

Public Health Reports

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WASHINGTON, D. C., JULY 23, 1897.

No. 30.

UNITED STATES.

[Reports to the Supervising Surgeon-General United States Marine-Hospital Service.]

Yellow fever on the American schooner Talofa.

TORTUGAS, KEY WEST, FLA., *July 7, 1897.*

SIR: I have the honor to confirm my telegram of this date reporting a case of yellow fever on the American schooner *Talofa*. This vessel arrived June 25, and had left Colon eight days previously, bound for Port Tampa. A colored seaman, John Sturgis, was taken ill with fever the day after leaving Colon. Three days later another case of fever occurred, and 2 more cases developed at quarantine. All these cases were at once isolated and the vessel carefully disinfected. Three of the cases were clearly malarial fever and have since recovered. The case of Sturgis, whose fever had subsided at the time of his transfer to hospital, was looked upon with suspicion. The presence of slight jaundice and albuminuria, the occurrence of hemorrhages the day before his death on the 3d instant, and the finding of typical lesions at the necropsy leave no doubt that the disease was yellow fever. No other cases have occurred, and the *Talofa* having been duly disinfected and detained, will be discharged to-day.

Respectfully, yours,

L. L. WILLIAMS,
Passed Assistant Surgeon, U. S. M. H. S.

Smallpox in Toledo, Ohio.

TOLEDO, OHIO, *June 16, 1897.*

SIR: I have the honor to make the following official monthly report of contagious diseases of the department of health of city of Toledo, with reference to smallpox:

Number of cases under treatment from April, 1897.....	3
Number cases reported during May, 1897.....	11

Total.....	14
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Number cases discharged during May, 1897.....	2
Number cases died.....	2
Total	4
Number remaining under treatment... ..	10

Respectfully, yours,

W. H. FISHER,
Acting Assistant Surgeon, U. S. M. H. S.

Smallpox in the United States as reported to the Supervising Surgeon-General United States Marine-Hospital Service, December 29, 1896, to July 23, 1897.

Places.	Date.	Cases.	Deaths.	Remarks.
Alabama:				
Birmingham.....	May 8.....	1		
Mobile.....	Dec. 23-Jan. 26.....	2		
	Mar. 28.....	1		
	Apr. 17.....	1		
	May 21.....	1		
	May 31.....	1		
Union Springs.....	Mar. 21.....		1	
Connecticut:				
New Haven.....	Feb. 17.....	1		
Florida:				
Pensacola.....	Jan. 19-Feb. 20.....	13		
	Feb. 28-Mar. 10.....	14		12 varioloid.
	Mar. 27-Apr. 3.....	3		Varioloid.
	Apr. 10-May 1.....	10		Do.
	May 2-May 22.....	7		Do.
	May 29-June 5.....	2		Do.
	July 4-July 10.....			1 case varioloid.
Escambia County (not including Pensacola).....	Dec. 2-Jan. 19.....	18		
Illinois:				
Chicago.....	Mar. 25.....			Smallpox reported; brought from Mexico.
	Mar. 27-Apr. 3.....		1	
	Apr. 10-Apr. 17.....	2		
	May 8-May 15.....		1	
Indiana:				
Greenwood.....	Feb. 12.....	1		
Massachusetts:				
Boston.....	May 1-May 8.....	4		
	May 22-May 29.....	1		
Cambridge.....	June 6-June 26.....	3		Varioloid. 1 smallpox.
Gloucester.....	June 19-June 26.....	1	2	
New Bedford.....	Apr. 10-Apr. 17.....	1		
Michigan:				
Blissfield Township.....	Mar. 27-Apr. 10.....			Smallpox reported.
	Apr. 17-May 1.....			Do.
Missouri:				
St. Louis.....	April 29.....	2		
	May 1-May 22.....	2	3	
New York:				
Brooklyn.....	Apr. 24-June 26.....	5	2	
	June 27-July 17.....	2		
New York.....	Mar. 1-Mar. 31.....		2	Do.
	Apr. 17-May 15.....		10	
	June 13-June 19.....		3	
	July 4-July 17.....		2	
Ohio:				
Toledo.....	Apr. 1-May 31.....	14	2	
	June 1-June 30.....	4	1	
Pennsylvania:				
Drifton.....	Apr. 6.....	1		
Tennessee:				
Memphis.....	Apr. 1-June 26.....	21		
	July 4-July 17.....	3		
Washington:				
Tacoma.....	Feb. 6.....	1		
Olympia.....	Mar. 1.....	1		

Report of immigration at Boston for the week ended July 17, 1897.

OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
Port of Boston, July 17, 1897.

*Number of alien immigrants who arrived at this port during the week ended July 17, 1897 ;
also names of vessels and ports from which they arrived.*

Date.	Vessel.	Where from.	No. of immigrants.
July 11	Steamship Yarmouth	Yarmouth, Nova Scotia	53
Do....	Steamship Pavonia.....	Liverpool, England, and Queens- town, Ireland.	176
July 12	Steamship Halifax	Halifax, Nova Scotia	60
July 14	Steamship Brookline.....	Port Morant, Jamaica	8
Do....	Schooner V. T. H.....	Thomas Cove, Nova Scotia.....	1
Do....	Steamship Boston.....	Yarmouth, Nova Scotia	20
Do....	Steamship Olivette.....	Halifax, Nova Scotia	22
July 15	Steamship Yarmouth.....	Yarmouth, Nova Scotia	42
Do....	Schooner Florence	Paspebiac, Nova Scotia.....	2
July 16	Steamship Hope.....	St. John, Newfoundland	4
July 17	Steamship Boston.....	Yarmouth, Nova Scotia.....	30
Do....	Steamship Olivette	Halifax, Nova Scotia.....	32
	Total.....		450

GEORGE B. BILLINGS,
U. S. Commissioner of Immigration.

Report of immigration at New York for the week ended July 17, 1897.

OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
Port of New York, July 18, 1897.

*Number of alien immigrants who arrived at this port during the week ended July 17, 1897 ;
also names of vessels and ports from which they arrived.*

Date.	Vessel.	Where from.	No. of immigrants.
July 11	Steamship Veendam.....	Rotterdam and Boulogne	145
Do....	Steamship Sicilia.....	Stettin.....	120
Do....	Steamship Vega.....	Lisbon and The Azores.....	93
Do....	Steamship La Normandie.....	Havre.....	140
July 13	Steamship Furnessia.....	Glasgow	75
July 14	Steamship Berlin.....	Antwerp.....	135
July 15	Steamship Trave.....	Bremen.....	86
July 16	Steamship Patris.....	Hamburg.....	209
Do....	Steamship Barbarossa.....	Bremen.....	160
Do....	Steamship Sarnia.....	Genoa, Naples, etc.....	539
Do....	Steamship Fürst Bismarck.....	Hamburg.....	318
July 17	Steamship Taormina.....	do.....	141
Do....	Steamship Thingvalla.....	Christiansand etc.....	143
Do....	Steamship Adriatic.....	Liverpool and Queenstown	114
Do....	Steamship New York.....	Southampton	134
	Total.....		2,602

DR. J. H. SENNER,
Commissioner.

*Report of immigration at Philadelphia for the week ended July 17, 1897.*OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
*Port of Philadelphia, July 17, 1897.**Number of alien immigrants who arrived at this port during the week ended July 17, 1897;
also names of vessels and ports from which they arrived.*

Date.	Vessel.	Where from.	No. of immigrants.
July 10	Steamship Waesland.....	Liverpool and Queenstown.....	112
July 11	Steamship Castle Rock.....	London.....	1
	Total.....		113

JNO. J. S. RODGERS,
U. S. Commissioner of Immigration.

QUARANTINE REPORTS.

National quarantine and inspection stations.

[Vessels named only when detained or given treatment at quarantine.]

Name of station.	Week ended.	Name of vessel.	Date of arrival.	Port of departure.	Destination.	Treatment of vessel, passengers, and cargo.	Date of departure.	Remarks.	Vessels inspected and passed.
Alexandria, Va.	July 17	Dutch bk. Cornelia *	June 19	Rio	Brunswick	Disinfected and held	July 6	No transactions	4
Brunswick, Ga.	July 10	Sp. bk. Maria *	June 25	Habana	do	do	July 10		
		Sp. bk. Fe *	do	Nuevitas	do	do	July 8		
		Sp. bk. Virgenes *	June 29	Santiago de Cuba.	do	do	do		
		Sw. bk. Julius Palm *	June 30	Rio	do	do	do		
		Sp. bk. Joseph Forinosa.	July 5	Habana	do	Held for disinfection	do		
		Sp. bk. Isabel	July 7	Santiago de Cuba.	do	do	do		
Cape Charles, Va.	July 17	Sp. bk. Maria Luisa	do	do	do	do	do		4
Cape Fear, N. C.	do	do	do	do	do	do	do		1
Delaware Breakwater Quarantine, Del.	do	do	do	do	do	do	do		6
Eureka, Cal.	July 7	do	do	do	do	do	do		
Grays Harbor, Wash.	July 14	Rus. bk. Hannah	June 23	do	Ship Island	Disinfected and held	do	No transactions	
Gulf Quarantine, Ship Island, Miss.	July 10	Blanchard * ford *	July 1	Rio	do	do	do	do	
		Am. sc. Rollin Sanwards *	July 3	Coatzacoalcos. Vera Cruz	Pascagoula	do	July 7		
		Am. sc. Lewis A. Edwards *	July 3	do	do	do	July 8	1 case of malarial intermittent fever on arrival.	
		Nor. bk. Crown Prince.	July 4	Rio	Ship Island	Held for disinfection	do		
		Am. sc. Jas. H. Dudley	July 6	Progreso	do	Disinfected and held	do		
		Am. sc. H. J. Powell	July 7	Habana	Pascagoula	do	do	No transactions	4
Newbern, N. C.	July 17	do	do	do	do	do	do		
Port Townsend Quarantine, Wash.	July 10	do	do	do	do	do	do		
Reedy Island Quarantine, Del.	July 17	do	do	do	do	do	do		16
San Diego, Cal.	July 10	do	do	do	do	do	do		3

* Previously reported.

QUARANTINE REPORTS—Continued.
National quarantine and inspection stations—Continued.

Name of station.	Week ended.	Name of vessel.	Date of arrival.	Port of departure.	Destination.	Treatment of vessel, passengers, and cargo.	Date of departure.	Remarks.	Vessels inspected and passed.
San Francisco Quarantine, Cal.	July 10	Am. ss. San Jose	July 4	Panama.....	San Francisco	Disinfected and held.....	July 5	2 deaths from yellow fever, July 4 and 13.	10
		Am. ss. City of Pekin.....	July 8	Hongkong.....	do.....	102 Chinese and 48 Japanese steerage passengers bathed and baggage and clothing disinfected. Allowed to proceed to Savannah quarantine at request of master.	July 8		
South Atlantic Quarantine, Blackbeard Island, Ga.	.....do.....	Br. bkn. Cypher .....	.....do.....	Rio.....	Savannah .....	.....do.....	.....do.....		3
	July 3	Am. sc. Star of the Sea*	June 24	Matanzas.....	Punta Gorda.....	Disinfected and held.....	June 29	1 death from yellow at Tortugas and 3 deaths from malarial fever en route.	1
Washington, N. C.		Am. sc. Talofa*	June 25	Colon.....	Port Tampa.....	.....do.....	.....do.....		
		Sp. ss. Leonora.....	June 28	Manzanillo.....	Charlotte Harbor.	.....do.....	July 3		
		Am. sc. Jno. C. Smith.....	June 29	Habana.....	Mobile.....	.....do.....	.....do.....		
		Sp. ss. Gracia.....	July 2	Cienfuegos	Punta Gorda.....	.....do.....	.....do.....	No transaction.....	

* Previously reported.

QUARANTINE REPORTS—Continued.
State and municipal quarantine stations.

[Vessels named only when detained or given treatment at quarantine.]

Name of station.	Week ended.	Name of vessel.	Date of arrival.	Port of departure.	Destination.	Treatment of vessel, passengers, and cargo.	Date of departure.	Remarks.	Vessels inspected and passed.
Anclote, Fla.	July 17								2
Apalachicola, Fla.	July 10							No report.	1
Bangor, Me.	July 17								22
Boston, Mass.	July 17								10
Carrabelle, Fla.	do.	Br. bk. Pohons.	July 12	Montevideo	Apalachicola.	Held for disinfection.			20
Cedar Keys, Fla.	July 10							No transactions	2
Charleston, S. C.	July 17								9
Charlotte Harbor, Fla.	July 10								
Elizabeth River, Va.	July 17							No report.	
Galveston, Tex.								do.	
Gardiner, Oreg.								No transactions	
Georgetown, S. C.	July 17							No report.	
Gloucester, Mass.								No transactions	
Key West, Monroe Co., Fla.	July 17							No report.	6
Mayport, Fla.									
Mobile Bay, Ala.	July 10	Br. sc. Clara H. Dyer.	July 3	Relize	Mobile.	Disinfected and held.	July 6	No report.	
		Nor. ss. Uto	July 4	Vers Cruz	do	do	July 10		
		Nor. ss. Hebe	July 6	Tampico	do	do	do.		
		Am. sc. Maggie G. Hart.	July 7	Sanchez	do	do			
	July 17	do.*	do.	do	do	do	July 11		
		Br. sc. Royalist.	July 13	Kingston, Jamaica.	do	do	July 16		
		Br. sc. Boniform.	do.	Via Kuantan	do	do	July 17		
		Br. sc. F. B. Miller.	July 14	St. Andrews	do	do	do.	No report.	
New Bedford, Mass.								do	
New Orleans, La.								No transactions	3
Newport News, Va.	July 17							No report.	
Newport, R. I.	do.							do	
New York, N. Y.								do	
Ferth Amboy, N. J.								No transactions	
Fortland, Me.								No report.	
Fort Royal, S. C.	July 17							do	
Providence, R. I.	do.							No transactions	
Sabine Pass, Tex.	June 26							do	11

* Previously reported.

QUARANTINE REPORTS—Continued.
State and municipal quarantine stations—Continued.

Name of station.	Week ended.	Name of vessel.	Date of arrival.	Port of departure.	Destination.	Treatment of vessel, passengers, and cargo.	Date of departure.	Remarks.	Vessels inspected and passed.	
St. Helena Entrance, Fla.	July 10	Br. s. Parthenope *	June 25	Barbados	Savannah	Rock discharged	July 7	No report.	3	
Tampa Bay, Fla.	July 17	Nor. bk. Triumph	July 7	Pernambuco	do	Ballet being discharged	do	2 cases of yellow fever at Rio.	do	
		Br. bk. Cypher	July 9	Rio	do	do	do	do	do	
		Br. bk. Marian	July 6	Barbados	Port Tampa	Disinfected and held	do	do	do	25
		Am. bk. James W. Eivell *	July 8	Port Natal and Barbados	do	do	do	July 17	do	do
		Br. bk. Carrizal *	July 10	Bahia	do	Held for disinfection	do	do	do	

* Previously reported.

Reports of States and yearly and monthly reports of cities.

CALIFORNIA—*Los Angeles*.—Month of June, 1897. Estimated population, 103,000. Total deaths, 132, including phthisis pulmonalis, 19; enteric fever, 4; diphtheria and membranous croup, 6, and whooping cough, 1.

Oakland.—Month of June, 1897. Estimated population, 60,000. Total deaths, 61, including phthisis pulmonalis, 10, and whooping cough, 1.

Sacramento.—Month of June, 1897. Estimated population, 30,000. Total deaths, 35, including phthisis pulmonalis, 3; enteric fever, 1, and diphtheria, 1.

San Francisco.—Month of June, 1897. Estimated population, 360,000. Total deaths, 486, including phthisis pulmonalis, 42; enteric fever, 4; scarlet fever, 1; diphtheria, 6, and whooping cough, 2.

COLORADO—*Denver*.—Month of June, 1897. Estimated population, 160,000. Total deaths, 128, including phthisis pulmonalis, 29; measles, 1, and whooping cough, 1.

CONNECTICUT.—Month of June, 1897. Reports to the State board of health from 165 towns, having an aggregate population of 878,992, show a total of 978 deaths, including phthisis pulmonalis, 99; enteric fever, 2; measles, 14; diphtheria and croup, 32; scarlet fever, 3, and whooping cough, 4.

Westport.—Month of June, 1897. Estimated population, 4,000. Total deaths, 4. No deaths from contagious diseases.

ILLINOIS—*Chicago*.—Month of June, 1897. Estimated population, 1,750,000. Total deaths, 1,620, including phthisis pulmonalis, 179; enteric fever, 23; scarlet fever, 2; diphtheria, 66; measles, 17, and whooping cough, 9.

LOUISIANA—*Shreveport*.—Month of June, 1897. Estimated population, 15,000. Total deaths, 33, including phthisis pulmonalis, 4, and enteric fever, 2.

MAINE—*Portland*.—Four weeks ended July 10, 1897. Estimated population, 41,500. Total deaths, 40, including phthisis pulmonalis, 4; enteric fever, 2; measles, 1, and diphtheria, 2.

MARYLAND—*Baltimore*.—Month of June, 1897. Estimated population, white, 431,054; colored, 75,344; total, 506,398. Deaths, white, 634; colored, 191; total, 825, including phthisis pulmonalis, 72; enteric fever, 8; scarlet fever, 2; diphtheria, 17; measles, 3, and whooping cough, 9.

Cumberland.—Month of May, 1897. Estimated population, 12,729. Total deaths, 12. No deaths from contagious diseases.

Month of June, 1897. Total deaths, 9. No deaths from contagious diseases.

MASSACHUSETTS—*Fitchburg*.—Month of June, 1897. Estimated population, 28,392. Total deaths, 38, including phthisis pulmonalis, 3; enteric fever, 1, and diphtheria, 1.

North Attleboro.—Month of June, 1897. Estimated population, 6,727. Total deaths, 6, including 1 from phthisis pulmonalis.

Worcester.—Month of June, 1897. Estimated population, 103,086. Total deaths, 118, including phthisis pulmonalis, 17; enteric fever, 2; scarlet fever, 2, and diphtheria, 1.

MICHIGAN.—Week ended July 10, 1897. Reports to the State board of health, Lansing, from 62 observers, indicate that cholera morbus, inflammation of bowels, and remittent fever increased in area of prevalence. Phthisis pulmonalis was reported present during the week at 188 places, measles at 55, diphtheria at 26, scarlet fever at 24, enteric fever at 10, and whooping cough at 12 places.

MINNESOTA—*Minneapolis.*—Month of June, 1897. Estimated population, 225,602. Total deaths, 139, including phthisis pulmonalis, 20; enteric fever, 14; scarlet fever, 1, and diphtheria, 1.

St. Paul.—Month of June, 1897. Estimated population, 215,582. Total deaths, 95, including phthisis pulmonalis, 12; enteric fever, 1, and diphtheria and membranous croup, 4.

NEW HAMPSHIRE—*Manchester.*—Month of June, 1897. Estimated population, 60,000. Total deaths, 80, including phthisis pulmonalis, 8; diphtheria and membranous croup, 2, and whooping cough, 1.

NEW YORK—*Buffalo.*—Month of June, 1897. Estimated population, 350,000. Total deaths, 314, including phthisis pulmonalis, 34; enteric fever, 5; scarlet fever, 2; diphtheria and membranous croup, 11; croup, 1; measles, 2, and whooping cough, 8.

OHIO—*Cleveland.*—Month of June, 1897. Estimated population, 350,000. Total deaths, 342, including phthisis pulmonalis, 17; enteric fever, 3; scarlet fever, 1; diphtheria and membranous croup, 5, and measles, 2.

Columbus.—Month of June, 1897. Estimated population, 100,000. Total deaths, 102, including phthisis pulmonalis, 12; enteric fever, 1, and scarlet fever, 1.

Toledo.—Month of June, 1897. Estimated population, 137,780. Total deaths, 136, including phthisis pulmonalis, 12; enteric fever, 1; scarlet fever, 1; diphtheria, 2, and smallpox, 1.

PENNSYLVANIA—*Pottsville.*—Two weeks ended July 15, 1897. Estimated population, 14,000. Total deaths, 16. No deaths reported from contagious diseases.

VIRGINIA—*Petersburg.*—Month of June, 1897. Estimated population—white, 12,000; colored, 13,000—total, 25,000. Deaths—white, 20; colored, 35—total, 55, including 2 from phthisis pulmonalis.

WASHINGTON—*Seattle.*—Month of June, 1897. Estimated population, 60,000. Total deaths, 35, including phthisis pulmonalis, 6, and enteric fever, 2.

WISCONSIN—*Superior.*—Month of June, 1897. Estimated population, 40,549. Total deaths, 17, including 2 from phthisis pulmonalis.

MORTALITY TABLE, CITIES OF THE UNITED STATES.

Cities.	Week ended.	Population, U. S. Census of 1890.	Total deaths from all causes.	Deaths from—												
				Phthisis pulmonalis.	Yellow fever.	Smallpox.	Varicoid.	Cholera.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.		
Amesbury, Mass.	July 17	9,798								1						
Ashtabula, Ohio	do.	8,338	2													
Baltimore, Md.	do.	434,439	246	17						5	1	2				
Binghamton, N. Y.	July 10	35,005	12	2												1
Do	July 17	35,005	6							1						
Boston, Mass.	do.	448,477	181	21						2		6				1
Bristol, R. I.	July 10	5,478	2								1					
Do	July 17	5,478	4	1												
Brooklyn, N. Y.	do.	806,343	600	43							1	12	4			4
Bucyrus, Ohio	July 10	5,974	2													
Do	July 17	5,974	2													
Butler, Pa.	July 10	8,734	6													
Do	July 17	8,734	0													
Cambridge, Mass.	do.	70,028	23	2								1				1
Carlisle, Pa.	July 10	7,620	4													
Charleston, S. C.	do.	* 54,955	† 39	1												1
Chicago, Ill.	do.	1,099,850	584	34						5	2	10	8			4
Cincinnati, Ohio	July 16	296,908	142	10						6	2	1	1			4
Cleveland, Ohio	July 10	261,353	160	4						2			6			1
Do	July 17	261,353	134	4						2						2
Columbus, Ind.	do.	6,719	1													
Columbus, Ohio	do.	88,150	30	4												
Dayton, Ohio	July 16	61,220	30	2												2
Denver, Colo.	July 3	106,713	41	7												
Dunkirk, N. Y.	July 10	9,416	3													
Elizabeth, N. J.	July 17	37,764										1				
Fall River, Mass.	do.	74,398	76	2											1	
Fitchburg, Mass.	July 10	22,037	8													
Flint, Mich.	do.	9,803	3													
Do	July 17	9,803	3													
Gloucester, Mass.	July 10	24,651	15													
Green Bay, Wis.	do.	9,069	3													
Do	July 17	9,069	5													
Haverhill, Mass.	do.	27,412								1	2					
Hoboken, N. J.	July 10	43,648	32	4												
Do	July 17	43,648	26	1												
Ironton, Ohio	July 10	10,939	1													
Do	July 17	10,939	0													
Jacksonville, Fla.	July 10	17,201	13	3												
Jersey City, N. J.	July 11	163,003	79	10							1	3	2			
Johnstown, Pa.	July 17	21,805	5	1												
Kalamazoo, Mich.	July 10	17,853	6													
Do	July 17	17,853	0													
Lawrence, Mass.	July 10	44,654	39													
Lowell, Mass.	July 17	77,696	39	2						1						
Lynchburg, Va.	do.	19,709	4													
McKeesport, Pa.	July 10	20,741	13							1						
Manchester, N. H.	do.	44,126	26													
Do	July 17	44,126	25	1												
Massillon, Ohio	do.	10,692	3	1												
Medford, Mass.	do.	11,079	6													
Memphis, Tenn.	do.	64,495	27	3						2						
Michigan City, Ind.	July 10	10,776	5													
Middletown, N. Y.	June 30	11,977	10	1												
Do	July 7	11,977	4													
Do	July 15	11,977	10							2		2				
Milwaukee, Wis.	July 17	204,468	50	6								2				
Minneapolis, Minn.	July 10	164,738	42	7						4		1				
Mobile, Ala.	July 17	31,076	9	2						1						
Nashville, Tenn.	do.	76,168	32	11												
New Bedford, Mass.	do.	40,733	47								1	2				
Newburyport, Mass.	July 10	13,947	6													
New Orleans, La.	do.	242,039	119	11						5						
Newport, R. I.	July 17	19,457	4													
New York, N. Y.	do.	1,515,301	977	105		1				8	11	27	10			8
Morristown, Pa.	do.	19,791	2													
North Adams, Mass.	do.	16,074	1													
Omaha, Nebr.	July 10	140,452	16													
Oneonta, N. Y.	do.	6,272	0													
Do	July 17	6,272	2													
Pensacola, Fla.	July 10	11,750	6							1						
Do	July 17	11,750	3													

* Estimated population, 65,165; white, 28,870; colored, 36,295. † White, 6; colored, 33.

Table of temperature and rainfall, week ended July 19, 1897.

[Received from Department of Agriculture, Weather Bureau.]

Locality.	Temperature in degrees Fahrenheit.			Rainfall in inches and hundredths.		
	Normal.	* Excess.	* Deficiency.	Normal.	Excess.	Deficiency.
Atlantic Coast:						
Eastport, Me.....	60		0	.91		.51
Portland, Me.....	69		0	.81	.09	
Northfield, Vt.....	65	3		.69	2.31	
Boston, Mass.....	72	4		.77		.27
Vineyard Haven, Mass.....	71	3		.63		.23
Nantucket, Mass.....	67	5		.50	2.00	
Woods Hole, Mass.....	69	1		.70	.00	
Block Island, R. I.....	67	5		.70	.60	
New Haven, Conn.....	72		0	1.16	7.54	
Albany, N. Y.....	73	1		.91	3.19	
New York, N. Y.....	74		0	.98	3.32	
Harrisburg, Pa.....	73	1		.98		.18
Philadelphia, Pa.....	77		1	.98	.62	
New Brunswick, N. J.....	73	1		1.13	1.97	
Atlantic City, N. J.....	73		1	.77	3.33	
Baltimore, Md.....	78		2	1.11	1.69	
Washington, D. C.....	78		3	1.05	.83	
Lynchburg, Va.....	78		6	.90	.20	
Cape Henry, Va.....	77		1	1.29	.41	
Norfolk, Va.....	80		2	1.39		.19
Charlotte, N. C.....	80		6	1.26		.06
Raleigh, N. C.....	80		3	1.78		.28
Kittyhawk, N. C.....	79		3	1.31	2.59	
Hatteras, N. C.....	79		3	1.47	4.15	
Wilmington, N. C.....	78		2	1.65		1.45
Columbia, S. C.....	80		4	1.27	1.13	
Charleston, S. C.....	82		3	1.73		1.73
Augusta, Ga.....	83		4	1.19	3.51	
Savannah, Ga.....	82		4	1.22		.62
Jacksonville, Fla.....	83		3	1.47		1.37
Jupiter, Fla.....	80		1	1.47		
Key West, Fla.....	80		0	1.01	.49	
Key West, Fla.....	84		2	.84	.66	
Gulf States:						
Atlanta, Ga.....	79		5	.98		.38
Tampa, Fla.....	82		2	2.21	.99	
Pensacola, Fla.....	81		1	1.47		1.47
Mobile, Ala.....	82		2	1.47		1.47
Montgomery, Ala.....	82		3	1.05		1.05
Vicksburg, Miss.....	83		2	1.05	.75	
New Orleans, La.....	82		2	1.47	.03	
Shreveport, La.....	83		1	.84		.04
Fort Smith, Ark.....	81		5	1.02	.98	
Little Rock, Ark.....	81		2	.91		.51
Palestine, Tex.....	82		2	.58		.48
Galveston, Tex.....	84		0	.60		.60
San Antonio, Tex.....	84		0	.46		.46
Corpus Christi, Tex.....	82		2	.24		.24
Ohio Valley and Tennessee:						
Memphis, Tenn.....	82		6	.77		.17
Nashville, Tenn.....	80		6	.98	1.02	
Chattanooga, Tenn.....	79		7	.87	.13	
Knoxville, Tenn.....	77		5	.98	1.42	
Louisville, Ky.....	79		6	.84		.64
Indianapolis, Ind.....	77		7	.98		.48
Cincinnati, Ohio.....	77		6	.77		.27
Columbus, Ohio.....	78		5	.70	.30	
Parkersburg, W. Va.....	75		4	.98	.42	
Pittsburg, Pa.....	74		3	1.18	.02	
Pittsburg, Pa.....	75		3			
Lake Region:						
Oswego, N. Y.....	69		1	.70		.70
Rochester, N. Y.....	71		0	.69		.39
Buffalo, N. Y.....	70		2	.70	1.50	
Erie, Pa.....	71		1	.59	1.41	
Cleveland, Ohio.....	72		4	.77		.27
Sandusky, Ohio.....	74		4	.70	.80	
Toledo, Ohio.....	74		6	.68	1.42	
Detroit, Mich.....	74		2	.77		.07
Lansing, Mich.....	72		4	.75	.95	
Port Huron, Mich.....	72		2	.49	1.41	
Alpena, Mich.....	69		1	.63		.33
Sault Ste. Marie, Mich.....	68		0	.63		.30
Marquette, Mich.....	62		4	.70		.60
Green Bay, Wis.....	65		3	.70		.60
Green Bay, Wis.....	71		1	.66		.46

*The figures in these columns represent the average daily departure.

Table of temperature and rainfall, week ended July 19, 1897—Continued.

Locality.	Temperature in degrees Fahrenheit.			Rainfall in inches and hundredths.		
	Normal.	*Excess.	*Deficiency	Normal.	Excess.	Deficiency.
Lake Region—Continued.						
Grand Haven, Mich.....	70		2	.62	.08	
Milwaukee, Wis.....	70		0	.69		.69
Chicago, Ill.....	73		3	.77		.77
Duluth, Minn.....	66		2	.84		.84
Upper Mississippi Valley:						
St. Paul, Minn.....	71	1		.77		.67
La Crosse, Wis.....	73		1	.91		.81
Dubuque, Iowa.....	75		3	.96		.96
Davenport, Iowa.....	75		3	.84		.74
Des Moines, Iowa.....	74		2	.77		.47
Keokuk, Iowa.....	78		6	.91		.91
Springfield, Ill.....	76		6	.59		.49
Cairo, Ill.....	80		8	.77		.27
St. Louis, Mo.....	80		6	.84		.64
Missouri Valley:						
Columbia, Mo.....	78		6	1.15		1.15
Springfield, Mo.....	77		5	1.12		.32
Kansas City, Mo.....	78		4	.91		.91
Wichita, Kans.....	80		4	.63		.53
Concordia, Kans.....	78		4	.70		.70
Lincoln, Nebr.....	78		6	.73		.73
Omaha, Nebr.....	76		3	1.06		1.06
Sioux City, Iowa.....	75		3	.77		.67
Yankton, S. Dak.....	74		0	.88		.88
Valentine, Nebr.....	73		1	.55	2.05	
Huron, S. Dak.....	70	2		.70		.70
Pierre, S. Dak.....	74	2		.49	1.71	
Moorhead, Minn.....	67	5		.91	.59	
Bismarck, N. Dak.....	69	3		.54		.24
Williston, N. Dak.....	68	2		.45		.35
Rocky Mountain Region:						
Havre, Mont.....	67	1		.49		.09
Helena, Mont.....	67		1	.22	.38	
Miles City, Mont.....	74		0	.28		.28
Rapid City, S. Dak.....	71		1	.35	.05	
Spokane, Wash.....	70		4	.16		.06
Wallawalla, Wash.....	75		3	.07		.07
Baker City, Oreg.....	67		3	.13		.13
Salt Lake City, Utah.....	76		4	.07		.07
Lander, Wyo.....	70			.17		
Cheyenne, Wyo.....	67		3	.42	.98	
North Platte, Nebr.....	74		0	.62		.62
Denver, Colo.....	72		2	.42		.02
Pueblo, Colo.....	74		0	.52		.12
Dodge City, Kans.....	79		5	.70		.50
Oklahoma, Okla.....	80		2	1.00		.70
Amarillo, Tex.....	76		0	.43	.07	
Abilene, Tex.....	84		0	.30	.30	
Santa Fe, N. Mex.....	69		3	.66	.74	
El Paso, Tex.....	82		2	.54		.54
Phoenix, Ariz.....	90	2		.20		.20
Pacific Coast:						
Fort Canby, Wash.....	59	1		.21		.11
Portland, Oreg.....	67		3	.13		.13
Roseburg, Oreg.....	67		3	.07		.07
Eureka, Cal.....	56		0	.02		.02
Redbluff, Cal.....	83	3		.00		.00
Carson City, Nev.....	68		0	.05		.05
Sacramento, Cal.....	73	7		.00		.00
San Francisco, Cal.....	58	2		.00		.00
Fresno, Cal.....	82	6		.00		.00
Los Angeles, Cal.....	69	3		.00		.00
San Diego, Cal.....	67	3		.00		.00
Yuma, Ariz.....	92	2		.02		.02

* The figures in these columns represent the average daily departure.

FOREIGN.

[Reports received from United States consuls through the Department of State and from other sources.]

Cholera, yellow fever, and plague as reported to the Supervising Surgeon-General United States Marine-Hospital Service, December 29, 1896, to July 20, 1897.

CHOLERA.

Places.	Date.	Cases.	Deaths.	Remarks.
India :				
Bombay	Dec. 8-Dec. 15.....	15	1	
	Dec. 22-Dec. 29.....	29	1	
	Mar. 23-Mar. 30.....	30	1	
	Mar. 31-June 22.....	22	54	
Calcutta.....	Nov. 14-Jan. 30.....	30	267	
	Jan. 31-Feb. 27.....	27	311	
	Feb. 28-Mar. 6.....	6	125	
	Mar. 6-May 29.....	29	1,310	
Madras.....	May 30-June 5.....	5	29	
	Nov. 21-Nov. 27.....	27	2	
	Nov. 28-Dec. 4.....	4	1	
	Dec. 12-Dec. 25.....	25	6	
	Dec. 26-Jan. 29.....	29	22	
	Jan. 30-Feb. 26.....	26	13	
	Feb. 27-Mar. 5.....	5	2	
	Mar. 6-Mar. 19.....	19	1	
	Mar. 20-Mar. 26.....	26	2	
	May 29-June 11.....	11	2	
Singapore.....	Nov. 1-Nov. 30.....	30	12	
	Dec. 1-Dec. 31.....	31	5	
Ceylon :				
Colombo	Nov. 28-Jan. 23.....	23	114	
	Jan. 23-Jan. 30.....	30	1	
England :				
Plymouth.....	Jan. 9.....	9	4	On steamship <i>Nubia</i> . No cases in city.
Japan :				
Tokyo	Dec. 4-Dec. 29.....	29	8	7
	Dec. 30-Jan. 18.....	18	3	3
Yokohama.....	Dec. 4-Dec. 29.....	29	4	3
	Dec. 30-Jan. 18.....	18	2	2

YELLOW FEVER.

Brazil :				
Bahia	May 13-May 19.....	19	5	3
Para.....	Dec. 12-Jan. 30.....	30		32
	Jan. 31-Feb. 27.....	27		20
	Feb. 27-Mar. 6.....	6		9
	Mar. 13-Mar. 20.....	20		3
	Apr. 3-Apr. 10.....	10		3
	May 30-June 5.....	5		4
	June 20-July 3.....	3		7
Rio de Janeiro.....	Nov. 21-Dec. 26.....	26		10
	Dec. 26-Jan. 30.....	30		28
	Jan. 31-Feb. 6.....	6	12	5
	Feb. 13-Feb. 20.....	20	21	6
	Feb. 20-Mar. 6.....	6		16
	Mar. 7-May 29.....	29	174	78
	May 30-June 12.....	12	5	2
Cuba : *				
Cardenas.....	Dec. 25-Jan. 30.....	30	84	8
	Jan. 31-Feb. 27.....	27	38	1
	Apr. 17-June 26.....	26	46	9
	June 27-July 10.....	10	7	
Cienfuegos.....	Dec. 20-Dec. 27.....	27		8
	Dec. 28-Jan. 17.....	17		2
	Apr. 4-Apr. 11.....	11		1
	May 17-May 23.....	23		1
	June 20-July 11.....	11		12

* February 28, 1897, 300 cases of yellow fever were reported among the sick soldiers on the Island.

Cholera, yellow fever, plague, etc.—Continued.

YELLOW FEVER—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Cuba—Continued.				
Habana.....	Dec. 17-Dec. 31...	220	79	
	Jan. 1-Jan. 28...	400	144	
	Jan. 28-Feb. 23...	117	44	
	Feb. 25-Mar. 23...	130	38	
	Mar. 25-Apr. 29...	342	85	
	Apr. 30-July 1...	750	279	
Manzanillo.....	July 2-July 15...		104	
	Apr. 1-Apr. 15...		1	
	May 15-May 31...		1	
Matanzas.....	June 1-June 15...		1	
	Dec. 9-Dec. 23...		8	
	Dec. 23-Jan. 27...		19	
	Jan. 27-Feb. 24...		4	
	Feb. 25-Mar. 31...		2	
Santiago.....	Apr. 1-June 30...	9	24	
	July 1-July 7...		4	
	Dec. 5-Dec. 26...		17	
	Dec. 26-Jan. 30...		16	
	Jan. 16-Jan. 30...		5	
	Jan. 30-Feb. 27...		6	
Sagua la Grande.....	Feb. 27-Mar. 27...		3	
	May 2-July 3...	54	64	140 cases in military hospital.
	Dec. 19-Dec. 26...	50	5	
	Dec. 26-Jan. 9...	65	6	
	Jan. 9-Jan. 30...	110	12	
	Jan. 31-Feb. 27...	35	7	
	Feb. 27-Mar. 27...	54	17	
	Mar. 28-June 26...	304		Number of deaths not given.
June 27-July 10...	78	5		
Ecuador:				
Guayaquil.....	Dec. 18-Jan. 10...		9	
Haiti:				
Port au Prince.....	Dec. 1-Dec. 7...		2	
	Dec. 14.....			Yellow fever epidemic.
	Mar. 1-Mar. 8...		3	
Guadeloupe:				
Basse Terre.....	Jan. 5.....	1		
Mexico:				
Vera Cruz.....	June 23.....			Yellow fever reported.
	June 25-July 1...		2	
	June 29.....		2	
Peru:				
Callao.....	June 10-June 17...		2	In harbor on steamship <i>Santiago</i> from Panama.
United States of Colombia:				
Panama.....	Apr. 14.....	20	17	
	June 25.....	91	62	Estimated.
	June 23-July 3...	12	7	
	July 4-July 13...	15	7	
Colon.....	May 12-May 25...		5	

PLAGUE.

Egypt:				
Suez.....	Mar. 31.....			One case of plague on Br. S. S. <i>Dilwara</i> from Bombay.
India:				
Bombay*.....	Dec. 1-Dec. 22...	694		This is the number of deaths officially reported. The United States consul estimates the number of deaths for the same period at 2,763.
	Dec. 22-Jan. 5...		738	Estimated deaths for this same period, 2,953.
	Jan. 5-Jan. 12...		335	Estimated deaths for this same period, 1,388.
	Jan. 12-Jan. 19...		470	
	Jan. 19-Jan. 26...		443	Estimated deaths for this same period, 1,462.
	Jan. 26-Feb. 23...	2,884		Estimated deaths for this same period, 5,845.
	Feb. 23-Mar. 9...		1,282	Estimated deaths for this same period, 2,265.

* Official returns show 9,118 cases and 7,602 deaths to March 12.

Cholera and yellow fever, plague, etc.—Continued.

PLAGUE—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
India—Continued.				
Bombay.....	Mar. 9-Mar. 30.....	1,481		Estimated deaths for this same period, 2,730. Estimated deaths from March 31 to April 20, 2,892.
	Mar. 31-June 1.....	1,681		
	June 2-June 22.....		79	
Calcutta.....	Feb. 6-Feb. 13.....		1	
Karachi.....	Jan. 11.....			Plague epidemic; 220 cases, 214 deaths to date.
China:				
Amoy.....	June 30.....			Plague epidemic reported.
Hongkong.....	Dec. 13-Dec. 29.....			A few cases.
	May 21-May 29.....	4	2	
	June 6-June 12.....		1	
Macao.....	Apr. 1-May 31.....		154	Plague epidemic reported. Epidemic of plague reported.
	June 1-June 3.....	43		
	June 1.....			
Swato.....	May 4.....			
Japan:				
Formosa.....	Nov. 6-Nov. 30.....	53	37	
	Dec. 4-Dec. 29.....		15	
	Jan. 19-Jan. 27.....	3		
	Feb. 23-Mar. 12.....	3		
	Mar. 13-Mar. 23.....	4		
	Mar. 24-Mar. 31.....	3		
	Apr. 1-Apr. 20.....	64	54	
	Apr. 20-May 20.....	268		
	May 31-June 27.....	144		
	June 9-June 27.....	3	3	
Nagasaki Ken				
Taihoku.....	Apr. 20-Apr. 27.....	3		
Russia:				
St. Petersburg.....	Apr. 10-Apr. 17.....		1	One case of plague on Br. S. S. <i>Baldwin</i> .
Theodosia.....	Mar. 31.....			

BRAZIL.

*Sanitary report from Rio—Sanarelli on the yellow fever germ.*RIO DE JANEIRO, *June 14, 1897.*

SIR: I have the honor to transmit report for the week ended June 12, 1897:

There were 6 deaths from *accessio pernicioso*, an increase of 2; none from yellow fever, 2 in the foregoing week; 2 from beriberi, a decrease of 6; 4 from enteric fever, an increase of 2; none from influenza, 1 in the foregoing week; 51 from tuberculosis, an increase of 13; and 291 from all causes, an increase of 30.

Just now the town and port are in an excellent sanitary state.

Dr. Sanarelli.—Inclosed I send a copy of Dr. Sanarelli's report of his discovery of the yellow fever bacillus. He seems to have satisfied all the professionals here of the truth of his claim, and I hope it is true, but I have outlived so many discoveries in the same line that I await confirmation. I will send you anything on the subject that transpires.

Since last report the following-named ships have been inspected or received bills of health from this office: June 7, steamship *Buffon*, British, for New York, and steamship *Sardinian Prince*, British, for New York from Buenos Ayres. June 10, bark *Jacobine*, German, for Apalachicola, Fla. June 11, bark *Pactolus*, American, for Barbados, West Indies. June 12, steamship *Biela*, British, for New York; bark *Closeburn*, British, for New York; bark *Doris Brodersen*, Danish, for

Fernandina, Fla., and barkentine *Josephine*, American, for Baltimore, Md. June 14, steamship *Kirkfield*, British, for St. Lucia, West Indies.
Respectfully, yours,
R. CLEARY, M. D.,
Sanitary Inspector, U. S. M. H. S.

[Inclosure.]

Sanarelli on the Germ of Yellow Fever.

[Translated in this Bureau from the Portuguese.]

It is now four centuries since a terrible disease, then unknown to Europeans, made its appearance among the followers of Columbus.

Scarcely two centuries have passed since the same disease, spreading from its place of origin in the Gulf of Mexico and the Antilles, appeared in South America, when the epidemic of Olinda gave occasion to the Portuguese physician Ferreira de Rosa to write his treatise on the pestilential disease of Pernambuco, a new morbid process destined to become, unhappily, widely known under the name of yellow fever.

One fact is worthy of note, with other infectious diseases recorded in history as occurring in the form of epidemics, a sort of immunity has been acquired and transmitted by inheritance which has had a tendency to diminish the virulence of the disease and to restrict it within its original limits. With yellow fever, on the contrary, the prevalence and virulence of the disease have increased and show no tendency to become attenuated. Circumscribed at first to a relatively narrow zone, between the Gulf of Mexico and the Antilles, it successively and repeatedly invaded the eastern coast of the two Americas, from the Gulf of St. Lawrence to the Rio de la Plata. In more recent times it has passed the Isthmus of Panama and crossed an ocean, to appear on the west coast of America and the Atlantic littoral of Europe and Asia.

The Mediterranean Coast has not been exempt, the Strait of Gibraltar having proved an insufficient barrier against the invasion of disease, as in our day has been shown to be the case with the Suez Canal.

Indeed, it may be affirmed that as the means of communication increase no region of the globe may be expected to remain exempt from the disease now definitely installed in its classical foci, the Gulf of Mexico, the Antilles, Brazil, and Sierra Leone.

Yellow fever also shows a tendency to spread from the maritime districts into the interior, cities in which it was never previously known being now as open to attacks as Bahia and Santos. In this state of affairs, which threatens to become more serious, it is incumbent on physicians to make every effort to solve the different problems presented by this disease.

It is not sufficient to address ourselves to the clinical study of yellow fever. We must know its cause and prophylaxis. These questions can be solved only in the light of the modern science of microbiology. Hence, when by the favor of my colleagues and of the Government I was called to found the new Institute of Experimental Hygiene, my mind turned with irresistible attraction to the study of this disease.

In the charming region of the Plata, where Nature has been so prodigal of gifts, the ordinary diseases do not number as many victims as in some other countries. This is due to a combination of hygienic and social conditions. Statistics of morbidity and mortality furnish the basis of this statement. But this region is far from being exempt from invasions of yellow fever—witness the great and disastrous epidemic of 1872.

OUR PRESENT KNOWLEDGE WITH REGARD TO THE ETIOLOGY OF YELLOW FEVER.

What is the process or the pathogenic agent of yellow fever? At one time, now somewhat remote, yellow fever was believed by physicians to be due to malarial influence. Later the existence of specific microbes was admitted, and many bacteriologists devoted themselves to investigation. Of the results of these investigations, which have been for the most part negative, erroneous, and in some cases fantastic, there is no need to speak.

Dr. Sternberg, author of the most recent, complete, and adequate communication on this subject, asserts that the microbe of yellow fever is yet to be found, and that the search for it must be recommenced, *ab initio*.

In common with most authorities on this subject, Dr. Sternberg and the majority of Brazilian scientists, among whom may be cited Dr. Lacerda, agree in considering yellow fever as a local infection, having its principal seat in the stomach.

Here the infectious agent, as yet undetermined, is supposed to elaborate its toxic

substances, whose absorption by the blood gives rise to the peculiar characteristics of yellow fever.

Following out this theory, Sternberg and the other authorities mentioned, advise the treatment of yellow fever with alkaline remedies and intestinal disinfectants.

THE TRUE ETIOLOGY—THE ICTEROID BACILLUS.

The clinical, etiological, and epidemiological theories of yellow fever had reached this point when I began to devote my small abilities and the means placed at my disposal by the University of Montevideo to the direction of the Institute of Experimental Hygiene.

The material for my studies was procured partly from the lazaretto on Flores Island, where, during the summer months, a small laboratory is maintained, designed for the study of living subjects and cadavers of persons arriving from Brazil and taken ill en route; in part, from the hospital of St. Sebastiau, where, thanks to the courtesy of Dr. Seidl and Drs. Fajardo and Couto, I was enabled to install myself conveniently and devote myself for more than a month to anatomical, bacteriological, and clinical research. My studies covered a ground encumbered with many difficulties.

The recognition and isolation of the specific agent of yellow fever may be considered as not the least difficult task presented to the patient microbiologist. This explains the ill success of those who have preceded me in this line of investigation.

No one who has followed a case of yellow fever, and observed the successive development of the symptoms which give this disease its marked and peculiar character, can doubt for an instant that the process is due to the action of a microbe which is absolutely specific, and which can be easily demonstrated in necropsy. In the majority of cases, however, the most complete and minute bacteriological investigation of the cadaver seems calculated to mislead the investigator and turn him from his purpose.

The bodies of icteroid typhus (yellow fever) patients will be found to be invaded by certain microbic species, streptococci, staphylococcus, pyogenes, coli bacillus, etc., which are in no way responsible for the disease, or they are invaded by a mixture of microbes, the classification of which is a stupendous undertaking.

I do not think it necessary to indicate here the method of my discovery of the microbe of yellow fever. I will only say that the discovery was made in the second case observed at Flores Island. This case, unlike the first, which presented a mixture of microbes, showed the bacillus in a state of relative purity. This bacillus may, with all propriety, be termed the icteroid bacillus, since yellow fever is also termed icteroid typhus. I say "in a state of relative purity" because yellow fever is the prototype of diseases due to infection from mixed microbes. In the 11 necropses performed by me I never found the icteroid bacillus isolated. It was always associated with the bacillus coli, the staphylococcus, or the streptococcus. In the second case at Flores Island it was associated, in small quantity, with the bacillus coli, and in the eighth, studied at Rio de Janeiro, with the staphylococcus aureus.

I will here state that the icteroid bacillus should be sought in the blood or tissues, and not in the gastrointestinal cavity, contrary to what might be presumed *a priori* in the premises. In fact, in yellow fever, the digestive canal is the seat, as in typhoid fever, of an abundant germination of bacillus coli, which is there found in a state of absolute purity.

The results of my investigations show that the icteroid bacillus may be isolated in 58 per cent of the cases of yellow fever, and in some cases may be found even during life. The reasons why it may not always be recognized are easy of comprehension. In the first place, the icteroid bacillus multiplies very slowly in the first stage of the disease, a very small quantity of the toxin being sufficient to develop in the human subject a very grave case of yellow fever. In the second place, the toxin, either of its own potency or by means of the profound lesions which it determines in the digestive fluids and the liver, facilitates to the most extraordinary degree secondary infections of every sort. These secondary infections may some times assume the type of true septicæmia, due to bacillus coli, to streptococci or staphylococci, etc., and are sufficient of themselves to cause death. At other times they occur in such multiple colonies as to transform the patient into a veritable culture of all the species of intestinal microbes. Finally, as the result of my observation that the icteroid bacillus always occurs in the blood and tissues and not in the gastrointestinal contents, we may conclude, contrary to what has hitherto been received, that the virus of yellow fever does not reside in the intestinal tube, and that its toxin, instead of being absorbed by the intestinal walls, is elaborated in the interior of the organs and in the blood.

This bacillus, morphologically considered, never presents marked characteristics at the first view. It is a small rod with rounded extremities, generally united in pairs

in cultures, and in small groups in the tissues, from two to four thousandths of a millimeter in size, and generally two or three times longer than it is wide. It is sufficiently pleomorphic.

Investigation of the tissue gave good results when the death of the patient occurred without secondary septicæmia. But even in cases in which bacteriological results are most pure it is not always easy to verify them when the tissue is under observation on account of excessive exudation. Aside from this, however, by observing correct methods we may expect to encounter these organisms in small groups, preferably in the lesser capillaries of the liver, etc.

The best means of demonstrating not only its existence, but even its special tendency to localize itself in small groups, principally in the blood capillaries, consists in cutting off a piece of liver taken from a fresh cadaver, and kept in a stove (thermostat) for twelve hours to facilitate the multiplication of specific microbes.

The bacillus of yellow fever develops well in all the ordinary culture media. In ordinary gelatin cultures it forms rounded, transparent, and granular colonies, which during the first three or four days present the appearance of leucocytes.

The tendency to granulation becomes constantly stronger and ordinarily there is formed a central nucleus which is completely opaque. In time the colonies become entirely opaque without liquefying the gelatin.

In streaked gelatin, obliquely solidified, it develops in the form of small brilliant drops, resembling milk in their opacity. In meat broth it develops weakly, without forming either pellicles or flaky deposits. In solidified blood serum its growth is almost imperceptible.

Culture of gelose (agar-agar), contrary to what has been observed for the majority of the recognized pathogenic microbes, furnishes for the icteroid bacillus a diagnostic of the first order. This diagnostic value can, however, be relied on only under definite conditions.

When the colonies develop in the incubator they assume an aspect not unlike that of many other microbes. They are rounded, ashy, iridescent, transparent, with smooth surface and regular margins.

If instead of being developed in stove heat at a temperature of 37° they are grown at the temperature of the surrounding air, 20° or 22°, the colonies form as before, milky, opaque drops, with a mother-of-pearl luster, entirely different from the colonies developed in the stove incubator. We may utilize this difference in the mode of development, exposing the culture first to a stove incubator temperature for from twelve to sixteen hours, and then keeping it for another twelve or sixteen hours at the ordinary temperature. The colonies will then be seen to consist of a flat central nucleus, transparent and bluish, and with a circular periphery very pronounced and opaque, exactly resembling an impression in sealing wax. As this characteristic, which may now be considered specific, may be put in evidence in about twenty-four hours, it serves to determine, in the most rapid and certain manner, the bacteriological diagnosis of the icteroid bacillus. In addition to these morphological characteristics, which serve to differentiate the microbe of yellow fever from all other species now known, the icteroid bacillus is endowed with some interesting biologic properties. It is a facultative anaerobe, does not resist gram coloration, ferments insensibly in glucose and saccharose, but is not capable of coagulating milk; resists fermentation, dies in water at 60°, succumbs in seven hours to the action of solar rays, and lives some time in sea water.

The specific microbe of yellow fever is pathogenic for the majority of domestic animals.

There are few microbes whose domain is so extended and varied. Although birds are completely refractory, all the mammals which have been subjected to experiment show themselves to be more or less sensitive to the pathogenic action of the icteroid bacillus. It kills white mice in five days, causing general septicæmia with fatty degeneration of the liver. In the guinea pig it determines, alike in small and large doses, a cyclic febrile affection, which always terminates in death in from eight to twelve days. Infection may be produced by any method, even through the respiratory system.

As soon as introduced into the organism the microbes collect, for the most part, in the spleen, where they remain during the entire evolutionary period of the disease without any notable increase. At the end of six or seven days they suddenly invade the circulation, enter upon a period of proliferation, and kill by septicæmia.

The anatomical lesions which are found in necropsy are represented by hypertrophy of the thymus gland, by splenic tumors, by axillary and inguinal adenitis, and by hepatic lesions only in chronic cases, which are very rare.

Less frequently adenitis, nephritis, and albuminuria are encountered; also, very rarely, serous hæmorrhages.

The rabbit is rather more sensitive than the guinea pig to the action of icteroid virus. Whatever be the dose and by whatever means introduced, it infallibly kills after a

periodic affection lasting four or five days if by subcutaneous inoculation, in two days only if the inoculation be made directly in the blood.

The process of evolution of the infection in this case is precisely similar to the same process in guinea pigs.

The anatomical lesions are represented in the guinea pig by splenic tumor; by hypertrophy of the thymus gland and by adenitis, as has been said, the icteroid virus is capable of determining in rabbits, nephritis, enteritis, albuminuria, hemoglobinuria, and various haemorrhagic manifestations in the serous cavities. But the animal which lends itself better than any other to the production of the anatomical and symptomatic manifestations of experimental and human yellow fever, is the dog. The inoculation should be intravenous. The morbid process which results, manifests itself almost immediately and with such violence of symptoms and complication of lesions as to recall the clinical and anatomical features of human yellow fever. The first marked symptom in the development of experimental yellow fever in the dog is the vomit, which occurs as soon as the virus has reached the blood, and continues a long time, as if the animal were under the influence of a strong emetic. After the vomit come enterorrhagias; urine is slight and albuminous, and soon manifests the anuria which immediately precedes death. In one case I observed grave icterus. The necropsy shows extremely interesting lesions, being almost identical with those observed in human cadavers. Especially notable is the presence of steatoma of the liver.

The hepatic cells, examined fresh, with a little osmic acid, appear completely degenerated and enlarged, as in the case of human beings who have died of yellow fever. The virus of yellow fever is, indeed, as will be shown later on, a genuine specific poison of the hepatic cell, similar to phosphorus or arsenic.

Complete steatosis of the liver may be determined by injecting into that organ, directly through the abdominal walls, a fresh culture of the specific bacillus.

Beside the liver, the renal tissue presents grave fatty degeneration. This tissue is the seat of an acute parenchymatous nephritis, which may be considered the immediate cause of the anuria and uremic poisoning. In fact, the blood of dogs, dead of experimental yellow fever, contains a large quantity of urea, equal to that found in the blood of human beings affected with nephritis, or in very grave cases of human yellow fever.

The entire digestive apparatus is the seat of a gastroenteritic hemorrhage of the gravest imaginable character, only comparable to that which is provoked by poisoning with cyanide of potassium. This haematogenous gastroenteritis is therefore perfectly analogous to, but much graver than that which is observed in man.

The final peculiarity observed gives great interest to yellow fever produced in dogs, and is a bacteriological result. In the majority of cases the icteroid bacillus is found in the blood, and in the organs in variable quantity, but not in a state of absolute purity. Sometimes it may be found associated, as in man, with the bacillus coli or streptococcus. In view of this tendency to invasion by secondary microbes, which we find in dogs in which yellow fever poisoning has been induced, and in filtered cultures of the bacillus, we may conclude that yellow fever virus, whether of itself or in consequence of the alterations which it causes in the various viscera, especially in the liver, which was supposed to be a defence against microbes, is favorable in the dog to secondary infections, frequently having their point of departure in the intestinal canal. This constitutes an important point of bacteriological contact between yellow fever in the dog and in man. In one case observed the liver was completely transformed to a fatty mass, resembling wax.

The experiments made on monkeys are of great interest, because they demonstrate the possibility of obtaining in these creatures a fatty degeneration of the liver even more grave than that observed in man.

In Simians, as in dogs and human beings, the affection frequently terminates with bacteriological products of a mixed infection of staphylococcus and streptococcus.

Goats and sheep are also very sensitive to icteroid virus, and the same conjunction of phenomena occurs in these animals which we have observed in our other investigations in comparative pathology. In fact, beside the grave fatty alteration of the liver, which never fails, nephritis, anuria, uremic poisoning, and mixed infection are observed.

YELLOW FEVER AND SECONDARY INFECTIONS—RAPID BACTERIOLOGICAL DIAGNOSIS OF THE ICTEROID BACILLUS.

Yellow fever is an infectious disease, due to a microorganism which is well defined and susceptible of being cultivated in ordinary nutritive media. This microorganism, which was provisionally designated *icteroid bacillus*, may be isolated not only in the cadaver, but also during the life of the yellow-fever patient. Its isolation often presents almost insuperable difficulties, due in part to the constant intromission of secondary infections and in part to its relative scarcity in the organism.

The secondary infections, due almost always to specific microbes already determined, as the staphylococcus, streptococcus, bacillus coli, proteus, etc., may invade the patient some time before death, and it can not be denied that the death of the patient many some times be more justly imputed to their action than to that of the icteroid bacillus.

It is probable that one of the causes which impress a protean character on yellow fever is due to the nature and evolution of these secondary infections.

Yellow fever, both in man and the lower animals, represents a disease of cyclic progress. During this period the specific microbe is found in the organs in a state of great scarcity, and it is in the morbid period, or after seven or eight days, that it suddenly invades the whole organism, accompanied almost invariably by other microbes of intestinal origin. It is only in cases that terminate in this way—that is to say, in those which execute a regular cyclic development—that the specific microbe may be readily found dispersed throughout the blood and the organs.

When intercurrent septicæmia and premature uremic poisoning abruptly terminate this morbid period, the isolation of the icteroid bacillus is extremely difficult, if not impossible.

The icteroid bacillus once introduced into the system, not only determines a general infection, but causes specific alterations, having their favorite location in the kidneys, in the digestive canal, and the liver. In the last-named organ a rapid fatty degeneration takes place, in the digestive canal gastroenteritis, and in the kidneys, acute parenchymatous nephritis.

The yellow-fever patient is, in fact, menaced by three imminent dangers, and examination of the cadaver may determine the immediate cause of death.

1. Death may be considered due in great part to specific infection, particularly when the icteroid bacillus is found in the body in considerable quantity and in a state of relative purity. This occurs in cases which complete the full morbid cycle.

2. It may be considered as produced by septicæmias successively established during the course of the disease when the cadaver shows products of almost pure cultures of other microbes.

3. It may be due in great part to insufficient action of the kidneys, when the body is found almost sterile with a considerably large quantity of urea in the blood, death having occurred before the morbid cycle had completed its evolution.

It is difficult to pronounce during the life of the patient on the predominance of specific uremic symptoms, because the most salient features of yellow-fever poisoning are easily confounded with failure of the kidneys. This frequent and unavoidable complication is sometimes the principal cause of the failure of yellow fever to take on a distinctly thermic type.

It is very probable that certain temperatures, which are apparently normal, and certain low temperatures, which manifest themselves very frequently during the period of delirium and in full convalescence and some sudden and unexpected terminations of the morbid process, are for the most part due not to the action of yellow-fever poison, but to uremic poisoning.

The symptom called *black vomit* is caused by the action of gastric acidity on the blood, which escapes into the stomach through the lesions in the mucous membrane.

The act of vomiting is caused directly by the specific emetic action of the icteroid bacillus circulating in the blood.

The hæmorrhagic character presented by the disease is due, primarily, to the hæmorrhagic property which the icteroid bacillus possesses in common with other microbes, and in the second place to the profound and rapid alterations and degenerations which it produces in the walls of the blood vessels.

The icteroid bacillus possesses morphologic characteristics so marked as to differentiate it distinctly from other microbes. Once isolated from the cadaver or the patient, its exact bacteriological diagnosis does not require more than twenty-four hours.

The icteroid bacillus is pathogenic for most of the domestic animals.

In mice, guinea pigs, and rabbits it reproduces a cyclic disease analogous to that observed in man, the duration being, in the case of the first, five days; in the second, from eight to twelve days, and, for the third, about five days. During the progress of the disease the microbes introduced by inoculation multiply sparingly in the interior of the organs. It is only twenty-four or forty-eight hours before death that they suddenly invade the circulation of the blood, killing the animal by septicæmia. The disease may be communicated through the respiratory system.

In dogs the icteroid bacillus produces anatomic and symptomatic features precisely analogous to those observed in man, viz: Hematuria, albuminuria gastroenteritis, nephritis, jaundice, deep fatty degeneration of the liver, uremic poisoning, and secondary infections.

In monkeys it produces a cyclic disease with complete steatosis of the liver, mixed infection, etc.

In goats and sheep it attacks the kidneys, causing albuminuria and uremic poisoning. It also produces acute specific degeneration of the hepatic cell and favors mixed infection. The virus of yellow fever possesses, therefore, three series of pathogenic properties, which in conjunction give it its peculiar character and entitle it to be considered specific.

1. Steatogenic properties, which manifest themselves with intensity, the greater when the animal ranks high in the zoological scale. They are least marked in the rabbit, and attain their maximum intensity in the dog, in monkeys, and in man. To the icterus, which generally manifests itself when the disease is somewhat advanced, are due in great part, but never entirely, the grave anatomic alterations of the liver, amounting to a genuine mechanical obstruction preventing the free passage of the bile and favoring its reabsorption by the lymphatic system.

2. Congestive and hæmorrhagic properties, which, although common to various other species of microbes, yet constitute a very salient characteristic, blood vomiting, hæmorrhage of the mucous membrane, and congestion of the vascular system being marked symptoms of yellow fever.

3. Emetic properties, which, although not strictly specific manifestations of yellow fever, like those last mentioned, develop with rapidity and intensity in man and the higher animals (dogs), and impress on this virus a pathogenic character.

THE ICTEROID TOXIN.

The scarcity of the icteroid bacillus in the human organism, and the violence of the symptoms which immediately manifest themselves in the dog after relatively small intravenous injection, would lead us to infer the existence of a very active specific microbe.

We will now examine this virus, which is obtained, like that of diphtheria, by simply filtering cultures of the bacillus grown in broth twenty to twenty-five days.

The virus of yellow fever will support with impunity a temperature of 70 degrees, but at the boiling point it becomes sensibly attenuated.

If, instead of filtered cultures, we take cultures sterilized with ether, the toxic power is found to be much greater. I studied the action of this virus on guinea pigs, rabbits, dogs, cats, goats, donkeys, horses, and men. It exhibited slight action and characteristics in animals which had shown themselves to be endowed with a very slight reactive power to the live virus. These were the small rodents in which death could be induced only by large doses of the virus. Small doses determined only, in general, a temporary emaciation. In the case of the dog, however, the toxin introduced intravenously produced the same symptoms and the same lesions as were described with the experiments made with virus. Immediately after injection the animal presented no particular symptoms, but ten or fifteen minutes later a general chill set in which lasted uninterruptedly and was followed by violent vomiting, at first of food and finally of mucus, until the animal had almost completely emptied the gastric cavity and lay collapsed in his cage.

In many cases premature hæmaturia was observed.

With a moderate dose the dog recovered promptly, as from an attack of poisoning produced from a vomitive agent. If, however, the dose was tolerably large, or repeated on successive days in gradually increased quantity, the dog succumbed, presenting the same anatomical lesions described as due to the action of living virus. These lesions consist of abundant hæmoglobinic exudations in the pleuras, of intense fatty degenerations of the liver, of acute parenchymatous nephritis, of albuminuria hæmaturia, and gastric hæmorrhages.

The bacteriological products are also very interesting, since they demonstrate the existence of mixed infections, due, according to the case to bacilli coli, streptococci or staphylococci.

The cat is very resistant to the action both of the virus and the icteroid toxin. Formidable doses of each may be administered without obtaining other results than a slight diminution of weight followed by slight inflammatory processes at the point of inoculation. This animal should, therefore, be considered the most resistant of all animals yet experimented on, and consequently of no present use in the experimental study of yellow fever.

Icteroid toxin presents in the goat exactly the same lesions with the exception of vomit, which I have described in dogs and men.

In the goat the tendency to hæmatolysis and the extreme sensibility of the kidney to yellow fever toxin are especially notable. The death of the animal is due in great part to the deep lesion of the viscera, while a notable quantity of urea found in the secretions of the organism is presumptive evidence of grave uremic poisoning.

I made only one experiment on a donkey. The same symptoms manifested them-

selves which have been already described, that is to say, inflammatory processes and degenerations of the liver, lesions of the mucous membrane, hæmorrhages of the parenchyma, and the serous cavities in the mucosa and the glandular system, and finally, uremic poisoning.

We now come to the action of the toxin on the horse. This animal is ordinarily sensitive even to injection of small quantities of toxin. It may be said, in general, that the higher the animal's position in the zoological scale the greater the sensibility to this virus. Subcutaneous injection even of small doses of filtered culture always causes strong local tumefaction followed by fever, which lasts from twelve to twenty-four hours. This tumefaction is painful and slow to disappear. When the quantity is much greater, or when, instead of filtered cultures, cultures sterilized with ether, which are much stronger, are used, the tumefaction is very great and is followed by widespread subcutaneous oedema, which extends from the lower part of the stomach to the limbs and for several days impedes the movements of the joints. Sanguineous ulcers, difficult to cure, are formed on the surface of the skin. The animal frequently manifests an almost continuous fever. Intravenous injection is borne much better, but still causes grave inconveniences. After each injection the animal shows a strong access of dyspnoea and is attacked by a general tremor, which obliges him to lie down on the ground. Fever ensues and the animal is prostrated for some time. On the following day, however, the temperature returns to the normal and no symptoms present themselves.

In the course of my experiments I lost several horses. One of these was a creole horse, which is much less resistant than the mixed breed to toxin in general, especially to diphtheria and yellow fever. Necropsy of this horse showed tumefaction of the spleen, nephritis, albuminuria, and some foci of enteritis.

I do not consider it necessary to dwell longer on these experiments, first, because the results were a reproduction more or less attenuated of the lesions studied with virus; secondly, because it appears to me better to demonstrate definitively the special functions of yellow fever toxin in direct experiment on the human race.

[To be continued.]

CANADA.

Smallpox in Montreal.

MONTREAL, July 16, 1897.

SIR: The present status of smallpox in this province is as follows:

Montreal City (population, 240,000).—Date of outbreak, July 2; cases since outbreak, 3; died, 1; still sick, 2; houses infected, 2; houses still infected, 1 (the civic hospital).

The new patient is a brother to one of the two previously reported to you on July 5.

Precautions taken.—Redisinfection of premises after removal of patient to civic hospital.

Yours, respectfully,

ELZÉAR PELLETIER,
Secretary Board of Health of the Province of Quebec.

CUBA.

Smallpox and yellow fever in Cuban seaports.

July 13: The United States consul at Cardenas reports that during the week ended July 10 there were in that city 3 cases of yellow fever and 1 death from smallpox.

July 12: The United States consul at Cienfuegos reports that during the week ended July 11 there were in that city 6 deaths from, and a few cases of yellow fever.

July 17: The United States sanitary inspector at Habana reports that during the week ended July 15 there were in that city 40 deaths from yellow fever and no deaths from smallpox.

July 12: The United States consul at Sagua la Grande reports that during the week ended July 10 there were in that city 40 new cases and 3 deaths reported from yellow fever, and 124 cases and 4 deaths from smallpox.

Sanitary reports from Habana.

HABANA, CUBA, July 17, 1897.

SIR: I have the honor to transmit the following report of this office for the week ended July 15, 1897:

It would appear by the mortality report that yellow fever is not increasing in Habana, but such is not the case. This disease is increasing among the Spanish soldiers, and the figures in my table do not represent the true state of affairs.

The mortality reports are obtained from the two cemeteries, the Colon and Baptist; there is no other way to obtain them.

Smallpox is decreasing. There are not over a dozen cases in the military hospitals, and about that number in the city proper. Since reporting the danger of infection to American vessels lying at Tallapiedra Wharf, two schooners have arrived. The masters, having been advised by me to discharge their cargoes in the open bay, have not taken their vessels to this foul place. * * * The weather is very warm, but the rainfall is said to be less than the average for this season of the year.

Mortality of the City of Habana for the week ended July 15, 1897.—Yellow fever, military hospitals, 39; city, 1; total, 40. Typhoid fever, 11; pernicious fever, 10; paludal fever, 2; borras fever, 1; smallpox, city, 1; total, 1. Enteritis, 12; dysentery, 9; glanders, 1; pneumonia, 6; tuberculosis, 29; deaths from all causes, 235.

Very respectfully,

W. F. BRUNNER,
Assistant Sanitary Inspector, U. S. M. H. S.

HABANA, CUBA, July 17, 1897.

SIR: The Spanish steamship *Barcelona* left here yesterday for Vera Cruz, Mexico, her destination after that port being New York. This vessel took a supplemental bill of health. I inspected the vessel, and after repeated efforts on my part to have crew muster, I found 1 man missing, who, when found in his stateroom, proved to be the third engineer, sick with a suspicious fever. He had been taken sick the day before, with symptoms of yellow fever; and while I am not sure of my diagnosis, the case appeared to me to be that disease. The attempt to conceal the man for nearly one hour only confirms my opinion. This vessel carries a physician. As this vessel did not go direct to the United States, and as it will be from ten to fourteen days before she can reach New York, I did not telegraph the circumstances to the Bureau.

Very respectfully,

W. F. BRUNNER,
Assistant Sanitary Inspector, U. S. M. H. S.

Sanitary precautions in Santiago.

SANTIAGO DE CUBA, July 1, 1897.

SIR: I am in receipt of your communication of the 19th instant, containing timely instructions concerning people being shipped to the United States from this island. I have shipped 1 woman and 4 children, whose husband and father were in New York; but hereafter I shall move

very cautiously in the line of shipments to the United States. Nineteenths of them will drift back here at the first opportunity, and I deem it better policy to feed them here for a time and let them stay. * * *

I wish the people of the United States could be made to understand and appreciate the great value of the immunity from pestilential diseases which we enjoy as a country, a blessing that a little carelessness on your part might easily dispel.

My consular district, this city in particular, is probably the worst pesthole in Cuba, while the large amount of American capital invested here makes shipments continuous. It is therefore with no little pride that through the firm support rendered by yourself I point to the fact that during my four years' stay here not a single case of yellow fever or other contagious disease has been transplanted to the United States from my district, nor even held up in quarantine. I have not left sanitary matters alone in Dr. Caminero's hands, but have taken an active interest in them myself.

The larger part of the cargoes in this port, except iron ore, are loaded and discharged by lighters in the bay. If the crews can, therefore, be prevented from coming on shore, they are comparatively safe, and I have warned all masters to keep their men on shipboard or I would note the fact on their bills of health. Iron ore is loaded from a company pier one mile before reaching the city, so by holding the crews under strict surveillance we have escaped.

A body of carpenters are constantly at work enlarging the military hospitals of this city, but as yet no storehouses have been used for hospital purposes.

Your obedient servant,

PULASKI F. HYATT,
United States Consul.

JAPAN.

Sanitary reports from Japan.

YOKOHAMA, *June 18, 1897.*

SIR: Availing myself of the mail by Vancouver, and referring to my letters of June 7 and 12, reporting 3 cases of plague among the passengers of Japanese steamship *Fukuoka Maru*, to Nagasaki from Formosa, I am pleased to inform you that since the 2 cases on the 11th instant there has been no further occurrence of the disease in any port of Japan proper.

I am, sir, very respectfully, your obedient servant,

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

YOKOHAMA, *June 19, 1897.*

SIR: I regret to be unable to forward my regular report by this mail, the necessary material having failed to reach me from my translator. I am, however, able to inform you that the epidemic of smallpox is everywhere, except, perhaps, in the kens of Niigata and Nagasaki, almost at an end. In Yokohama and its neighborhood during the past month there have been but 3 cases and 1 death, and for the last fortnight neither case nor death from variola.

Single cases of choleraic disease, to the number of 3 or 4 in all, have been returned since my last regular report of May 31 to June 8, but I am inclined to believe their truly choleraic nature doubtful.

Plague continues prevalent in Formosa, but at Nagasaki the infection introduced from that island by the *Fukuoka Maru* appears to have been controlled after the occurrence of 3 deaths among the passengers of that steamer while in quarantine. No case has occurred at Nagasaki since the 11th instant, and the ship has been released from quarantine, in my opinion, rather prematurely.

I am, sir, very respectfully, your obedient servant,
 STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

YOKOHAMA, *June 28, 1897.*

SIR: I have the honor to forward herewith my regular report of infectious diseases in Japan for period June 9 to June 27, inclusive. In so doing I beg to remark that the cholera cases returned are not beyond doubt of their genuine nature. So far as I have been able to learn, the cases in Tokyo, though bacteriologically examined, must be considered as questionable, while the two reported in this ken (Kanagawa) were not microscopically verified. Nevertheless, there is not only a possibility, but a probability, of the speedy appearance of undoubted cholera to a greater or less extent. for this disease must, of late years, be reckoned as of almost yearly occurrence.

The Japanese authorities have been fortunate enough to stamp out the plague imported from Formosa to Nagasaki on the 4th of this month, as specially reported to you by me under date June 7 and 12, after the occurrence of but 3 cases in all, limited to the passengers of the infected steamer.

As has been the case for some years, the onset of warm weather is accompanied by the appearance of the epidemic dysentery which now plays so important a part in the mortality statistics of the Empire, and of which the sanitary officers appear to have little or no control.

I am, sir, very respectfully, your obedient servant,
 STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

[Inclosure.]

Report of infectious disease in Japan, June 9 to June 27, 1897.

Locality.	Cholera.		Dysentery.		Smallpox.		Plague.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Kioto Fu.....			3	1	8	3		
Osaka Fu.....			8	1	31	16		
Tokyo Fu.....	4	3	14					
Aichi Ken.....			7	2	8	1		
Akita Ken.....					2			
Awomori Ken.....			6		6	1		
Chiba Ken.....			5	2	13	5		
Fukui Ken.....					3			
Fukuoka Ken.....	1	1	10	3	7	4		
Fukushima Ken.....					23	7		
Gifu Ken.....			12	2				
Gumma Ken.....			1					
Hiogo Ken.....	1	1	2	1	23	7		
Kagoshima Ken.....			47	6	38	13		
Kanagawa Ken (Yokohama).....	2	1	4	1	1			
Kochi Ken.....			6	2	3	1		
Kumamoto Ken.....			11	1	8			
Miyagi Ken.....			4	1	22	6		
Miyazaki Ken.....			4		12	6		
Miye Ken.....					59	18		
Nagano Ken.....			6		3			
Nagasaki Ken.....	2		2		189	50	3	3
Niigata Ken.....			1		107	18		
Oita Ken.....			1	1	27	9		
Oyama Ken.....					1	1		
Okinawa Ken.....					4	1		
Saga Ken.....					4	2		
Saitama Ken.....					3			
Shidzuoka Ken.....			30	6	13	3		
Shiga Ken.....					3			
Shimane Ken.....			3					
Tochigi Ken.....			1		1			
Tokushima Ken.....	1	1	2	1	41	16		
Tottori Ken.....			3		8	3		
Toyama Ken.....					23	14		
Yamagata Ken.....					1	1		
Yamaguchi Ken.....			3		7	2		
Yamanashi Ken.....			4	1	24	4		
Yehime Ken.....	2	2	3	1	3	1		
The Hokkaido.....					52	10		
Taiwan (Formosa).....							91	(*)
Totals.....	13	9	203	33	781	223	94	3

* No report.

PERU.

Yellow fever on vessels en route from Panama to Callao.

DEPARTMENT OF STATE,
Washington, July 14, 1897.

SIR: I inclose herewith for your information a copy of a dispatch from our chargé d'affaires at Lima, Peru, reporting the existence of yellow fever at Callao.

Respectfully, yours,

WILLIAM R. DAY,
Assistant Secretary.

[Inclosure.]

UNITED STATES LEGATION,
Lima, Peru, June 18, 1897.

SIR: I hasten to inform you, this day, by telegram, of the increased cases of yellow fever and deaths occurring on board of the various steamers en route from Panama to

the port of Callao. Out of 11 American miners who left California recently, only 6 reached Callao. I telegraphed to you as follows :

“LIMA, June 18, 1897.—SHERMAN, Washington: Arrivals from Panama subject to quarantine five to ten days. Yellow fever.—NEILL.”

I have the honor to be, etc.,

RICHARD R. NEILL,
United States Chargé d'Affaires.

Hon. SECRETARY OF STATE, *Washington, D. C.*

Two deaths from yellow fever on steamship Santiago at Callao.

CALLAO, PERU, *June 28, 1897.*

SIR: Two of the deck passengers of the steamship *Santiago*, which arrived here on the 8th instant from Panama, died from yellow fever, one on the 10th and the other on the 17th instant, in this harbor on board the P. S. U. Co.'s hulk *Ayacucho*, and were buried on the San Lorenzo Island. The remainder of the passengers arriving by the same vessel were put on board of the Peruvian training hulk *Peru*, and were released after ten days' quarantine. The steamship *Santiago* was strictly quarantined.

Respectfully, yours,

W. S. MCBRIDE,
United States Vice-Consul.

UNITED STATES OF COLOMBIA.

Yellow fever at Panama and Colon.

CONSULATE-GENERAL OF THE UNITED STATES OF AMERICA,
Panama, July 12, 1897.

SIR: On the 28th ultimo there were received from you two letters of June 9 and 10. Consul-General Victor Vifquain will answer these in person, having left the Isthmus on the 5th instant to be in Washington about the 15th.

On the 7th instant I received the following cable :

“WASHINGTON, *July 6, 1897.*

“UNITED STATES CONSUL-GENERAL,
Panama, Colombia.

“If medical assistance needed to enforce quarantine regulations nominate physician, \$100 per month, same at Colon. If necessary can send physicians, if none available wire reply, giving estimated number yellow fever cases.

“WYMAN, *Surgeon-General.*”

After careful consideration and inquiry, knowing that the number of cases were apparently decreasing, that the Panama Railroad and Steamship Company and Pacific Mail Steamship Company forbid their crews going ashore, the former in Colon and the latter in Panama, and also that the former company requires all passengers intending to embark on their trimonthly steamers for New York, to obtain a health certificate from their physician, I decided to cable thus :

“PANAMA, *July 7, 1897.*—WYMAN, Surgeon-General, Washington: Yellow fever decreasing, 10 cases, writing.—VIFQUAIN.”

Thinking that a history of the situation might be of interest to you, please pardon me should the following report seem lengthy.

The first cases of yellow fever appeared in Panama in the first days of April, continually increasing throughout that month and through May. During the month of June the disease seemed at a standstill, and it is now considered to be decreasing.

The disease is not contagious to the native Panamanian. However,

deaths have occurred here of persons coming from the mountains, not one hundred miles distant. With new arrivals from abroad the disease is generally fatal. A few foreigners of five and six years residence here have had mild cases, but these without exception recover. The natives too are subject to an unusually large amount of fever this year, but these cases are generally malarial, bilious, and pernicious fevers. I am advised confidentially (it being the custom of the country to cover up the cases as much as possible) by members of the medical board, that if 100 Americans, or other foreigners were brought to Panama and remained in the city for two weeks, that at least two-thirds would be subject to the disease.

Heavy rains have been looked for for the last two months, but the season remains unusually dry. Rains, with the consequent flushing of the streets and sewers of the city, which are of rude structure and date back to the Spaniards, and are often blocked up, causing bad odors throughout the streets, when they appear in genuine tropical style may be expected to mark the temporary disappearance of yellow fever in Panama.

About two months ago a contract was signed with a Belgian company for constructing waterworks in this city. Work on the pipes and sewers is expected to begin next year. It may be expected that yellow fever will appear then in this city as never before known, surpassing even the canal days.

La Boca (the Pacific mouth of the Panama Canal), 2 miles from here, where 2,000 laborers are now working on the canal, and where an immense pier is almost completed, which is expected will receive all the 20 ships visiting Panama monthly, commencing about the first of next July, is considered the most sickly place on this isthmus. The ships now anchor 3 miles from this city, but when these ships come into this pier there will certainly appear much sickness among the ship's crews.

Your cable reads, "If medical assistance needed, nominate physician," etc. Yellow fever being considered contagious in this city, and the regulations requiring that vessels leaving for the United States be inspected and disinfected, to secure a strict compliance with the law, it is certainly required that a medical officer be appointed to perform this service, and furnished with the necessary apparatus for the various processes of disinfecting. Should, however, the matter not be considered of sufficient importance, there being but few actual cases at the present time, this consulate-general can continue to issue bills of health as heretofore without this inspection. As you are aware, steamers leave here trimonthly for San Francisco, fifteen and twenty days en route, thus giving ample time for the development of cases before the ships arrive at a port of the United States.

As regards Colon, but few cases have occurred in that town, most of them originating here; but as steamers leave that port trimonthly for New York, direct, arriving within seven days, it is possibly of more importance to your Service than Panama. Cases might develop after disembarking in New York. However, the railroad company are taking precautions, and will not permit any suspicious cases boarding their ships. Should your Service decide to attach medical officers to this consulate-general and the Colon consulate, I might say that it would be well to have one at each place, as steamers might be leaving each port on the same day. There is excellent material both in this city and in Colon from which a selection could be made at the salary you state.

As fever is likely to be stamped out completely on this isthmus within

two or three months, but very likely to appear again next year, I would hardly suggest at the present time the appointment of physicians, unless the very strict compliance with the Quarantine Laws and Regulations is required. Should it be stamped out as anticipated, but to appear next year again, it might be well to be ready for it at the beginning of the season. * * *

Trusting that the information given may be ample and satisfactory, I am, sir,

Your obedient servant,

C. J. VIFQUAIN,
Vice Consul-General.

Hon. WALTER WYMAN,
Surgeon-General, U. S. M. H. S., Washington, D. C.

NOTE.—United States sanitary inspectors have been appointed at both Panama and Colon to assist the consul-general in enforcing the quarantine regulations.

STATISTICAL REPORTS.

BERMUDA.—Two weeks ended July 7, 1897. Estimated population, 15,013. No deaths.

CHILE—*Antofagasta*.—Month of May, 1897. Estimated population, 13,456. Total deaths, 46, including phthisis pulmonalis, 10; enteric fever, 2, and diphtheria, 1.

CUBA—*Manzanillo*.—Two weeks ended June 30, 1897. Estimated population, 17,000. Total deaths, 109, including typhus fever, 4, and enteric fever, 16.

FRANCE—*Nantes*.—Month of June, 1897. Estimated population, 125,757. Total deaths, 200, including enteric fever, 1, and whooping cough, 2.

GREAT BRITAIN—*England and Wales*.—The deaths registered in 33 great towns in England and Wales during the week ended July 3 correspond to an annual rate of 14.7 a thousand of the aggregate population, which is estimated at 10,992,524. The highest rate was recorded in Preston, viz, 25.4, and the lowest in Croydon, viz, 10.3 a thousand.

London.—One thousand one hundred and fifty-six deaths were registered during the week, including measles, 25; scarlet fever, 11; diphtheria, 32; whooping cough, 22; enteric fever, 5, and diarrhea and dysentery, 34. The deaths from all causes correspond to an annual rate of 13.5 a thousand. In greater London, 1,521 deaths were registered, corresponding to an annual rate of 12.6 a thousand of the population. In the "outer ring" the deaths included 5 from diphtheria, 9 from measles, 6 from scarlet fever, and 6 from whooping cough.

Ireland.—The average annual death rate represented by the deaths registered during the week ended July 3 in the 23 principal town districts of Ireland was 19.4 a thousand of the population. The lowest rate was recorded in Dundalk, viz, 0.0, and the highest in Portadown, viz, 55.7 a thousand. In Dublin and suburbs 136 deaths were regis-

tered, including scarlet fever, 2; whooping cough, 1; diphtheria, 4, and measles, 2.

Scotland.—The deaths registered in 8 principal towns during the week ended July 3 correspond to an annual rate of 18.7 a thousand of the population, which is estimated at 1,549,907. The lowest mortality was recorded in Aberdeen, viz, 11.3, and the highest in Leith, viz, 33.2 a thousand. The aggregate number of deaths registered from all causes was 557, including measles, 16; scarlet fever, 5; diphtheria, 2, and whooping cough, 21.

HONDURAS (BRITISH).—Month of May, 1897. Estimated population, 30,000. Total deaths, 72, including phthisis pulmonalis, 2, and enteric fever, 1.

JAMAICA—*Kingston.*—Month of June, 1897. Estimated population, 34,314. Total deaths, 126, including phthisis pulmonalis, 12, and enteric fever, 3.

UNITED STATES OF COLOMBIA—*Panama.*—Ten days ended July 3, 1897. Estimated population, 30,000. Total deaths not reported. Twelve cases and 7 deaths from yellow fever.

ST. HELENA.—Four weeks ended June 12, 1897. Estimated population, 3,600. Total deaths, 4. No deaths from contagious diseases.

MORTALITY TABLE, FOREIGN CITIES.

Cities.	Week ended.	Estimated popula- tion.	Total deaths from all causes.	Deaths from—									
				Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.	
Aix la Chapelle.....	June 26.....	112,825	37										
Amherstburg.....	July 10.....	2,300	0										
Amsterdam.....	July 3.....	496,511	136										
Belfast.....	June 19.....	281,431	109										
Do.....	June 26.....	281,431	109					6	1		2	1	1
Belize.....	July 9.....	13,000	1										
Belleville.....	July 14.....	10,399	3										
Bergen.....	June 23.....	57,800	11										
Birmingham.....	July 3.....	505,772	165					1	2	1	15	4	
Bluefields.....	do.....	3,000	0										
Bombay.....	June 15.....	821,764	*531	6		3		1				7	
Do.....	June 22.....	821,764	†501	6		2		2				7	
Bradford.....	July 3.....	221,610	55										3
Bremen.....	June 19.....	142,500	41										
Bristol.....	July 3.....	232,242	60										
Brussels.....	June 26.....	507,985	162					3		1			
Budapest.....	July 2.....	640,000					1		1		3	1	4
Calcutta.....	June 5.....	681,560	331	29		2							4
Callao.....	June 13.....	16,000	27										
Cardenas.....	July 10.....	23,517	36					2	9				
Cardiff.....	July 3.....	170,063	45										
Catania.....	June 29.....	120,000	53				1			1	1		
Christiania.....	July 3.....	192,141	76							1			3
Cienfuegos.....	July 11.....	24,030	46		6		3	3					
Cognac.....	June 26.....	21,000	1										
Do.....	July 3.....	21,000	8										
Cologne.....	June 26.....	334,970	160								1		2
Colombo.....	June 5.....	130,000	75					1					
Copenhagen.....	June 26.....	334,714	95					2					
Crefeld.....	July 3.....	108,500	32							2	3		
Dresden.....	June 26.....	351,800	124							1	1		1
Dublin.....	July 3.....	350,000	136				1			2	4	2	1
Dundee.....	do.....	163,090	54										2
Dusseldorf.....	June 26.....	183,759	65							1	1		1
Edinburgh.....	July 3.....	292,364	90					2	3		4		1
Flushing.....	do.....	17,193	1										
Frankfort on the Main.....	do.....	228,000	92										
Ghent.....	June 26.....	159,218	59										
Gibraltar.....	June 27.....	25,900	13							2	1		
Girgenti.....	June 26.....	24,428	12										
Glasgow.....	July 3.....	714,919	261					9	2	3	10		
Gothenburg.....	June 26.....	115,896	26										
Guayaquil.....	do.....	50,000	81										
Halifax.....	July 10.....	38,700	13										
Hamburg.....	July 3.....	641,780	191					1		2			
Hongkong.....	May 29.....	232,662	(†)			2							
Do.....	June 5.....	232,662	(‡)			1		1					
Do.....	June 12.....	232,662											
Honolulu.....	June 19.....	30,000	12							1			
Do.....	June 26.....	30,000	10					1					
Kingston, Canada.....	July 16.....	18,040	7										
Konigsburg.....	June 26.....	171,700							1				
Leeds.....	July 3.....	402,449	91					1		1	2	1	
Licata.....	June 26.....	20,000	6				1	1					
Leith.....	July 3.....	75,186	48								8	5	
Liege.....	do.....	166,110	34										
Liverpool.....	do.....	644,129	246				1	1	3	2	6	9	
Livingston.....	June 26.....	2,000	1										
Do.....	July 3.....	2,000	0										
London, Canada.....	July 10.....	34,855	6					1					
Lyon.....	June 5.....	466,767	176					1		3			2
Madras.....	June 4.....	452,518	291			4					8		
Do.....	June 11.....	452,518	274			1					8		
Madrid.....	June 30.....	482,816	330		2	3	9		1	1	3		
Manaos.....	June 19.....	40,000				8							
Do.....	June 25.....	40,000				4							
Manchester.....	July 3.....	536,426	192						7		24	5	
Mannheim.....	June 5.....	101,500	44								1		
Maracaibo.....	July 3.....	50,000	27								9		
Matamoros.....	July 9.....	12,000	3										
Matanzas.....	June 30.....	62,000	72		8	1		6				6	
Do.....	July 7.....	62,000	68		4	1		4				6	

* Twenty-six deaths from plague.

† Two deaths from plague.

‡ Nineteen deaths from plague.

§ One death from plague.

MORTALITY TABLE, FOREIGN CITIES—Continued.

Cities.	Week ended.	Estimated popula- tion.	Total deaths from all causes.	Deaths from—									
				Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.	
Mayence	July 3.....	74, 917	38						1				
Messina	do.....	107, 000	14					2					
Monte Cristi.....	do.....	1, 200	0										
Munich.....	June 26.....	418, 000	217						1	7	6		3
Nuremberg.....	June 19.....	173, 817	71										
Odessa.....	June 26.....	404, 000	163					2	1				
Osaka and Hiogo.....	June 12.....	182, 730	108							1			
Do.....	June 19.....	182, 730	113					1					
Palermo.....	June 26.....	273, 000	114										
Para.....	do.....	150, 000	39		4								
Do.....	July 3.....	150, 000	41		3								
Paris.....	do.....	2, 511, 955	798					3	3	8	19		5
Plymouth.....	June 26.....	97, 340	31					1		1			
Do.....	July 3.....	97, 340	41										
Prague.....	June 26.....	193, 097	134					3	1	2	1		3
Puerto Cortez.....	July 7.....	2, 000	0										
Quebec.....	July 10.....	70, 000								1			
Rotterdam.....	July 3.....	288, 863	90										
Sagua la Grande.....	July 10.....	17, 536	55		3	4							
St. Petersburg.....	June 26.....	1, 267, 023	619			1		25	5	60	39		
St. Stephens.....	July 10.....	3, 000	1										
San Juan del Norte.....	June 3.....	1, 156	1										
Schiedam.....	July 3.....	26, 627	8										
Sheffield.....	do.....	354, 250	100						1			8	4
Southampton.....	do.....	98, 000	32									1	2
Stettin.....	June 26.....	150, 000	73										
Stockholm.....	do.....	274, 611	97										
Stuttgart.....	July 1.....	158, 373	54						1				
Sunderland.....	July 3.....	142, 107	48							1	1		1
Tegucigalpa.....	June 19.....	12, 000	5										
Do.....	June 26.....	12, 000	4										
Trapani.....	do.....	43, 095	11										
Trieste.....	do.....	158, 314	75						1	1			
Tuxpan.....	June 19.....	10, 280	8										
Do.....	June 26.....	10, 280	6										
Venice.....	June 19.....	165, 223	55							1			
Do.....	June 26.....	165, 223	47					1					
Warsaw.....	do.....	601, 408	221		4	1			2	5	3		
Yarmouth.....	July 11.....	6, 500	0										
Zürich.....	June 26.....	155, 000	47			1							

By authority of the Secretary of the Treasury :

WALTER WYMAN,
Supervising Surgeon-General U. S. Marine-Hospital Service.