60	.....	60	9	11	23	.....	.....	17	3
Miami	62	.....	62	.....	19	29	.....	1	13	5
Muskogee	13	.....	13	5	.....	.....	1	.....	7	3
Oklahoma City	936	.....	936	17	41	38	395	132	313	3
Picher	169	.....	169	.....	16	.....	19	49	85	3
Shawnee	38	.....	38	.....	3	6	5	3	21	3
Tulsa	1,148	.....	1,148	171	.....	.....	100	192	685	2
Rhode Island	1,108	.....	1,108	3	7	2	102	122	872	.....
Pawtucket	85	.....	85	.....	3	2	15	20	45	7
Providence—										
City Hospital, Eaton Street	860	.....	860	[2] 1	1	.....	76	80	702	6
Rhode Island Hospital, Eddy Street	163	.....	163	[2] 2	3	.....	11	22	125	9
South Carolina	4,020	285	3,735	97	326	215	405	915	2,062	.....
Charleston	168	.....	168	15	37	.....	7	27	82	1
Columbia [1]	1,149	46	1,103	.....	31	52	61	91	914	12
Florence	482	.....	482	63	28	13	13	39	326	4
Greenville [1]	1,462	169	1,293	19	98	63	211	451	620	12
Orangeburg	35	.....	35	.....	.....	.....	.....	.....	35	1
Spartansburg [1]	724	70	654	.....	132	87	113	307	85	12
South Dakota	3	.....	3	.....	.....	.....	1	.....	2	.....
Aberdeen	3	.....	3	.....	.....	.....	1	.....	2	1
Tennessee	1,856	301	1,555	.....	91	194	407	824	340	.....
Chattanooga [1]	1,856	301	1,555	.....	91	194	407	824	340	12

[1] Extra-cantonment zone. [2] Deaths.

Report of persons coming under treatment at clinics operating under the joint control of the Public Health Service and the State boards of health July 1, 1918–June 30, 1919—Continued.

States and clinics.	Total persons coming under treatment.	Persons under treatment July 1, 1918.	Admitted since July 1, 1918.	Discharged as—			Discontinuing treatment—		Remaining under treatment June 30, 1919.	Months covered by report.
				Cured.	Probably cured.	Non-infectious but not cured.	With permission.	Without permission.		
Texas	7,834	959	6,875	233	869	1,615	1,046	2,084	1,987	.....
El Paso [1]	1,199	167	1,032	162	42	127	2o0	126	492	12
Fort Worth [1]	895	36	759	12	40	114	257	225	247	8
Galveston	323	.....	323	3	20	4	67	38	191	8
Houston [1]	3,079	495	2,584	56	528	659	124	948	764	12
San Antonio [1]	2,030	261	1,769	.....	239	611	285	608	287	11
Waco [1]	308	.....	308	.....	.....	100	63	139	6	5
Vermont	60	.....	60	13	.....	28	1	5	13	.....
Burlington	60	.....	60	13	.....	28	1	5	13	5
Virginia	5,669	460	5,209	121	845	1,312	774	1,397	1,220	.....
Danville	82	.....	82	.....	.....	.....	.....	8	74	1
Newport News [1]	2,246	206	2,040	53	56	257	281	779	820	12
Norfolk [1]	1,463	91	1,372	.....	561	542	181	179	.....	12
Petersburg [1]	1,128	163	965	26	113	316	296	357	20	12
Richmond	702	.....	702	40	102	197	4	63	296	12
Roanoke	48	.....	48	2	13	.....	12	11	10	3
West Virginia	76	.....	76	.....	.....	4	1	5	66	.....
Bluefield	2	.....	2	.....	.....	2	.....	.....	.....	1
Charleston	19	.....	19	.....	.....	.....	.....	.....	19	1
Fairmount	41	.....	41	.....	.....	1	.....	3	37	4
Huntington	14	.....	14	.....	.....	1	1	2	10	2

[1] Extra cantonment zone.

Additional information furnished by 154 of the clinics shows that 56,508 cases of venereal diseases have been treated, of which 28,425 were gonorrhea, 25,689 syphilis, 2,394 chancroid. There have been 527,392 treatments given, 63,929 Wassermann tests made, 1,274 treponema pallidum examinations made, and 89,419 examinations for gonococcus infection.

The following table, compiled from the State annual reports, shows 353,054 doses of arsphenamine or similar product administered by the State boards of health through the clinics:

State reports of doses of arsphenamine (or similar product) administered, July 1, 1918–June 30, 1919.

United States	353,054	Montana	565
		Nebraska	485
Alabama	3,308	Nevada [1]	.....
Arizona	35	New Hampshire	144
Arkansas	934	New Jersey	947
California	7,534	New Mexico [1]	.....
Colorado	155	New York	9,047
Connecticut	1,297	North Carolina	1,712
Delaware	25	North Dakota	24
District of Columbia	270	Ohio	7,240
Florida	2,198	Oklahoma	4,900
Georgia	5,840	Oregon	137
Idaho	.....	Pennsylvania [1]	.....
Illinois	3,142	Rhode Island	3,840
Indiana	1,049	South Carolina	9,000
Iowa	1,213	South Dakota	.....
Kansas	2,284	Tennessee [1]	.....
Kentucky	5,804	Texas	20,000
Louisiana	1,875	Utah	64
Maine	635	Vermont	431
Maryland	816	Virginia	2,113
Massachusetts	12,578	Washington	745
Michigan	1,440	West Virginia	421
Minnesota	2,930	Wisconsin	37
Mississippi	816	Wyoming	25
Missouri [1]	.....		

[1] No report received.

Clinic for merchant marine seamen.—One of the important activities of the division, carried on in cooperation with the division of marine hospitals and relief, is that of venereal-disease control work with merchant marine seamen. Special officers have been detailed to the important seaports, and special arrangements have been made to treat infected seamen. Plans are also under way to create a follow-up social-service system, so that the work done may be more effective.

The work of the clinic at the Skin and Cancer Hospital, New York City, at 313 East Nineteenth Street, as it is generally known to the seamen, is typical of what the service is trying to do for these men. The clinic is situated on the ground floor of the hospital and has separate rooms for consultation, treatment, and recreation. The clinic personnel includes six doctors and four nurses, two of whom are pupil nurses from the hospital. On the consulting staff are neurologists, eye, ear, and nose specialists, and dermatologists.

This clinic was opened November 1, 1918, and at the close of the year has examined 1,719 men and given 7,350 treatments, including 1,743 doses of arsphenamine or allied antisyphilitic remedies. The average daily attendance has risen from 12 to 87 and is increasing. The hours of service are from 9 a. m. to 9 p. m.

Treatment of persons in detention.—Arrangements have been made in response to a request received from the Bureau of Investigation, Department of Justice, to treat all Federal prisoners afflicted with venereal disease, or to make such examinations as are necessary to determine the presence of venereal infections among such prisoners. Such service has also been extended to carriers of venereal diseases confined in detention houses, jails, station houses, etc., who were under the supervision of the Commission on Training Camp Activities or local authorities.

The State reports show 12,911 persons infected with venereal diseases given clinical treatment in accordance with these arrangements.

Social service.—The need for more effective follow-up work to be done by the social-service workers or nurses of the clinics has been made apparent. It is the plan of the service to increase its clinic personnel so that the case of each patient may be investigated, the source of infection discovered, the members of the family brought in for examination, and the necessary precautions taken to prevent the spread of the disease to others.

On November 7, 1918, a questionnaire was sent to the Government clinics in extra-cantonment zones asking for data relative to the admission, treatment, and disposition of female patients from the opening of the clinics to October 31, 1918. The following is a report of the data submitted by 23 clinics:

Admissions.	White.	Colored.	Total.
From town	4,803	3,602	8,405
From out of town	1,284	342	1,626
Total	6,087	3,944	10,031
Voluntary	1,720	1,678	3,398
Involuntary	3,196	2,253	5,449
Not stated	1,184	.....	1,184
Total	6,100	3,931	10,031

Social investigations made for 3,521.

Final disposition.	White.	Colored.	Total.
Sent out of town	568	176	744
Sent to Government reformatories	69	.....	69
Sent to State farms	65	13	78
Sent to other institutions	142	110	252
At home in town on probation	1,734	816	2,550
Total	2,578	1,115	3,693
Total unaccounted for	.....	.....	6,338
Total	.....	.....	10,031

Number of hours (daily) for treatment of female patients, 133½.

This report demonstrates the necessity for an adequate follow-up program for women patients. It is to be noted that of the 3,693 patients discharged, only 399 have had any definite action taken, and no mention at all is made of the disposition of 6,338 of those admitted. Of the 5,449 involuntary admissions reported by these clinics, it is reasonable to suppose that a great many more women should have been sent to Government reformatories, State farms, or other institutions than were sent.

The regulations promulgated by the Secretary of the Treasury, under which State boards of health receive the Chamberlain-Kahn funds, open with the requirement that venereal diseases must be reported to the local health authorities in accordance with State regulations approved by the Public Health Service. These regulations have been adopted by 46 States.

In all but seven States the names and addresses of the patients are not required, unless their conduct makes them a danger to the public

health or they stop treatment before they are made noninfectious. In the former case the public welfare requires legal action; and in the latter case it is to the patient's own good that he or she be compelled to complete the course of treatments. The seven States requiring that reports be made are: Indiana, Maryland, New Jersey, New York, North Dakota, Ohio, and Vermont.

The following table gives a record of 239,502 cases reported to State boards of health in accordance with State laws and regulations. Of these, 131,193 were gonorrhea, 100,466 syphilis, and 7,843 chancroid and other venereal infections. It should be noted that Idaho, Missouri, and Tennessee adopted their regulations too late in the year to have any reports to render. The work in New Mexico has not been organized, and no reports have been received. Venereal diseases are not reportable in the District of Columbia.

Cases of venereal diseases reported to State boards of health, July 1, 1918–June 30, 1919.

Name	Total.	Gonorrhea.	Syphilis.	Chancroid and others.
United States	239,502	131,193	100,466	7,843
Alabama	6,641	2,865	3,776	.....
Arizona	358	287	71	.....
Arkansas	3,316	2,269	752	295
California	4,162	2,144	2,018	.....
Colorado	4,161	3,268	690	203
Connecticut	3,107	1,698	1,370	39
Delaware	262	206	33	23
District of Columbia	.....	.....	.....	.....
Florida	11,040	5,043	5,657	340
Georgia	10,923	5,436	5,091	396
Idaho	.....	.....	.....	.....
Illinois	16,915	10,622	5,538	755
Indiana	5,849	3,775	1,944	130
Iowa	2,203	1,288	896	19
Kansas	3,092	2,230	830	32
Kentucky	5,311	2,688	2,402	221
Louisiana	3,344	2,215	909	220
Maine	1,103	674	426	3
Maryland	3,252	2,016	950	286
Massachusetts	17,910	12,432	5,469	9
Michigan	6,272	4,003	2,269	.....
Minnesota	6,767	3,723	2,890	154
Mississippi	2,435	1,609	745	81
Missouri [1]	.....	.....	.....	.....
Montana	925	628	297	.....
Nebraska	1,981	1,298	539	144
Nevada [1]	.....	.....	.....	.....
New Hampshire	520	346	170	4
New Jersey	12,663	8,824	3,302	537
New Mexico [1]	.....	.....	.....	.....
New York	24,017	4,946	19,071	.....
North Carolina	3,601	2,258	553	790
North Dakota	310	242	63	5
Ohio	19,295	9,595	9,435	265
Oklahoma	3,232	1,913	1,294	25
Oregon	1,744	1,309	397	38
Pennsylvania [1]	.....	.....	.....	.....
Rhode Island	2,252	625	1,602	25
South Carolina	7,642	3,111	4,081	450
South Dakota	254	208	40	6
Tennessee [1]	.....	.....	.....	.....
Texas	31,436	17,826	11,597	2,013
Utah	590	335	250	5
Vermont	695	462	230	3
Virginia	1,503	722	733	48
Washington	3,011	1,954	1,035	22
West Virginia	4,908	3,699	965	244
Wisconsin	467	381	75	11
Wyoming	33	20	11	2

[1] No report received.

CAMPAIGN WITH PHYSICIANS AND NURSES.

Physicians.—In order that physicians might be impressed with the seriousness of the problem of venereal-disease control and realize their responsibility to the public in carrying out the program, through the prompt reporting of diseases coming to their attention, and also to give to each physician an opportunity to secure a copy of the standard "Manual of Treatment of the Venereal Diseases," as revised by the service, an appeal has been made to approximately 132,000 legally qualified practitioners in the United States.

This appeal consisted of a letter, Venereal Disease Bulletin No. 35, "An Appeal to Physicians for Cooperation," and an agreement card. The letter asked for the cooperation of every physician in the program and promised a copy of the manual to each one who signed an agreement card. In the bulletin the physician's individual responsibility was pointed out, and it was made clear that the attitude of the medical profession as a whole would determine largely whether venereal diseases are to be brought under control. Each physician was told that it is his duty to give scientific attention to individual cases of venereal diseases; that as a result of the refusal by a large part of the men in the profession to give the problem proper attention, venereal diseases have become profitable sources of revenue to quack doctors and nostrum manufacturers. He was told of the cooperation which druggists are giving, and was assured that the reciprocal cooperation between doctor and druggist would result in mutual benefit in that druggists would not attempt to prescribe and physicians would not enter into competition with druggists in selling venereal-disease remedies.

As a result of this appeal agreement cards and favorable replies have been received from 60,666 physicians, or nearly 50 per cent of the medical profession of the United States. It is felt that this response is very gratifying and that the ultimate cooperation of the entire medical profession is assured.

In accordance with its policy of referring the detail and follow-up work to the States, the agreement cards received have been sent to the State boards of health with a list of the physicians to whom the appeal was sent. Each State board has been urged to communicate with the physicians who have not responded and to secure their cooperation. Each State has also been urged to purchase a supply of the manuals for distribution to those physicians who signed agreement cards. At the close of the year 35 States have responded by purchasing 71,300 copies of this manual. Physicians in States which have not bought copies of the manual are receiving them directly from the bureau or by a special arrangement from their State boards of health. A record of the number of physicians pledging their cooperation and of the manuals purchased by States will be found on page 259.

Nurses.—Plans are under way to offer special courses at Columbia University, in cooperation with the social service department of Bellevue Hospital, to prepare public-health nurses for work in venereal diseases.

Venereal Disease Bulletin No. 40, "Lectures to Nurses," has been issued by the division, which discusses the history, social significance,

and pathology of venereal diseases, and their prevalence as shown by statistics in the Army and Navy. These pamphlets have been distributed among 42,471 student nurses in 1,509 training schools in 44 States. The division has filled 424 requests for literature received from nurses.

Among the conventions of nurses at which the Government's program has been presented and the nurses' responsibility emphasized are the following: Graduate Nurses' Association; National League of Nursing; National Organization of Public Health Nursing; the State Graduate Nurses' Associations of Connecticut, Illinois, Kansas, Kentucky, Louisiana, Massachusetts, Maine, Nebraska, New Jersey, North Dakota, Pennsylvania, Rhode Island, South Carolina, and Virginia; the Alameda County Nurses Association, Piedmont, Calif.; the New York City Federation of Public Health Nurses; and local nurses and the Lincoln Hospital Alumnæ in New York City.

DRUGGISTS AND ADVERTISING MEDIA.

Druggists.—The campaign to secure the cooperation of druggists was launched in the fall of 1918. Its purpose has been to eliminate the sale of nostrums for the self-treatment of venereal diseases and the prescribing on the part of druggists of remedies for the treatment of these diseases.

A letter inclosing Venereal Disease Bulletin No. 21, "An Appeal to all Retail Druggists," and an agreement card was sent to 48,500 druggists in the United States. In this appeal pharmacists were asked:

1. Not to prescribe or recommend any remedy for a venereal disease.
2. Not to purchase any proprietary remedy to be sold to the public for self-treatment of a venereal disease and not to sell any such remedy after January 15, 1919.
3. To refill only such prescriptions for the treatment of venereal diseases as were given originally to the customer by a reputable physician who is still in charge of the case.
4. To distribute literature furnished by the Public Health Service to persons asking, without a physician's prescription, for remedies customarily confined to the treatment of a venereal disease, and to direct such persons to a reputable physician, to an approved clinic, or to the State board of health.

As a result of this appeal and of a second letter sent out in January, 28,226, or nearly 60 per cent, of the druggists have responded favorably by letter or by agreement card.

This campaign was referred to the State boards of health in April. Each State was sent a list of the druggists appealed to and the replies received. A supply of Venereal Disease Bulletin No. 36, "Disease and Health," and of Venereal Disease Bulletin No. 2, "Responsibility of Druggists to the Public Health," was also sent to each State to be distributed among the pharmacists who pledged their cooperation. The plan is to have a copy of the "Disease and Health" pamphlet given to each person asking for a venereal-disease remedy without a doctor's prescription, and that every employe of a pharmacy be given a copy of Venereal Disease Bulletin No. 2 for his own information. Each State has been urged to continue the campaign until

every druggist in the State has discontinued the prescribing and sale of proprietary remedies for venereal diseases.

The following table summarizes, by States, the campaigns with physicians and druggists:

Report of campaign with physicians and druggists, July 1, 1918–June 30, 1919.

Name.	Agreement cards signed by—		Manuals purchased by State boards of health.	Pamphlets sent State boards of health for distribution to druggists.	
	Physicians.	Druggists.		Venereal Disease Bulletin No. 36.	Venereal Disease Bulletin No. 2.
United States	60,666	28,226	71,300	809,598	132,831
Alabama	782	249	2,000	7,470	1,245
Arizona	171	63	250	1,890	315
Arkansas	917	457	1,000	13,710	2,285
California	2,555	554	4,100	16,620	2,770
Colorado	720	455	.....	13,650	2,275
Connecticut	594	334	1,300	10,020	1,670
Delaware	93	77	400	2,310	385
District of Columbia	380	96	800	2,880	480
Florida	440	231	500	6,930	1,155
Georgia	865	344	3,500	10,320	1,720
Idaho	197	180	200	5,400	900
Illinois	4,014	1,709	12,000	51,270	8,545
Indiana	1,503	979	5,000	29,370	4,895
Iowa	1,381	1,142	3,000	34,260	5,710
Kansas	1,076	742	3,000	22,260	3,710
Kentucky	1,071	395	.....	11,850	1,975
Louisiana	586	317	2,000	9,510	1,585
Maine	414	380	1,000	11,400	1,900
Maryland	732	239	.....	7,170	1,195
Massachusetts	2,473	1,222	1,000	36,660	6,110
Michigan	1,683	1,011	2,000	30,330	5,055
Minnesota	1,018	633	.....	18,990	3,165
Mississippi	643	299	1,800	8,970	1,495
Missouri	2,307	1,055	.....	31,650	5,275
Montana	229	231	500	6,930	1,155
Nebraska	773	607	.....	18,210	3,035
Nevada	62	29	.....	870	145
New Hampshire	237	261	.....	7,830	1,305
New Jersey	1,092	762	3,500	22,860	3,810
New Mexico	185	90	100	2,700	450
New York	4,488	2,594	.....	77,820	12,970
North Carolina	724	258	2,500	7,740	1,290
North Dakota	267	280	500	8,400	1,400
Ohio	2,557	827	2,000	24,810	4,135
Oklahoma	998	619	2,000	18,570	3,095
Oregon	457	284	750	8,520	1,420
Pennsylvania	4,051	1,439	.....	43,170	7,195
Rhode Island	276	192	.....	5,760	960
South Carolina	439	121	1,000	3,630	605
South Dakota	289	328	.....	9,840	1,640
Tennessee	1,197	282	.....	8,460	1,410
Texas	1,872	852	5,000	25,560	4,260
Utah	211	116	500	3,480	580
Vermont	268	142	100	4,260	710
Virginia	912	359	1,000	10,770	1,795
Washington	716	388	2,000	11,640	1,940
West Virginia	587	200	2,000	6,000	1,000
Wisconsin	1,071	749	3,000	22,470	3,745
Wyoming	93	53	.....	1,590	265
Miscellaneous	10,000	3,000	.....	52,818	6,701

Advertising media.—In an effort to eliminate the advertisements of quack doctors and medical institutes advertising to treat so-called "private diseases," and of nostrums for the self-treatment of venereal diseases, before asking the cooperation of physicians and druggists, an appeal was made in the fall of 1918 to the business managers of the 20,000 newspapers and magazines in the United States.

This appeal consisted of a letter, Venereal Disease Bulletin No. 12, "An Appeal to Advertising Media to Cooperate in the Fight Against Venereal Diseases," and an agreement card, which each manager was urged to sign and return. Those signing the cards agreed—

1. Not to print the advertisement of any doctor or medical institute offering to treat venereal diseases, either by naming specific diseases or by use of indirect terms, such as "private diseases," "lost manhood," "discharges," "diseases peculiar to men," etc.

2. Not to print the advertisement of any nostrum described as effective in the self-treatment of venereal diseases.

It was known before beginning this campaign that the great majority of the 20,000 advertising media appealed to were not carrying quack venereal-disease advertising, but as an educational measure to inform them of the stand taken by the service, it was considered desirable to include them.

The results of this appeal, evidenced by the agreement cards received and newspaper clippings furnished by a recognized clipping bureau, showed that approximately 19,800, or 99 per cent of the 20,000 circularized, were cooperating. A special letter was then sent to the 200 advertising media which were still carrying objectionable matter. As a result, 60 of these papers have agreed to change their policy, leaving only 140 which are still carrying venereal-disease advertising of this character.

This campaign also has been referred to the State boards of health for completion.

EDUCATIONAL MEASURES.

The educational campaign has been carried on by means of the distribution of pamphlets adapted to meet the needs of various classes of people, lectures, correspondence, exhibits, and motion-picture showings. The work has been done through the State boards of health and in the case of educators has been carried on under the joint supervision of the Public Health Service and the Bureau of Education.

Fifty different educational pamphlets—referred to as venereal disease bulletins—have been prepared for use in the educational campaign. They include the pamphlets used from time to time in the six standard sets, as follows:

Set A (for men).—Manpower and The Facts about Venereal Diseases.
Set B (for the general public).—When They Come Home, War on Venereal Disease to Continue, Ravages of Innocents Must Stop, and others.
Set C (for boys).—Keeping Fit.
Set D (for parents).—The Parent's Part.
Set E (for girls).—On Guard.
Set F (for educators).—The Problem of Sex Education in Schools.

The also include nine pamphlets comprising the industrial program, two monographs for teachers, a pamphlet containing model city ordinances, and a very comprehensive discussion of the city plan for venereal-disease control. A complete list of these pamphlets giving number and title follows:

1. Keeping Fit.
2. Responsibility of Druggists to the Public Health.
3. Fit to Fight.
4. Keep Them Fit.
5. The Attack on Venereal Diseases.

6. Manpower.
7. The Problem of Sex Education in Schools.
8. On Guard.
9. The Need for Sex Education.
10. Why Should High Schools and Colleges Provide Sex Instruction?
11. Venereal Diseases; a Public Health Problem for Civilian Communities.
12–20. Industrial bulletins.[1]
21. First Appeal to Druggists.
22. To-day's World Problem in Disease Prevention.
22–A. The Place of the Church in the Control of Venereal Disease.
23. When They Come Home.
24. War on Venereal Disease to Continue.
25. An Appeal to Advertising Media.
26. Shall We Finish the Fight?
27. Venereal Diseases and the War.
28. Come Clean.
29. Placard—The Government has Declared War on Venereal Diseases.
30. The Percentage of Venereal Diseases among Approximately the Second Million Drafted Men, by States.
31. Important Confidential Information
32. The Parent's Part.
33. To Girls in Industry.
34. The Right Steer.
35. An Appeal to Physicians.
36. Disease and Health.
37. A Message from the Government to the Churches of the United States.
38. The Need for Sex Education (No. 9 with book list).
39. Venereal-Disease Ordinances.
40. Lectures on Social Hygiene for Nurses.
41. The Place of Sex Education in Biology and General Science.
42. Ravage of Innocents Must Stop.
43. The Public Health Nurse and Venereal-Disease Control.
44. The New War—Fighting for Health.
45. Keeping Fit—An Exhibit for Older Boys and Young Men.
46. A People's War.
47. The Percentage of Venereal Diseases among Approximately the Second Million Drafted Men, by Cities.
48. How to Fight Venereal Diseases in Your City.
49. The Facts about Venereal Diseases.
50. A High School Course in Physiology in which the Facts of Sex are Taught.

Exhibits.—Two exhibits of 24 cards each have been prepared—one for boys and one for adults. The boys' exhibit is entitled "Keeping Fit" and the adult exhibit is called "The Venereal Menace." In addition to these exhibits, 34 copies of the film first used under the title "Fit to Fight" were purchased after the film had been considerably revised and the title changed to "Fit to Win." Sets of lantern slides, based on the boys' card exhibit, were also prepared. The card exhibits and lantern slides were completed about April 1 and State boards of health were loaned 272 sets of each of the exhibit cards and 169 sets of the boys' lantern-slide exhibit. Many of the States have enlarged their supply of exhibit material by purchasing 76 additional sets of the card exhibits, 49 sets of lantern slides, and 65 motion-picture films. The following table shows the distribution of this material by States.

---

[1] Issued by the War Department, Commission on Training Camp Activities and approved by the Public Health Service.

Report of exhibits, lantern-slide sets, and motion-picture films loaned to or purchased by State boards of health July 1, 1918–June 30, 1919.

Name.	Exhibits.		Slides.		Films.		Miscellaneous sets purchased.	
	Loaned.	Purchased.	Loaned.	Purchased.	Loaned.	Purchased.	Exhibits.	Slides.
United States	272	74	169	42	21	65	2	7
Alabama	4	2	2		2	1		
Arizona	5		3					
Arkansas	9		7					
California	7		5			3		
Colorado	5		2			2		
Connecticut	11		4		1	5		
Delaware	4		2	1		2		1
District of Columbia	1		1					
Florida	6		4		1			
Georgia	5		3		2			
Idaho	1							
Illinois	8	9	6	1	1	6		
Indiana	6		4		1	2		
Iowa	8		2	4		2		
Kansas	11	5	10		1	3		
Kentucky	7		4		1	1		
Louisiana	6		4		1	6		
Maine	4		2			1		
Maryland	4		2		2	1		
Massachusetts	12		4			5		
Michigan	7		5					
Minnesota	6		4			2	2	
Mississippi	11	15	10		1			2
Missouri	2		1					
Montana	7		5					
Nebraska	7		8					
Nevada	2		1					
New Hampshire	4		2			1		
New Jersey	6	27	4	21	1	3		
New Mexico	3		1					
New York	16		4		1	1		3
North Carolina	5		4		1	2		
North Dakota	6		4					
Ohio	11	2	7	9	1	3		
Oklahoma	4		2		1	2		
Oregon	2		5					
Pennsylvania	2		1		1			
Rhode Island	2		1			2		
South Carolina	2	4	1	4				
South Dakota	2		1					
Tennessee	6		2					
Texas	9		6					
Utah	2		1			2		
Vermont	2		1			1		
Virginia	3	2	4		1	2		
Washington	8	1	6	1		1		1
West Virginia	2	4	1	1	1			
Wisconsin	7	3	5			3		
Wyoming	2		1					

Reports of 1,930 showings of the exhibits have been received by the bureau and the State boards of health, with an average attendance of 179. Y. M. C. A.'s have been using the exhibits in the boys' campaign, and reports from this organization include showings in 239 associations with an average attendance of 844.

Motion-picture film showings.—Reports of 275 showings of the service films, with an average attendance of 522, have been received. The State boards of health reported 1,134 showings with an average attendance of 555. These showings have been of the films "Fit to Win," "End of the Road," "How Life Begins," and the venereal-disease lecture film. During the latter part of April arrangements were made with the section of visual instruction of the Educational Division, Interior Department, to take over the service film "Fit

to Win" for circulation through the extension departments of various State universities. This arrangement should give the films wider distribution.

The following tables are a tabulated report of the educational activities of the bureau and the State boards of health. The report of exhibit showings given by the State boards of health should be supplemented by the table giving reports of the boys' "Keeping Fit" campaign on page 279.

Lectures and motion-picture film showings given under the auspices of the Public Health Service, July 1, 1918–June 30, 1919.

Name.	Lectures.		Motion-picture film showings.		
	Number given.	Total attendance.	Number of bookings.	Number showings reported.	Total attendance.
United States: Total	428	94,215	403	275	143,669
United States: Average		220			522
National conventions	31	7,970			
Alabama	25	6,059	8	3	800
Arizona	1	100			
Arkansas	2	57	12	10	1,900
California	7	1,250	5		
Colorado	4	1,850	14	12	4,950
Connecticut	6	345	9	7	4,295
Delaware	3		1	3	3,400
District of Columbia	5	915	6	5	1,800
Florida	1	100	4		
Georgia	14	5,795	10	6	8,250
Idaho	1	250	2		
Illinois	7	300	28	18	6,566
Indiana	13	5,340	23	23	7,225
Iowa	15	4,334	13	2	445
Kansas	11	1,920	10	8	10,845
Kentucky	8	1,500	6	5	1,223
Louisiana	27	3,324	6		
Maine	1	20	1	1	250
Maryland	6	2,400	5	2	1,650
Massachusetts			7	4	1,200
Michigan	6	600	23	21	4,775
Minnesota	2	42	7	3	350
Mississippi	24	4,568	8	6	1,250
Missouri	13	2,954	20	15	4,970
Montana	2	225	10	3	1,475
Nebraska	3	500	1		
Nevada			1	1	800
New Hampshire	5	3,100			
New Jersey	6	1,008	8	7	2,665
New Mexico			2	1	150
New York	29	7,337	31	23	19,436
North Carolina	5	1,080	5	11	5,900
North Dakota	2	300	4	1	900
Ohio	10	160	9	4	1,050
Oklahoma	13	4,470	3		
Oregon	1	500	1	1	250
Pennsylvania	18	2,690	41	35	21,016
Rhode Island					
South Carolina	4	1,092	2		
South Dakota	1	40	2	1	850
Tennessee	41	10,905	3		
Texas			6	4	6,250
Utah					
Vermont			1	1	200
Virginia	44	6,991	4	2	1,200
Washington	2	291	1	1	500
West Virginia	2		15	20	14,613
Wisconsin	2	900	6	5	270
Wyoming	1	75			
Miscellaneous	4	558	19		

State report of educational activities, July 1, 1918–June 30, 1919.

Name.	Number of of pamphlets distributed.	Lectures.		Film showings.		Exhibit and slide showings.	
		Number.	Average attendance.	Number.	Average attendance.	Number.	Average attendance.
United States	5,817,042	7,210	181	1,134	555	1,716	215
Alabama	200,031	215	172	17	400	(1)	.....
Arizona	158	10	60	.....	.....	(1)	.....
Arkansas	59,555	93	.....	.....	.....	60	173
California	118,885	61	490	64	536	60	353
Colorado	105,000	120	900	40	800	15	55
Connecticut	80,000	150	600	52	1,300	40	.....
Delaware	3,425	8	60	7	292	(1)	.....
District of Columbia	12,767	1	600	6	50	30	.....
Florida	52,221	57	404	32	683	.....	.....
Georgia	.....	158	390	23	1,292	75	.....
Idaho	.....	.....	.....	.....	.....	.....	.....
Illinois	401,324	346	118	17	200	53	90
Indiana	182,000	371	101	84	266	32	100
Iowa	100,000	575	73	200	500	109	97
Kansas	49,325	67	382	30	591	42	83
Kentucky	43,500	40	100	35	100	20	150
Louisiana	175,000	182	250	67	300	[1] 20	50
Maine	27,811	62	1,300	.....	.....	.....	.....
Maryland	21,856	22	294	.....	.....	.....	.....
Massachusetts	20,000	195	750	114	.....	137	247
Michigan	350,000	1,000	100	4	500	260	82
Minnesota	250,000	304	152	80	500	180	53
Mississippi	85,233	505	95	.....	.....	(1)	.....
Missouri [2]	.....	.....	.....	.....	.....	.....	.....
Montana	35,977	82	50	20	.....	(1)	.....
Nebraska	49,000	9	75	.....	.....	8	50
Nevada [2]	.....	.....	.....	.....	.....	.....	.....
New Hampshire	12,000	16	66	21	793	6	43
New Jersey	188,950	154	170	.....	.....	(1)	.....
New Mexico [2]	.....	.....	.....	.....	.....	.....	.....
New York	712,207	279	92	65	966	[3] 18	997
North Carolina	97,000	22	315	.....	.....	28	46
North Dakota	5,000	20	30	.....	.....	7	28
Ohio	468,337	1,180	111	6	.....	[1] 2	.....
Oklahoma	29,650	7	275	.....	.....	.....	.....
Oregon	156,228	444	178	20	395	(1)	.....
Pennsylvania [2]	.....	.....	.....	.....	.....	.....	.....
Rhode Island	35,000	.....	.....	37	790	.....	.....
South Carolina	127,000	24	60	2	250	122	100
South Dakota	61,700	15	50	.....	.....	3	70
Tennessee [2]	.....	.....	.....	.....	.....	.....	.....
Texas	1,025,000	.....	.....	.....	.....	(1)	.....
Utah	5,826	6	83	8	169	11	60
Vermont	300	12	60	1	100	.....	.....
Virginia	275,492	41	242	24	616	16	100
Washington	35,000	75	66	3	100	53	129
West Virginia	125,000	201	75	41	250	290	296
Wisconsin	29,284	71	75	13	350	19	50
Wyoming	5,000	10	100	1	25	.....	.....

[1] See reports received from State boards of health. Report of boys' "Keeping Fit" campaign.
[2] No reports received.
[3] Y. M. C. A's.

Clinic report of educational activities, July 1, 1918–June 30, 1919.

Name.	Number of persons receiving pamphlets.	Number of lectures given.	Average attendance at lectures.
United States	131,009	654	444
Arkansas	240	14	108
Pine Bluff	10		
Hot Springs	115		
Little Rock	115	14	108
Alabama	7,384	49	745
Anniston	214	20	
Montgomery	7,170	29	745
California	1,366	116	95
San Francisco (4 clinics)	215	24	93
Los Angeles (2 clinics)	359	60	
Santa Barbara		1	
Stockton	418		
Oakland	1		
San Jose	27	5	100
Pasadena	324	15	
San Bernardino	2		
Fresno	20	1	
Colorado	194		
Denver	194		
Connecticut	125		
New London	7		
New Haven	118		
Georgia	8,346	101	1,104
Brunswick	510	2	600
Atlanta	6,776	94	1,194
Macon	1,060		
Augusta		3	1,610
Savannah		2	
Florida	1,991		
Jacksonville	1,906		
Tampa	85		
Iowa	950	21	130
Council Bluffs	53	13	130
Des Moines	13		
Davenport	884	8	
Illinois	15,430	12	350
Chicago (2 clinics)	15,411	12	350
East St. Louis	19		
Indiana	4,787	69	74
Indianapolis	2,844	24	131
Columbus	20		
Evansville	110	9	
Terre Haute	1,525	32	44
Muncie	170	4	40
Anderson	16	20	
East Chicago	102		
Kansas	7,014	32	303
Fort Leavenworth	6,786	31	303
Rosedale	193		
Eldorado	35	1	
Kentucky	3,845	13	1,396
Louisville	3,845	12	1,412
Gloversville		1	1,200
Louisiana	321		
Alexandria	99		
New Orleans	322		
Montana	529	7	
Butte	529	7	
Minnesota	820	7	143
Minneapolis	279		
St. Paul	262		
Duluth	279	7	143
Mississippi	793	31	964
Columbia	327	25	45
Laurel	19		
Jackson	5	5	373
Hattiesburg	442	1	25
Michigan	750		
Battle Creek	750		
Maryland	7,877	22	68
Cumberland	3,251	1	140
Baltimore	4,626	21	64
Maine	77		
Bangor	34		
Calais	15		
Augusta	28		
Nebraska	95		
Omaha	65		
Lincoln	30		
North Carolina	2,166	17	96
Asheville	132		
Samarcand	21	1	
Fayetteville	82	14	95
Rocky Mount	30	1	50
Winston-Salem	54		
Wilmington		1	150
Charlotte	1,847		
New York	9,666	37	373
Rochester (3 clinics)	236	10	275
Binghamton	39		
Syracuse	90		
Troy	218		
Utica	41		
Yonkers	67		
Schenectady	165	10	
Rome	2,000		
Jamestown	3		
Niagara Falls	6,066	16	435
Johnstown	205	1	
Middletown	154		
Poughkeepsie	44		
Amsterdam	11		
Buffalo	250		

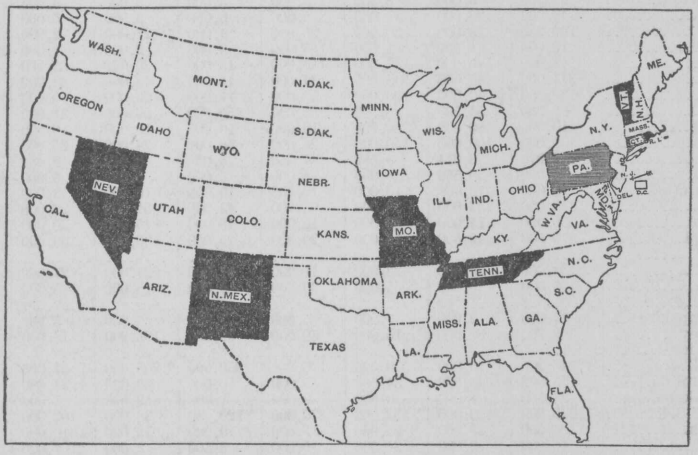
Clinic report of educational activities, July 1, 1918–June 30, 1919—Continued.

Name.	Number of persons receiving pamphlets.	Number of lectures given.	Average attendance at lectures.
New York—Continued.			
Dunkirk	5		
Ithaca	72		
New Jersey	338		
Newark	40		
Camden	64		
Jersey City	224		
Plainfield	10		
New Hampshire	15,150	48	140
Manchester	10,150	43	120
Portsmouth	5,000	5	1,500
Oklahoma	8,065	18	330
Oklahoma City	1,407		
Shawnee	120		
Miami	350		
El Reno	125	2	
Picher	350	1	150
Tulsa	5,000	10	
Holdenville	328	3	500
Enid	115		
Lawton	270	2	150
Ohio	883	6	234
Lima	127		
Lorain	52		
Akron	121	3	400
Youngstown	190	2	65
Dayton	25		
Chillicothe	118	1	75
Alliance	14		
Portsmouth	236		
Rhode Island	21		
Providence	21		
South Dakota	25		
Aberdeen	25		
South Carolina	14,319	6	83
Orangeburg	300	2	50
Charleston	73		
Spartanburg	8,085	2	150
Columbia	1,835	2	50
Florence	1,400		
Greenville	2,626		
Tennessee	303		
Chatanooga	303		
Texas	6,094	4	1,275
Fort Worth	580		
San Antonio	427		
Galveston	400	3	33
El Paso	1,422	[1] 1	5,000
Houston	3,265		
Virginia	10,886	26	230
Norfolk	1,896		
Roanoke	30		
Richmond	200		
Petersburg	397		
Newport News	363		
Danville	8,000	26	230
Vermont	130	8	59
Burlington	130	8	59
West Virginia	29		
Fairmont	2		
Huntington	8		
Charleston	19		

[1] Film.

Pamphlets.—In cooperating with the State boards of health, each board has been urged to equip itself with the material prepared by the service for the educational work. As soon as a State has purchased or reprinted copies of the standard A–F sets of pamphlets, using either those listed above or others approved by the service, all requests for pamphlets received from that State are referred to the

STATES COOPERATING WITH THE UNITED STATES PUBLIC HEALTH SERVICE IN DISTRIBUTING VENEREAL DISEASE EDUCATIONAL PAMPHLETS JULY 1, 1918 JUNE 30, 1919



STATES HAVING COMPLETE SETS OF PAMPHLETS A-F AVAILABLE FOR DISTRIBUTION
STATES HAVING PARTIAL SETS OF PAMPHLETS A-F AVAILABLE FOR DISTRIBUTION
STATE HAVING NO PAMPHLETS, SETS A-F, AVAILABLE FOR DISTRIBUTION

State board of health. The map above shows the extent to which the States have cooperated in this work. At the close of the year 41 States have complete sets of pamphlets, having purchased and reprinted 10,439,224 exclusive of the physicians' manual of treatment. The following table shows the amount of educational material purchased by each State.

Educational pamphlets purchased and reprinted by State boards of health, July 1, 1918–June 30, 1919.

Name.	Total.	A.	B.	C.	D.	E.	F.	Others.
United States	10,439,224	2,008,324	2,443,262	1,493,550	1,074,355	1,470,849	680,384	1,268,500
Alabama	229,000	25,000	45,000	27,000	45,000	45,000	22,000	20,000
Arizona	22,000	1,000	1,000	6,000	1,000	1,000	1,000	11,000
Arkansas	108,500	25,000	16,000	50,000	10,000	5,000	2,500	.....
California	220,000	30,000	20,000	55,000	40,000	40,000	30,000	5,000
Colorado	159,000	30,000	30,000	10,000	10,000	20,000	30,000	29,000
Connecticut	85,000	10,000	70,000	5,000	.....	.....	.....	.....
Delaware	62,000	10,000	5,000	5,000	15,000	10,000	2,000	15,000
District of Columbia	24,350	5,000	3,350	5,000	3,000	3,000	3,000	2,000
Florida	46,000	20,000	4,000	5,000	6,000	6,000	5,000	.....
Georgia	149,250	25,000	30,000	25,000	4,000	27,000	2,000	36,250
Idaho	13,000	1,000	1,000	5,000	3,000	2,000	1,000	.....
Illinois	543,000	195,000	157,000	116,000	15,000	20,000	35,000	5,000
Indiana	347,000	45,000	45,000	34,000	45,000	43,000	33,000	102,000
Iowa	130,000	30,000	20,000	30,000	15,000	20,000	10,000	5,000
Kansas	268,000	54,500	8,500	52,000	50,000	52,000	31,000	20,000
Kentucky	110,000	10,000	10,000	10,000	10,000	10,000	10,000	50,000
Louisiana	499,000	100,000	150,000	28,000	36,000	24,000	25,000	136,000
Maine	46,974	3,074	6,512	4,550	4,055	3,449	2,084	23,250
Maryland	65,550	30,550	5,000	5,000	5,000	5,000	5,000	10,000
Massachusetts	73,000	10,000	10,000	10,000	10,000	10,000	3,000	20,000
Michigan	342,000	52,000	38,000	63,000	43,000	51,000	22,000	73,000
Minnesota	236,000	15,000	30,000	10,000	40,000	45,000	20,000	76,000
Mississippi	370,500	40,500	15,000	25,000	25,000	30,000	30,000	205,000
Missouri[1]	.....	.....	.....	.....	.....	.....	.....	.....
Montana	134,000	29,000	23,000	11,000	17,000	27,000	27,000	.....
Nebraska	115,000	25,000	5,000	30,000	5,000	15,000	5,000	30,000
Nevada[1]	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire	33,000	2,000	7,000	5,000	7,000	7,000	5,000	.....
New Jersey	365,700	80,000	15,000	30,000	20,000	195,200	15,000	10,500
New Mexico[1]	.....	.....	.....	.....	.....	.....	.....	.....
New York	1,745,200	410,000	540,000	176,200	250,000	305,000	57,000	7,000
North Carolina	165,000	45,000	34,000	5,000	10,000	30,000	34,000	7,000
North Dakota	23,500	1,000	9,500	9,000	1,000	2,000	1,000	.....
Ohio	1,232,000	120,000	532,000	320,000	120,000	38,000	102,000	.....
Oklahoma	106,000	25,000	25,000	15,000	10,000	15,000	10,000	6,000
Oregon	46,000	3,000	24,500	6,000	3,500	2,000	7,000	.....
Pennsylvania	27,000	16,000	.....	5,000	.....	5,500	500	.....
Rhode Island	.....	.....	.....	.....	.....	.....	.....	.....
South Carolina	127,000	15,000	28,000	20,000	10,000	15,000	4,000	35,000
South Dakota	102,600	10,000	3,000	13,000	10,000	25,000	10,000	31,600
Tennessee[1]	.....	.....	.....	.....	.....	.....	.....	.....
Texas	1,025,000	250,000	250,000	100,000	100,000	120,000	35,000	170,000
Utah	46,400	.....	5,000	.....	5,000	33,000	1,000	2,400
Vermont	.....	.....	.....	.....	.....	.....	.....	.....
Virginia	365,000	75,000	165,000	50,000	15,000	25,000	.....	35,000
Washington	120,700	8,000	30,200	17,000	5,000	18,000	27,000	15,500
West Virginia	245,000	75,000	20,000	25,000	40,000	60,000	10,000	15,000
Wisconsin	260,000	50,000	5,000	70,000	10,000	60,000	5,000	60,000
Wyoming	6,000	1,700	1,700	800	800	700	300	.....

[1] No report received.

The initial publicity was given to the work in November through the distribution, by means of carefully selected mailing lists, of over a million and a half copies of pamphlets No. 23, "When They Come Home," and No. 24, "War on Venereal Diseases to Continue." As a result the bureau was flooded with replies from all over the country from people commenting on the work being done, offering to help, and requesting pamphlets for their own use and for distribution. In December alone over 15,000 requests for pamphlets were received and the comment was almost universally favorable.

These requests have been referred to the State boards of health as rapidly as they were equipped with pamphlets for handling them. In a number of cases, however, it has been found expedient to fill these requests directly. In many cases specific pamphlets have been requested which the State boards have not had. This is why only 19,032 out of a total of 77,298 requests for pamphlets were referred to the State boards for compliance.

The table below shows the number of pamphlet requests received by the division according to States, classified to show the results received in response to appeals made to special classes of people.

Requests for pamphlets received by the Public Health Service, July 1, 1918–June 30, 1919.

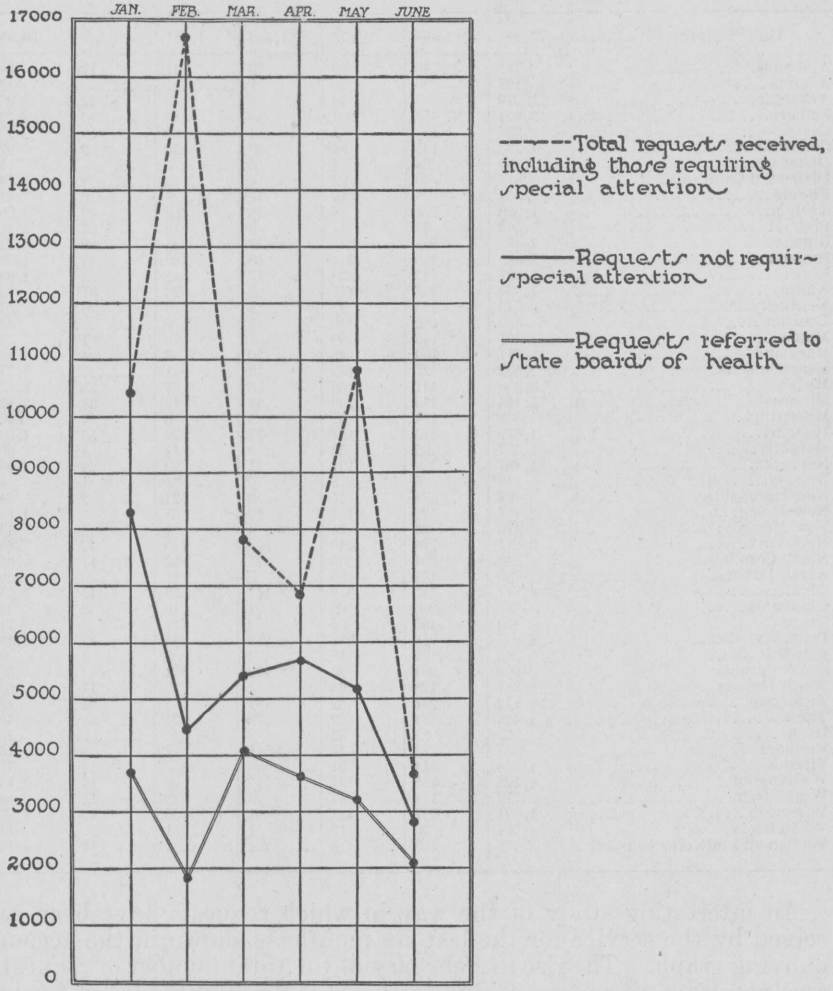
Name.	Total requests received.	Requests from ministers.	Monograph requests from educators.	Requests from industries.	Requests from libraries.	Requests from Modern Woodmen of America.	Miscellaneous requests.
United States	77,298	12,984	5,275	1,566	1,281	707	55,485
Alabama	711	240	62	23	11	11	364
Arizona	192	26	25	8	.....	.....	133
Arkansas	579	196	45	3	9	22	304
California	3,004	430	204	40	88	10	2,232
Colorado	938	125	68	24	9	11	701
Connecticut	1,233	165	84	20	35	3	926
Delaware	136	28	4	5	.....	.....	99
District of Columbia	614	40	23	4	2	.....	545
Florida	554	98	19	12	3	6	416
Georgia	1,029	221	68	18	16	10	696
Idaho	562	63	47	6	10	7	429
Illinois	7,475	981	297	153	43	66	6,135
Indiana	2,025	368	244	38	69	25	1,281
Iowa	2,097	445	239	17	41	23	1,332
Kansas	1,364	339	171	3	28	31	792
Kentucky	943	225	97	18	9	23	571
Louisiana	688	162	70	13	2	.....	441
Maine	595	136	80	7	29	7	336
Maryland	717	160	45	20	7	4	481
Massachusetts	2,522	427	172	73	71	.....	1,779
Michigan	3,406	431	169	65	61	24	2,656
Minnesota	3,164	335	189	39	44	33	2,524
Mississippi	508	174	52	3	6	4	269
Missouri	1,679	365	157	37	29	55	1,036
Montana	582	95	56	9	15	4	403
Nebraska	1,867	329	131	11	29	26	1,341
Nevada	119	5	8	6	1	1	98
New Hampshire	407	79	55	2	21	2	248
New Jersey	2,457	329	111	42	58	1	1,916
New Mexico	173	26	24	4	1	3	115
New York	9,211	778	440	268	125	12	7,588
North Carolina	849	304	39	15	13	11	467
North Dakota	730	151	65	3	11	20	480
Ohio	4,877	742	349	141	39	17	3,589
Oklahoma	832	256	66	21	16	32	441
Oregon	470	106	65	2	76	4	217
Pennsylvania	5,667	918	318	216	85	17	4,113
Rhode Island	343	62	19	4	3	3	252
South Carolina	602	264	20	12	1	.....	305
South Dakota	884	128	64	7	12	17	656
Tennessee	872	285	82	21	2	21	461
Texas	1,494	484	129	28	25	33	795
Utah	223	12	35	3	12	.....	161
Vermont	304	71	47	5	17	8	156
Virginia	1,258	344	91	20	13	15	775
Washington	1,103	185	131	12	26	14	735
West Virginia	712	171	67	23	1	11	439
Wisconsin	1,891	297	218	41	56	46	1,233
Wyoming	204	20	12	1	1	.....	170
Foreign and miscellaneous	2,432	563	2	.....	.....	14	1,853

An interesting study of the way in which requests have been received by the service for the last six months is shown in the accompanying graph. The rise in February of the total number of requests received from all sources is due to the 11,000 requests received from ministers; the rise in May is due to the requests from educators for monographs. The large number of requests with which the record begins is due to the fact that the results from the initial circularization in November were still coming in. The decline in June is probably due to the gradual absorption of the work by State boards of health

and to the fact that no special appeal has recently been made. It will be noticed that the line indicating the requests referred to State boards of health for compliance tends to approach the line indicating the routine requests. This tendency should be increasingly apparent as the States take over more and more of the work.

Graph showing requests for pamphlets received and referred to State boards of health

January 1, 1919 – June 30, 1919



In addition to the requests referred to them by the bureau, the States have reported receiving 174,683 requests, making a total in in all of 251,981 received during the year.

The records of the division show 10,120,772 pamphlets distributed in response to requests received, in general circularizations, to State boards of health, to Public Health Service officers, and to other inter-

ested organizations. The State boards of health and the clinics operating under State or Federal auspices report 8,234,963 pamphlets distributed. Deducting the pamphlets sent by the division to State boards of health and to the clinics, the total distribution throughout the United States has been 14,138,166.

Placards.—The bureau arranged with the Railroad Administration for the posting of framed placards of warning against venereal diseases in all men's toilets of railway cars, and 47,325 placards have been posted in this way.

Through the cooperation of the State boards of health similar placards are being posted in the men's toilets of all railway stations in 44 States. The following 26 States are using the division placard, and have purchased for this purpose 17,567 framed cards:

Alabama.	Kansas.	North Carolina.
Arizona.	Louisiana.	North Dakota.
Arkansas.	Maine.	Oklahoma.
California.	Maryland.	South Dakota.
Delaware.	Mississippi.	Utah.
Florida.	Montana.	Virginia.
Georgia.	Nebraska.	Washington.
Illinois.	New Jersey.	
Iowa.	New Mexico.	

The following 18 States are posting placards of their own:

Colorado.	Minnesota.	Rhode Island.
Connecticut.	New Hampshire.	South Carolina.
Idaho.	New York.	Texas.
Indiana.	Ohio.	Vermont.
Massachusetts.	Oregon.	West Virginia.
Michigan.	Pennsylvania.	Wisconsin.

Lectures.—Efforts have been made by the bureau to reach national and State meetings of civic, social, industrial, and fraternal organizations through lectures and addresses given by the State venereal-disease control officer or other available service representatives. During the war numbers of lectures were given by volunteers who were interested in the success of the work. Reports of 428 lectures, with a total attendance of 94,215, have been received as given under service auspices. At 74 of these lectures films or other exhibit material were used, and at 70 of these meetings resolutions of approval were adopted. Among the national organizations addressed were the following: American Association of Railway Surgeons, American Boiler Manufacturers' Association, American Hospital Association, American Home Economics Association, American Institute of Criminal Law and Criminology, American Medical Association, American National Association of Pharmaceutical Chemists, American Public Health Association, American Society of Sanitary Engineers, International Labor Press Association, National Conference of Social Work, and National Fraternal Congress of America.

The State boards of health have reported 7,210 lectures with an average attendance of 181. At 627 of these lectures exhibit material was used. Of these 7,210 lectures 83 were given at the request of the service and have been reported above. The clinics have reported a total of 654 lectures.

The total of all lectures given of which the bureau has received reports is 8,209, with an average attendance of 201.

Conferences.—A total of 16 conferences have been held under service auspices. Of these, 12 were conferences with educators and 4 were held in Washington and vicinity in the medical and allied colleges. Exhibit material was shown at all conferences and resolutions of indorsement of the Government's program adopted.

Publicity work.—The Social Hygiene Monthly, a special eight-page publication, was issued under the joint auspices of the War Department, Commission on Training Camp Activities, and the Public Health Service from October, 1918, to April, 1919. Its aim was to present in semipopular form authentic information concerning the campaign for controlling venereal diseases as carried on by both the commission and the service. The mailing list of 30,000 included Army, Navy, and service officers in charge of clinics and hospitals. It included also such civilian groups as officers of medical societies, State and city health officers, hospital superintendents, fraternities, teachers, churches, trade-union officers, publications, many commercial organizations and legislators. The number of miscellaneous names added to the list upon request steadily increased throughout the winter. Voluntary response from these various groups was hearty and uniformly favorable, and expressed not only interest in the campaign but a desire to be of service.

The bureau has a mailing list of about 50 fraternal periodicals which receive monthly venereal-disease control articles for publication. In addition to these, such articles have been sent to over 600 house organs of various industrial establishments and to medical and allied colleges and universities. A total of 3,228 articles have been sent out, and 157 copies of periodicals containing the material sent have been received, with a circulation aggregating about 4,470,756.

A course of study dealing with venereal diseases has been prepared for the Health Study Club of the Review of Reviews and is being issued to supplement 14 lessons in general health culture, prepared with the sanction of the Life Extension Institute.

SPECIAL FEATURES.

In carrying on the educational campaign, the bureau has endeavored to secure the cooperation of groups whose influence and assistance have been felt to be particularly desirable. The following special features of the campaign have therefore been developed. The results of these special lines of endeavor have been included as far as possible under the general summary just completed and should not be regarded as additional data.

The draft campaign.—One of the features of the lecture work was the campaign for the instruction of class I registrants inaugurated in the fall of 1918. Bulletin No. 8 of the Provost Marshal General's Office outlined the plan of this campaigh. According to this plan, the service engaged to furnish leaflets of warning sufficient for every man called for physical examination, to be shipped to State adjutants general offices in proportion to estimated quotas, allowance to be made for waste and excess orders; to secure the cooperation of State boards of health or other competent State agency in furnishing competent speakers to reach every district, under the direction of regional supervisors to be chosen by the service; to request that each State adjutant general instruct all local draft boardsto call meetings of all class I

registrants in their districts to be addressed by the service speakers in accordance with the itinerary furnished them, and to distribute the leaflets of warning to all applicants for physical examination at the time of examination. To carry out this plan 3,143,700 copies of Venereal Disease Bulletin No. 28, entitled "Come Clean," were sent to the State adjutants general for distribution to the local draft boards; lecturers were appointed in each State under the direction of eight regional consulting supervisors appointed by the service.

This work had just been launched when the influenza epidemic quarantined practically the entire country. The signing of the armistice followed the epidemic, and, although an effort was made to have the work continued, a return of the influenza and the difficulty of getting the men together impaired the success of the work and in many States made it impossible. The 2,286,912 pamphlets distributed to registrants are included in the total number of pamphlets distributed by State boards of health and clinics mentioned above. Reports from 24 States estimate that 201,694 men received special instruction in social hygiene, especially venereal diseases, as a result of this campaign. The following table contains the reports received of this campaign.

State report of draft instruction campaign, July 1, 1918–June 30, 1919.

Name.	Number of men given draft instruction.	Number of copies of Venereal Disease Bulletin No. 28 distributed.	Name.	Number of men given draft instruction.	Number of copies of Venereal Disease Bulletin No. 28 distributed.
United States	201,694	2,286,912	Missouri		80,000
			Montana	797	20,157
Alabama	3,534	37,151	Nebraska		30,726
Alaska		2,000	Nevada		3,216
Arizona	1,105	10,574	New Hampshire[1]		
Arkansas	803	38,714	New Jersey	970	100,000
California	5,680	100,000	New Mexico		8,655
Colorado		7,500	New York	8,294	271,409
Connecticut	2,000	39,585	North Carolina	5,000	60,000
Delaware[1]			North Dakota		13,000
District of Columbia	350		Ohio	14,703	252,548
Florida		22,212	Oklahoma		47,629
Georgia	46,517	10,000	Oregon	23,292	21,377
Idaho		11,634	Pennsylvania[1]		
Illinois	1,275	170,426	Rhode Island	14,000	20,000
Indiana	22,550	70,170	South Carolina		40,000
Iowa	6,407	65,000	South Dakota		15,649
Kansas		50,000	Tennessee		51,522
Kentucky[1]			Texas		105,518
Louisiana		41,826	Utah		10,645
Maine	5,488	20,000	Vermont[1]		
Maryland		40,000	Virginia		50,211
Massachusetts	13,950	10,000	Washington	5,730	38,515
Michigan	10,400	90,223	West Virginia	2,156	30,000
Minnesota	2,005	57,259	Wisconsin		70,000
Mississippi	4,688	45,000	Wyoming		6,861

[1] No draft instruction reported.

Industries and commercial organizations.—The lack of man power and the need for intensive production during the war emergency gave the appeal to the essential industries of the country to adopt educational and medical measures to insure the health of their em-

ployes against venereal diseases, a special significance as a program of social and economic value.

Considerable work had been done in this field prior to July 1, 1918, when all venereal-disease control work was centered in the Public Health Service. The War Department Commission on Training Camp Activities had extended the military program to industries in the zones around mobiliaztion and training camps, munitions factories, etc. Several States in which social hygiene societies had been established had undertaken the work on a small scale. The committee on civilian cooperation of the Council of National Defense had also done some preliminary general work extending to industries here and there. With the establishment of the division of venereal diseases all this work came under the direction of the service and has been absorbed by it. This report, therefore, combines the activities of the commission with that which has been subsequently accomplished under the direction of the bureau.

Being without funds to provide free educational material for the millions of workers to be reached, the commission had inaugurated a self-supporting so-called industrial program. This program showed by circular letter and "Outline of the Plan" how employers could at a small expense to themselves provide educational material for their employes, the argument being that such educational work would directly and indirectly increase the efficiency of the plant and was commensurately as necessary as other forms of plant sanitation or other health safeguards.

The industrial program, comprising Venereal Disease Bulletins Nos. 12 to 20, that has been sent to the managing executives of 57,000 establishments with a letter explaining the prevalence of venereal diseases, and the need for controlling them, includes the following eight pieces:

1. "An Outline of the Plan" suggested to employers for eradicating and controlling venereal diseases. This plan incorporates suggestions for distributing literature; arranging interviews between employes and executives; physical examinations; investigation of health conditions in families of infected workers; disposal of cases through physician, clinic, or hospital; provision for leave of absence with pay for workers in active stages of infection; confidential record of infected cases; and proposal for exercising vigilance in watching employes under treatment and discharged as cured.
2. "Instructions to the Foreman or Superintendent, or other Individuals Intrusted with the Execution of the Venereal-Disease Educational Plan."
3. "Your Job and Your Future," a pamphlet to be given to men employes.
4. "Beware," a special placard of warning against prostitutes, citing consequences of neglecting venereal infection.
5. A series of 10 consecutive pay-envelope inclosures.
6. A proposed bulletin to be posted in the plant on the first day of the distribution of literature, to be typed on the company letterhead and signed by the managing executive, or reprinted in placard style.
7. Two leaflets, "Facts about Gonorrhea" and "Facts about Syphilis," with personal advice to the patient.
8. A confidential report card for keeping account of investigation and treatment of cases.

A similar program, condensed, and including only a general letter, a placard for women's rest rooms and toilets, a set of 10 pay-envelope inclosures, and a pamphlet for girls and women, has been used also, although this material has not carried the service imprint, as has been the case with the material used for men.

As a result of the appeals made, 760 firms have purchased material for men in quantities indicated in the following table, at an approximate cost of $10,000, and 252 firms have purchased material for women, making a total of 1,012 firms and 668,668 pieces of material:

Report of pieces of the industrial program purchased by industrial establishments, July 1, 1918–June 30, 1919.

	Number of firms.	Total pieces purchased.	Instructions to superintendents.	Confidential report cards.	Framed United States Public Health Service placards.	Facts about gonorrhea and syphilis.	Your Job and Your Future.	Sets of pay-envelope slips (10 pieces to a set).	"Beware" placards, unframed.
United States	760	599,391	4,774	23,539	831	127,284	288,979	135,017	18,967
Alabama	6	10,349	116	600	9	5,164	2,500	1,750	210
Arizona[1]	3	13,356	86	100	.....	8,220	3,600	1,100	250
Arkansas[2]	5	4,835	21	400	.....	717	2,200	1,400	97
California[3]	19	8,576	129	450	8	1,510	3,330	2,900	249
Colorado	2	1,200	24	150	.....	240	750	.....	36
Delaware	2	16,440	114	100	6	.....	10,244	5,750	226
District of Columbia	1	.....	.....	.....	.....	.....	.....	.....	.....
Florida	3	1,019	2	.....	3	540	.....	400	74
Georgia	4	2,860	45	125	.....	410	1,150	1,050	80
Hawaii	1	548	2	200	6	40	200	.....	100
Illinois[2 3]	66	44,578	678	2,945	103	6,414	17,860	14,510	2,068
Indiana[2]	16	18,905	592	510	12	6,024	6,750	4,400	617
Iowa	2	1,109	12	11	.....	120	700	200	66
Idaho[4]	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kansas	1	1,667	12	25	15	100	1,100	400	15
Kentucky	3	1,647	6	100	90	150	800	412	89
Louisiana[2]	9	4,502	46	300	73	1,720	750	1,350	263
Maryland	8	2,311	14	50	.....	410	850	900	87
Michigan[2]	46	19,748	218	650	49	3,094	8,050	7,070	617
Minnesota[2 3]	20	7,852	69	2,150	2	440	2,150	2,850	191
Mississippi	1	1,410	10	100	.....	200	500	500	100
Missouri	20	12,173	126	925	3	1,490	4,950	4,160	519
Montana[4]	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska	3	3,660	10	100	.....	200	1,900	1,200	250
Nevada	1	240	.....	.....	.....	20	200	.....	20
New Jersey[2]	37	27,820	170	809	68	2,010	8,050	13,875	2,838
New York[2]	83	35,659	250	1,700	95	6,170	14,287	12,210	947
North Carolina	6	775	7	100	.....	200	200	200	68
North Dakota[4]	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio[1 2]	67	36,828	435	2,001	80	2,863	17,678	12,511	1,260
Oklahoma	4	6,483	164	520	1	390	2,550	2,600	258
Oregon	2	214	2	.....	3	30	100	50	29
Pennsylvania[1]	83	199,073	300	1,875	73	63,856	116,378	14,600	1,991
South Carolina	15	5,676	32	500	.....	760	2,575	1,420	339
South Dakota[4]	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee[2]	15	5,411	174	800	4	810	2,100	1,360	163
Texas[2]	13	6,232	60	500	19	1,188	2,550	1,550	365
Utah	2	578	2	.....	16	150	300	100	10
Virginia	4	2,140	4	100	50	150	650	950	236
Washington[2]	8	3,113	43	150	21	450	1,650	750	49
West Virginia	5	5,421	32	1,100	9	500	2,200	1,300	280
Wisconsin	9	19,163	37	700	2	1,574	8,535	7,975	340
Wyoming	.....	.....	.....	.....	.....	.....	.....	.....	.....
New England:[5]									
Massachusetts	100								
Rhode Island	14								
Connecticut	21								
Vermont	1	71,820	730	2,643	11	8,960	38,642	17,264	3,570
New Hampshire	9								
Maine	16								
Foreign	4								

[1] Pieces of the industrial program reprinted by industrial establishments not included.
[2] Special emphasis given the industrial campaign by United States Public Health Service representatives.
[3] Pieces of the industrial program reprinted by the State boards of health not included.
[4] No purchases of pieces of the industrial program reported.
[5] The industrial campaign in New England directed from a regional office in Boston until May 1, 1919; no separate record for each State kept, on account of New England's industrial grouping.

Report of pieces of the industrial program purchased by industrial establishments for women employes, July 1, 1918–June 30, 1919.

Name.	Number of firms.	Total pieces of educational material.	Pamphlets.	Placards.	Sets pay-envelope inclosures.
United States	252	69,277	52,726	3,345	13,206
California [1]	14	1,106	700	76	330
District of Columbia	2	110	100	10	.....
Georgia	1	203	200	3	.....
Illinois [1]	35	2,236	1,700	211	325
Indiana	1	178	100	78	.....
Iowa	2	507	445	12	50
Kansas	1	50	50	.....	.....
Louisiana	2	500	500	.....	.....
Maryland	3	510	300	10	200
Michigan	14	2,467	1,810	142	515
Missouri	1	3,000	3,000	.....	.....
New Jersey	12	1,198	870	28	300
New York	36	9,779	6,080	629	3,070
North Carolina	1	400	250	50	100
Ohio	21	3,810	2,200	410	1,200
Oregon	1	361	250	11	100
Pennsylvania	18	4,030	2,975	100	955
Tennessee	2	722	350	22	350
Washington	7	1,149	900	49	200
Wisconsin	8	2,890	2,060	70	760
New England: [2]					
Massachusetts					
Rhode Island					
Vermont	70	34,071	27,886	1,434	4,751
New Hampshire					
Connecticut					
Maine					

[1] Pieces of the industrial program reprinted by the State boards of health not included.
[2] The industrial campaign in New England directed from a regional office in Boston until May 1, 1919; no separate record for each State kept, on account of New England's industrial grouping.

In addition to the 1,012 firms that have bought literature of the program, at least 7 have reprinted locally parts of the program for use among their employees. Five firms have translated or obtained translations and reprinted material for non-English-speaking employees.

It has been considered impracticable to follow up all circular letters sent out with a view to ascertaining how many of the establishments have furnished medical service for venereal-disease patients. When an employer has purchased material, however, an effort has been made to ascertain whether he would provide medical service. The answers received indicate beyond reasonable doubt that 280 industrial establishments have introduced some form of medical service for handling such cases. Of these 280 firms, 155 have purchased 23,539 confidential report cards for keeping record of venereal-disease cases in their plants. These report cards are similar to those used by the service and State boards of health in the clinics.

The total of 10,120,772 pamphlets distributed by the service reported on page 270 includes 653,720 pieces of the industrial program distributed to industrial and mercantile establishments, commercial clubs, and industrial organizations in general circularizations. It also includes 224,793 other venereal-disease educational bulletins distributed in response to requests.

Three of the copies of the film "Fit to Win" were loaned to the Y. M. C. A. for use in industrial centers, with the result that 153 showings have been made in 71 centers with a total attendance of

44,487, mostly industrial workers. These results are also included in the general summary of film exhibitions.

Two articles describing the need for venereal-disease control have been sent to 600 house organs of industrial establishments. The first article 132 establishments definitely agreed to print, and 80 others reported that they probably would do so. Examination of the copies of house organs received by the division show that 106 actually did print the articles, giving them a circulation of 3,500,000. These totals are included in the general summary of publicity work.

As developments of the industrial campaign, appeals have been made to 800 chambers of commerce and other commercial clubs, 1,000 letters have been sent to labor unions, and a special campaign has been carried on with the 400 rotary clubs of the country. The responses received from appeals to labor unions are significant as showing that employees as well as employers are interested in promoting the work. At the annual convention of the American Federation of Labor held in Atlantic City in June a resolution indorsing the service program of control and eradication of venereal diseases, and calling upon organized labor to familiarize itself with this program and to give all possible assistance in carrying it out, was adopted.

Rotary clubs.—At the 1918 convention of the International Association of Rotary Clubs a resolution was adopted in which a realization of the dangers of venereal diseases and the general need for education in the seriousness of these diseases was expressed, and in which this association undertook to assist in a comprehensive educational campaign through committees appointed in each club and through the showing of the social-hygiene motion-picture films indorsed by the Government. Later resolutions adopted by the board of directors of this association pledged the support of the clubs in the United States to the program of the Public Health Service, the object of this support and cooperation being "to arouse in each community an appreciation of the seriousness of responsibility on the part of the community to protect itself from such diseases which, it has been discovered, are destroying the man power of the Nation and to prevent the communication of such diseases to other communities."

Churches.—A letter was addressed to about 95,000 ministers in January inclosing the "Message from the Government to the churches of America." February 23 was designated as "Health Sunday," and the ministers were asked to call the attention of their congregations on that Sunday to the venereal-control work being carried on. Replies to this letter were received from 12,984 ministers asking for pamphlets, as reported by States on the table of total requests received by the Bureau, on page 269. Later in the spring a questionnaire was sent to these 12,000 ministers asking for a report of the work which they have been doing. Of the 2,862 ministers replying to this query, 2,302 have delivered social-hygiene sermons, 985 have held meetings for men and women, 456 have appointed committees for intensive work, and 2,176 are working through the parents in their churches for the sex education of children.

Boys in high school and industry.—When the boys' "Keeping Fit" card and lantern-slide exhibits were completed the latter part of March, a campaign was launched by the service through the State

boards of health and the Y. M. C. A. to show these exhibits to boys and young men in all the high schools and Y. M. C. A's of the country. The details of the campaign have been arranged in the various States. In States where the State boards of health are working with the Y. M. C. A., the association is furnishing men to show the exhibits both in the high schools and the association buildings and the State boards are paying the traveling expenses. In the following 41 States the State boards of health and the Y. M. C. A. are working together, in 21 of which the State Y. M. C. A secretaries have been officially given charge of the work:

Arizona.	Kentucky.	New York.
Arkansas.	Louisiana.	North Carolina.
California.	Maine.	Ohio.
Colorado.	Maryland.	Oklahoma.
Connecticut.	Massachusetts.	Oregon.
Delaware.	Michigan.	Rhode Island.
District of Columbia.	Minnesota.	South Carolina.
Florida.	Mississippi.	Tennessee.
Georgia.	Missouri.	Texas.
Idaho.	Montana.	Virginia.
Illinois.	Nebraska.	Washington.
Indiana.	New Hampshire.	West Virginia.
Iowa.	New Jersey.	Wisconsin.
Kansas.	New Mexico.	

In the following four States the State boards of health are working independently of the Y. M. C. A.:

Alabama.	North Dakota.	South Dakota.	Utah.

In the following three States the Y. M. C. A. is working independently:

Nevada.	Pennsylvania.	Vermont.

No work has as yet been inaugurated in Wyoming.

Reports of 632 showings have been received from State boards of health reaching 59,810 boys. These reports are further supplemented by the number of exhibit showings included on the annual reports of State boards of health as tabulated on page 263. In some States the work has not yet begun, and in others reports are being held by the State board of health until the campaign shall be completed, so that they may all be submitted at once. These facts will account for the apparent inactivity on the part of the States as shown in the following table:

Report of the boys' "Keeping Fit" campaign, May 1, 1919–June 30, 1919.

Name.	Total attendance, State board of health—Y.M.C.A.	State board of health auspices.		Y. M. C. A. auspices.				
		Showings.	Attendance.	Number of associations.	Total attendance.	Students.	Employed.	Not specified.
United States. Total	251,798	632	59,810	239	191,988	41,404	10,549	140,035
United States. Average	.....	.....	95	.....	844	.....	.....	.....
Alabama	3,075	8	1,375	3	1,700	100	.....	1,600
Arizona	724	[1] 4	122	6	602	420	182	.....
Arkansas	8,777	58	7,577	2	1,200	500	100	600
California	16,345	81	8,379	20	7,966	7,280	611	75
Colorado	4,594	[1] 2	534	3	4,060	1,400	380	2,280
Connecticut	6,110	[1] 5	315	4	5,795	2,400	600	2,795
Delaware	142	1	42	1	100	.....	.....	100
District of Columbia	56	(1)	.....	1	56	.....	.....	56
Florida [2]	.....	.....	.....	.....	.....	.....	.....	.....
Georgia	866	(1)	.....	4	866	122	86	658
Idaho	1,000	.....	.....	1	1,000	.....	.....	1,000
Illinois	12,506	43	2,701	14	9,805	4,255	3,250	2,300
Indiana	12,045	[1] 5	955	13	11,090	300	100	10,690
Iowa	13,236	106	10,211	6	3,025	2,450	.....	575
Kansas	2,049	26	1,024	4	1,025	585	65	375
Kentucky	250	(1)	.....	1	250	.....	.....	250
Louisiana	1,612	40	1,612	.....	.....	.....	.....	.....
Maine	1,000	.....	.....	1	1,000	.....	.....	1,000
Maryland	250	.....	.....	1	250	.....	.....	250
Massachusetts	18,575	[1] 3	165	15	18,410	100	45	18,265
Michigan	40,393	(1)	.....	14	40,393	1,600	970	37,823
Minnesota	9,165	10	1,092	4	8,073	413	80	7,580
Mississippi	1,624	24	1,006	3	618	320	18	280
Missouri	9,025	2	425	6	8,600	25	75	8,500
Montana	1,886	33	1,830	2	56	.....	30	26
Nebraska	130	(1)	.....	1	130	.....	.....	130
Nevada	600	.....	.....	1	600	500	100	.....
New Hampshire	737	1	52	4	685	240	95	350
New Jersey	3,136	6	233	14	2,903	15	45	2,843
New Mexico [2]	.....	.....	.....	.....	.....	.....	.....	.....
New York	18,936	(1)	.....	19	18,936	1,010	1,040	16,886
North Carolina	3,446	37	2,678	5	768	.....	.....	768
North Dakota	65	(1)	.....	4	65	50	.....	15
Ohio	17,728	32	7,751	16	9,977	7,237	755	1,985
Oklahoma	2,200	.....	.....	2	2,200	.....	.....	2,200
Oregon	1,231	16	944	2	287	77	210	.....
Pennsylvania	7,075	.....	.....	7	7,075	2,015	800	4,260
Rhode Island	3,500	.....	.....	1	3,500	.....	.....	3,500
South Carolina	2,410	12	1,750	8	660	210	50	400
South Dakota	475	6	475	.....	.....	.....	.....	.....
Tennessee	1,400	1	450	4	950	700	150	100
Texas	900	8	540	2	360	240	.....	120
Utah	.....	(1)	.....	.....	.....	.....	.....	.....
Vermont [2]	.....	.....	.....	.....	.....	.....	.....	.....
Virginia	6,828	5	428	3	6,400	.....	.....	6,400
Washington	10,999	54	4,679	9	6,320	5,750	170	400
West Virginia	2,350	(1)	.....	3	2,350	250	.....	2,100
Wisconsin	2,347	[1] 3	465	5	1,882	840	542	500
Wyoming [2]	.....	.....	.....	.....	.....	.....	.....	.....

[1] See State report of educational activities—exhibit and slide showings.
[2] No reports received.

An interesting experiment is being made in Indiana, where each high-school boy seeing the exhibit and hearing the talk was asked to write his impressions of it. A study of these reports will give an interesting and valuable record of the actual effect produced by the exhibit on the boys.

Educators.—The problem of having adequate sex instruction given in the secondary schools of the country is recognized as one of great importance. Correct sex information should be given to boys and girls before they pick up the misinformation prevalent among the young, which may ultimately lead to venereal infection. The problem, therefore, has been to develop a program which will point

out the right way of presenting sex instruction and to caution teachers everywhere against the evils which result when the subject is not correctly handled.

In developing a program for sex instruction two lines of presentation are recommended—direct sex instruction in connection with such courses as physiology, biology, physical hygiene, civics, domestic science; and indirect sex instruction through English and other subjects through which sane ideals of sex may be instilled in the minds of the pupils. The bureau is not advocating that special courses on social hygiene be given or that undue emphasis be placed by teachers on this subject when presented as a part of other courses.

One of the difficulties in introducing sex education in schools is the fact that so few teachers are equipped with the necessary knowledge for teaching the subject. It is not only essential that the teacher have a knowledge of the facts involved, but he must also be familiar with the psychology of sex instruction in order to present his subject in a way that will produce the proper effect upon his pupils.

Before any program for sex instruction could be introduced in the schools, the bureau considered it essential to secure the interest and intelligent cooperation of educators. This has been done through a series of 12 educational conferences and through the distribution of monographs.

The educational conferences have been held in different States under the joint auspices of the Public Health Service and the Bureau of Education. The programs have been indorsed by the leading colleges and universities in the States in which the conferences have been held.

Prior to the holding of a conference, invitations and programs are sent to all superintendents and principals of high schools in the State, asking them to invite such teachers as will be interested in the work of the conference. The conferences are usually of two days' duration. At the first general session the need for sex education is discussed and the program for sex instruction presented by experts; the work of the service and the Bureau of Education is outlined; and a motion-picture film is shown, usually "How Life Begins." This session is followed by round-table discussions of the problems involved. The conference closes with another general session at which the work of the conference is summarized and resolutions adopted.

During the past year the 12 following conferences have been held with an average attendance of 206:

Date.	Place.	Scope.	Attendance.
Nov. 23, 1918	Philadelphia, Pa	State	151
Dec. 6–7, 1918	New Haven, Conn	do	151
Dec. 13–14, 1918	Newark, N. J	do	151
Jan. 10–11, 1919	Washington, D. C	Interstate	120
Feb. 14–15, 1919	Raleigh, N. C	State	250
Feb. 26, 1919	Chicago, Ill	do	175
Mar. 14–15, 1919	Cincinnati, Ohio	Southern Ohio	450
Mar. 28–29, 1919	Pittsburgh, Pa	Western Pennsylvania	276
Apr. 11–12, 1919	Nashville, Tenn	State	110
Apr. 25–26, 1919	Indianapolis, Ind	do	260
May 16–17, 1919	Detroit, Mich	Southern Michigan	170
May 23–24, 1919	New York City	Eastern New York	110

Interest in these conferences has been very gratifying, and numerous requests have been received from educators desiring to have conferences held in different parts of the country.

Realizing that it would be impossible to reach all interested educators through these conferences, the service and the Bureau of Education are using a series of monographs dealing with the problems of sex education in schools. They are:

"Problems and Principles of Sex Education," Dr. M. J. Exner.

"The Place of Sex Education in Biology and General Science," Venereal Disease Bulletin No. 41.

"A High School Course in Physiology in which the Facts of Sex are Taught," Venereal Disease Bulletin No. 50

"The Problem of Sex Education in Schools," Venereal Disease Bulletin No. 7.

Libraries.—In October, 1918, a circular letter was sent to about 65,000 public libraries in the United States urging them to adopt the plan prepared for the use of libraries to educate parents to a proper realization of the necessity for the sex instruction of their children. According to the plan each library is to purchase copies of approved books on sex education, to be used for general circularization and for references. After the purchase of these books letters are to be sent to all parents in the community calling their attention to the need for the adequate sex education of children and urging them to use the books available in the library. Over 400 libraries expressed their willingness to cooperate with the service in promulgating this plan.

Work among the colored.—Since the first of March the bureau has had a special officer detailed to the work of venereal-disease control among the colored population of the country. The high rate of prevalence of these diseases in the Southern States and the high rate of illiteracy in the colored race make this phase of the work important as well as difficult.

Two colored lecturers have been in the field working under the direction of the State boards of health, with the result that 148 lectures have been given with a total attendance of 36,092. Addresses have been given by these lecturers in 13 States in 47 different localities.

City grading.—Perhaps the most far-reaching phase of the educational work is the city-grading program which was started in March. The purpose of this campaign is to arouse communities to a realization of their responsibility in the matter of venereal-disease control, and by means of a series of gradings, based on work done, to stimulate a healthy rivalry among the cities of the country that will induce them to endeavor to improve local conditions.

In accordance with this program 710 cities having a population of 10,000 and over are to be graded on the basis of 1,000 points according to the medical, educational, and law-enforcement measures adopted and put into operation. An outline of measures and the schedule of points follow:

I. Medical measures.

	Points.
1. A free clinic	125
2. Facilities for hospital treatment, including facilities for detention and isolation of carriers	50
3. Venereal-disease control ordinance or regulations	75
4. Elimination of advertising quacks and of the sale of venereal-disease nostrums	50
Total	300

II. Educational measures.

1. Educational placards	50
2. Educational pamphlets	65
3. Educational books	20
4. Educational lectures	50
5. Motion pictures	65
6. Exhibits	50
Total	300

III. Law-enforcement measures.

1. Law prohibiting prostitution	25
2. Rooming-house and hotel-licensing law	30
3. Dance-hall ordinance	25
4. Law regulating taxicabs and for-hire automobiles	20
5. Adequate detention facilities	50
6. Rehabilitation facilities	25
7. Institution for feeble-minded	25
8. Enforcement of law	100
Total	300

IV. Cooperation.

Teamwork	100
Grand total	1,000

The plan for rating cities is graphically described in Venereal Disease Bulletin No. 48, "How to Fight Veneral Diseases in Your City."

Educational activities, statistical report.

SUMMARY.

[July 1, 1918–June 30, 1919.]

Requests for pamphlets received by the United States Public Health Service and State boards of health from health officers, physicians, hospitals, nurses, civic organizations, libraries, churches, educators, editors, Y. M. C. A's industries, etc	251,981
Pamphlets distributed by the United States Public Health Service, the State boards of health, and the clinics	14,138,166
Framed placards posted in railway cars and stations by the United States Public Health Service and State boards of health	64,892
Pamphlets purchased or reprinted by State boards of health	10,510,524
States equipped with full sets of venereal-disease educational pamphlets	41
Different pamphlets issued by the United States Public Health Service	50
Boys reached in the "Keeping Fit" campaign	251,798
Drafted men reached in the draft campaign	201,694
Lectures, conferences, exhibit, and motion-picture-film showings reported by the United States Public Health Service, State boards of health, and the clinics	11,792
Cities in which approved organizations have undertaken the city campaign	70

Educational activities, statistical report.

[July 1, 1918–June 30, 1919.]

I. Pamphlets:		
(A) Requests for pamphlets received—		
(1) By the United States Public Health Service from—		
(*a*) Individuals	48,855	
(*b*) Public officials and organizations	26,877	
(*c*) Industries	1,566	
Total requests received by United States Public Health Service		77,298
(2) By State boards of health from—		
(*a*) The United States Public Health Service for compliance	19,032	
(*b*) The public	174,683	
Total requests received by State boards of health		193,715
(3) Gross total requests for pamphlets received		271,013
Minus requests received by State boards of health from the United States Public Health Service		19,032
(4) Net total requests for pamphlets received		251,981

I. Pamphlets—Continued.

(B) Pamphlets distributed—

(1) By the United States Public Health Service—

(a) In response to requests received from—

(1a) Individuals	422,961		
(2a) Public officials and organizations	2,666,070		
(3a) Industries	224,793		
(b) Directly to—			
(1a) The public—official mailing lists and general circularizations	[1] 2,183,655		
(2a) State boards of health	831,029		
(3a) States in draft campaign	3,143,700		
(4a) United States Public Health Service field officers	242,658		
(5a) Cooperating field agencies	405,906		
Total pamphlets distributed by the United States Public Health Service		10,120,772	
(2) In the field by—			
(a) State boards of health	5,817,042		
(b) States in draft campaign	2,286,912		
(c) United States Public Health Service clinics	[2] 131,009		
Total pamphlets distributed in the field		8,234,963	
(3) Gross total pamphlets distributed		18,355,735	
Minus pamphlets distributed by the United States Public Health Service to—			
(a) State boards of health	831,029		
(b) States in draft campaign	3,143,700		
(c) United States Public Health Service field officers	242,840		
Total subtracted		4,217,569	
(4) Net total pamphlets distributed			14,138,166

(C) Framed placards posted by—

(1) United States Public Health Service in railway cars	47,325
(2) United States Public Health Service and State boards of health in railway stations	17,567
Total	64,892
(D) Pamphlets purchased and reprinted by State boards of health	[3] 10,510,524
(E) Pieces of the industrial program purchased by industrial establishments	668,668
(F) Different United States Public Health Service pamphlets issued	50

II. Lectures, addresses, and conferences:

(A) Lectures and addresses—

	United States Public Health Service.	State boards of health.	Clinics.	
(1) Lectures and addresses reported by	428	7,210	654	
Average attendance	220	181	444	
(2) Meetings under (1) at which films or slides were shown	74	627		
(3) Meetings under (1) at which resolutions were adopted	70			
(4) State boards of health meetings under (1) included in the United States Public Health Service report deducted from the total		83		
(5) Total meetings reported				8,209
Average attendance				201
(6) States reporting lectures to drafted men				24
(7) Men reported reached in draft instruction campaign				201,694

NOTE.—It is not known how much of the work with drafted men is included in the State reports. It is, therefore, entered as a separate item.

(B) Conferences reported by the United States Public Health Service	16
Average attendance	184
Conferences reported at which resolutions were adopted	16

III. Exhibits, lantern slides, and motion-picture films:

(A) Exhibits and lantern slides—

(1) Exhibits loaned by the United States Public Health Service to—

(a) State boards of health	272
(b) United States Public Health Service officers	10
(c) Y. M. C. A's	47
(d) Others	31
Total loans of exhibits made by the United States Public Health Service	360

[1] Includes 653,720 pieces of the industrial program.
[2] Equals the number of persons receiving pamphlets.
[3] Includes 71,300 physicians' manual of treatment.

III. Exhibits, lantern slides, and motion-picture films—Continued.

(A) Exhibits and lantern slides—Continued.

(2) Exhibits purchased by—

(a) State boards of health	76
(b) Y. M. C. A's	51
(c) Others	17
Total exhibits purchased	144

(3) Lantern-slide sets loaned by the United States Public Health Service to—

(a) State boards of health	169
(b) Y. M. C. A's	12
(c) Others	10
Total loans of lantern slide sets made by United States Public Health Service	191

(4) Lantern-slide sets purchased by—

(a) State boards of health	49
(b) Y. M. C. A's	27
(c) Others	1
Total lantern-slide sets purchased	77

	United States Public Health Service.	State boards of health.	
(5) Exhibit and lantern-slide showings reported by	649	1,698	
Average attendance	103	215	
(6) State boards of health showings under (5) included in the United States Public Health Service report deducted from the total	—	400	
(7) Total showings reported			1,930
Average attendance			179

	United States Public Health Service.	State boards of health.	
(8) Y. M. C. A's reporting showings of exhibits and lantern slides, reported by	239	18	
Average attendance	844	997	
(9) State boards of health report of Y. M. C. A's under (8) included in United States Public Health Service report deducted from the total	—	18	
(10) Total Y. M. C. A's reporting showings			239
Average attendance			844

(B) Motion-picture films:

(1) Motion-picture films loaned by the United States Public Health Service to—

(a) State boards of health	19
(b) United States Public Health Service officers	16
(c) Rotary Clubs	83
(d) Y. M. C. A's	146
(e) Universities, colleges, schools	67
(f) Other agencies	72
Total loans of films by the United States Public Health Service	403
(2) Other loans of films to State boards of health	2
(3) Motion-picture films purchased by State boards of health	65

	United States Public Health Service.	State boards of health.	
(4) Motion-picture showings reported by	275	1,134	
Average attendance	522	555	
(5) State boards of health showings under (4) included in United States Public Health Service report deducted from the total	—	11	
(6) Total showings reported			1,398
Average attendance			549

IV. Publicity:

(A) Periodicals—

(1) Periodical edited with the assistance of a United States Public Health Service officer, October, 1918, through April, 1919, inclusive	1
Circulation	30,000
(2) Articles furnished periodicals by the United States Public Health Service	3,228
(3) Periodicals containing articles furnished by the United States Public Health Service received	157
Circulation of articles published	4,470,756

IV. Publicity—Continued.	
(B) Newspapers—	
(1) Weekly news sheets issued by the United States Public Health Service	81,613
Clippings of reprints from weekly news sheets received	440
(2) Multigraphed news sheets issued by the United States Public Health Service	186
V. City campaign:	
Cities in which approved organizations have undertaken the campaign	70

LAW-ENFORCEMENT MEASURES.

The law-enforcement phase of the division's program is to stimulate public opinion and State and city authorities to enforce existing laws for the control of venereal diseases and the suppression of all forms of vice as a public-health measure, and to prepare and encourage the adoption of laws, ordinances, and regulations which are needed for the control of these diseases.

ACTIVITIES DURING THE WAR.

During the war protection to men in uniform was secured through the efforts of the law-enforcement division of the War Department Commission on Training Camp Activities. Officials of this commission were assigned to cities adjacent to Army camps and were successful in persuading local officials to enforce laws directed against prostitution and the spread of venereal diseases. The Public Health Service also assisted, and was able through the draft campaign to protect civilians of draft age prior to their induction into the service as well.

As a result of the activities of all agencies, approximately 150 segregated districts were closed as well as thousands of houses of prostitution. Rigid steps were undertaken in communities throughout the Nation to prosecute all persons engaged in prostitution. Wherever possible the participants in the vice traffic were examined for venereal diseases, and if found infected were required to submit to treatment. While the Commission on Training Camp Activities was limited in its field of operations to the protection of men in uniform, the service could extend its work to the civilian population of the country where the chief sources of infection lay.

With the close of the war and the demobilization of the military and naval forces, the work of the commission has been discontinued, and the law-enforcement activities have been absorbed by the division and the Interdepartmental Social Hygiene Board. The work of law enforcement covered by this report, therefore, touches the activities of all three agencies with special emphasis given to the work of the service.

STATE LEGISLATION.

Legislative program.—A uniform program of State legislation designed to prevent the spread of venereal diseases was submitted to all States whose legislatures have been in session during the year 1918–19. This program consists of model forms of laws prepared to remedy conditions not controlled by existing statutes, based on a careful study of conditions existing, the evil needing remedy, and laws already in force. The forms as recommended have proved effective entirely or in part in various States and should, therefore, prove workable in others.

In some States representatives of the commission have been stationed to explain this recommended legislation and to urge itr favorable consideration. Special agents were sent to States whees there was no official representative or where the situation needed particular attention. The representatives of the commission should be specially commended for their excellent service in formulating the campaign and in securing the successful consideration of the measures submitted.

Among the laws recommended to the various States are the following: a law covering every phase of prostitution, an injunction and abatement act, a comprehensive law modeled on the regulations promulgated by the Secretary of the Treasury under the terms of the Chamberlain-Kahn Act, a women's prison farm act, laws directed against the advertising and sale of venereal-disease nostrums, and appropriation bills entitling the States to receive allotments from the Government under the terms of the Chamberlain-Kahn Act.

Legislation enacted.—It will not be possible to determine how extensively this program has been adopted by the States until their session laws reach Washington. To date only those from Connecticut, Delaware, Kansas, Minnesota, New Jersey, North Dakota, Oregon, South Carolina, Utah, Vermont, and West Virginia have been received. From data at hand the following table of laws passed by States during the past fiscal year has been compiled. No regular legislative sessions have been held in Kentucky, Louisiana, Maryland, Mississippi, and Virginia. The check marks following a given State on the table represent the acts which are contained in the laws passed. In the case of Oklahoma, one law covers the entire program. whereas in Michigan four laws were passed covering a similar program.

Analysis of venereal-disease control legislation enacted, by States, July 1, 1918–June 30, 1919.

Name.	Number of venereal-disease control laws passed.	Vice-repressive act.	Injunction and abatement act.	Venereal-disease-control act.	Women's prison farm act.	Act prohibiting sale of venereal disease nostrums.	Act prohibiting advertisement of venereal-disease nostrums.	Venereal disease bar to food-handling act.	Venereal disease bar to marriage act.	Reorganization of State board of health act.	Act appropriating funds for 1919–20 venereal-disease control.	Other venereal-disease control acts.
United States	96	13	4	22	5	6	4	2	3	4	34	11
Alabama	4		×						×			×
Arizona	1										×	
Arkansas	2				×						×	
California	4				×		×				×	
Colorado	4			×	×	×					×	
Connecticut	8	×		×							×	×
Delaware	3	×	×	×							×	
District of Columbia [1]												
Florida	1			×							×	
Georgia	4	×		×								×
Idaho [1]												
Illinois	3			×	×						×	
Indiana	1										×	
Iowa	1			×							×	
Kansas	1										×	
Kentucky [1]												
Louisiana [1]												
Maine	2	×									×	
Maryland [1]												
Massachusetts	1										×	
Michigan	4			×		×		×		×	×	×
Minnesota	1										×	
Mississippi [1]												
Missouri	1									×		
Montana	2			×							×	
Nebraska	2			×							×	
Nevada [1]												
New Hampshire	4	×	×								×	×
New Jersey	2										×	×
New Mexico	1											×
New York	3	×		×							×	
North Carolina	4	×	×	×							×	
North Dakota	3	×		×							×	
Ohio	2	×						×		×	×	×
Oklahoma	1			×		×	×		×		×	
Oregon	2			×		×					×	×
Pennsylvania [1]												
Rhode Island	1	×										
South Carolina	2			×							×	
South Dakota	1			×							×	
Tennessee	1									×		
Texas	3	×		×							×	
Utah	3			×		×	×				×	
Vermont	5	×		×					×		×	
Virginia [2]												
Washington	3			×	×						×	×
West Virginia	1						×				×	
Wisconsin	3	×		×		×					×	×
Wyoming	1										×	

[1] No venereal-disease control legislation reported. [2] No legislative session in the year 1918–19.

This analysis of venereal-disease legislation adopted in 1919 may be summarized as follows:

In the 40 States which passed these 96 laws 13 States passed the vice-repressive act, 4 States passed the injunction and abatement act, 22 States adopted a venereal-disease control act, 5 States passed a women's prison-farm act, 6 States passed an act prohibiting the sale of venereal-disease nostrums, 4 States passed an act prohibiting the advertisement of venereal-disease nostrums, 2 States passed an act barring persons infected with venereal diseases from handling food, 3 States passed an act barring persons infected with venereal

diseases from marrying, 4 States reorganized the State board of health, 34 States passed an act appropriating funds for venereal-disease control for the fiscal year 1919–20, and 11 States passed other acts relating to venereal-disease control.

The appropriations passed by the 34 States in accordance with the provisions of the Chamberlain-Kahn Act, totaling $1,296,537.05, are as follows:

Arizona	$4,500.00	New Jersey	$27,586.22
Arkansas	34,237.48	New York	100,000.00
California	51,800.00	North Carolina	[1] 23,968.61
Colorado	17,000.00	North Dakota	12,548.48
Connecticut	24,000.00	Ohio	25,000.00
Delaware	2,500.00	Oklahoma	86,000.00
Florida	[1] 12,000.00	Oregon	25,000.00
Illinois	25,000.00	South Carolina	10,000.00
Indiana	29,360.20	South Dakota	10,000.00
Iowa	[1] 15,000.00	Texas	45,000.00
Kansas	[2] 105,550.00	Utah	8,000.00
Maine	8,000.00	Vermont	[1] 3,000.00
Massachusetts	102,000.00	Washington	25,000.00
Michigan	300,000.00	West Virginia	[1] 7,000.00
Minnesota	60,000.00	Wisconsin	50,000.00
Montana	8,177.48	Wyoming	4,000.00
Nebraska	25,925.50		
New Hampshire	9,363.08	Total	1,296,537.05

At the close of the fiscal year, the legislatures in Alabama and Georgia are still in session.[1] In Idaho, Missouri, and Tennessee appropriation bills failed to pass, but their allotments for the fiscal year ending June 30, 1919, were received so late that funds for the present fiscal year will be available, and it may be possible for these States to raise funds in some other way to entitle them to Federal allotment for the year ending June 30, 1920. Appropriation bills failed to pass in both New Mexico and Rhode Island, so that they will not be eligible for the Federal funds in 1919–20 unless other provision is made by the States to meet the Federal allotment. Nevada and Pennsylvania failed to meet the requirements for Federal funds for either of the fiscal years 1919 or 1920. No provision has been made by Congress for the District of Columbia.

In addition to these appropriations for venereal-disease control, California has appropriated $150,000 for a women's reformatory, Colorado has appropriated $35,000 for a detention home, Ohio $650,000 for a feeble-minded institution, and Washington $150,000 for a women's reformatory.

The following tables have been prepared to show the various provisions of laws and regulations passed by the States based on the regulations promulgated by the Secretary of the Treasury. These tables cover all legislation which has been enacted by the States relating to venereal-disease control, whether passed during the last year or not. In Alabama no new regulations were passed by the State board of health, and the regulations covering other communi-

[1] Annually.
[2] Miscellaneous appropriation applying to venereal-disease control purposes.
[3] Since the 30th of June, 1919, Georgia has appropriated $15,000 for venereal-disease control and $100,000 for a feeble-minded institution.

cable diseases have been made to apply to venereal diseases. Efforts are being made to secure the passage of adequate legislation to take the place of these regulations.

Analysis of laws and regulations passed by States for the control of venereal diseases.

	Syphilis and gonorrhea declared dangerous to public health.	Declared unlawful for infected person to expose another person to infection.	Physicians and others required to report cases of venereal disease.	Reports of cases of venereal disease required by name.	Reports of cases of venereal disease required by number.	Physicians required to give patients circulars about venereal diseases.	Sale of drugs for treatment of venereal disease prohibited except on physician's prescription.	Druggists required to report sale of venereal-disease drugs.
Alabama	r[1]							
Arizona	r	r	r		r	r	r	
Arkansas	r	r	r		r	r		r
California			r		r	r		
Colorado	s[2]	s	s		r		s	s
Connecticut	r		r		r			
Delaware	s	s	s		s	r		r
District of Columbia*								
Florida	s	s	s		r			
Georgia	s	s	s		s			
Idaho	r	r	r		r	r		r
Illinois	r	r	r		r	r		r
Indiana	r		r	r		o[3]		
Iowa	s	s	s		s	s		s
Kansas	r		r		r	r		
Kentucky			r		r	r		r
Louisiana		s	s		s		s	
Maine	r	r	r		r	r	r	
Maryland	r		r	r		r		r
Massachusetts	r		r		r	r		
Michigan	s		s		r		s	s
Minnesota	r	r	r		r	r		
Mississippi	r	s	r		r	r		r
Missouri	r	r	r		r	r	r	
Montana	s	s	s		s	s		s
Nebraska	s	r	r		r	r	r	
Nevada*								
New Hampshire	r	r	r		r	r	r	
New Jersey	s	s	s	s		s		
New Mexico	r	r	r		r	r		
New York	r	s	s	r		r	s	
North Carolina	s	s	s		r			
North Dakota	s	s	s	r		r		
Ohio	r	r	r	r		r		
Oklahoma	r	s	r		r		s	r
Oregon	s	s	s		r	r	s	
Pennsylvania	r					r		
Rhode Island	r		r		r			
South Carolina	s	s	s		r	r	r	
South Dakota	s	s	s		r	r		
Tennessee	r		r		r	r		
Texas	s	s	s		s	s		s
Utah	s	s	s		r	s	s	
Vermont		s	s	s				s
Virginia	r	r	r		r	r		r
Washington	s	r	s		r	r		r
West Virginia	r	r	r		r	r	r	
Wisconsin	s		s		r	r	s	
Wyoming	r	r	r		r	r	r	

[1] r=State board of health regulations.
[2] s=Statutory law.
[3] o=Ordinances in 55 of Indiana's 95 cities.
*No venereal-disease control laws or regulations to report.

Analysis of laws and regulations passed by States for the control of venereal diseases—Continued.

	Made duty of health officers to investigate sources of infection.	Examination of persons suspected of being infected authorized.	Persons confined in prison to be examined and treated for venereal disease if infected.	Infected persons required to receive treatment at their own or public expense.	Power given to quarantine infected persons when necessary to protect public health.	Infected persons prohibited from working in food establishments.	Made duty of health officers to suppress prostitution, source of spread of infection.
Alabama							
Arizona	r[1]	r			r		r
Arkansas						r	
California	r	r			r		r
Colorado	s[2]	s	s	s	s	r	
Connecticut	r	r		r	r		
Delaware	s	s	s	s	s		s
District of Columbia*							
Florida		s	s	s	s		
Georgia		s	s	s	s		
Idaho	r	r			r		r
Illinois	r	r	r		r	r	r
Indiana	o[3]	o			r	o	
Iowa	s	s		s	s		s
Kansas	r	r	r	r	r	r	r
Kentucky				r		r	
Louisiana		s		s	s		
Maine	r	r	r	r	r		r
Maryland		r	r	r	r		r
Massachusetts							
Michigan					s	s	
Minnesota	r	r			r		
Mississippi		s		r	s	r	
Missouri	r				r	s	r
Montana	s	s	s	s	s		s
Nebraska	r	r	r	r	r	s	r
Nevada*							
New Hampshire	r	r			r		r
New Jersey	s	s		s	s	s	s
New Mexico	r				r		r
New York		s	s	s	r	r	
North Carolina	s	s	s	s	s		s
North Dakota							
Ohio	r	r			r		r
Oklahoma	r	s	s	s	r	s	r
Oregon	s	s	s	s	s		s
Pennsylvania					r		
Rhode Island					r		
South Carolina	s	s	s	s	s		r
South Dakota	s	r	s	s	s		s
Tennessee						r	
Texas	s	s			s		s
Utah	s	s	s	s	s		s
Vermont							
Virginia	r	r			r		r
Washington	s	s	s	s	s	r	s
West Virginia	r	r			r	r	r
Wisconsin	r	s	r	s	s	r	r
Wyoming	r	r			r	s	r

[1] r=State board of health regulations.
[2] s=Statutory law.
[3] o=Ordinances in 55 of Indiana's 95 cities.
*No venereal-disease control laws or regulations to report.

These tables may be summarized as follows:

1. Syphilis and gonorrhea declared contagious, infectious, and dangerous to public health by regulations, in 25 States; statute, in 18 States; total, 43 States.
2. Declared unlawful for infected person to expose another person to infection—regulations, in 15 States; statute, in 19 States; total, 34 States.
3. Physicians and others required to report cases of venereal diseases—regulations, in 25 States; statute, in 20 States; total, 45 States.
4. Reports of cases of venereal diseases required by name—regulations, in 5 States; statute, in 2 States; total, 7 States.

5. Reports of cases of venereal diseases required by number—regulations, in 32 States; statute, in 6 States; total, 38 States.

6. Physicians required to give patients circulars of information—regulations, in 30 States; statute, in 5 States; ordinance, in 1 State; total, 36 States.

7. Sale of drugs for treatment of venereal diseases prohibited except on physician's prescription—regulations, in 8 States; statute, in 8 States; total, 16 States.

8. Druggists required to report sale of venereal-disease drugs—regulations, in 10 States; statute, in 6 States; total, 16 States.

9. Made duty of health officers to investigate sources of infection—regulations, in 18 States; statute, in 12 States; ordinance, in 1 State; total, 31 States.

10. Examination of persons suspected of being infected authorized—regulations, in 16 States; statute, in 18 States; ordinance, in 1 State; total, 35 States.

11. Persons confined in prison to be examined and treated for venereal diseases—regulations, in 6 States; statute, in 13 States; total, 19 States.

12. Infected persons required to receive treatment at their own or public expense—regulations, in 7 States; statute, in 17 States; total, 24 States.

13. Power given to quarantine infected persons when necessary to protect public health—regulations, in 22 States; statute, in 18 States; total, 40 States.

14. Infected persons prohibited from working in food establishments—regulations, in 11 States; statute, in 6 States; ordinance, in 1 State; total, 18 States.

15. Made duty of health officers to suppress prostitution, source of spread of infection—regulations, in 18 States; statute, in 10 States; total, 28 States.

VENEREAL-DISEASE ORDINANCES.

Experience has taught that the suppression of prostitution and the enforcement of measures designed to prevent the spread of venereal diseases can in many communities be better procured through the enactment of municipal ordinances designed to meet the problem as it presents itself in these communities rather than by the enforcement of State laws. The procedure is more simple, less delay is incident to prosecutions, and a larger law-enforcing personnel is available. To fill the need for model ordinances to combat the spread of venereal disease, there has been prepared a compilation of ordinances issued in Venereal Disease Bulletin No. 39.

Proper explanation and the reason for each ordinance is contained in this compilation; also citations of supreme courts construing similar laws. These ordinances are being sent out in answer to requests for them, and are being recommended to cities in connection with the city grading program.

The State boards of health report the passage of 222 city ordinances for the control of venereal diseases. The Indiana cities have been especially active, with 55 different ordinances adopted. New York, with 50, ranks second; Ohio, with 31, third; and Kansas, with 20, fourth.

DIVISION OF PERSONNEL AND ACCOUNTS.

During the fiscal year the work of the division of personnel and accounts has increased approximately 100 per cent owing to enlarged activities of the service, which may be considered under three specific headings in this relation.

1. Extra-cantonment sanitation was actively prosecuted for the first six months of the year, and this necessitated an increased personnel possessing medical and sanitary knowledge in order that this important work might be satisfactorily carried out.

2. The combating of the influenza epidemic and the increased accounting incident to the disbursements of the million dollar appropriation for the control of that disease imposed additional duties on this division and it became necessary to secure 900 acting assistant surgeons and about 1,500 nurses and attendants for duty in this particular. This necessitated appointment letters, payment of salaries, and traveling expense accounts, which threw an enormous amount of work on the division in a comparatively short time.

3. The enlarged activities of the division of marine hospitals and relief created by the act of March 3, 1919, providing that beneficiaries of the Bureau of War Risk Insurance should receive medical care from the Public Health Service, necessitated a marked increase of medical and other personnel for the satisfactory examination of these beneficiaries and the equipment and operation of a large number of new hospitals and additional beds in existing hospitals for the proper care of these patients. By the time the influenza had subsided and it had been possible to audit and close up the accounts incident to the control of that disease, this additional work, as a result of the enlargement of the hospital division, became urgent.

Fortunately, an act of Congress of October 27, 1918, provided for the creation of a Reserve Corps, as with the small corps of commissioned officers it would have been impossible to have provided adequate medical personnel for this enlarged activity except by utilization of the Reserve Corps, specific authority for which was given in the act of March 3, 1919.

In the formation of the Reserve Corps, two principles have been taken into consideration.

First. To provide a corps that could be called upon in national emergencies, like the last influenza epidemic, in order that medical personnel might immediately be available until a sufficient number of physicians could be secured.

Second. To supply the additional number of medical officers needed in the hospitals equipped for the treatment of patients of the War Risk Insurance Bureau and for the examination of these beneficiaries in the different districts throughout the country.

The formation of this Reserve Corps has necessitated an extensive correspondence and the consideration of the qualifications of the different applicants to determine if they are eligible for a commission, as careful study is given to the data submitted in order that satisfactory physicians for specific activities may be secured. During the year 404 commissions in the reserve were granted, of which 284 were inactive and 120 were active. On September 4, 1919, this

number had increased to 526, of whom 222 were on active status, the majority of whom have already been assigned to relief stations and hospitals. The others were retained on an available list for supplying additional medical personnel when the necessity arises.

The increase in the activities of any other division reflects itself in the increased work of the personnel and accounts division, as the necessity for supplying additional personnel and the auditing of pay rolls and accounts incident to these increased activities falls on this division.

COMMISSIONED MEDICAL OFFICERS.

At the commencement of the fiscal year July 1, 1918, the commissioned corps consisted of the Surgeon General, 1 Assistant Surgeon General at large, 16 senior surgeons, 70 surgeons, 61 passed assistant surgeons, and 63 assistant surgeons.

The changes during the fiscal year were as follows: Five passed assistant surgeons were promoted to the grade of surgeons, 21 assistant surgeons to the grade of passed assistant surgeons, and 3 candidates who passed the examination required by the laws and regulations of the service were commissioned assistant surgeons. On account of physical disability, 4 senior surgeons, 3 surgeons, and 2 passed assistant surgeons continued on waiting orders.

At the close of the fiscal year, the commissioned Medical Corps consisted of the Surgeon General, 1 Assistant Surgeon General at large, 16 senior surgeons, 70 surgeons, 60 passed assistant surgeons, and 70 assistant surgeons. Two senior surgeons and 5 surgeons were upon detail in the bureau as assistant surgeons general, in accordance with the act approved July 1, 1902.

Assignments.—Among other assignments of commissioned medical officers during the fiscal year were the following: Twenty were assigned to exclusive immigration duty, their services being supplemented by employment of acting assistant surgeons; 4 to the quarantine service of the Philippine Islands; 16 to vessels of the Coast Guard; 21 to the quarantine stations in the continental United States, Porto Rico, the Hawaiian Islands, and the Virgin Islands; 1 to duty in foreign countries to prevent the introduction of epidemic diseases into the United States. Three commissioned officers were detailed for duty in Europe in connection with quarantine connected with the return of the Expeditionary Forces and future immigration from foreign countries.

Special details.—One commissioned medical officer continued on detail duty under the Governor of the Panama Canal.

Field investigations of public health.—In accordance with the act of Congress approved August 14, 1912, authorizing the service to study and investigate the diseases of man, and conditions influencing the propagation and spread thereof—including sanitation and sewage, and the pollution, either directly or indirectly, of the navigable streams and lakes of the United States—the following officers and corps of special assistants were detailed to make these special investigations.

STUDIES OF RURAL SANITATION (HEADQUARTERS, WASHINGTON, D. C.)

Brunswick, Ga.

Scientific Asst. G. L. KRAUSE.
Field Agent R. W. TODD.

Charleston, S. C.

Scientific Asst. H. C. ROBLES.

Chattanooga, Tenn.

Scientific Asst. I. B. KRAUSE.

Columbus, Ga.

Field Agent D. C. STEELSMITH.

Fayetteville, N. C.

Scientific Asst. W. C. VERDERY, health officer of Cumberland County.

Florence, Ala.

Field Agent W. H. ABERNATHY.

Gulfport, Miss.

Scientific Asst. D. I. WILLIAMS.

Huntsville, Ala.

Field Agent CARL A. GROTE.

Jasper, Ala.

Field Agent A. M. WALDROP.

Joplin, Mo.

Passed Asst. Surg. O. H. COX.
Asst. Surg. THOMAS PARRAN, Jr.
Acting Asst. Surg. J. C. MONTGOMERY.
Scientific Asst. H. S. LUCAS.
Scientific Asst. HOMER I. HUNTINGTON.

Maysville, Ky.

Field Agent J. L. RICE.

Raleigh, N. C.

Scientific Asst. GEO. S. BOTE.

Talladega, Ala.

Field Agent W. E. BURT.

Tarboro, N. C.

Field Agent W. B. ROBERTSON.

Richmond, Va. (Virginia at large).

Passed Asst. Surg. W. F. DRAPER.
Passed Asst Surg. J. D. APPLEWHITE.
Asst. Surg. H. S. MUSTARD.
Asst. Epidemiologist JOHN W. COX.

Rural sanitation supervision.

Surg. L. L. LUMSDEN, in charge of studies of rural sanitation.
Asst. Surg. K. E. MILLER.
Epidemiologist F. E. HARRINGTON.
Associate Epidemiologist C. C. APPLEWHITE.
Associate Epidemiologist WILLIAM K. SHARP, Jr.

FIELD INVESTIGATIONS OF PUBLIC HEALTH.

MALARIA.

(Headquarters, Memphis, Tenn.)

Americus, Ga.

Asst. Sanitary Engineer W. D. TIEDEMAN.

Chico, Calif.

Special Expert W. C. PURDY.

Columbia, S. C.

Associate Sanitary Engineer L. M. FISHER.

Columbus, Ga.

Asst. Sanitary Engineer W. E. HARDENBURGH.

Fayetteville, N. C.

Asst. Sanitary Engineer J. G. FOSTER.

Jackson, Miss.

Asst. Sanitary Engineer A. F. ALLEN.
Asst. Sanitary Engineer H. R. FULLERTON.

Memphis, Tenn. (headquarters).

Asst. Surg. Gen. H. R. CARTER.
Surg. L. D. FRICKS, in charge.
Senior Sanitary Engineer J. A. LEPRINCE.
Associate Sanitary Engineer W. G. STROMQUIST.
Technical Asst. BRUCE MAYNE.

Memphis, Tenn. (headquarters)—Continued.

Asst. Sanitary Engineer J. V. DONLEY.
Epidemiologist J. C. GEIGER.
Collaborating Biologist C. W. METZ, with Carnegie Institute.

Montgomery, Ala.

Asst. Sanitary Engineer W. H. W. KOMP.

New Orleans, La. (State of Louisiana).

Asst. Sanitary Engineer H. C. WOODFALL.

Norfolk, Va.

Epidemiologist T. H. D. GRIFFITTS.

Sales City, Ga.

Acting Asst. Surg. M. P. MCNEIL.

Texarkana, Ark.

Associate Sanitary Engineer H. W. VAN HOVENBERG. (On leave of absence for one year from Mar. 1, 1919.)

Wilmington, N. C.

Asst. Sanitary Engineer A. W. FUCHS.

MORBIDITY STATISTICS.

(Headquarters, Washington, D. C.)

Surg. W. H. FROST, in charge.
Statistician EDGAR SYDENSTRICKER.
Statistical Expert DEAN K. BRUNDAGE

PELLAGRA.

(Headquarters, Hygienic Laboratory.)

Washington, D. C. (Hygienic Laboratory).

Surg. JOSEPH GOLDBERGER, in charge.

Spartanburg, S. C.

Passed Asst. Surg. G. A. WHEELER.
Statistician WILFORD I. KING.
Scientific Asst. SWOFFORD LINDSAY.

Milledgeville, S. C.

Asst. Surg. W. F. TANNER.

PUBLIC HEALTH ADMINISTRATION.

Passed Asst. Surg. C. E. WALLER, State health officer, Santa Fe, N. Mex.

Asst. Sanitary Engineer L. C. FRANK, city health officer, Dallas, Tex.

CHILD HYGIENE AND ORAL HYGIENE.

(Headquarters, Washington, D. C.)

Asst. Surg. Gen. (Reserve) T. CLARK, in charge.
Passed Asst. Surg. C. P. KNIGHT, Missouri.
Acting Asst. Surg. LYDIA ALLEN DE VILBISS, Missouri.
Acting Asst. Surg. HARRY B. BUTLER, West Virginia.
Surg. (Reserve) W. H. PRICE, Boston, Mass.
Acting Asst. Surg. E. BLANCHE STERLING.
Acting Asst. Surg. MILTON V. VELDEE, Boston, Mass.
Consultant S. JOSEPHINE BAKER, New York City.
Consulting Hygienist MCCLINTOCK HAMILL, Philadelphia, Pa.
Consulting Hygienist L. EMMETT HOLT, New York City.
Consulting Hygienist J. P. SEDGWICK, Minneapolis, Minn.
Consulting Hygienist FRITZ B. TALBOT, Boston, Mass.
Consulting Hygienist HERMAN SCHWARTZ.
Consulting Hygienist RICHARD M. SMITH.

SEWAGE DISPOSAL.

(Headquarters, Hygienic Laboratory.)

Wilmington, N. C.

Directing Zoologist CHARLES W. STILES, in charge.
Associate Sanitary Engineer H. R. CROHURST.
Asst. Sanitary Engineer W. A. HARDENBURGH.
Bacteriologist C. L. PFAU.

Consultants on sewage-disposal board.

Consulting Engineer GEORGE C. WHIPPLE, Cambridge, Mass.

Consultants on sewage-disposal board—Continued.

Consulting Hygienit EDWIN O. JORDAN, Chicago, Ill.
Consulting Hygienist W. S. RANKIN, Raleigh, N. C.
Consultant E. B. PHELPS, New York City.
Consultant VICTOR C. VAUGHAN.

Newport News, Va.

Asst. Epidemiologist J. J. DURRETT.
Scientific Asst. C. L. ISLEY.

STREAM-POLUTION STUDIES.

(Headquarters, Cincinnati, Ohio.)

Washington, D. C.

Surg. W. H. FROST, in charge.

Cincinnati, Ohio.

Passed Asst. Surg. PAUL PREBLE.
Associate Sanitary Engineer J. K. HOSKINS.
Associate Sanitary Engineer H. B. HOMMON.
Associate Sanitary Engineer H. W. STREETER.
Associate Sanitary Engineer R. E. TARBETT.
Asst. Sanitary Engineer H. H. WAGENHALS, State health department, Des Moines, Iowa.

Cincinnati, Ohio—Continued.

Sanitary Bacteriologist EMORY J. THERIAULT.
Bacteriologist CHESTER T. BUTTERFIELD.
Parmacist F. J. HERTY.

Consultants in stream pollution.

Consultant GEORGE W. FULLER.
Consulting Sanitary Engineer ALLEN HAZEN.
Consulting Engineer CALEB. M. SAVILLE.
Consultant F. W. ROSE.

TRACHOMA STUDIES.

(Headquarters, Louisville, Ky.)

Greenville, Ky.

Acting Asst. Surg. JOE C. JOHNSTON.
Consutling Epidemiologist WILLIAM B. WHERRY.

La Moure, N. Dak.

Acting Asst. Surg. CLARENCE E. DOWNS.
Acting Asst. Surg. GEORGE B. RIBBLE.

Louisville, Ky. (headquarters).

Surg. JOHN MCMULLEN, in charge.
Acting Asst. Surg. JAMES E. SMITH.

Louisville, Ky. headquarters—Continued.

Acting Asst. Surg. F. B. EATON, special duty.
Acting Asst. Surg. HERBERT HARLAN, special duty.
Pharmacist L. W. RYDER.

Pikeville, Ky.

Acting Asst. Surg. RUSSELL W. RAYNOR.

Tazewell, Tenn.

Acting Asst. Surg. F. G. ELLIS.
Acting Asst. Surg. JOSEPH L. GOODWIN.

SPECIAL STUDIES OF PELLAGRA.

(Headquarters, Pellagra Hospital, Spartanburg, S. C.)

Surg. JOSEPH GOLDBERGER, in general charge, Hygienic Laboratory.
Passed Asst. Surg. G. A. WHEELER, in immediate charge of hospital.
Biochemist M. X. SULLIVAN.
Acting Asst. Surg. J. G. CULLINS.
Asst. Biochemist PAUL R. DAWSON.
Sanitary Bacteriologist K. MARDEN.
Scientific Asst. JOHNSON C. GOUGE.
Scientific Asst. GEORGE A. LEECELL.
Pharmacist L. G. SMITH.

INDUSTRIAL SANITATION.

(Headquarters, Washington, D. C.)

Passed Asst. Surg. A. J. LANZA, in charge.
Passed Asst. Surg. R. R. SPENCER.
Asst. Surg. R. C. WILLIAMS.
Pharmacist WM. G. BEUCLER, executive officer.
Consulting Physiologist F. S. LEE.
Consulting Hygienist BERNARD J. NEWMAN.
Consulting Hygienist W. G. THOMPSON.
Consulting Hygienist ALFRED G. STENGEL.
Consulting Hygienist DAVID L. EDSALL.
Consulting Hygienist ROGER G. PERKINS.
Consulting Hygienist C. E. A. WINSLOW.
Consulting Hygienist EMERY R. HAYHURST.
Consulting Hygienist C. D. SELBY.
Physiological Chemist ERNEST G. MARTIN.
Physiologist ANDREW H. RYAN.
Field Director FRANCIS D. PATTERSON.
Field Director JOHN ROACH.
Scientific Asst. P. SARGENT FLORENCE.
Scientific Asst. NORRIS P. BRYAN.
Scientific Asst. JAMES G. MELLUISH.
Scientific Asst. FORREST E. DEEDS.
Scientific Asst. FRANK L. RECTOR.
Scientific Asst. GORDON E. P. WRIGHT.
Scientific Asst. GEORGE E. MCELROY.
Scientific Asst. MARVIN D. SHIE.
Scientific Asst. EDWARD H. REEVES.
Scientific Asst. LEONARD GREENBURG.
Scientific Asst. WM. J. CURRY.
Scientific Asst. CLARENCE A. WARD.
Scientific Asst. JOHN A. TURNER.
Scientific Asst. GOBIN STAIR.
Scientific Asst. ELOISE MEEK.
Scientific Asst. VIRGIN A. DAVIS.
Scientific Asst. EDWARD M. MARTIN.
Scientific Asst. ELLA C. BOYER.
Scientific Asst. GEORGE W. BIRCH, Jr.
Asst. Sanitary Chemist A. B. HASTINGS.
Chief Nurse LAURIE JEAN REID.
Asst. Chief Nurse EMMA L. BROWNE.

VENEREAL-DISEASE CONTROL MEASURES.

The following acting assistant surgeons were detailed for duty with State health officers as directors of antivenereal measures:

(Headquarters, Washington, D. C.)

JOS. P. BOWDOIN, Atlanta, Ga.
WM. A., BRUMFIELD, Richmond, Va.
G. M. BYINGTON, Lansing, Mich.
Z. CAUSEY, Phoenix, Ariz.
WILBUR S. CONKLING, Des Moines, Iowa.
OSCAR DAVIS, Austin, Tex.
F. F. FARNSWORTH, Charleston, W. Va.
C. W. GARRISON, Little Rock, Ark.
ROBT. E. GRAMLING, Salt Lake City, Utah.
GEO. A. HAYS, Nashville, Tenn.
H. E. HITCHCOCK, Augusta, Me.
R. E. HOLT, Portland, Oreg.
C. HAMPSON JONES, Baltimore, Md.
B. K. KILBOURNE, Topeka, Kans.
H. W. KIMBALL, Providence, R. I.
WM. F. KING, Indianapolis, Ind.
E. E. LAUBAUGH, Boise, Idaho.
JOS. S. LAWRENCE, Albany, N. Y.
RICHARD T. LEADER, Lincoln, Nebr.
GEO. S. LUCKETT, Santa Fe, N. Mex.
SHERMAN LULL, Waubay, S. Dak.
J. R. MCDOWELL, Columbus, Ohio.
JOHN C. MAHR, Oklahoma City, Okla.
J. F. O'DONNELL, Cheyenne, Wyo.
H. L. PACHE, Burlington, Vt.
T. E. REEKS, Hartford, Conn.
RICHARD L. RUSSELL, Jefferson City, Mo.
F. R. SMYTH, Bismarck, N. Dak.
L. L. SOLOMON, Louisville, Ky.
HOWARD A. STREETER, Boston, Mass.
G. G. TAYLOR, Springfield, Ill.
IRA F. THOMPSON, Madison, Wis.
WM. VAN PATTEN, Seattle, Wash.
CHAS. A. WEAVER, Concord, N. H.
ALLEN WINTER, San Francisco, Calif.

The following acting assistant surgeons were detailed for duty in veneral-disease clinics:

EDW. C. HELWIG, Indianapolis, Ind.
HERMAN MORGAN, Indianapolis, Ind.
C. E. PFEIPHER, Columbus, Ohio.
PAUL G. POPE, Columbia, Miss.
ORAN PROVINCE, Indianapolis, Ind.
LEOPOLD M. ROHR, Trenton, N. J.
WM. SHIMER, Indianapolis, Ind.
S. B. SMITH, New York City.
PAUL D. VANN, Anniston, Ala.

The following officers were also on duty in connection with carrying out the plan for venereal-disease control:

SCIENTIFIC ASSISTANTS.

W. C. BLASINGAME, Montgomery, Ala.
C. S. BROWN, Philadelphia, Pa.
C. W. CRANE, Hattiesburg, Miss.
WILLIAM G. EDLER, New Orleans, La.
L. W. FEEZER, St. Paul, Minn.
CLARENCE D. HART, Wilmington, Del.
PERRY L. HELMICK, Columbia, S. C.
S. R. MCKELVEY, Denver, Colo.
F. J. O'DONNELL, Helena, Mont.

REGIONAL CONSULTANTS.

JOHN W. HART, Jacksonville, Fla.
LOUIS HOUGH, Denver, Colo.
H. M. KECK, Washington, D. C.
MILLARD KNOWLTON, Raleigh, N. C.
HOWARD A. LAONPHER, Washington, D. C.
EDITH MEEK-RABE, Boston, Mass.
DAISY O. ROBINSON, Washington, D. C.
LEE A. STONE, Chicago, Ill.
MABEL S. ULRICH, Minneapolis, Minn.
OLIVER C. WENGER, Washington, D. C.

LECTURER.

R. C. BROWN, Washington, D. C.

COLLABORATING EPIDEMIOLOGISTS.

The following collaborating epidemiologists were engaged in collecting statistics regarding morbidity and the prevalence of infectious and contagious diseases:

T. F. ABERCROMBIE, Atlanta, Ga.
JOHN B. ANDERSON, Seattle, Wash.
JOHN T. BLACK, Hartford, Conn.
FRANK G. BOUDREAU, Columbus, Ohio.
DAVID C. BOWEN, Trenton, N. J.
H. M. BRACKEN, St. Paul, Minn.
M. E. BRYDON, Richmond, Va.
BERNARD W. CAREY, Boston, Mass.
S. J. CRUMBINE, Topeka, Kans.
CHARLES F. DALTON, Burlington, Vt.
OSCAR DOWLING, New Orleans, La.
C. ST. CLAIR DRAKE, Springfield, Ill.
C. W. GARRISON, Little Rock, Ark.
JAMES A. HAYNE, Columbia, S. C.
C. HAMPSON JONES, Baltimore, Md.
WILFRED H. KELLOGG, Sacramento, Calif.
W. S. LEATHERS, Jackson, Miss.
A. R. LEWIS, Oklahoma City, Okla.
A. T. MCCORMACK, Louisville, Ky.
H. G. PERRY, Montgomery, Ala.
CARL F. RAVER, Charleston, W. Va.
F. M. REGISTER, Raleigh, N. C.
JOHN J. SIPPY, Helena, Mont.
GUILFORD H. SUMNER, Des Moines, Iowa.
STEWART G. THOMPSON, Jacksonville, Fla.
CHESTER H. WELLS, Wilmington, Del.

PLAGUE ERADICATIVE MEASURES.

The following officers were detailed for duty in plague-eradicative measures in the States of Louisiana, California, and Washington:

LOUISIANA.

Passed Asst. Surg. M. S. LOMBARD, 535 St. Charles Street, New Orleans.

CALIFORNIA.

Asst. Surg. W. T. HARRISON, 76 New Montgomery Street, San Francisco.

WASHINGTON.

Surg. HUGH DE VALIN, 416 Central Building, Seattle.

Officers assigned to duty in following States as epidemiologic aids to the State health officers for the prevention of the interstate spread of disease:

ARKANSAS.

Asst. Surg. R. E. DYER, care of State health officer, Little Rock

GEORGIA.

Asst. Surg. W. S. BEAN, care of State health officer, Atlanta.

INDIANA.

Asst. Surg. M. V. ZIEGLER, care of State health officer, Indianapolis.

LOUISIANA.

Passed Asst. Surg. C. L. WILLIAMS, care of State health officer, New Orleans.

MARYLAND.

Asst. Surg. R. B. NORMENT, care of State health officer, Baltimore.

MASSACHUSETTS.

Asst. Surg. L. L. WILLIAMS, jr., care of State health officer, Boston.

MISSISSIPPI.

Asst. Surg. M. F. HARALSON, care of State health officer, Jackson.

OHIO.

Asst. Surg. C. ARMSTRONG, care of State health officer, Columbus.

SOUTH CAROLINA.

Passed Asst. Surg. C. V. AKIN, care of State health officer, Columbia.

WISCONSIN.

Passed Asst. Surg. ROBERT OLESEN, care of State health officer, Madison.

Engineers assigned to duty in following States to assist the State health officer to properly supervise water supplies used in interstate traffic:

ARKANSAS AND OKLAHOMA.

Associate Sanitary Engineer SOL PINCUS, Little Rock, Ark.

NEBRASKA, NORTH DAKOTA, AND SOUTH DAKOTA.

Asst. Sanitary Engineer C. H. SPAULDING, Lincoln, Nebr.

TENNESSEE.

Associate Sanitary Engineer C. N. HARRUB, Nashville, Tenn.

IOWA.

Asst. Sanitary Engineer H. H. WAGENHALS, Des Moines, Iowa.

PERSONNEL, HYGIENIC LABORATORY.

At the close of the fiscal year there were on duty in the Hygienic Laboratory, in addition to the director and the assistant director, 2 chiefs of divisions, 1 assistant chief, 4 surgeons, 5 passed assistant surgeons, 2 pharmacists, 1 artist, 5 technical assistants, 5 sanitary bacteriologists, 1 chemist, 5 assistant chemists, 2 physiologists, 2 pharmacologists, and 8 other technical employees and 61 attendants.

ACTING ASSISTANT SURGEONS.

The number of acting assistant surgeons has increased from 383 at the beginning of the fiscal year to 701 at the close. This increase is due to the opening of United States Public Health Service hospitals for the care of beneficiaries of the Bureau of War Risk Insurance; also to the establishment of 17 districts, each under a supervisor, covering the United States and insular possessions, for the examination and care of these beneficiaries. Acting assistant surgeons are appointed locally, upon the recommendation of the district supervisors, when there is a sufficient number of beneficiaries in a locality to warrant such appointments.

MEDICAL INSPECTORS.

One female inspector served during the entire year for the inspection of women passengers at Honolulu, Hawaii.

PHARMACISTS.

At the beginning of the fiscal year there were on duty 49 pharmacists, divided as follows: Pharmacists of the first class, 31; second class, 15; third class, 3. One pharmacist of the first class died and 1 pharmacist of the third class resigned. Three pharmacists of the second class and 1 of the third class were promoted, leaving at the close of the fiscal year 47 pharmacists on duty, as follows: Pharmacists of the first class, 33; second class, 13; third class, 1.

HOSPITAL AND QUARANTINE ATTENDANTS.

At the beginning of the fiscal year, 954 attendants were employed at the various marine hospitals, quarantine stations, and on epidemic duty, including 65 such employees on duty in the Philippine Islands, 1,500 on extra-cantonment sanitation, and 73 on public health investigations. At the close of the fiscal year there were so employed, as follows:

Marine hospitals	679
Quarantine (including Porto Rico and Hawaii)	280
Epidemic	52
Public Health Service hospitals	1,617
Field investigations of public health	85
Philippine Islands	65
Total	2,778

RECAPITULATION.

Commissioned medical officers	218
Chiefs of divisions, Hygienic Laboratory	2
Advisory board, Hygienic Laboratory	5
Acting assistant surgeons:	
General service	256
Cantonment	17
Venereal clinics	41
Attending physicians, Coast Guard	79
Acting assistant surgeons, United States Public Health Service hospitals and relief stations	342
Collaborating epidemiologists	26
Pharmacists	47
Sanitary engineers, scientific assistants, bacteriologists and other scientific employees	445
Attendants	2,778
Total	4,256

BOARDS CONVENED.

Seventeen boards were convened at different times at various stations through the United States for the physical examination of officers of the Coast Guard and applicants for entrance therein, 2 for the physical examination of detained aliens, 9 for the examination of commissioned officers to determine their fitness for promotion to the next higher grades of the service, 5 for examination of applicants for appointment as assistant surgeons, and 3 for the examination of pharmacists to determine their fitness for promotion to a higher grade.

The bureau sanitary board has been convened in nine sessions to pass upon reports of inspections of establishments engaged in the manufacture of vaccines, serums, toxins, etc., prior to recommending a license, and to pass upon advertised remedies and appliances to determine if said advertisements should be excluded from the mails.

CHIEF CLERK'S OFFICE.

Bureau personnel.—The general growth of the service was reflected in the pronounced expansion of the administrative bureau in Washington. The fiscal year began with 61 officers and employees on duty. During the ensuing 12 months this number steadily increased to 220. Even this number proved inadequate, and at the time of making this report the personnel on duty in the bureau exceeds 300. A large part of this force of necessity consisted of new employees without experience in Government methods. To bring them to a satisfactory state of efficiency required a considerable period of training, and in the meantime the veteran employees of the bureau worked under pressure and after hours in a very commendable effort to keep official business current. At the present time conditions are rapidly becoming more satisfactory, and the personnel of the bureau is developing into an efficient and smooth-working machine.

It is apparent that in order to adequately carry out the provisions of recent congressional legislation it will be necessary to continue to enlarge the working force for some time to come. The bureau expects, however, to make a very favorable showing in the matter of the proportion which the administrative force in Washington bears to the volume and scope of the operations in the field.

Methods of work.—With the added responsibilities and enlarged operations, an effort has been made to improve existing methods of office administration by avoiding duplication, eliminating nonessential steps, adopting short cuts, installing labor-saving devices, and speeding up methods of communication between the various parts of the bureau and with outside agencies. This effort has resulted in a considerable saving in clerical force, besides materially facilitating official transactions. Measures are now under way to coordinate and systematize the financial transactions of the bureau divisions, and studies are about to be instituted to ascertain whether further improvements may be possible in other features of office work.

Bureau office quarters.—As a result of the growth before mentioned, the bureau building proved too small, and it became necessary to secure office quarters in two additional buildings, locatedat 228 First Street NW and Fifteenth Street and Ohio Avenue NW. Through this action the square feet of floor space occupied by the bureau increased during the year from 13,374 to 35,024, and at the date of this report the congestion is so serious as to necessitate the immediate securing of additional space.

The separation of the divisions of the bureau into buildings a mile or more apart has added to the difficulties and expense of administration and should be remedied. It is therefore recommended that as soon as practicable an authorization be requested from Congress for the erection of a separate building of adequate size for the accommodation of all the administrative activities of the Public Health Service in the city of Washington.

Public Health library.—The growth of the bureau library was greatly promoted through the authorization for a trained librarian allowed in the legislative appropriation act for the fiscal year 1919. New material has been secured and a comprehensive index and catalogue begun. However, the lack of adequate quarters for the library is an extremely serious handicap. At present the books are distributed throughout the rooms of the Butler Building because there is no separate room or rooms where they can be assembled. It is impossible for the library to be handled properly or to function adequately until quarters are available where modern and efficient library methods may be put into operation.

NEEDS OF THE SERVICE.

Bureau office quarters.—It is desired to invite attention to the importance of providing an adequate building for the bureau in Washington. During the past two years the Public Health Service has experienced the greatest expansion in its history, and its administrative force is now occupying space in several widely separated buildings in the District. It is difficult to maintain administrative efficiency under such conditions, and some provision should be made at the earliest possible date for housing all of the divisions of the bureau under the same roof.

After-the-war program.—To carry into effect the after-the-war program of the Public Health Service it is absolutely necessary that greatly increased appropriations be made for the expansion of research work and cooperation with the States along the lines of general sanitation and disease prevention. It is earnestly recommended, therefore, that the fullest consideration be given to the estimates submitted by the department for the expenses of the Public Health Service for the ensuing fiscal year.

Publications.—In view of the rapidly growing demands for service publications and educational material, including exhibits, lantern slides, etc., relating to health and sanitation, the recommendation of previous years for larger appropriations is hereby renewed.

RUPERT BLUE, *Surgeon General.*

To the honorable CARTER GLASS,
Secretary of the Treasury.

APPENDIX.

Financial Statement.

Receipts and expenditures, Public Health Service, for the fiscal year ended June 30, 1919

APPROPRIATION: "PUBLIC HEALTH SERVICE, 1919."

Subheads of appropriations.	Appropriations and repayments.	Expenditures.	Balance June 30, 1919.
Pay, etc., commissioned officers and pharmacists	$825,000.00	$810,679.57	$14,320.43
Pay of acting assistant surgeons	340,000.00	326,728.61	13,271.39
Pay of other employees	650,000.00	641,068.12	8,931.88
Freight, transportation, etc	40,000.00	39,934.47	65.53
Fuel, light, and water (appropriation $110,000)	129,273.19	117,903.72	11,369.47
Furniture, etc	8,000.00	7,761.88	238.12
Purveying depot supplies (appropriation $80,000)	83,821.48	82,641.37	1,180.11
Maintenance of Hygienic Laboratory	27,000.00	24,445.03	2,554.97
Maintenance of marine hospitals (appropriation $540,000)	618,459.12	606,406.59	12,052.53
Care of seamen, etc. (appropriation $210,000)	375,850.94	289,675.24	86,175.70
Books	500.00	463.85	36.15
Disbursements		2,928,345.31	
Encumbrances		19,363.14	
Total (appropriation $2,830,500)	3,097,904.73	2,947,708.45	150,196.28

APPROPRIATION: "QUARANTINE SERVICE, 1919."

Amount of appropriation		$200,000.00
Repayments		47,889.29
Total		247,889.29
Expenditures:		
Disbursements	$205,997.14	
Encumbrances	16,113.75	
		222,110.89
Balance June 30, 1919		25,778.40

Expenditures by stations.

Name of station.	Pay and allowances, officers and employes.[1]	Maintenance.	Total maintenance, pay and allowances.
Alaska		$2.66	$2.66
Biscayne Bay, Fla	$1,500.00		1,500.00
Beaufort, S. C	750.00	229.25	979.25
Boco Grande, Fla	915.00	1,022.96	1,937.96
Boston, Mass	28,047.20	34,955.08	63,002.28
Brunswick, Ga	1,968.00	1,430.49	3,398.49
Cape Charles, Va	20,679.02	19,877.54	40,556.56
Cape Fear, N. C	7,201.95	3,448.25	10,650.20
Cedar Keys, Fla	300.00		300.00
Charleston, S. C	9,726.50	2,786.61	12,513.11
Columbia River, Oreg	8,272.50	3,776.00	12,048.50
Cumberland Sound, Fla	3,180.00	72.00	3,252.00
Delaware Bay and River	2,340.00	860.27	3,200.27
Delaware Breakwater, Del	2,992.33	745.86	3,738.19
Eagle Pass, Tex	2,530.00		2,530.00
Eastport, Me	1,200.00		1,200.00
El Paso, Tex	262.67	51.25	313.92
Eureka, Calif	353.00	1.50	354.50
Fort Bragg, Calif	10.00		10.00

[1] Paid from pay items appropriation "Public Health Service, 1919."

Expenditures by stations—Continued.

Name of station.	Pay and allowances, officers and employes.	Maintenance.	Total maintenance, pay and allowance.
Galveston, Tex	$20,372.96	$7,692.91	$28,065.87
Georgetown, S. C	300.00	13.00	313.00
Gulf, Miss	5,580.00	1,234.61	6,814.61
Hawaii	29,666.52	11,832.93	41,499.45
Key West, Fla	4,403.33	1,545.50	5,948.83
Laredo, Tex	325.00		325.00
Miscellaneous		7,863.86	7,863.86
Mobile, Ala	10,388.84	6,684.90	17,073.74
New Orleans, La	21,750.85	12,642.29	34,393.14
Pascagoula, Miss	667.50		667.50
Pensacola, Fla	8,576.29	1,786.57	10,362.86
Perth Amboy, N. J	2,193.32	1,786.77	3,980.09
Portland, Me	5,540.00	2,220.61	7,760.61
Porto Rico	23,982.15	10,864.42	34,846.57
Port Royal, S. C	200.00		200.00
Port San Luis	310.00		310.00
Port Townsend, Wash	18,841.89	6,458.39	25,300.28
Providence, R. I	2,143.51	315.75	2,459.26
Reedy Island, Del	22,810.28	33,076.19	55,886.47
St. Andrews, Fla	585.00	52.00	637.00
St. George Sound, Fla	283.33	110.00	393.33
St. Johns River, Fla	2,182.17	647.53	2,829.70
St. Joseph, Fla		150.00	150.00
St. Thomas, Virgin Islands	4,981.16	848.50	5,829.66
San Diego, Calif	9,269.00	3,464.23	12,733.23
San Francisco, Calif	37,031.63	26,237.50	63,269.13
San Pedro, Calif	1,000.00	580.34	1,580.34
Savannah, Ga	8,692.32	5,918.90	14,611.22
Tampa Bay, Fla	6,716.17	5,907.79	12,623.96
Leprosy Hospital, Hawaii	7,655.00	2,915.68	10,570.68
Total	348,676.39	222,110.89	570,787.28

APPROPRIATION: "PREVENTING THE SPREAD OF EPIDEMIC DISEASES, 1919."

Amount of appropriation		$400,000.00
Repayments		4,649.94
Total		404,649.94
Expenditures:		
Disbursements	192,019.57	
Encumbrances	3,689.17	
As follows—		
Plague eradicative measures—		
Louisiana	$21,150.93	
California	25,518.58	
Washington	4,286.49	
Prevention of trachoma—		
Virginia	519.96	
West Virginia	1,287.51	
Kentucky	27,728.97	
Tennessee	5,477.62	
North Dakota	3,521.37	
Typhus fever prevention, Texas border	40,296.09	
Preventive measures—		
Baltimore quarantine	32,140.36	
Cuba, South America, Mexico	10,402.01	
China, Italy	5,905.58	
Vaccine	7,734.70	
Travel, freight, stationery, etc	9,738.57	
		195,708.74
Balance June 30, 1919		208,941.20

NOTE.—Payments amounting to $53,828.61 were made from pay items of appropriation "Public Health Service, 1919," account of epidemic duty.

APPROPRIATION: "FIELD INVESTIGATIONS OF PUBLIC HEALTH, 1919."

Amount of appropriation		$200,000.00
Expenditures:		
Disbursements	$198,558.59	
Encumbrances	1,384.88	
		199,943.47
Balance June 30, 1919		56.53

NOTE.—Payments amounting to $22,902.96 were made from pay items of appropriation "Public Health Service, 1919," on account of field investigations.

APPROPRIATION: "NATIONAL QUARANTINE AND SANITATION."

Balance June 30, 1919	$810.63

APPROPRIATION: "INTERSTATE QUARANTINE SERVICE, 1919."

Amount of appropriation		$1,500,000.00
Expenditures:		
Disbursements	$1,260,205.74	
Encumbrances	5,765.59	
		1,265,971.33
Balance June 30, 1919		234,028.67

NOTE.—Payments made amounting to $154,677.64 from pay items of appropriation "Public Health Service, 1919," on account of interstate quarantine.

APPROPRIATION: "SPECIAL STUDIES OF PELLAGRA, PUBLIC HEALTH SERVICE, 1919."

Amount of appropriation		$30,000.00
Expenditures:		
Disbursements	$26,537.56	
Encumbrances	1,035.50	
		27,573.06
Balance, June 30, 1919		2,426.94

NOTE.—Payments amounting to $5,730.08 were made from pay items of appropriation "Public Health Service, 1919" on account of special studies of pellagra.

APPROPRIATION: "STUDIES OF RURAL SANITATION, PUBLIC HEALTH SERVICE, 1919."

Amount of appropriation		$150,000.00
Expenditures:		
Disbursements	$145,173.60	
Encumbrances	4,784.20	
		149,957.80
Balance, June 30, 1919		42.20

NOTE.—Payments amounting to $9,514.28 were made from pay items of appropriation "Public Health Service, 1919," account of studies of rural sanitation.

APPROPRIATION: "CONTROL OF BIOLOGIC PRODUCTS, PUBLIC HEALTH SERVICE, 1919"

Amount of appropriation		$30,000.00
Expenditures:		
Disbursements	$29,359.12	
Encumbrances	509.55	
		29,868.67
Balance June 30, 1919		131.33

APPROPRIATION: "PROTECTING HEALTH OF MILITARY FORCES, PUBLIC HEALTH SERVICE, 1918 AND 1919."

Amount of balance, July 1, 1918	$30,257.68
Expenditures	21,979.95
Balance, June 30, 1919	8,277.73

NOTE.—Payments amounting to $74.00 were made from pay items of appropriation, "Public Health Service, 1919," on account of protecting health of the military forces.

APPROPRIATION: "SALARIES OFFICE OF SURGEON GENERAL, PUBLIC HEALTH SERVICE, 1919."

Amount of appropriation	$80,590.00
Expenditures	74,182.03
Balance, June 30, 1919	6,407.97

APPROPRIATION: "NATIONAL HOME FOR LEPERS."

Balance, July 1, 1918	$249,741.23
Expenditures	837.05
Balance, June 30, 1919	248,904.18

APPROPRIATION: "PAY OF PERSONNEL AND MAINTENANCE OF HOSPITALS, PUBLIC HEALTH SERVICE, 1919."

Amount of appropriation		$785,333.00
Repayments		1,481.14
Total		786,814.14
Expenditures:		
Disbursements	$530,877.17	
Encumbrances	214,685.00	
		745,562.17
Balance, June 30, 1919		41,251.97

NOTE.—Payments amounting to $21,090.79 were made from pay items of appropriation "Public Health Service, 1919," on account of pay of personnel and maintenance of hospitals.

APPROPRIATION: "EXPENSE DIVISION OF VENEREAL DISEASES, PUBLIC HEALTH SERVICE, 1919."

Amount of appropriation		$200,000.00
Expenditures:		
Disbursements	$192,291.82	
Encumbrances	6,500.00	
		198,791.82
Balance, June 30, 1919		1,208.18

NOTE.—Payments amounting to $59,346.35 were made from pay items of appropriation "Public Health Service, 1919," on account of expense Division of Venereal Diseases.

APPROPRIATION: "SUPPRESSING SPANISH INFLUENZA AND OTHER COMMUNICABLE DISEASES, 1919."

Amount of appropriation		$1,000,000.00
Expenditures:		
Disbursements	$828,910.09	
Encumbrances	8,500.00	
		837,410.09
Balance, June 30, 1919		162,589.91

NOTE.—Payments amounting to $4,634.16 were made from pay items of appropriation "Public Health Service, 1919," on account of suppressing Spanish influenza and other communicable diseases.

APPROPRIATION: "HOSPITAL CONSTRUCTION, PUBLIC HEALTH SERVICE, 1919."

Amount of appropriation	$8,840,000.00
Expenditures	170,348.02
Balance, June 30, 1919	8,669,651.98

APPROPRIATION: "HOSPITAL FURNITURE, PUBLIC HEALTH SERVICE."

Amount of appropriation	$210,000.00

APPROPRIATION: "INCREASE OF COMPENSATION, TREASURY DEPARTMENT, 1919."

Total payments, Public Health Service	$177,303.33

MISCELLANEOUS APPROPRIATIONS.

LEPROSY HOSPITAL, HAWAII.

Balance, June 30, 1919 (act Mar. 3, 1905)		$16,956.35

MARINE HOSPITALS.

Baltimore, Md. (act Mar. 28, 1918):		
Balance, July 1, 1918	$17,985.00	
Expenditures	1,086.66	
Balance, June 30, 1919		16,898.34
Boston, Mass. (act Mar. 28, 1918):		
Balance, July 1, 1918	21,337.80	
Expenditures	1,422.54	
Balance, June 30, 1919		19,915.26
New Orleans, La. (act Mar. 28, 1918)	18,000.00	
Expenditures	3,321.34	
Balance, June 30, 1919		14,678.66
New York, N. Y. (act Mar. 28, 1918):		
Balance, July 1, 1918	44,870.00	
Expenditures	7,101.41	
Balance, June 30, 1919		37,768.59
San Francisco, Calif. (act Mar. 28, 1918)	22,500.00	
Expenditures	1,744.80	
Balance June 30, 1919		20,755.20
Savannah, Ga. (act Mar. 28, 1918)	9,000.00	
Expenditures	2,793.86	
Balance June 30, 1919		6,206.14

(Balances June 30, 1919.)

Cleveland, Ohio (act Mar. 4, 1909)	100.00
Cleveland, Ohio (act Mar. 4, 1907)	374.95
Cleveland, Ohio (act July 26, 1916)	1,000.00
Fort Stanton, N. Mex. (act Aug. 24, 1912)	3.20

QUARANTINE STATIONS.

Boston, Mass. (act Oct. 6, 1917)	$34,800.00	
Expenditures	15,212.21	
Balance June 30, 1919		$19,587.79
Cape Charles (act Nov. 4, 1918)		100,000.00
Gulf (act June 12, 1917)		8,000.00
Key West (act June 12, 1917)		7,000.00
Reedy Island (act Nov. 4, 1918)	$40,000.00	
Expenditures	3,423.25	
Balance June 30, 1919		36,576.75
Savannah, Ga. (act Nov. 4, 1918)		26,000.00

(Balances June 30, 1919.)

Brunswick (act June 25, 1910)	1,708.87
Charleston (act Mar. 4, 1909)	634.46
Columbia River (act June 25, 1910)	745.47
Columbia River (act June 12, 1917)	4,201.19
Delaware Breakwater (act Mar. 4, 1907)	857.00
Gulf (act Mar. 4, 1907)	353.35
Honolulu (act Sept. 8, 1916)	10,000.00
Honolulu (act Mar. 4, 1907)	390.52
Mobile (act July 1, 1916)	10,000.00
New Orleans (act July 1, 1916)	25,000.00
Pensacola (act Mar. 4, 1907)	18.02
Reedy Island (act Mar. 4, 1909)	66.71
San Francisco (act Mar. 27, 1908)	180.75
San Francisco (act June 30, 1906)	1,511.71
Savannah (act Mar. 4, 1909)	410.85

UNDER SUPERVISING ARCHITECT.

MARINE HOSPITALS.

Buffalo, N. Y. (act July 1, 1918)	$2,000.00
Memphis, Tenn. (act July 1, 1918)	1,500.00
Mobile, Ala. (act July 1, 1918)	10,000.00
St. Louis, Mo. (act July 1, 1918)	4,000.00

QUARANTINE STATIONS.

Charleston, S. C. (act July 1, 1918)	$19,000.00
Galveston, Tex. (act July 1, 1918)	70,000.00
New Orleans, La. (act July 1, 1918)	4,000.00
Port Townsend, Wash. (act July 1, 1918)	1,000.00
Reedy Island, Del. (act July 1, 1918)	4,000.00

STATISTICAL TABLES.

TABLE 1.—*Comparative table of number of patients annually treated, 1868 to 1919.*

Fiscal year.	Sick and disabled patients furnished relief.	Fiscal year.	Sick and disabled patients furnished relief.
Prior to reorganization:		After reorganization—Continued.	
1868	11,535	1894	52,803
1869	11,356	1895	52,643
1870	10,560	1896	53,804
After reorganization:		1897	54,477
1871	14,256	1898	52,709
1872	13,156	1899	55,489
1873	13,529	1900	56,355
1874	14,356	1901	58,381
1875	15,009	1902	56,310
1876	16,808	1903	58,573
1877	15,175	1904	58,556
1878	18,223	1905	57,013
1879	20,922	1906	54,363
1880	24,860	1907	55,129
1881	32,613	1908	54,301
1882	36,184	1909	53,704
1883	40,195	1910	51,443
1884	44,761	1911	52,209
1885	41,714	1912	51,078
1886	43,822	1913	50,604
1887	45,314	1914	53,226
1888	48,203	1915	55,782
1889	49,518	1916 [1]	68,398
1890	50,671	1917 [2]	64,022
1891	52,992	1918 [2]	71,806
1892	53,610	1919 [2]	93,719
1893	53,317		

[1] Includes patients treated at trachoma hospitals.
[2] Does not include patients treated at trachoma hospitals.

TABLE 2.—*Transactions at marine hospitals and other relief stations, fiscal year 1919.*

	Total number of patients treated.	Total number treated in hospital.	Died.	Remaining in hospital June 30, 1919.	Number of days' relief in hospital.	Number of patients furnished office relief.	Number of times office relief was furnished.	Number of persons examined physically, including pilots.	Amount expended.
Grand Total	**93,719**	**38,355**	**1,264**	**3,173**	**757,010**	**55,364**	**104,763**	**41,185**	**$1,601,592.81**
First-class stations.									
Baltimore, Md	3,810	1,758	81	133	48,863	2,052	3,392	2,059	74,198.24
Boston, Mass	1,842	1,842	85	128	34,239	.....	.....	2,432	60,939.04
Buffalo, N. Y	1,620	508	15	29	11,264	1,112	2,056	718	29,111.13
Cairo, Ill	606	148	4	13	983	458	763	94	5,231.44
Chicago, Ill	4,395	3,243	57	224	42,683	1,152	1,466	2,589	92,479.26
Cleveland, Ohio	3,016	1,115	25	51	19,352	1,901	2,921	2,054	41,465.35
Detroit, Mich	1,469	646	24	47	14,508	823	1,633	525	37,622.34
Evansville, Ind	611	338	9	33	9,226	273	377	117	27,806.00
Fort Stanton, N. Mex	600	600	81	200	90,085	.....	.....	.....	209,102.60
Key West, Fla	471	227	16	6	4,287	244	313	42	19,216.89
Louisville, Ky	1,310	524	7	34	9,631	786	1,403	165	23,403.73
Memphis, Tenn	1,103	497	14	41	7,946	606	1,269	127	20,728.08
Mobile, Ala	1,154	622	19	48	10,752	532	948	262	25,288.63
New Orleans, La	3,680	1,806	45	122	40,284	1,874	4,051	587	73,069.92
New York, N. Y	14,400	4,582	133	243	82,479	9,818	19,909	5,635	200,882.86
Pittsburgh, Pa	1,355	486	16	44	6,955	869	1,525	588	23,529.54
Portland, Me	848	585	27	31	11,929	263	373	307	37,309.37
Port Townsend, Wash	645	588	23	63	22,655	57	98	3	37,294.88
St. Louis, Mo	2,462	1,187	23	132	26,737	1,275	2,048	313	55,771.29
San Francisco, Calif	6,792	2,646	132	144	64,170	4,146	8,808	2,335	99,454.48
Savannah, Ga	2,356	1,146	13	72	25,437	1,210	1,984	598	51,146.89
Vineyard Haven, Mass	229	135	3	10	5,254	94	177	14	16,154.43
Total	54,774	25,229	852	1,848	589,719	29,545	55,514	21,564	1,261,205.39

TABLE 2.—*Transactions at marine hospitals and other relief stations, fiscal year 1919*—Continued.

	Total number of patients treated.	Total number treated in hospital.	Died.	Remaining in hospital June 30, 1919.	Number of days' relief in hospital.	Number of patients furnished office relief.	Number of times office relief was furnished.	Number of persons examined physically, including pilots.	Amount expended.
Public Health Service hospitals.									
Boston (Roxbury), Mass.	1,207					1,207	2,138		
Dansville, N. Y.	86	85		80	1,626	1	1		
Corpus Christi, Tex.	39	39		37	323				
Chicago, Ill.	387	387		230	2,587				
Alexandria, La.	61	40	2	21	986	21	21		
Palo Alto, Calif.	192	182	4	154	6,152	10	30	55	
Jacksonville, Fla.	14	14		14	53				
Greenville, S. C.	615	615	8	408	17,117				
Augusta, Ga.	81	81		1	1,372			7	
Houston, Tex.	175	134	3		220	41	41		
Hudson and Jay Streets, New York.	288	185	2		2,672	103	103		
Total.	3,145	1,762	19	945	33,108	1,383	2,334	62	
Second, third, and fourth class stations.									
Albany, N. Y.	125	17	5		196	108	175	166	$793.32
Ancon and Colon, Canal Zone.	1,097	737	9	30	8,205	360	424	1	17,782.73
Apalachicola, Fla.	153	43	1		455	110	368		1,463.38
Ashland, Wis.	113	22	2		290	91	116		814.65
Ashtabula, Ohio.	204	21			352	183	295	33	1,586.70
Astoria, Oreg.	207	46	5	1	409	161	300	42	2,380.15
Bangor, Me.	21	7	1		82	14	41	73	676.00
Bay City, Mich.	28	5		1	41	23	46	5	275.99
Beaufort, N. C.	75	6		2	34	69	303	36	541.75
Beaufort, S. C.	5					5	5		3.75
Bellingham, Wash.	61	13	1		213	48	124	6	959.75
Boothbay Harbor, Me.	71	34	1	2	412	37	119	17	958.16
Bridgeport, Conn.	206	202	1	1	202	4	6		270.00
Brunswick, Ga.	109	80	2	1	713	29	37	11	1,223.85
Burlington, Iowa.	35	32		1	318	3	3	107	397.44
Cambridge, Md.	28	24	2		441	4	4	8	868.02
Cedar Keys, Fla.	16	11			108	5	7		22.50
Charleston, S. C.	504	97	4	3	930	407	580	67	4,193.64
Chattanooga, Tenn.	3	3			30				62.50
Cincinnati, Ohio.	161	25		1	190	136	273	385	929.30
Cordova, Alaska.	51	17		2	283	34	34		1,724.00
Crisfield, Md.	28	17			144	11	14		538.67
Delaware Breakwater, Del.	139	2			9	137	316	22	100.00
Duluth, Minn.	334	51	6	2	797	283	365	454	2,039.00
Eastport, Me.	81	18			33	63	80	24	7.60
Edenton, N. C.	60	30			90	30	90	32	158.78
Elizabeth City, N. C.	129	10			72	119	287	201	703.85
Erie, Pa.	282	73	4	1	1,135	209	694	75	2,461.50
Escanaba, Mich.	46	22		1	131	24	25	55	546.50
Eureka, Calif.	67	2			6	65	114		1,476.20
Fernandina, Fla.	22					22	103		300.00
Gallipolis, Ohio.	86	40	1		653	46	81	188	1,609.01
Galveston, Tex.	1,806	471	8	3	7,391	1,335	3,087	205	13,713.84
Georgetown, S. C.	83	6	1		66	77	176	19	732.00
Gloucester, Mass.	206	35	7		543	171	258	799	1,910.30
Grand Haven, Mich.	41	1			11	40	96	340	553.10
Green Bay, Wis.	45	26	1	1	206	19	40	124	503.37
Gulfport, Miss.	34	3			7	31	31	970	133.20
Hancock, Mich.	29	2			14	27	45	32	300.00
Hartford, Conn.	10	10	2	1	111			9	148.35
Honolulu, Hawaii.	1,279	346	7	19	7,267	933	1,648	64	18,137.00
Hoquiam, Wash.	117	35	7	1	326	82	152	21	719.65
Irvington, Va.	23					23	30		315.00
Jacksonville, Fla.	645	395	15	7	2,552	250	420	315	14,019.11
Juneau, Alaska.	115	78	2		1,076	37	137	11	3,953.50
Kansas City, Mo.	193	73			821	120	253	665	2,089.23
Ketchikan, Alaska.	187	30		2	343	157	389	9	1,930.15
La Crosse, Wis.	16	2		1	62	14	24	172	399.00
Little Rock, Ark.	238	8		1	62	230	298		268.00
Los Angeles, Calif.	1,196	302	7	17	3,799	894	1,241	801	10,602.05
Ludington, Mich.	169	30	4		350	139	353	49	1,420.30

TABLE 2.—*Transactions at marine hospitals and other relief stations, fiscal year 1919*—Continued.

	Total number of patients treated.	Total number treated in hospital.	Died.	Remaining in hospital June 30, 1919.	Number of days' relief in hospital.	Number of patients furnished office relief.	Number of times office relief was furnished.	Number of persons examined physically, including pilots.	Amount expended.
Second, third, and fourth class stations—Contd.									
Machias, Me	26	10			149	16	24	42	$514.00
Manistee, Mich	32	10			160	22	32	35	503.72
Manitowoc, Wis	78	47	2		560	31	52	15	1,150.56
Marquette, Mich	55	16	4		188	39	39	57	752.75
Marshfield, Oreg	58	13	2		81	45	97	18	543.05
Menominee, Mich	64	10	1		77	54	59	3	188.40
Milwaukee, Wis	582	260	14	27	4,623	322	522	1,199	9,961.32
Nantucket, Mass	25					25	82	8	250.00
Nashville, Tenn	97	44	1	13	538	53	144	266	580.05
Natchez, Miss	65	13	3		118	52	134	143	375.00
New Bedford, Mass	95	24	2	1	319	71	85	234	977.20
New Bern, N. C	261	116		3	1,219	145	293	1	3,551.29
New Haven, Conn	20	13	3		184	7	7	168	1,875.75
New London, Conn	62	24	3		304	38	41	102	2,600.47
Newport, Ark	98	6	1		37	92	152	44	576.65
Newport, Oreg	7					7	28		67.50
Newport, R. I	90	41	2	2	426	49	56	15	1,190.00
Newport News, Va	852	135	9		1,175	717	883	8	1,981.14
Nome, Alaska									221.70
Norfolk, Va	5,782	1,802	71	5	27,312	3,980	5,772	1,774	54,877.22
Ogdensburg, N. Y	73	33	2		359	40	87	6	1,322.25
Oswego, N. Y									1,239.40
Paducah, Ky	76	13		1	187	63	104	45	746.30
Pensacola, Fla	276	67	1	1	593	209	445	32	1,434.81
Perth Amboy, N. J	1,081	194	8	3	2,151	887	1,073	196	2,130.35
Philadelphia, Pa	3,367	803	36	50	9,745	2,564	5,408	2,023	26,278.45
Ponce, P. R	60	10		2	257	50	164		368.00
Port Angeles, Wash	14	12			25	2	2	6	
Port Arthur, Tex	278	68	1		500	210	881	48	1,434.12
Port Huron, Mich	127	23	2	2	292	104	470	196	416.08
Portland, Oreg	1,097	432	21	22	5,933	665	1,020	519	11,899.41
Portsmouth, N. H	8	5	2		41	3	4		120.00
Providence, R. I	501	236	7	9	2,724	265	377	588	5,609.52
Provincetown, Mass	121	10			32	111	456	28	938.60
Richmond, Va	307	71	4		981	236	291	130	1,677.21
Rockland, Me	146	16	2		96	130	303	172	677.44
St. Elizabeths Hospital, Washington, D. C									19,963.22
St. Paul, Minn								345	
Saginaw, Mich	54	14		1	225	40	42	116	398.07
Salem, Mass	1	1			40				
San Diego, Calif	152	24	1		365	128	390	106	937.00
Sandusky, Ohio	24	5	1		30	19	21	61	273.48
San Juan, P. R	444	185	7	15	2,327	259	467	175	2,263.93
Sault Ste. Marie, Mich	279	193	6	3	2,187	86	176	64	3,702.50
Seattle, Wash	1,998	734	29	23	7,065	1,264	3,130	1,750	23,386.50
Seward, Alaska	60	11			320	49	144		1,703.10
Sheboygan, Wis	43	28	1		184	15	20	76	527.10
Solomons, Md	119	2	1		7	117	162		516.25
Superior, Wis	252	82	6	5	1,087	170	281	34	2,389.50
Tacoma, Wash	123	24	1	4	162	99	149	188	1,917.85
Tampa, Fla	144	87	4		1,118	57	60	288	2,996.25
Toledo, Ohio	360	148	8		2,081	212	407	315	3,005.00
Unalaska, Alaska [1]									199.00
Valdez, Alaska	13	2	1		10	11	13		687.25
Vicksburg, Miss	211	88	4	2	834	123	198	71	1,941.00
Washington, D. C	1,763	441	4	62	6,051	1,322	3,181	679	6,585.85
Washington, N. C	48	16			110	32	34	42	903.50
Wilmington, N. C	201	110	6	2	1,070	91	204	40	7,345.82
United States Coast Guard vessels	399	59			247	340	856	15	
Keepers and surfmen, United States Coast Guard [2]	2,131	919			5,140	1,212	3,179	448	
Quarantine stations	121	54	3	1	344	67	107	12	
Total	35,800	11,364	393	380	134,191	24,436	46,915	19,559	340,387.42

[1] No reports received.
[2] Treatment by private physicians and a visit to a patient is counted as a day's treatment in hospital.

TABLE 2.—*Transactions at marine hospitals and other relief stations, fiscal year 1919*—Continued.

	Total number of patients treated.	Total number treated in hospital.	Died.	Remaining in hospital June 30, 1919.	Number of days' relief in hospital.	Number of patients furnished office relief.	Number of times office relief was furnished.	Number of persons examined physically, including pilots.	Amount expended.
Second, third, and fourth class stations—Contd.									
Of the above number relief was furnished as follows to:									
United States Army—									
Marine hospitals	1,039	657	.....	.....	9,822	3,382	644	.....	.....
United States Public Health Service hospitals	20	19	.....	.....	214	1	1	.....	.....
Relief stations	227	166	.....	.....	1,924	61	136	.....	.....
United States Navy—									
Marine hospitals	2,348	1,866	.....	.....	29,285	482	995	.....	.....
United States Public Health Service hospitals	.....	.....	.....	.....	.....	.....	.....	.....	.....
Relief stations	865	509	.....	.....	4,952	356	921	.....	.....
War Risk Insurance—									
Marine hospitals	8,835	7,409	.....	.....	12,380	1,426	2,034	.....	.....
United States Public Health Service hospitals	1,115	1,059	.....	.....	22,576	56	168	.....	.....
Relief stations	3,906	1,224	.....	.....	13,026	2,682	4,169	.....	.....
United States Employees' Compensation Commission—									
Marine hospitals	3,577	957	.....	.....	18,077	2,620	8,162	.....	.....
United States Public Health Service hospitals	79	22	.....	.....	561	57	179	.....	.....
Relief stations	2,809	783	.....	.....	11,166	2,026	6,069	.....	.....
Total	24,820	14,671	.....	.....	123,983	10,149	23,478	.....	.....

Total expenditures for first-class stations	$1,261,205.39
Total expenditures for second, third, and fourth class stations	340,387.42
Washington, D. C.:	
Bureau	60,632.14
Hygienic Laboratory	161,062,26
Purveying Depot	120,795.45
Coast Guard cutters and other duty	91,373.47
Immigration	172,845.79
Railroad transportation, freight charges, etc	17,130.54
Miscellaneous	30,483.03
Total expenditures	2,255,915.49

NOTE.—In some cases the full pay of an officer may be included in the cost of operation of a relief station, though not devoting his entire time to that work, being also engaged on work under other branches of the service.

TABLE 3.—*Summary of physical examinations made by officers of the United States Public Health Service during the fiscal year ended June 30, 1919, exclusive of immigrants.*

Summary of examinations and rejections.	Total.	Pilots.	Merchant seamen.	Coast Guard.	Post Office Department.	Coast and Geodetic Survey.	Lighthouse Service.	Foreign seamen.	Immigration Service.	Civil Service.	United States Army.	United States Navy.	United States Shipping Board.	Employees' Compensation Commission.	Public Health Service.	Alaskan Engineering Commission.	Philippine Islands.
Total number examined	41,185	8,139	10,306	3,397	1,288	476	233	1,749	2,701	1,762	124	31	1,308	29	15	7	4
Number passed	27,976	7,907	9,398	2,473	1,015	385	221	1,669	2,272	1,667	122	29	772	21	15	6	4
Number rejected	3,593	232	908	924	273	91	12	80	429	95	2	2	536	9	.....	1	.....
Number of War Risk cases examined	9,616	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919.*

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Abortion	2		1	1					1
Abscess about rectum	72	2	37	21	15	1		2	33
Abscess about urethra	3		3	3					
Abscess, alveolar	114	1	33	20	10	3		1	80
Abscess in male perineum	11		3	1	2				8
Abscess, amoebic, otherwise unclassified	4		2	2					2
Abscess of—									
Axilla	46	1	14	7	5	1		2	31
Bone	10		6	3	1			2	4
Brain	1		1				1		
Eye and annexa	13		4	3	1				9
Larynx	1		1		1				
Liver	2		1				1		1
Liver, endamoebic	2		2	1			1		
Lung	8	2	4	2	2		1	1	2
Lymph nodes	25		10	4	4			2	15
Mammary gland	3								3
Mammary gland, puerperium	1								1
Muscle	19		7	3	2	2			12
Nasal septum	6		1	1					5
Omentum	2								2
Ovary	3								3
Pharynx	6		2	2					4
Prostate gland	4		4	2	1			1	
Salivary gland or duct	1		1	1					
Scrotum	7		3	1	1			1	4
Tendon sheath	14		10	4	5			1	4
Testicle	2								2
Tongue	4		1		1				3
Abscess:									
Pelvic	4		3		2	1			1
Perinephritic	2		2	1				1	
Puerperium	1								1
Subphrenic	4		2	1			1		2
Tonsillar	53	1	36	28	7			2	16
Otherwise unclassified	315	14	263	154	101	6	2	14	38
Acariasis	2								2
Achylia gastrica	37		2		2				35
Acidosis, nondiabetic	9		1		1				8
Acne	192		8		7			1	184
Acromegalia	1								1
Actinomycosis	5		4	1	1	1		1	1
Addison's disease	3								3
Adenoids	25		14	9	3	2			11
Adenoma	2		2	1	1				
Adhesions about gall bladder	3		3	1		1		1	
Adhesions about stomach	6		6		3	3			
Adhesions of peritoneum	30	2	21	4	10	5		4	7
Adhesions, preputial	1		1	1					
Adhesions, otherwise unclassified	50		34	2	10	20	1	1	16
Adiposis dolorosa	1		1		1				
Albuminuria	27		8	2	4	2			19
Albuminuria, pregnancy	2								2
Alopecia	7								7
Alopecia areata	3								3
Amaurosis	6		2	1				1	4
Amblyopia	5	1	2		1	2			2
Amenorrhea	3								3
Amoebiasis	5	1	4	2	2	1			
Amputation, congenital	7								7
Amputation, stump	213	1	197	16	21	133		28	15
Amygdalitis, acute follicular	1,137	10	347	256	87	5	1	8	780
Amygdalitis, chronic	510	1	345	210	64	41		31	164
Amygdalolith	9								9
Anemia of brain (syncope)	3		2	2					1
Anemia, pernicious	16	2	7		5	1	3		7
Anemia, simple	149	1	6	1	4	1		1	142
Anemia, splenic	2								2
Aneurysmal varix	1								1
Aneurysm of heart	2								2
Aneurysm	29		23		10	8	3	2	6
Aneurysm, cirsoid	1		1	1					
Aneurysm, varicose	1		1	1					

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Angina pectoris	26		7	1	4	2			19
Angiokeratoma	1		1		1				
Angioma	1								1
Angiospastic edema	13		1		1				12
Ankylosis of joint	110	4	64	7	18	39		4	42
Anti-inoculation	2,018								2,018
Aortitis	7		2		1	1			5
Aphasia	2	1	1			2			
Appendicitis, acute	253	8	186	148	20		8	18	59
Appendicitis, chronic	197	6	134	76	30	10	5	19	57
Arterial sclerosis, cerebral	6		4		2		1	1	2
Arterial sclerosis, general	116	6	43	1	23	14	3	8	67
Arthritis, acute	124	4	63	21	34	3		9	57
Arthritis, chronic	267	6	202	19	88	73	1	27	59
Arthritis deformans	35	9	18		6	10	1	10	8
Ascariasis	4		1			1			3
Ascites, chylous, nonfilarial	2								2
Asthma	225	6	126	14	59	39	7	13	93
Astigmatism	61		29	1	18	7		3	32
Atelectasis	5		5	1	1	3			
Atony of bladder	4								4
Atrophy of muscle	44	2	24		8	15		3	18
Atrophy of optic nerve	25	1	15		2	10		4	9
Atrophy of ovary	1		1					1	
Atrophy of skin	1		1			1			
Atrophy of testicle	10		3		2	1			7
Autointoxication, intestinal	249	2	73	68	3		1	3	174
Balanoposthitis	27		3	1	2				24
Beriberi	7		6	3	3				1
Blepharitis	29		8	1	4	3			21
Blood donor	220								220
Bradycardia	2		2		1	1			
Bromidrosis	5								5
Bronchiectasis	3		3		1	2			
Bronchitis, acute	2,505	11	334	252	71	14	1	7	2,160
Bronchitis, chronic	834	6	403	30	127	178	2	72	425
Bronchitis, fibrinous	14		10	1	8			1	4
Bursitis, acute	63		26	12	10	3		1	37
Bursitis, chronic	35	2	18	8	6	4		2	15
Calculus in bladder	12		7	2	3	1	1		5
Calculus in ureter, impacted	4		3		1	1		1	1
Calculus in urethra, impacted	1								1
Callositas	11		5	1	3			1	6
Carbuncle	180	5	46	26	24		1		129
Carcinoma	91	4	62	3	12	13	29	9	25
Cardiospasm	17								17
Caries of bone	6		4		2			2	2
Caries of ossicles	1								1
Caries of tooth	129		10	1	1	7		1	119
Catalepsy	12								12
Cataract	32	1	31	4	13	12	1	2	
Cellulitis	353	3	149	84	59	4		5	201
Cellulitis, pelvic	5								5
Cellulitis, pelvic, puerperium	3		1	1					2
Cerebrospinal fever	7		7			3	4		
Cerumen, accumulation of	211		10	6	2	2			201
Chalazion	25		4	2	1	1			21
Chancroid	41		9	4	4			1	32
Chancroid of penis	1,381	30	509	267	230	15		27	842
Chicken pox	22	1	18	16	2			1	3
Chilblain	1								1
Chloasma	3								3
Cholangitis, acute	4		4	2	2				
Cholangitis, chronic	3		1					1	2
Cholecystitis, acute	36	1	27	10	13	1		4	8
Cholecystitis, chronic	14		10	2	4	3		1	4
Cholelithiasis	22		10	3	5	1		1	12
Chondroma	1		1			1			
Chorea	4		3			2		1	1
Choroiditis	11	1	9	1	1	7		1	1
Chromidrosis	2								2
Cicatricial contraction of skin	6		1					1	5
Cicatricial contraction	20	1	9		9	1			10
Cicatrix of skin	25		19	1		17		1	6

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Cirrhosis of liver, atrophic	15		10		2	3	4	1	5
Cirrhosis of liver, hypertrophic	19	2	12	2	7	3	1	1	5
Clavus (corn)	58		4	1	1			2	54
Clonorchiasis	1		1		1				
Coccidiosis	1								1
Colitis, acute	37		16	10	6				21
Colitis, chronic	27	1	13	2	6	4		2	13
Color blindness	6								6
Comedo	1								1
Congestion of kidney	1								1
Congestion of lung, acute	3		1	1					2
Conjunctivitis, acute	468	2	64	30	29	6		1	402
Conjunctivitis, chronic	77		12	2	4	4		2	65
Conjunctivitis, phlyctenular	5		2	1		1			3
Constipation	1,214	1	99	22	65	10		3	1,114
Constitutional inferiority	26		22		4	8		10	4
Constitutional psychopathic state	16		7		2	2		3	9
Contracture of joint	7		4	1		3			3
Contracture of muscle	27		9		3	3		3	18
Convulsions	1								1
Cornu	2								2
Coxa valga	1		1			1			
Coxa vara	1								1
Cramp of ciliary muscle	5								5
Cramp of muscle	17		5	5					12
Cretinism	1		1		1				
Curvature of spine	11		7		2	5			4
Cyclitis	5		2		2				3
Cyst, brachial	1								1
Cyst of kidney	1								1
Cyst of retention	75	1	21	14	8				53
Cyst of vagina	1		1		1				
Cyst, otherwise unclassified	46	1	12	5	4	3		1	33
Cystitis, acute	150		24	9	12	1	1	1	126
Cystitis, chronic	147	2	38	6	27	5		2	107
Cystoma	4		3	2	1				1
Dacryocystitis	8		3		2			1	5
Deafness	80		47	2	3	40		2	33
Deformity of bladder, acquired	1		1			1			
Deformity of external ear, acquired	1								1
Deformity of liver, acquired	1								1
Deformity of nose, acquired	18	2	14	8	6			2	2
Deformity of penis, acquired	1	1						1	
Deformity of stomach, acquired	2		2			1	1		
Deformity, otherwise unclassified	14		11		1	6		4	3
Degeneration of muscle	3	1	1	1		1			1
Dementia (cause unknown)	19	1	14		3	4		8	4
Dementia precox	132	4	115	1	6	68		44	13
Dementia precox, catatonia	6		6			3		3	
Dementia precox, hebephrenia	13		13			2		11	
Dementia precox, paranoid form	20	4	16		1	7		12	
Dengue	16		10	7	2	1			6
Dentition	1								1
Dermatitis exfoliativa	9		2	2					7
Dermatitis gangrenosa	1								1
Dermatitis herpetiformis	17		3	3					14
Dermatitis medicamentosa	16		8	1	5	1	1		8
Dermatitis papillaris capillitii	3								3
Dermatitis repens	4								4
Dermatitis schambergi	1								1
Dermatitis traumatica	20	1	1		2				18
Dermatitis venenata	97	2	10	8	1			3	85
Dermatitis, otherwise unclassified	121		15	6	7	2			106
Detachment of retina	6								6
Deviation of nasal septum	115	2	70	41	16	11	1	3	43
Diabetes insipidus	12		9		3	3		3	3
Diabetes mellitus	124	6	62	6	18	29	7	8	56
Diarrhea, flagellate	189		13	8	5				176
Dilatation, acute cardiac	4		3				1	2	1
Dilatation, chronic cardiac	20	1	9		6	2		2	10
Dilatation of stomach, acute	1		1	1					
Dilatation of stomach, chronic	1		1	1					
Diphtheria	49	4	35	28	10			1	10

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Diphtheria bacillus carrier	9		8	6	2				1
Dislocation of joint, congenital	2		2	1				1	
Displacement of ovary	1								1
Displacement of uterus	3		2	1	1				1
Displacement of uterus, puerperium	1								1
Displacement, otherwise unclassified	4		3	1		2			1
Duodenitis	3		1		1				2
Dupuytren's contraction	4		2	1		1			2
Dysentery, amoebic	49	3	26	13	11	1		4	20
Dysentery, bacillary	16		6	4	2				10
Dysentery, balantidic	2		2	2					
Dysentery, otherwise unclassified	106		30	20	6	3		1	76
Dysidrosis	2								2
Dysmenorrhea	3								3
Echinococcosis	1		1				1		
Ecthyma	2		1		1				1
Ectropion	2								2
Eczema	368	1	47	15	22	5	1	5	320
Eczema seborrhoicum	6		2	1	1				4
Edema of glottidis	7								7
Elephantiasis, nonfilarial	2		1	1					1
Elongation of uvula	7		1		1				6
Embolism	2		2				2		
Embolism, puerperium	1								1
Embolism of retinal artery	2		1			1			1
Emphysema, pulmonary interlobular	22	1	15		8	2	1	5	6
Emphysema, senile pulmonary	8	1	1			2			6
Encephalitis, acute	2		2	2					
Endocarditis, acute	11		5		4	1			6
Endocarditis, chronic	50	3	28	1	12	10	3	5	19
Endometritis, acute	1								1
Endometritis, chronic	3								3
Endothelioma	1		1		1				
Endotrachelitis, chronic	1								1
Enlargement of prostate gland	54	3	32	1	29		1	4	19
Enteritis, acute	227		69	58	7			4	158
Enteritis, chronic	54	1	9	5	3	2			44
Enterocolitis	26		7	4	2			1	19
Enuresis, functional	23		9	2	3	3		1	14
Epididymitis, acute	131	1	68	27	36	3		3	62
Epididymitis, chronic	18		18	6	7	4		1	
Epiglottiditis	1		1					1	
Epilepsy	147		104	1	30	51	1	21	43
Epilepsy, Jacksonian	21		14	1	1	7		5	7
Epiphora	1								1
Epiphysistis, chronic	1		1			1			
Epistaxis	18		6	3	1			2	12
Epithelioma	48	3	20	8	9	4		2	25
Erysipelas	41		27	22	2		2	1	14
Erysipeloid	3		1		1				2
Erythema multiforme	14		2	1	1				12
Erythema nodosum	3		1	1					2
Erythema scarlatiniforme	2		2	2					
Erythema simplex	27		1		1				26
Exophthalmic goitre	62	1	47	8	20	14	1	5	14
Extravasation of urine	1		1		1				
Fatty heart	2								2
Fermentation, gastric	28		1	1					27
Fermentation, intestinal	185		1	1					184
Fever of unknown cause	37		7	5	1	1			30
Fibroma	22		11	2	5	2		2	11
Filariasis	2		1					1	1
Fissure of anus	17		6	4	2				11
Fissure of skin	6		1	1					5
Fistula, biliary	1								1
Fistula, fecal	11		7	2	4			1	4
Fistula in ano	127	4	77	32	27	6	2	14	46
Fistula, intestino-ureteral	1								1
Fistula, intestino-vesical	1								1
Fistula of bladder	1								1

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Fistula of kidney	1		1					1	
Fistula of salivary gland or duct	3		3	1		1		1	
Fistula of thoracic duct	2								2
Fistula of urethra	12		9	6	3				3
Fistula, recto-vaginal	1								1
Fistula, otherwise unclassified	12		7	2	4	1			5
Folliculitis decalvans	2								2
Foot-and-mouth disease	1		1		1				
Functional derangement of liver	343	2	38	31	7		1	1	303
Furunculosis	719	2	95	57	34	1		5	622
Galactocele	2								2
Ganslion	10		6	5	1				4
Gangrene	7		4		1		1	2	3
Gangrene, infective	2		2		1		1		
Gangrene of lung	1		1				1		
Gangrene of testicle	1								1
Garrulitas vulva	1								1
Gaseous tumor of parotid	2								2
Gastritis, acute catarrhal	586	2	121	89	26	3	2	3	463
Gastritis, acute phlegmonous	34	1	5	3	2			1	28
Gastritis, chronic catarrhal	369	3	77	14	44	16		6	289
Gastroduodenitis	36		14	9	3	1		1	22
Gastroenteritis	131	2	61	47	14	1		1	68
Gastroptosis	15		10	2	4	2	1	1	5
General paralysis of the insane	14	3	11		2	4	2	6	
Genu recurvatum	2		2			2			
German measles	3		3	3					
Gigantism	1		1		1				
Gingivitis	24		3	3					21
Glaucoma, acute	1								1
Glaucoma, chronic	3		2		1	1			1
Glossitis, acute	2								2
Glossitis, chronic	2								2
Glycosuria	1		1		1				
Goitre	57		43	2	6	27		8	14
Gonecystitis, acute	1								1
Gonecystitis, chronic	1								1
Gonococcus infection of:									
Bladder	16	1	6	3	2		2		9
Epididymis	161	4	87	35	44	2		10	70
Eye	6		4		3	1			2
Fallopian tube	3		2	1	1				1
Joint	99	1	59	11	31	5	1	12	39
Lymph nodes	57	2	28	10	15	2		3	27
Mouth	31		30		25	5			1
Pelvis of kidney	6		1	1					5
Penis	647	1	29	13	14			3	617
Prostate gland	29	3	9	5	6	1			17
Rectum	3		3		3				
Seminal vesicle	1								1
Spermatic cord	2	1		1					1
Testicle	115	1	60	31	23	1	1	5	55
Ureter	35		1	1					34
Urethra	4,497	63	1,467	795	586	93	1	55	2,967
Vagina	2								2
Otherwise unclassified	8		7	4	3				1
Gout, acute	1								1
Gout, chronic	1		1		1				
Hallux valgus (bunion)	29		12	7	2	2		1	17
Hallux, varus	2		2		1	1			
Hammertoe	6		3	1		2			3
Hay fever	7		1		1				6
Headache	117		20	6	7	5		2	97
Heart block	7		4		4				3
Hematemesis	3		1	1					2
Hematocele of spermatic cord	1		1	1					
Hematocele of tunica vaginalis	1	1						1	
Hematocele, otherwise unclassified	1		1	1					
Hematoma of vulva, puerperium	3								3
Hematoma, otherwise unclassified	17		6	5	1				11
Hematuria, renal	14		5	1	3			1	9
Hemianopsia	2		1			1			1

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Hemiplegia, old	91	19	55	3	18	22	5	26	17
Hemoglobinuria	5		2		2				3
Hemoptysis	6		3	1	2				3
Hemorrhage, intestinal	4								4
Hemorrhage into cerebellum	2		1		1				1
Hemorrgahe into cerebrum	49	18	30	1	17	4	12	14	1
Hemorrhage into labyrinth	1								1
Hemorrhage into medulla	1		1		1				
Hemorrhage into retina	4	1	3		1	3			
Hemorrhage, otherwise unclassified	16		9	5	1	1	2		7
Hemorrhoids, external	250	6	73	44	25	8		2	171
Hemorrhoids, internal	82	4	37	27	11	3			41
Hemorrhoids, mixed	130	2	81	61	10	3		9	47
Hernia:									
Epigastric	4	1	3	1		3			
Femoral	8		4	4					4
Femoral, strangulated	2		2	2					
Inguinal	1,337	32	759	581	62	52	5	91	546
Inguinal, strangulated	19	3	13	12	4				3
Lumbar	2		2		1			1	
Obturator	1								1
Of brain	2		2			1		1	
Of muscle	6		5	1	1	3			1
Umbilical	21		13	6	4	2		1	8
Ventral	64		43	19	4	11		9	21
Ventral, strangulated	2								2
Otherwise unclassified	43		20	9	3	4		4	23
Herpes	95		13	9	4				82
Hiccough	17		2	1	1				15
Hirudiniasis	1								1
Hodgkin's disease	5	1	3		1	1	1	1	1
Hordeolum	33		1		1				32
Hydrocele of round ligament	1								1
Hydrocele of spermatic cord	17		6	4	1			1	11
Hydrocele of tunica vaginalis	118	2	67	48	9	8		4	49
Hydrocele of vulva	2		1		1				1
Hydrocephalus, acquired	1		1	1					
Hydronephrosis	2		2		1			1	
Hyperchlorhydria	34		15	2	11	2			19
Hyperchylia gastrica	10								10
Hyperemia of conjunctiva	1								1
Hyperidrosis	4								4
Hypermetropia	16	1	12	2	2	9			4
Hypertrophy of:									
Bone	21	2	11	5	6			2	8
Cartilage	5		4	1	2			1	1
Heart	13		5	2	3				8
Lymph nodes	2								2
Mammary gland	1								1
Tonsil	74	2	59	51	6	1		3	13
Hypochlorhydria	33	1	3	3				1	29
Hypochondriasis	11		7	3	1	1		2	4
Hysteria	91		81	8	28	33		12	10
Ichthyosis	2								2
Imbecility	11		8		1	7			3
Impacted feces	1		1		1				
Impetigo contagiosa	26		2	1	1				24
Impetigo herpetiformis	1								1
Impetigo simplex	5		2	2					3
Impotence	8								8
Incontinence of urine	26		8		3	5			18
Inflammation of salivary gland or duct	7	1	3	3	1				3
Inflammation of spermatic cord	2								2
Infarct of spleen	3								3
Influenza	9,256	15	6,131	5,183	417	38	490	18	3,110
Ingrowing nail	47	1	12	10	3				34
Insanity, variety not ascertained	22		21		2	9		10	1
Insomnia	26		1		1				25
Insufficiency of ocular muscle	1		1		1				
Intertrigo	12								12
Iridochoroiditis	1		1	1					
Iridocyclitis	5	2	3	2	3				
Iritis	54	3	20	7	13	3			31

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Ixodiasis	4		2	2					2
Jaundice, acute infective	71		43	18	24			1	28
Keratitis	30		15	6	6	3			15
Keratitis, phlyctenular	1		1		1				
Laceration of cervix uteri, old	1		1	1					
Laceration of pelic floor, old	1		1	1					
Laryngitis, acute	113		16	7	8			1	97
Laryngitis, chronic	47		12		8	3		1	35
Leushmaniasis	7		3		3				4
Leprosy	6	1	2			1		2	3
Lukemia	1		1					1	
Leukoma	2		2			2			
Lishen planus	1		1	1					
Lipoma	32		18	11	6	1			14
Loose body in joint	7		5		3	2			2
Lupus erythematosus	1								1
Lymphadenitis, acute	660	19	266	143	114	8		20	375
Lymphadenitis, chronic	65		35	17	13	3		2	30
Lymphangiectasis	5		1	1					4
Lymphangitis of, puerperium	1		1					1	
Lymphang tis	29		12	6	4	1		1	17
Lymphoma	2		2		1	1			
Malaria, estivo-autumnal	98	6	31	21	10	2	1	3	61
Malaria, quartan	28	1	5	5	1				22
Malaria, tertian	585	16	231	177	59	3	1	7	338
Malformation of (congenital):									
Abdominal wall	2		2		1	1			
Appendix	1								1
Bladder	2		1		1				1
Bone	3		3	1	1	1			
Esophagus	1		1	1					
Gall bladder	1								1
Heart	1		1	1					
Joint	1		1			1			
Liver	2								2
Nose	9		8	1	3	4			1
Rectum	1								1
Spinal column	2		2		1			1	
Testicle	3		2			2			1
Thorax	3								3
Malingering	75		31	7	2	21		1	44
Malnutrition	11		1					1	10
Malta fever	1		1	1					
Mamillitis, pregnancy	1		1					1	
Mastitis, acute	2		1	1					1
Mastitis, chronic	2		1			1			1
Mastitis, puerperium	1								1
Mastoiditis, acute	20		18	9	4	4		1	2
Mastoiditis, chronic	28		19	1	5	5	1	7	9
Measles	69	6	58	51	5	4	1	3	5
Melancholia, involutional	10	1	7		6	1		1	2
Meniere's disease	8								8
Meningitis, cerebral	9		9	3	2		2	2	
Meningitis, cerebrospinal	14	2	12	2	3	6	2	1	
Meningitis, spinal	6		6		4	2			
Menopause	1								1
Menorrhagia	1								1
Menstruation, precocious	1								1
Metatarsalgia	6		2		2				4
Metritis, acute	1	1		1					
Migrane	30								30
Mikulicz's disease	4		4	1	2			1	
Miliaria	4								4
Morvan's disease	1		1			1			
Mucormycosis	2		2	2					
Mumps	408	5	348	328	23	1		1	55
Myasthenia gravis	2								2
Mycetoma	1		1		1				
Mycosis fungoides	1								1
Myelitis, disseminated	1		1			1			
Myelitis, transverse	4		3	1	1		1		1
Myiasis	1		1	1					
Myocarditis, acute	25	1	10		3	3	1	4	14
Myocarditis, chronic	164	4	130		65	42	10	17	30

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Myoma	1								1
Myopia	53		17		5	12			36
Myositis, acute	47		18	7	10			1	29
Myositis, chronic	29		17		11	5		1	12
Myositis, traumatic ossifying	3		1	1					2
Myringitis, acute	2		1		1				1
Myringitis, chronic	1								1
Myxedema	2		1			1			1
Necrosis of bone	70	2	56	15	23	5	1	14	12
Necrosis of ossicles	4		4	1				3	
Nephralgia	3		2		1	1			1
Nephritis, acute	59	8	23	7	10	2	7	5	28
Nephritis, acute, pregnancy	1								1
Nephritis, acute, peurperium	4		3		2	1			1
Nephritis, chronic, interstitial	201	10	122	8	54	36	23	11	69
Nephritis, chronic, parenchymatous	154	12	102		58	18	14	24	40
Nephritis, disseminated, suppurative	4		3		1	2			1
Nephrolithiasis	17	1	11	6	4		1	1	5
Nephroptosis	4		2	1				1	2
Nervous dyspepsia	36		9		3	4		2	27
Neuralgia	213	3	55	22	24	3		9	155
Neurasthenia	582	2	269	10	104	108	1	48	311
Neuritis, multiple	35	1	20	3	10	5		3	14
Neuritis	200	8	97	19	53	19	2	12	95
Neuritis, optic	17	1	6		2	4		1	10
Neuroma	13		9	4	3	2			4
Neuroretinitis	2		1	1					1
Neurosis, intestinal	38	1	20	7	7	3		4	17
Neurosis, occupational	35		31	2	17	12			4
Neurosis of bladder	2		2		2				
Neurosis of larynx	8		8	2	4	2			
Neurosis of mammary gland	1		1		1				
Neurosis of pharynx	1								1
Neurosis, traumatic	27		25	2	7	12		4	2
Nevus	1								1
Nostalgia	8		8			8			
Obesity	4	1	3		1	2		1	3
Obstruction, acute, intestinal	13		10	5	1	1	3		3
Obstruction, chronic, intestinal	4		3	1	1			1	1
Oesophagostomiasis	2		2	1		1			
Onychauxis	3		2	1		1			1
Onychia	10	1	2	2	1				7
Onychoma	1		1	1					
Oophoritis, acute	2		1		1				1
Oophoritis, chronic	2		1				1		1
Opacity of cornea	13		10		3	7			3
Opacity of vitreous humor	6		2		1	1			4
Ophthalmoplegia	1		1			1			1
Orchitis, acute	91		31	16	14	1			60
Orchitis, chronic	13		9	1	3	4		1	14
Ossification of auricle	2								2
Ossification of tracheal rings	1		1			1			
Osteitis deformans	3								3
Osteoarthropathy, hypertrophic	1								1
Osteogenesis imperfecta	2								2
Osteoma	13		10	3	2	3		2	3
Osteomyelitis, acute	37	1	25	3	13	3		7	11
Osteomyelitis, chronic	64	2	48	13	25	5		7	14
Otitis externa	52		6	4	2				46
Otitis interna, acute	11		2		1			1	9
Otitis interna, chronic	11		10		7	3			1
Otitis media, acute	353	1	61	34	22	3	1	2	291
Otitis media, chronic	343	5	191	26	79	76	15		147
Oxyuriasis	1		1	1					
Ozena	6		1		1				5
Pachymeningitis, cerebral	1		1		1				
Pachymeningitis, spinal	9		9		5	3		1	
Palpitation, cardiac	16		7		5	2			9
Panophthalmitis	8		7	1	2	3		1	1
Papilloma	32		10	8	1	1			22
Pappataci fever	1								1
Paralysis, acute ascending	10		3		1		2		7
Paralysis agitans	10	3	3		2	1	2	1	4

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Paralysis of muscle, ischemic	10	1	4		2	2		1	5
Paralysis of nerve	88		49	3	18	27		1	39
Paralysis of ocular muscle	5		3	2	1				2
Paralysis of spinal nerve	4		3		1	2			1
Paralysis of vocal cords	1		1					1	1
Paramyoclonus multiplex	1								1
Paranoia	12		10			6		4	2
Paranoid state	1		1			1			
Paraphimosis	29	1	17	8	10				11
Paraplegia, ataxia	5	3	2		1	1	1	2	
Paraplegia, hereditary spastic	1		1					1	
Paronychia	32		1	1					31
Pediculosis	44		4	3	1				40
Pellagra	2		1			1			1
Pemphigus	1		1	1					
Perforated nasal septum	5		2		1	1			3
Pericarditis	8		7	1	3		1	2	1
Perichondritis of auricle	1								1
Perichondritis of larynx	1		1				1		
Perichondritis	1		1					1	
Perihepatitis	4		2		1	1			2
Periostitis, acute	44	1	18	9	10				25
Periostitis, chronic	38	1	27	2	17	6		3	10
Peritonitis, acute general	2		1	1					1
Peritonitis, acute local	2		1			1			1
Peritonitis, chronic general	1		1		1				
Peritonitis, chronic local	2		1					1	1
Persistent thymus gland	1								1
Perversion of appetite	12								12
Perverted color vision	5		1	1					4
Pes cavus (hollow foot)	5		1			1			4
Pes planus (flat foot)	258		156		45	97		14	102
Pes valgus	1		1		1				
Phantom tumor	1								1
Pharyngitis, acute	430	1	50	40	9	1		1	379
Pharyngitis, chronic	105		27	4	15	6		2	78
Phimosis	179	7	103	82	23	4		1	69
Phlebitis	29		19	4	8	6		1	10
Piedra	2								2
Pityriasis rosea	6								6
Pityriasis simplex	1								1
Pityriasis versicolor	4		1	1					3
Pleurisy, acute fibrinous	182	1	65	39	23	1		3	116
Pleurisy, chronic fibrous	123		50	8	20	19		3	73
Pleurisy, serofibrinous	54	3	36	9	19	5	2	4	15
Pleurisy, suppurative	127	6	104	18	43	25	2	22	17
Pleuritic adhesions	51	1	33	2	16	16			17
Pneumonia, broncho	194	3	178	98	21	3	56	3	13
Pneumonia, lobar	431	12	396	201	20	71	102	14	23
Pneumonoconiosis	1								1
Poliomyelitis, anterior acute	1		1			1			
Poliomyelitis, anterior chronic	10		8		1	4	1	2	2
Polycythemia, chronic	2		2	1		1			
Polypus, nasal	22		8	4	4				14
Prepuce, redundant	83	4	42	31	11	1		3	37
Presbyopia	3								3
Proctitis	8		3	1	1	1			5
Prolapse of rectum	10		8	2	3	3			2
Prolapse of urethra	1								1
Prostatitis, acute	19		3	2	1				16
Prostatitis, chronic	73		13	1	6	2		4	60
Protozoa infection, otherwise unclassified	1								1
Prurigo	3								3
Pruritus	23								23
Pruritus ani	16		3		1	1		1	13
Psoriasis	56		14	2	7	1		4	42
Psychasthenia	33		30	1	9	14		6	3
Psychosis due to organic brain disease	1		1					1	
Psychosis, epileptic	2	1	1		1			1	
Psychosis, exhaustive, infective, and toxic	11		11	1	5	1		4	
Psychosis, hysterical	25		24	2	12	10			1

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Psychosis, intoxication	71	1	49	25	13	7		5	21
Psychosis, manic depressive	31	5	25	2	2	6	1	19	1
Psychosis, polyneuritica	4		2		2				2
Psychosis, senile	5		3		1	1		1	2
Psychosis, traumatic	11		9		5	4			2
Pterygium	29		12	5	5	2			17
Purpura	2	1	1	1				1	
Pyelitis	17		10	4	5	1			7
Pyelonephritis	2		2	1	1				
Pylorospasm	1								1
Pyonsphrosis	9	1	6	2	1	1	2	1	2
Pyopneumothorax	8		2			1		1	6
Pyorrhoea alveolaris	97		28	4	11	10		3	69
Raynaud's disease	3	1				1			2
Regurgitation from stomach	2		1					1	1
Retention of urine	22		12	7	4			1	10
Retinitis	22		10		4	6			12
Rheumatic fever, acute	118	7	80	42	32	1	2	10	31
Rheumatic fever, subacute	54	2	35	15	14	1		7	17
Rheumatism, chronic articular	451	8	172	45	86	24		25	271
Rheumatism, muscular	1,886	15	340	163	130	33		29	1,531
Rhinitis, acute	788		39	23	9	3		4	749
Rhinitis, atrophic	36	1	7		5	3			28
Rhinitis, hypertrophic	91		14	3	5	5		1	77
Rhinolith	1		1		1				
Rhinosporidium infection	4								4
Rocky Mountain spotted fever	4								4
Rupture of spleen, spontaneous	2		2			2			
Salpingitis, acute	2		1		1				1
Salpingitis, chronic	1								1
Salpingitis, eustachian, acute	7								7
Salpingitis, eustachian	2		2		2				
Sarcoma	21	2	15	5	4	2	2	4	4
Sarcopsylliasis	1								1
Scabies, Norwegian	47		20	15	5				27
Scabies, sarcoptic	165	3	71	44	21	3		6	91
Scarlet fever	210	1	25	26					174
Schistosomiasis, African, intestinal	2		1	1					1
Scleritis	4		2	1	1				2
Sclerodermia	1		1					1	
Sclerosis, amyotrophic lateral	1								1
Sclerosis, disseminated	4		4		1	2		1	
Sclerosis, lateral	9	2	6		1	5		2	1
Sclerosis, otherwise unclassified	5		3			3			2
Seasickness	9		3	3					6
Sebaceous cyst	1								1
Seborrhea	5		1		1				4
Seminal emissions	2								2
Senility	12	1	2		1	2			9
Septicemia	31	1	10	6	2		3		20
Septicemia, puerperium	2		1					1	1
Shock	12		10	6	2			2	2
Sinusitis, ethmoidal	17		13	2	5	4		2	4
Sinusitis, frontal	12		6	1	5				6
Sinusitis, maxillary	16	1	10	2	4	4	1		5
Sinusitis, sphenoidal	2								2
Sinus	38		30	7	11	5	1	6	8
Skin donor	4								4
Smallpox	32		31	26	2	2	1		1
Snow blindness	1								1
Somnambulism	3								3
Spasm, habit	1								1
Spasm, nodding	2								2
Spasm of esophagus	1								1
Spasm, saltatory	10		6		2			4	
Spermatorrhea	2								2
Splanchnoptosis	8								8
Splenitis, chronic interstitial	1		1					1	
Sporotrichosis	2		1					1	1
Spur on nasal septum	5		3	3					2
Staphyloma of cornea	5		2	1		1			3
Stenosis of nasal duct	1		1			1			
Stenosis of punctum lacrimale	1								1

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Stenosis of pylorus	1								1
Stomatitis	42		6	2	1	1		2	36
Stomatitis, gangrenous	2								2
Stricture of esophagus	4	1	3		3			1	
Stricture of rectum	4								4
Stricture of ureter	6		3	1	1	1			3
Stricture of urethra	194	3	57	12	35	6	3	4	134
Stricture of uterine canal	1								1
Strongyliasis	3	1	1	1	1				1
Stuttering	5		2			2			3
Sudamina	2								2
Suppression of urine	1								1
Symblepharon	1		1		1				
Synechia	4		2		1	1			2
Synovitis, acute	67	2	25	8	12	4		3	40
Synovitis, chronic	37	1	20	1	14	6			16
Syphilis of:									
Blood vessel	5		2		1			1	3
Anus	8		3	1	1			1	5
Bladder	1								1
Bone	23	1	11		8	4			11
Brain	27	4	21	1	16	6	2		2
Bursa	1		1		1				
Cerebral meninges	8		5		4			1	3
Cerebrospinal meninges	12		11		4	5		2	1
Ear	2								2
Eye and annexa	21	1	10	2	7	2			10
Heart	7		2		2				5
Joint	8	1	5	1	4	1			2
Larynx	3		1	1					2
Lip	5		3		3				2
Liver	2	1					1		1
Lung	3		2		1	1			1
Lymph nodes	95	5	30	5	26	2		2	60
Mouth	35		8	3	5				27
Muscle	1								1
Nasal passages	12		3		2			1	9
Palate	8		5	1	4				3
Penis	445	25	253	58	189	18		13	167
Pharynx	25		4		4				21
Prostate gland	1		1		1				
Rectum	4		1		1				3
Scrotum	3		2		1			1	1
Skin	293	13	88	14	72	5	1	9	192
Spinal cord	18	5	11		8			8	2
Spinal meninges	5	1	4		3	1		1	
Spinal nerve	1		1			1			
Stomach	11		3		2	1			8
Tongue	13	1	6		7				6
Tonsil	13		10	2	5	2	1		3
Testicle	11		6		4	1		1	5
Thyroid gland	1	1		1					
Uvula	1		1		1				
Vulva	97		97	13	80	2		2	
Otherwise unclassified	2,579	77	813	60	547	305	5	73	1,689
Syringomyelia	1								1
Tabes dorsalis	94	27	43	1	20	17	2	30	24
Tachycardia	82		40	4	19	17			42
Taeniasis	12		4	2	2				8
Talipes	3		1			1			2
Tenosynovitis	17		10	5	2	3			7
Teratoma	5		4	2	2				1
Tetanus	6		2	1	1				4
Thrombosis	9		7		5	1	1		2
Thrush	3								3
Thyroiditis, acute	2		2		2				
Thyroiditis, chronic	6								6
Tic, convulsive	1								1
Tic, psychical	1		1	1					
Torsion of omentum	4		1		1				3
Torsion of spermatic cord, nontraumatic	8		1			1			7
Tracheitis	22		2		2				20
Trachoma	214	11	190	17	123	52		9	13
Trematodiasis, miscellaneous	1		1	1					

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Trichiasis	2	1			1				1
Trichomoniasis	1								1
Trichophytosis	88	1	10	4	4	1		2	77
Tuberculosis, abdominal	1								1
Tuberculosis, acute broncho-pneumonic	5		2		1			1	3
Tuberculosis, acute general	6		3		1		1	1	3
Tuberculosis, acute pneumonic	9	1	6	1	2	2	1	1	2
Tuberculosis, acute pulmonary miliary	140	1	64	1	39	5	9	11	75
Tuberculosis, chronic pulmonary	2,644	72	2,322	20	693	905	125	651	250
Tuberculosis of:									
Anus	1								1
Appendix	1		1			1			
Bladder	7		6	3		2		1	1
Bone	34	2	26	7		16	3	2	6
Bronchus	2		2			2			
Bursa	1		1			1			
Cartilage	1		1			1			
Cerebral meningesc	2		1				1		1
Cerebrospinal meninges	2		2			1	1		
Epididymis	9	1	5	1	3	1		1	3
Eye and annexa	2	2				2			
Intestine	3	1	1			1	1		1
Joint	49	7	34		18	13		10	8
Kidney	12		9		3	3	1	2	3
Larynx	10		6		2	2	1	1	4
Lip	1								1
Lymph nodes	24	5	19	4	12	5		3	
Mammary gland	9								9
Palate	1		1					1	
Pericardium	1		1					1	
Paritoneum	7		6			1	1	4	1
Pharynx	1		1					1	
Pleura	8		2			1		1	6
Reproductive organs	1								1
Skin	5		1		1				4
Spermatic cord	1		1	1					
Spinal cord	3		3			1		2	
Testicle	9		5	1	3			1	4
Otherwise unclassified	14	1	10		2	6		3	3
Tuberculous abscess of bone	4		1			1			3
Tuberculous abscess of pharynx	1								1
Tuberculous abscess of vertebra	18	1	15		5	7	1	3	2
Tuberculous abscess, otherwise unclassified	2		1					1	1
Tumors, mixed, benign	40	1	16	4	10	2		1	23
Tumors, mixed, malignant	7	2	3		2	3			2
Typhoid bacillus carrier	1	1						1	
Typhoid fever	159	20	127	95	11	3	21	17	12
Typhus fever	1								1
Ulcer of bladder	4		1		1				3
Ulcer of duodenum	32	2	20	4	9	9			10
Ulcer of duodenum, perforating	2		2	1		1			
Ulcer of:									
Eye and annexa	43		22	6	12	3		1	21
Intestine	6		3		1	1		1	3
Mouth	23		3			2		1	20
Nasal passage	9		4	1	1	2			5
Rectum	6		4	1	2	1			2
Skin	638	13	130	61	60	7		15	495
Skin, varicose	238	9	45	23	23	6	1	1	184
Stomach	116	4	64	14	13	9	2	10	48
Stomach, perforating	1	1		1					
Ulcer, phagedenic	10	1	2	2			1		7
Uncinariasis	12	1	10	5	5	1			1
Union of bone, faulty	10	3	3		2	3		1	4
Ureteral colic	17	1	10	3	7	1			6
Ureteritis	9								9
Urethritis, acute	185	2	11	5	5	2		1	172
Urethritis, chronic	89		10	2	6	1		1	79
Urticaria	110	1	11	9	2	1			98
Urticaria pigmentosa	1								1

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Vaccinia	91		8	8					83
Vaginitis, acute	1		1		1				
Vaginitis, chronic	3		1		1				2
Valvular disease, chronic cardiac	927	26	615	11	287	270	28	45	286
Varicocele	250	9	139	95	25	15		13	102
Varix	204	8	108	47	32	23	1	13	88
Varix of bladder	2		1		1				1
Verruga peruviana	1		1	1					
Vertigo	28		10	4	2	3		1	18
Vincent's angina	19		9	7	2				10
Vomiting of pregnancy	3		2	1	1				1
Vomiting, recurrent	4		1	1					3
Wart	126	1	24	18	5			2	101
Whooping cough	4	1		1					3
Yaws	1								1
Zoster	38		5	2	2			1	33
Poisonings and intoxications.									
Alcoholic poisoning	178	1	117	75	34	5	1	3	60
Alum poisoning	1								1
Atropine poisoning	1		1	1					
Carbon monoxide	4		4	4					
Chloride of lime poisoning	1								1
Chlorine poisoning	16	1	12	1	5	7			3
Coffee poisoning	2		1	1					1
Copaiba poisoning	2		1	1					1
Copper poisoning	2								2
Creatoxiemis	21		12	11	1				9
Egg albumens poisoning	1								1
Fish poisoning	5		3	2	1				2
Fish venom poisoning	1								1
Gasoline poisoning, industrial	2	1		1					1
Illuminating gas	3		3	2			1		
Heroin poisoning	1								1
Insect sting	12								12
Lead poisoning, acute	4		2	1				1	2
Mercury poisoning, acute	9		7	4	1			2	2
Morphine poisoning, acute	11	1	8	2	2	4		1	2
Nicotine poisoning, chronic	2								2
Opium poisoning, acute	1		1	1					
Opium poisoning	2		1	1					1
Phosphorous poisoning	1								1
Poisoning otherwise unclassified	41		33	9	15	8		1	8
Serum poisoning	9		1	1					9
Shellfish poisoning	2								2
Tobacco poisoning, chronic	6								6
Lead poisoning, industrial	1		1	1					
Verinal poisoning	1		1		1				
Dematitis venata	1								1
Lucotine poisoning	1								1
Petroleum poisoning	1								1
Nitro benzine poisoning	1		1		1				
Methyl alcohol poisoning	1		1			1			
Quinine poisoning	2		1	1					1
Injuries (wounds, etc.).									
Abrasion of:									
Abdominal wall	4		1		1				3
Arm	35		5	2	3				30
Back	6		1	1					5
Bladder	1		1		1				
Breast	1		1		1				
Buttock	5		1	1					4
Chest wall	3		1		1				2
External ear	2								2
Eye	7		1					1	6
Eyelid	3								3
Face	24		4	1	3				20
Finger	56		3	2	1				53
Foot	51		5	3	1			1	46
Forearm	12		3	1	2				9

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Injuries (wounds, etc.)—Contd.									
Abrasion of—Continued.									
Gum	1								1
Hand	63		2	1	1				61
Larynx	5								5
Leg	122		22	9	10	1		2	100
Lip	5								5
Neck	4		1	1					3
Nose	6								6
Penis	39		3	3					36
Pharynx	1		1	1					
Scalp	12								12
Scrotum	1		1			1			
Shoulder	1								1
Thigh	12		1	1					11
Toe	21		2	1	1				19
Otherwise unclassified	17		2	2					15
Abrasions, multiple	4		1	1					3
Avulsion of:									
Arm, complete	15		12	1	6	5			3
Arm, partial	1								1
Finger, complete	92	2	41	7	18	17		1	49
Finger, partial	18	1	13	4	7	3			4
Finger nail	23								23
Foot, complete	2		2		1	1			
Foot, partial	2		1			1			1
Forearm, complete	4		4			4			
Hand, complete	3		3		1	2			
Hand, partial	2		2		1	1			
Leg, complete	10		5		2	3			5
Leg, partial	9		5	1	1	2		1	4
Shoulder, partial	1		1	1					
Thigh, complete	3								3
Thigh, partial	2		2	1				1	
Toe, complete	23		20	1	10	8		1	3
Toe, partial	3		1					1	2
Toenail	2								2
Tooth	2								2
Otherwise unclassified	16		11	1	2	7		1	5
Burn of:									
Abdominal wall	14		5	1	4				9
Arm	109	3	15	13	5				91
Back	27	1	15	6	10				11
Bladder	3		3	2	1				
Buttock	10		2	2					8
Chest wall	19		7	4	3				12
External ear	1		1	1					
Eye	30	1	18	6	8	5			11
Eyelid	5		1	1					4
Face	83	1	44	19	22	2			38
Finger	37		3		3				34
Foot	94	2	41	22	16			2	51
Forearm	61	2	8	7	1			2	51
Hand	138	2	19	7	14				117
Larynx	7								7
Leg	102	1	30	14	14	1		2	71
Lip	1								1
Neck	10		6	3	3				4
Penis	5	1	2		2	1			2
Perineum	1								1
Pharynx	2								2
Scalp	4		2		1	1			2
Scrotum	3		3	1	1	1			
Shoulder	15	1	4	2	3				10
Thigh	23		14	9	4			1	9
Toe	5								5
Tongue	2		2	2					
Uterus	2		2	1	1				
Otherwise unclassified	26	1	9	4	3	3			16
Burns mutiple	80	1	64	28	24	4	3	6	15
Castration, traumatic	1		1			1			
Compression of nerve	2		2			2			

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Injuries (wounds, etc.)—Contd.									
Contusion of:									
Abdominal wall	39		17	11	5	1			22
Arm	120	3	33	22	12	2			84
Anus	1	1						1	
Artery	3								3
Back	193	3	87	48	32	5		5	103
Bone	19		5	2	2	1			14
Breast	13								13
Buttock	17		7	4	2			1	10
Chest wall	252	2	78	38	37		1	4	172
External ear	2								2
Eyeball	33		13	2	11				20
Eyelid	35		9	5	4				26
Face	83		27	11	14	1		1	56
Finger	391		19	9	9	1			372
Foot	345	5	130	70	52	13			210
Forearm	28		5	5					23
Bladder	1		1	1					
Hand	168	3	28	13	16	2			137
Intestine	1		1	1					
Joint	289	1	116	39	59	13		6	172
Kidney	9		3	3					6
Leg	307	3	86	45	37	4		3	218
Lip	5								5
Liver	2		1		1				1
Mesentery	1								1
Muscle	36		15	7	7			1	21
Neck	15		8	4	3	1			7
Nerve	7	1	1		2				5
Nose	17		2		2				15
Pancreas	1								1
Penis	6	1	1	1	1				4
Perineum	14		2	1	1				12
Peritoneum	2		2	1		1			
Scalp	59	1	24	8	16	1			34
Scrotum	6		4	2	2				2
Shoulder	123	1	37	15	16	7			85
Stomach	3		1		1				2
Testicle	29		12	4	6	2			17
Thigh	76	1	29	17	11			1	46
Toe	110		22	13	7	2			88
Uterus	5		2	1	1				3
Uvula	1								1
Otherwise unclassified	104	2	24	13	9	4			78
Contusions, mutiple	44		24	19	4	1			20
Crush of:									
Arm	12		1		1				11
Finger	148		29	11	16	1		1	119
Foot	39	2	14	8	4	2		2	23
Forearm	10								10
Hand	50	2	12	10	2			2	36
Leg	5		2			2			3
Shoulder	1								1
Toe	32	1	12	5	6	2			19
Otherwise unclassified	6		2		1		1		4
Dislocation of:									
Ankle	7		7	4	1			2	
Clavicle	9		5	2	3				4
Coccyx	2								2
Dislocation about wrist	8								8
Costal cartilage	1								1
Elbow	24		15	3	9	1		2	9
Finger	14								14
Hip	9		7	1	3	3			2
Intra-articular cartilage	6								6
of joint	20	1	19	2	11	4		3	
Knee	20	1	18	2	4	11		2	1
Lens	3		3		2	1			
Maxilla, inferior	1		1		1	1			
Metacarpus	1								1
Motatarsus	1		1	1					

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Injuries (wounds, etc.)—Contd.									
Dislocation about wrist—Contd.									
Muscle	1								1
Nasal cartilage	1								1
Patella	4		4		3	1			
Pelvis	2		2			2			
Rib	5		1					1	4
Shoulder	74	4	39	12	19	7		5	31
Tendon	1		1			1			
Thumb	19		6	1	3	2			13
Toe	4		2	1	1				2
Vertebra	7		3		2	1			4
Wrist	7		5	1	1	2		1	2
Otherwise unclassified	10		10	5	3	2			
Drowning	1	1		1					
Electric shock, injury from	1								1
Emphysema, traumatic	3		2	2					1
Epiphyseal separation of bone, traumatic	3		1		1				2
Exhaustion from overexertion and exposure	11		7	6	1				4
Exposure to extreme cold	8		1	1					7
Foreign body in:									
Abdominal cavity	1		1		1				
Abdominal wall	2		2		1	1			
Appendix	1								1
Arm	12		1			1			11
Auditory canal	2								2
Back	3		2		1			1	1
Brain	2		2		1			1	
Breast	1		1		1				
Bronchus	2		2	1				1	
Buttock	6		6	1	2	2		1	
Chest wall	1								1
Esophagus	3								3
Eye	363		29	15	10	3		1	334
Face	11		3	1	1			1	8
Finger	78		6	3	3				73
Foot	4		2	1	1				2
Forearm	7		4	2	1			1	3
Hand	25		7	2	4	1			18
Joint	5		4	1	2	1			1
Kidney	2		2	1	1				
Leg	12		11	4	1	4		2	1
Lip	1		1					1	
Liver	1		1			1			
Lung	3		2			1		1	1
Muscle	3		3		1	1		1	
Nasal passage	1								1
Neck	2		2	2					
Penis	2								2
Scalp	3		2	2					1
Shoulder	3		3	1		2			
Stomach	1		1	1					
Thigh	10		9	1	2	6			1
Toe	1								1
Trachea	1								1
Ureter	2		1			1			1
Otherwise unclassified	13		2		2				11
Fracture about ankle joint, compound	11		6	1	3	1		1	5
Fracture about ankle joint, simple	92	5	65	18	29	18		5	22
Fracture about wrist joint, compound	27		5	1	1	3			22
Fracture about wrist joint, simple	84	1	46	11	20	10		6	37
Fracture of:									
Bones of face, compound	6	1	2	1	1	1			3
Bones of face, simple	15		10	5	5				5
Bones of foot, compound	43	2	29	9	13	4		3	12
Bones of foot, simple	190	2	122	33	67	18		6	66
Bones of forearm, compound	61	2	32	6	17	8		3	27
Bones of forearm, simple	198	4	124	25	62	29		12	70
Bones of hand, compound	70		41	10	25	5		1	29

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Injuries (wounds, etc.)—Contd.									
Fracture of—Continued.									
Bones of hand, simple	152	3	48	4	25	17		5	101
Bones of leg, compound	111	6	77	15	38	13	2	15	28
Bones of leg, simple	244	20	171	57	67	40		27	53
Clavicle, compound	3		2		1	1			1
Clavicle, simple	41	6	35	19	14	5		3	
Coccyx	4	1	3	1	3				
Costal cartilege, compound	3								3
Costal cartilage, simple	4	1			1				3
Femur, compound	20	2	15	5	8	3		1	3
Femur, simple	111	8	93	31	24	37	3	6	10
Humerus, compound	24	2	19	3	10	7		1	3
Humerus, simple	72	2	52	16	24	10		4	18
Hyoid, compound	2		2		2				
Inferior maxilla, compound	13	2	9	7	1			3	2
Inferior maxilla, simple	16		13	3	7	3			3
Nasal septum	15	1	7	4	3	1			7
Patella, compound	5	1	2	2	1				2
Patella, simple	38	2	26	7	8	9		4	10
Pelvis, compound	5		4		2	2			1
Pelvis, simple	24	1	16	1	9	3	1	3	7
Rib, compound	15		3	2			1		12
Rib, simple	153	3	62	38	13	8	1	5	88
Sacrum, compound	7								7
Sacrum, simple	2								2
Scapula, compound	9		8		6	2			1
Scapula, simple	17	1	7	2	4	1		1	9
Skull, compound	37		32	8	4	12	7	1	5
Skull, simple	53		42	6	13	12	5	6	11
Sternum, simple	4		4		1	2		1	
Teeth	5		2		1			1	3
Vertebra, compound	14	1	8		3	2	2	2	5
Vertebra, simple	34	2	26	1	6	15	1	5	6
Otherwise unclassified, compound	17		12	2	2	2	1	5	5
Otherwise unclassified, simple	59		28	8	8	10		2	31
Frostbite of:									
Finger	1								1
Foot	3		2		1	1			1
Hand	1								1
Toe	3		2	1	1				1
Otherwise unclassified	1								1
Heat cramps	15		12	9	3				3
Heat exhaustion	41	1	26	14	13				14
Hematome of:									
Arm	2		2		1			1	
Face	1								1
Foot	1								1
Leg	4								4
Shoulder	1								1
Thigh	1		1	1					
Toe	2								2
Hemorrhage into eyeball	1								1
Hemorrhage, secondary	1		1		1				
Hemorrhage under conjunctiva, traumatic	1		1		1				
Intracranial injury	48	1	35	16	15	5			12
Intrespinal injury	16	2	9	4	1	4	2		5
Multiple injuries, extreme	7		2		1		1		5
Operation wound	79		33	5	15	11		2	46
Rupture of:									
Eyeball	3		2	1	1				1
Ligaments	12		11		3	8			1
Muscle	10		8	3	2	1		2	2
Nerve	1		1			1			
Sheath of muscle	3		2	1				1	1
Tendon	5		4		3			1	1
Tympanum, traumatic	5		2		1	1			3
Uterus, parturition	2								2
Uterus, traumatic	1		1			1			
Otherwise unclassified	15		12	6	2	4			3

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Injuries (wounds, etc.)—Contd.									
Sprain of:									
Ankle	499	5	158	83	61	14		5	336
Back	248	3	84	34	32	11		10	161
Elbow	22	1	3	2	2				18
Finger	25		4		2	2			21
Hand	24		5	2	1	2			19
Hip	12		2	1	1				10
Joint	52	1	19	5	6	7	1	1	32
Knee	108	1	26	10	10	7			81
Shoulder	59		16	11	4			1	43
Tendon	16								16
Thumb	37		3	2	1				34
Toe	6		2			2			4
Wrist	187	1	26	13	11	3			160
Otherwise unclassified	49		10	3	4	1		2	39
Strain of joint	5		1			1			4
Strain of muscle	136	2	28	14	12	4			106
Strangulation	12								12
Submersion	1		1		1				
Sunburn	11		2	2					9
Sunstroke (heat stroke)	7		6	5		1			1
Synovitis, traumatic	25	1	9	2	5	2		1	15
Thermic fever	1								1
Urethral fever, traumatic	1								1
Wound of:									
Abdominal wall, incised	14		11	4	4	1	1	1	3
Abdominal wall, lacerated	31		20	4	4	11	1		11
Abdominal wall, punctured	2		2	1		1			
Abdominal wall, gunshot	5	1	4	2	2	1			
Abdominal wall, stab	13		12	2	5	5			1
Alveoli, lacerated	1								1
Arm, incised	47	1	9	5	2	3			37
Arm, lacerated	209		96	11	23	46	2	14	113
Arm, punctured	2		2	2					
Arm, gunshot	15		15	1	3	8	1	2	
Arm, stab	18	1	17	2	11	5			
Artery, lacerated	1		1			1			
Artery, gunshot	1								1
Back, lacerated	55		25	5	4	13		3	30
Back, gunshot	5		5	1	3	1			
Back, stab	14		12		8	2		2	2
Bladder, incised	1		1			1			
Bladder, punctured	2								2
Bone, incised	1								1
Bone, lacerated	3		1	1					2
Bone, punctured	2		2			2			
Bone, gunshot	6		5		2	2	1		1
Brain, lacerated	1								1
Brain, punctured	1		1			1			
Brain, gunshot	1								1
Breast, incised	3		1			1			2
Breast, lacerated	4		1		1				3
Breast, gunshot	1		1		1				
Breast, stab	2		2		1	1			
Buttock, incised	1								1
Buttock, lacerated	15		6	1	2	2		1	9
Buttock, punctured	1								1
Buttock, gunshot	10		8	1	3	4			2
Buttock, stab	2		2	1				1	
Chest wall, incised	2		2		1	1			
Chest wall, lacerated	54		23	4	5	12		2	31
Chest wall, punctured	2		2		1	1			
Chest wall, gunshot	19		19	1	8	6		4	
Chest wall, stab	12		12		7	5			
Esophagus, incised	1	1						1	
External ear, incised	2		1	1					1
External ear, lacerated	15		4			3		1	11
Eye, incised	26	1	25	7	4	13		2	
Eye, lacerated	91		36	3		30		3	55
Eye, punctured	3		1		1				2
Eye, gunshot	4		3			3			1
Eye, stab	5		5	1		4			

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Injuries (wounds, etc.)—Contd.									
Wound of—Continued.									
Eyelid, incised	14								14
Eyelid, lacerated	35		11	7	4				24
Eyelid, punctured	1		1	1					
Eyelid, gunshot	1		1			1			
Face, incised	10								10
Face, lacerated	159	2	54	14	18	20		4	103
Face, punctured	1								1
Face, gunshot	3		3		1	2			
Face, stab	2		2		2				
Finger, incised	99	2	21	12	9	1		1	76
Finger, lacerated	832	2	101	38	53	10	1	1	729
Finger, punctured	19		4	3	1				15
Finger, gunshot	2		2	2					
Foot, incised	30	1	12	12	1				17
Foot, lacerated	276	2	119	42	35	35		9	155
Foot, punctured	48		21	13	7			1	27
Foot, gunshot	13		8	3	3	2			5
Foot, stab	5		5	2	3				
Forearm, incised	12		1		1				11
Forearm, lacerated	92	1	28	6	5	15		3	63
Forearm, punctured	2	1				1			1
Forearm, gunshot	17		16	5	3	7		1	1
Forearm, stab	12		12	2	5	5			
Gum, lacerated	5		1		1				4
Gum, stab	37								37
Hand, incised	174	2	11	7	6				161
Hand, lacerated	459	1	129	45	32	45		8	329
Hand, punctured	28		11	5	6				17
Hand, gunshot	28	2	17	4	5	9		1	9
Hand, stab	27		27	3	7	12		5	
Intestine, incised	1		1				1		
Intestine, gunshot	1		1	1					
Joint, incised	25		1		1				24
Joint, lacerated	79		16	1	2	13			63
Joint, punctured	3		3	2	1				
Joint, gunshot	23		21	3	4	11		3	2
Joint, stab	17		15	2	3	10			2
Kidney, lacerated	1								1
Larynx, lacerated	1		1	1					
Leg, incised	15	1	5	5			1		9
Leg, lacerated	394	1	131	25	37	53		17	262
Leg, punctured	7		1	1					6
Leg, gunshot	67	1	62	18	24	17		4	4
Leg, stab	16		16	2	8	5		1	
Lips, lacerated	28		2	1		1			26
Lips, gunshot	1		1			1			
Lips, stab	2		2	1	1				
Liver, incised	1		1			1			
Liver, stab	1		1			1			
Lung, incised	1								1
Lung, lacerated	4								4
Lung, gunshot	6		6		3	3			
Mouth, incised	3								3
Mouth, lacerated	1								1
Mouth, gunshot	1		1			1			
Muscle, lacerated	11		1		1				10
Muscle, gunshot	1		1		1				
Neck, incised	13		1		1				12
Neck, lacerated	27		15	4	2	8		1	12
Neck, gunshot	5		5		2	1	1	1	
Neck, stab	3		3	1	1	1			
Nerve, incised	4		4		1	3			
Nerve, lacerated	4								4
Nerve, stab	1		1			1			
Nose, incised	1								1
Nose, lacerated	36		5	2	2	1			31
Omentum, incised	1		1		1				
Palate, lacerated	3								3
Pancreas, lacerated	1								1
Penis, incised	3	1	1	1		1			1
Penis, lacerated	23		2	1	1				21

TABLE 4.—*Tabular statement of diseases and injuries treated during the fiscal year ended June 30, 1919*—Continued.

Diseases and injuries.	Total treated in hospital and dispensary.	Remaining in hospital from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining in hospital at close of year.	Treated at dispensary.
Injuries (wounds, etc.)—Contd.									
Wound of—Continued.									
Penis, gunshot	1		1	1					
Pericardium, lacerated	1								1
Perineum, lacerated	1		1			1			
Perineum, stab	1		1		1				
Pharynx, incised	2								2
Pharynx, gunshot	1		1			1			
Pleura, incised	12								12
Rectum, incised	1		1			1			
Scalp, incised	13		3	3					10
Scalp, lacerated	292	1	86	45	36	6			295
Scalp, punctured	1								1
Scalp, gunshot	8		8	5	1	1		1	
Scalp, stab	2		2	2					
Scrotum, incised	1								1
Scrotum, lacerated	8		3	2	1				5
Shoulder, incised	2		1		1				1
Shoulder, lacerated	76		48		9	32		7	28
Shoulder, gunshot	18	1	12	2	4	6		1	5
Shoulder, stab	12		11		6	3		2	1
Spinal cord, gunshot	1		1				1		
Teeth	4		1					1	3
Stomach, lacerated	1		1				1		
Stomach, stab	2		2	1	1				
Tendon, lacerated	2		2		2				
Tendon, punctured	4		4	2	2				
Testicle, lacerated	1								1
Testicle, gunshot	1		1		1				
Testicle, stab	1		1			1			
Thigh, incised	2		2	1	1				
Thigh, lacerated	86		61	6	5	45		5	25
Thigh, gunshot	59	1	43	4	7	26		7	15
Thigh, stab	19		18	1	12	5			1
Toe, incised	2		1	1					1
Toe, lacerated	82	1	14	7	5	3			67
Toe, punctured	5		2	1	1				3
Toe, gunshot	5	1	4	4				1	
Tongue, lacerated	4		1		1				3
Tongue, gunshot	1		1		1				
Urethra, lacerated	3		2	1	1				1
Vein, incised	1								1
Otherwise unclassified, incised	1		1		1				
Otherwise unclassified, lacerated	152		66	14	14	31		7	86
Otherwise unclassified, punctured	2		2		1	1			
Otherwise unclassified, gunshot	7		7	2	2	3			
Otherwise unclassified, stab	5		5	1	3	1			
No diagnosis	693	1	510	244	24	233		10	182

INDEX.

A.

Page.

Accounts. (*See* Appendix.)
Act, Chamberlain-Kahn 234
Act of Feb. 15, 1893 (quarantine) 107
Act of Mar. 3, 1919 (War Risk medical relief) 219
Acting assistant surgeons 298
Advertising media, venereal disease 259
Africa, typhus fever in 211
After-the-war program of Public Health Service 17
After-war program in rural sanitation 51
Agriculture, Department of, cooperation with 54
Aid, quarantine, to other services and Governments 134, 146
Aid to other Government establishments 44, 63
Alabama Quarantine Station 113
Alaska Engineering Commission, physical examinations 221
Alexandria (La.) Relief Station 220
Aliens, medical inspection of 153
Alien seamen. (*See* Seamen, alien.)
Allotments to States of funds for venereal-disease control work 237
America, typhus fever in 211
Analysis, water 72
Anesthetic, spinal, benzylalcohol as an 63
Anthrax 60
  Cases reported by States. (*See* Tables.)
  Transmission of, by shaving brushes 15, 17
Antianthrax serum 60
Antienteric vaccine 61
Antimalaria work 88
Antirabic treatments 61
Appendix 303
Appropriations 303
Army camp sanitation. (*See* Extracantonment sanitation.)
Army, United States, physical examinations 221
Arsphenamine:
  Investigation and control of 66
  Regulations regarding 242
  Standardization of 62
Asia, typhus fever in 210
Assignments of officers 293
Astoria, Oreg., quarantine station at 119
Attendants, hospital and quarantine 298

B.

Bacteriology, Division of 58
Baltimore Quarantine Station 107, 115
Beneficiaries, War Risk Insurance Bureau 219, 220
Benzylalcohol 63
Biscayne Bay Quarantine Station 115
Boards convened 299
Boca Grande Quarantine Station 116
Books, venereal disease, for libraries 281
Boston, Mass., milk supply of 47
  Study of health department 47
Boston Quarantine Station 116

Page.
Boys, high school and industry, educational measures for 277
Brownsville (Tex.) Quarantine Station 117
Brunswick (Ga.) Quarantine Station 118
Buildings for bureau in Washington 300
Bulletins:
Hygienic Laboratory (*see also* Publications) 214
Public Health 214
Bureau of Chemistry, cooperation with 55
Bureau of Mines, cooperation with 40
Bureau of the Public Health Service:
Library 301
Office quarters 300
Personnel of 300
Work methods 300
Bureau of War Risk Insurance. (*See* War Risk.)

C.

California, plague-suppressive measures in 70
Callao, Peru, transactions at 130
Camp sanitation. (*See* Extra-cantonment sanitation.)
Canadian soldiers, admission of, to service hospitals 219
Cape Charles Quarantine Station 118
Capital Issues Committee 23, 53
Carvacrol, remedy for hookworm disease 63
Cebu Quarantine Station 146
Census Bureau, cooperation with 25
Cerebrospinal meningitis, cases reported. (*See* Tables.)
Chamberlain-Kahn Act 10, 234
Charleston Quarantine Station 119
Charlotte, N. C., trachoma in 37
Chase, repairs to 119
Chemical wastes, disposal of 53
Chemistry, Bureau of, cooperation with 55
Chemistry, Division of 64
Chicago (Ill.) Relief Station 220
Chief clerk's office 300
Child and mental hygiene, investigations of 48
Children, examination of adolescent 41
Cholera:
Cultures 60
Prevalence abroad 110
World prevalence of. (*See* World prevalence of.)
Churches, social hygiene sermons in 277
Cincinnati, Ohio, poliomyelitis in 34
City morbidity reports 180
Civil Service Commission, physical examinations 221
Clinics, venereal disease 239
Establishment of 247
For merchant marine seamen 254
Reports of 248
Clubs, Rotary, venereal-disease educational measures 277
Coast and Geodetic Survey, physical examinations 221
Coast Guard:
Physical examinations 221
Professional services to 220
Collaborating epidemiologists 297
Colored population, venereal-disease work among 281
Columbia River Quarantine Station 119
Commercial organizations, venereal-disease educational measures in 273, 274, 275, 276, 277
Communicable diseases:
Control of 88
Prevention of interstate spread of 69
Compensation Commission. (*See* Employees' Compensation Commission.)
Conference with State and Territorial health authorities 67

Consumption. (*See* Tuberculosis.) Page.
Corpus Christi (Tex.) Relief Station 220
County health organization, study of 46
Craney Island, quarantine station at 119
Cremations at quarantine stations 134

D.

Dairies, sanitary condition of 96
Dallas, Tex., health administration in 47
Dansville (N. Y.) Relief Station 220
Death rate from influenza 178
Dengue, cases reported 184
Department of Agriculture. (*See* Agriculture.)
Deported immigrants. (*See* Tables.)
Diarrhea, outbreak of 23
Diphtheria, cases reported. (*See* Tables.)
Disease in extra-cantonment zones, prevalence of. (*See* Tables.)
Disease in the United States, prevalence of 182
Disease, prevention of interstate spread of 79
Diseases, quarantinable, general prevalence of 109
Disinfection of vessels 145
District supervisors 219
Domestic Quarantine, Division of 69
Draft campaign, venereal disease. (*See* tables.)
Druggists, venereal-disease campaign with 258
Drugs, habit-forming 63
Dysentery, epidemic of 23

E.

Eagle Pass (Tex.) quarantine 119
East Norfolk (Mass.) Relief Station 220
Education, Public Health, Section of 213
Educational courses 43
Educational measures, venereal disease 241, 260
Educators, venereal disease 279
Efficiency, promotion of 300
Elba (N. Y.) outbreak of typhoid fever 37
Electrochemical and abrasives plants, investigations of 38
El Paso (Tex.) quarantine 120
Emigration, precautions of Public Health Service 138
Employees' Compensation Commission 40, 221
Encephalitis, investigation of epidemic 23, 24
Enteric fever. (*See* Typhoid.)
Enteritis, epidemic at Nitro, W. Va 24
Epidemic, influenza 69
Epidemiologists, collaborating 181, 297
Europe:
  Medical officers assigned to 108
  Typhus fever in 209
Examinations, physical 220
Excreta disposal, board on 53
Executive order of July 1, 1918 22
Exhibits, venereal disease 261
Explosives industry 38
Explosives, poisoning 62
Extracantonment sanitation 22, 69, 86
  Personnel 292
Extracantonment zones:
  Morbidity reports 180
  Prevalence of disease in. (*See* tables.)
  Public health education in 98
  Venereal-disease control in 93
Eyes. (*See* Trachoma.)

F.

Page.
Fatigue, industrial 41
Fever:
Rocky Mountain spotted, cases reported 191
Scarlet, cases reported. (*See* tables.)
Typhoid, cases reported. (*See* tables.)
Typhus, cases reported. (*See* tables.)
Films, venereal-disease 262
Financial statement 303
Fishermans Island, removal of quarantine station 113
"Flu." (*See* Influenza.)
Food, supervision of 95
Foreign and insular quarantine. (*See* Quarantine, maritime.)
Foreign and insular quarantine stations, transactions at 129
Foreign countries, morbidity reports of 181
Fort Stanton, N. Mex., tuberculosis sanatorium at 220, 223
Fumigation of vessels 107, 133, 145

G.

Galveston quarantine 121
Government bureaus, assistance to 44
Greenville (S. C.) Relief Station 220
Ground squirrels, plague among 70
Gulf quarantine 121

H.

Habana, Cuba, transactions at 130
Harold Walker, steamship, influenza on 123
Hawaii:
Cooperation with health authorities 47
Leprosy investigative station 56
Operations of the service in 131
Plague 134
Health administration, public, officers in charge of 295
Health authorities, State and Territorial, conference with 67
Hemo globinuric fever 30
Honolulu, Hawaii, leprosy investigative station 56
Hookworm disease, carvacrol as a remedy for 63
Hospitals and Relief, Marine, Division of 219
Hospitals. (*See* Relief stations.)
Hygiene:
Child and mental 48, 49
Child and oral, officers in charge of 295
Interdepartmental Social, Board of. (*See* Interdepartmental Social Hygiene.)
Hygienic Laboratory:
Aid to other institutions 57
Bulletins of 68, 214
Operations of 57
Personnel 298

I.

Iloilo Quarantine Station 147
Illustrations. (*See* Maps.)
Immigration 135
Immigrant hospital, summary of transactions of 169
Immigrants, medical inspection of 153
Immigration stations:
Reports from—
Baltimore, Md 159
Boston, Mass 160
Brownsville, Tex 160
El Paso, Tex 161
Gloucester City, N. J 161

Immigration stations—Continued.
Reports from—Continued. Page.
Halifax, Nova Scotia 162
Honolulu, Hawaii 163
Laredo, Tex 163
Naco, Ariz 164
New Orleans, La 164
New York, N. Y 165
Philadelphia 170
Philippine Islands 171
Indian Service, cooperation with 47
Industrial fatigue 41
Industrial hygiene and medicine 22, 38
Industrial medicine and surgery 44
Industrial organizations, venereal disease educational measures in 273, 274, 275, 276, 277
Industrial wastes 52, 53
Publications on 53
Industrial zone studies 40
Industries, sanitary surveys of 39
Infantile paralysis. (*See* Poliomyelitis.)
Influenza:
Activities of Public Health Service in combating 81
Cases of (*see also* Tables) 179
Death rate from 178
Epidemic of 69
In Italy 136
In Virgin Islands 152
Epidemic work, personnel for 292
First appearance of 175
Investigations of 22
Map showing epidemic of 1918 177
Statistical and epidemiological studies of 24
Statistics concerning 175
Studies of 58
Inspectors, medical 298
Inspection of vessels 107
Insular and foreign quarantine stations, transactions at 129
Interdepartmental Social Hygiene Board, creation of 234
Interisland quarantine in Philippines 145
Interstate commerce, water supplies used in 77
Interstate quarantine. (*See* Domestic quarantine.)
Interstate quarantine regulations 14, 15, 238
Interstate sanitary laboratory 71
Interstate traffic, water supply to passengers 14
Intestinal parasites, examination for determination of 64
Investigations, field, of public health 293
Officers in charge of 294
Italian soldiers, families of 139
Italy, public health in 136
Italy, sanitary precautions in 138
Italy, war activities of Public Health Service in 139

J.

Jackson, Ky., dysentery at 23
Jacksonville Relief Station 220
Jolo, quarantine inspection in 148

K.

Keeping-fit campaign, report of 279

L.

Labor, Department of, cooperation with 22
Laboratory activities, plague work 76
Laboratory, Interstate Sanitary 71

Page.
Lansing, Kans., study of delinquent women 49
Laredo, Tex., quarantine 121
Law-enforcement measures, venereal disease 285
Laws, quarantine, enforcement of 107
Lectures:
Public health, courses of 68
Venereal disease. (*See* Venereal disease.)
Lecturers 297
Leetsdale (Pa.) outbreak of diarrhea 23
Legislation 10
State, for venereal-disease control 285
Lepers, National home for 80
Leprosy:
Cases reported. (*See* tables.)
In the Virgin Islands 152
Investigations of 56
Investigative station (Honolulu, Hawaii) 56
Levant, the, sanitary conditions in 137
Library, Public Health 301
Licenses, marine 146
Lighthouse Service, physical examinations for 221
Liners, trans-Pacific, rats on 133
Louisville, Ky., study of delinquent women 50
Loudon County, Va., smallpox in 34

M.

Malaria:
Control measures near military camps (*see also* tables) 88
Deaths registered. (*See* tables.)
Investigations of 28
Officers in charge of 294
Manila:
Quarantine work in 148
Sanitary condition of 144
Man, rabies in, deaths from 191
Maps:
Cooperation of States with service in venereal-disease campaign 267
Influenza epidemic of 1918 177
States having venereal-disease clinics 248
Marine hospitals 135
Number of patients treated 220
Outpatient relief 135
Marine hospitals and relief, division of 219
Marine licenses 146
Maritime quarantine, division of 107
Mariveles Quarantine Station 147
Measles, cases reported. (*See* tables.)
Medical inspection of aliens 153
Medical inspectors 298
Medical officers assigned to Europe 108
Medical relief, statistics concerning. (*See* Appendix.)
Medical zoology, index catalogue of 64
Meetings of scientific and sanitary associations and congresses, representation at 68
Meningitis 59
Mental hygiene 49
Merchant seamen, and other patients 220
Mexican border, quarantine operations along 111
Military camp sanitation. (*See* Extracantonment sanitation.)
Milk:
Inspection of 47
Pasteurization of 96, 97
Plant of War Department cafeteria 48
Reconstructed, food value of 63
Reconstructed plant, Nitro, W. Va 48
Supply of Boston 47
Supply of Framingham, Mass 48

Page.
Mine sanitation 40
Minnesota, health organization in 46
Morbidity reports 30, 93, 180
Mosquito control 88
Mosquitoes. (*See* Malaria.)

N.

National home for lepers 80
National quarantine stations:
Baltimore, Md 114, 155
Biscayne Bay 115
Boca Grande, Fla 116
Boston, Mass 116
Brownsville, Tex 117
Brunswick, Ga 118
Cape Charles 118
Charleston, S. C 119
Columbia River 119
Eagle Pass, Tex 119
El Paso, Tex 120
Galveston, Tex 121
Gulf 121
Laredo, Tex 121
New Orleans, La 122
Pensacola, Fla 124
Port Townsend, Wash 124
Reedy Island, Del 125
San Diego, Calif 127
San Francisco, Calif 128
Navy, United States, physical examinations for 221
Neptune, overhauling of 126
New Mexico, health organization of 46
New Orleans:
Plague suppressive measures at 72
Quarantine 122
New York Quarantine Station 107, 113
Nitro, W. Va.:
Enteritis at 24
Relief to workers 40
Norfolk, Va., Relief Station 220
North East, Md., typhus fever at 37
Nurses:
Army and Navy 219
Venereal disease, campaign with 257
Nursing, public health 94
In extra-cantonment areas. (*See* Tables.)
Nutrition, value of wheat and corn products in 62

O.

Office quarters for bureau 300, 302
Officers, assignments of 293
Ordinances, venereal disease 291
Orient, sanitary conditions in 137
Orient, sanitary condition of 141

P.

Palo Alto, Calif., Relief Station 220
Panama Canal 132
Paralysis, infantile, cases reported. (*See* Tables.)
Parasites, intestinal, examination for determination of 64
Pasteurized milk 96, 97
Pathogenic anaerobes 60
Pathology, division of 58

Page.
Patients, War Risk Insurance Bureau 219, 220
Pellagra 31
Investigations of, officers in charge of 295
Special studies of, officers in charge of 296
Penguin, overhauling of 128
Pensacola quarantine 124
Pennsylvania, quarantine function transferred to Government 108
Personnel and Accounts, Division of 292
Personnel:
Division of venereal diseases 238
Extra-cantonment sanitation. (*See* Extra-cantonment sanitation.)
Influenza epidemic work 292
Perth Amboy district, sanitary studies of industries in 39
Pharmacists 298
Pharmacology, Division of 62
Pharmacopœia and National Formulary, United States, Digest of comments on. 63
Phenol plants, wastes of 53
Philadelphia Quarantine Station. (*See* Reedy Island Quarantine Station.)
Philippine Islands:
Immigration, inspection in 171
Operations of service in 140
Physical examinations 221
Physical examinations 220
Physicians, venereal disease campaign with 257
Placards, venereal disease. (*See* Venereal disease.)
Plague:
Eradication of, among ground squirrels 70, 71
Eradicative measures, officers in charge of 297
Prevalence abroad 110, 134
Suppressive measures 69
California 70
New Orleans, La 72
Seattle, Wash 76
Pneumonia:
Cases reported. (*See* Tables.)
Studies of 59
Poisoning from explosives 62
Poliomyelitis 34
Cases reported. (*See* Tables.)
Porto Rico:
Bills of health 150
Cooperation with health authorities of 47
Operations of the service in 149
Outgoing plague quarantine 149
Quarantine 149
Sanitary conditions 150
Port Townsend quarantine 124
Posters 218
Post Office Department, physical examinations for 221
Postwar. (*See* After war.)
Pottery industry, investigation of 39
Powder plants, effects of, wastes upon water supplies 53
Program of public-health work 17
Publications:
Great demand for 302
Industrial wastes 53
Keep-well series 218
Miscellaneous 218
Public health 213
Public Health Reports 215
Reprints from the Public Health Reports 215, 216, 217
Venereal disease 260, 261, 267
Public Health Bureau, organization of 9
Public health education in extra-cantonment zones 98

Page.
Public Health Education:
Section of ... 213
Bulletins of ... 213, 214
Establishment of ... 213
Recommendations for ... 218
Public health nursing ... 94
Public health organization and administration ... 46
Public Health Service Reserve ... 10
Publicity work, venereal disease (*see also* Venereal disease) ... 242
Purveying depot, operations of ... 221

Q.

Quarantinable diseases ... 109, 143
Cholera ... 110
Plague ... 110
Quarantine regulation, giving list of ... 17
Smallpox ... 111
Typhus fever ... 109
Yellow fever ... 110
Quarantine administration, expansion of ... 107
Quarantine, interstate. (*See* Domestic quarantine.)
Quarantine laws, violation of ... 112
Quarantine, maritime:
Baltimore Quarantine Station ... 107
Expansion of quarantine administration ... 107
Destruction of rats on vessels ... 112
Fishermans Island ... 113
Foreign—
Callao, Peru ... 130
Habana, Cuba ... 130
Italy ... 136
Insular quarantine—
Hawaii ... 131
Panama Canal ... 132
Philippines ... 140
Virgin Islands ... 151
Medical officers assigned to Europe ... 108
Mexican boarder quarantine ... 111
National quarantine stations, reports from ... 115
New Orleans Quarantine Station, proposed change of ... 113
New York Quarantine Station ... 107
Pennsylvania Quarantine transferred to Government ... 108
Prevalence of quarantinable diseases ... 109
Relocation of quarantine stations ... 113
Texas State Quarantines ... 107
Violation of quarantine laws ... 112
Quarantine operations, along Mexican border ... 111
Quarantine, outgoing ... 74
Quarantine Regulations, amendments to ... 17
Quarantine Stations:
Maritime ... 113
Repair of ... 107
Quarters, bureau office ... 300

R.

Rabies in man, deaths from ... 191
Railroad work, malaria control demonstration ... 29
Rats:
Campaign against in Hawaii ... 134
Examination of for plague infection ... 208
New Orleans, elimination of in ... 73
Panama Canal, rat quarantine at ... 133
Rat trapping ... 74
Vessels, destruction of on ... 112
Reconstruction, after-the-war program ... 17
Reedy Island Quarantine Station ... 125, 170

Page.
Refugees, Italian 139
Regional consultants 296
Regulations:
Arsphenamine 242
Governing allotments to States of funds for venerael disease control work 235
Interstate quarantine 238
Quarantine, enforcement of 107
Service, amendments to 11
Relief stations 220
Reports, Public Health, weekly 215
Reports from National Quarantine Stations (*see* National Quarantine Stations)
Reprints from Public Health Reports, ... 215, 216, 217
Reserve Corps, Public Health Service 10, 11, 292
Restaurants, supervision of 95
Rice fields, malaria in 30
Rocky Mountain Spotted (or tick) fever, cases reported 191
Rodent control (*see also* Rats) 72, 73
Rotary clubs, venerable disease campaign 277
Rural health administration, studies of 46
Rural sanitation:
After-war program 51
Studies and demonstrations of 51

S.

Sailors (*see* Relief stations) 220
San Antonio, Tex., epidemic of typhoid fever 37
Sanatorium for consumptives at Fort Stanton, N. Mex 220, 223
San Diego quarantine 127
San Francisco, Calif:
Immigration inspecting at 173
Plague suppressive measures at 70
Quarantine at 113, 128
Sanitary improvements, bond issues for 53
Sanitary reports and statistics, division of 175
Sanitation:
Industrial, officers in charge of 296
On vessels from foreign ports 143
Rural 51, 294
Scarlet fever, cases reported (*see* Tables):
Scientific assistants 296
Scientific and Sanitary Associations and Congresses, representations at meetings of 68
Scientific research, Division of 22
Seamen:
Alien, inspection and certification of 159
Foreign, physical examinations 221
Merchant, U. S., physical examinations 221
Relief to 220
Venereal disease clinic for 254
Seattle, Wash., plague-suppressive measures at 77
Septic sore throat, cases of 192–193
Serums 65
Service regulations. (*See* Regulations.)
Sewage disposal 53, 98
Bacteriology of 54
Engineering problems 55
Entomology of 55
Experiments with, as fertilizer 54
Officers in charge of 295
Regulations governing 55
Shaving brushes, transmission of anthrax by 15, 17
Shipping. (*See* Quarantine) 75
Shipping Board, United States, physical examinations 221
Ships, trans-Pacific, rats on 133
Shipyards, health and sanitation of 23

Page.
Shipyard sanitation 44
Smallpox 34
Cases reported. (*See* Tables.)
Epidemic of, in Italy 136
Prevalence abroad 111
Vaccination 194
Vaccinations of, in extra-cantonment areas. (*See* Tables.)
Social hygiene:
Instruction in. (*See* Venereal disease.)
Interdepartmental board. (*See* Interdepartmental social hygiene.)
Social service 255
Soldiers:
Canadians, admission of, to service hospitals 219
Health of. (*See* Extra-cantonment sanitation.)
Sore throat, septic, cases reported 192–193
Spanish influenza. (*See* Influenza.)
Spartanburg, S. C., pellagra studies at 32
Spotted fever, Rocky Mountain, cases reported 191
Squirrels, ground, plague among 70
State and Territorial health authorities, conference with 67
State boards of health, venereal disease pamphlets issued by. (*See* Tables.)
State legislation, venereal disease 285
State morbidity reports .....
Statistical tables. (*See* Appendix.)
Stream pollution 52
Streptococcus serum 60
Surgery, industrial 44

T.

Tables—
Aliens inspected, United States and Canada 156
Anthrax, cases reported, by States 182, 183
Appropriations, extra-cantonment 104
Cerebrospinal meningitis, cases reported 183
Cities, extra-cantonment zone, population of 105
Clinic activities, educational 265, 266
Clinics, venereal disease 244, 245, 246, 247
Diphtheria, cases reported 184
Draft campaign, venereal disease 272, 273
Educational activities, State report of 264
Expenditures, in extra-cantonment areas 104
Extra-cantonment zone headquarters—
Areas under supervision 99
Dates of opening and closing 99
Officers in charge of 99
Extra-cantonment zones—
Prevalence of disease in 102, 196, 197, 198, 199, 200, 201, 202, 203
Cerebrospinal meningitis 197
Diphtheria 198
Influenza 199
Malaria 200
Measles 201
Smallpox 202
Typhoid fever 203
Health organization, extra-cantonment zone cities 105, 106
Immigrants deported on medical certificates 169
Influenza, cases reported 179, 185, 186
Inoculations, in extra-cantonment areas 103
Inspection of aliens, in United States and Canada 156
Lectures, venereal disease 263
Leprosy, cases reported 186, 187, 188
Malaria-control work in extra-cantonment areas 102
Malaria, deaths registered 189
Measles, cases reported 189, 190
Mental condition of aliens 167

Tables—Continued. Page.
Military population, extra-cantonment zone cities 105, 106
Nurses, Public Health, visits of in extra-cantonment areas 103
Pamphlets, venereal disease—
Issued by State boards of health 268
Requests for 269, 270
Pneumonia, cases reported 185, 186
Poliomyelitis (infantile paralysis), cases reported 190, 191
Population of extra-cantonment zone cities 105
Prewar population, extra cantonment zone cities 105, 106
Scarlet fever, cases reported 192
Seamen, alien, report of 168
Smallpox—
Cases reported 193
Trachoma, immigrants certified for 167
Treatments of diseases and injuries 313–332
Typhoid fever, cases reported 195, 196
Typhoid, inoculations 103
Typhus fever, cases reported 196
Vaccinations, in extra-cantonment areas 103
Venereal disease campaign with physicians and druggists, report of 259
Venereal disease cases 256
Venereal disease educational activities 282, 283, 284, 285
Venereal disease, State legislation 287, 288, 289, 290, 291
Visits of public health nurses in extra-cantonment areas 103
War-time population, extra-cantonment zone cities 105, 106
Tampa Bay Quarantine Station, transfer of launch *Orleans* to 124
Tannery wastes 53
Texas-Mexican border, quarantine operations on 111, 112
Texas, proposed transfer of quarantine stations to Federal Government 107
Public health conditions in 46
Tick fever, cases reported 191
"T. N. T." poisoning 62
Toxins 65
Trachoma:
Charlotte, N. C 37
Etiology of 36
Hospitals, laboratories, and field work 34
Studies of officers in charge of 295
Trains, water supply on 14
Travel, interstate, of venereally infected persons 238
Treasury decision 37671, stations maintained under authorization of 220
Treatments of diseases and injuries. (*See* Tables.)
Trinitrotoluene poisoning 62
Tuberculosis:
Experiments at Fort Stanton, N. Mex 37
Morbidity reports of 195
Sanitorium, Fort Stanton, N. Mex 220, 223
Typhoid fever, cases reported. (*See* Tables.)
In the Virgin Islands 152
Outbreaks of 37
Typhoid, inoculations for, in extra-cantonment areas. (*See* Tables.)
Typhus fever:
Africa 211
America 37, 211
Asia 210
Cases reported. (*See* Tables.)
Epidemic in Italy 137
Europe 209
Mexico and other countries 109
Prevalence of. (*See* World prevalence of typhus.)

U.

United States, prevalence of disease in 182
United States Employees' Compensation Commission 40

V.

Page.
Vaccination, smallpox (*see also* Tables) 194
Veneral diseases:
Appropriations made by States 288
Cases reported. (*See* Tables.)
Clinics 240
Location of 240
Personnel of 240
Conferences 272
Control and prevention work, appropriation 235
Control measures 296
Division of 234
Personnel 238
Educational measures 241
In industrial and commercial organizations 273, 274, 275, 276, 277
Interstate regulations concerning 15
Lectures 271
Medical measures 239
Near military camps 93
Officers in charge of 296
Ordinances 291
Pamphlets 260
Placards 271
Posters 271
Program 271
Publications 260, 261
Publicity 242, 272
State legislation 285
Virgin Islands 152
War activities 285
Ventilation studies 40
Vessels. (*See* Quarantine.)
Vessels detained for observation or treatment 114
Vessels, inspection of 107
Vessels, water supply on 14
Veterinary Zoology, index catalogue of 64
Virgin Islands:
Fumigation of vessels 151
Quarantine of immigrants 152
Viruses 65
Vocational education:
Cooperation with 11
Federal Board for, examinations for 219

W.

War activities of the Public Health Service 22, 139, 285
War, post-war program 17
War-risk hospital act 10
War Risk Insurance Bureau:
Beneficiaries 219, 220
Cooperation with 11
Medical relief, personnel for 292
Medical relief to employees 43
Physical examinations 221
Neurophyschiatry section in 50
Washington, D. C., Relief Station 220
Water:
Analysis of 72
Poluution of by phenol wastes 53
Water supplies:
Interstate commerce 14, 77
Purification of 69
Supervision of 97
(*See also* Streams.)
Wharves, Panama Canal, quarantine 133

Page.
Winnipeg, Manitoba, immigration inspection at..... 174
Women, delinquent, study of..... 50
Working Conditions Service of Department of Labor, cooperation with..... 22
World prevalence of various diseases:
Cholera..... 204
Asia..... 205
Europe..... 204
Plague..... 208
Africa..... 207
Asia..... 206
Europe..... 206
South America..... 207

Y.

Yellow fever—
In American Continent..... 212
In the Virgin Islands..... 152
Prevalence abroad..... 110
Yoakum, Tex., sanitary survey of..... 47
Yosemite Valley, mosquito control measures in..... 31

Z.

Zamboanga, quarantine inspection in..... 149
Zoological Nomenclature, International Commission on..... 64
Zoology, Division of..... 64

O