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UNITED STATES.

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

The yellow fever bacillus of Sanarelli and Havelburg.

No. 123a POTTSDAMER STRASSE,
Berlin, Germany, July 11, 1897.

SIR: I have the honor to transmit herewith, for your consideration, Annales de l'Institut Pasteur, Vol. XI, No. 6, June 25, 1897, which has particular interest at this time as containing the article of Dr. Sanarelli, of Montevideo, on yellow fever, and a résumé of the article of Dr. Havelburg, of Rio de Janeiro, on the same subject. With the publication of these articles they become the common property of the scientific world, and it is the privilege of anyone to criticise or lend adherence to their doctrines as may to him seem justified by experience and observation. Therefore, I would simply invite your attention to the fact that there is in this particular publication presented the strange coincidence of two earnest workers, laboring independently and at some distance from each other upon the same disease, and in each case claiming in no uncertain terms to have discovered the specific organism of a malady which always has had, and probably will so long as time lasts ever have, a vast interest for the people and the Public-Health Service of the United States. Not only have the claims been made, but each claimant has submitted with his brief a specimen, presumably authentic, of his so-called specific microbe.

A very brief and cursory examination of the two papers will show that Drs. Havelburg and Sanarelli have worked with and have described two totally different microbes—organisms which I can testify, from personal observation, can not by any possibility be confounded or reconciled with each other. I think that therefore it may be considered as having almost the value of an axiom, that if one is right the other is certainly wrong, and it remains for us to judge for ourselves which of the

two bacilli in question shall enjoy the claim of being the cause beyond peradventure of the disease which. above all others perhaps, has for more than a hundred years occupied the thought and time of some of the brightest minds of two continents, and which was a subject of controversy long before the bacterial origin of disease was admitted, and during a period when the germ origin of disease was a theory, and a theory capable of no scientific demonstration.

It is now several years ago that Koch formulated the essentials which must be filled by a microorganism before it could be considered as the specific cause of any given disease, and they are so succinct, so simple, and yet so crucial, that they have not been called into question to this day. In part, they are (*a*) that the organism must always be found in the blood, organs, or tissues of men and animals sick with or recently dead of a given disease; (*b*) that isolated and in pure culture it must be capable, when introduced into the economy of men and animals, of reproducing the disease. For our purposes these are the essentials of his four postulates.

Do the organisms under consideration fill these simple and yet crucial conditions? Let us take first the organism vaunted by Dr. Havelburg. He claims that by injecting, subcutaneously or intraperitoneally, some of the stomach contents of a patient suffering with, or dead from, yellow fever, into a guinea pig that the animal will inevitably succumb, and that consequently it has succumbed to yellow fever. Admitting, for the sake of argument, that this is invariably true, does it necessarily follow that a so-called yellow fever germ has produced that disease, and that death is due to this cause alone? I think not. In experiments of this kind we must not lose sight of the fact that in the normal intestinal canal there are organisms which, while apparently purely saprophytic, can, under certain conditions not as yet fully understood, become highly pathogenic. Chief among these organisms must be mentioned a bacillus, or rather a group of bacilli, formely considered purely saprophytic, but to which of late a high degree of pathogenic power has been attributed. I refer to the "*bacterium coli commune*" or to the group of organisms of which this is the type. Under certain conditions this apparently normal and inoffensive denizen of the intestinal canal may become highly pathogenic, and induce either suppuration or more generally intoxications by the production and liberation of toxines.

The characteristics of the colon bacillus are, in brief, a rod-shaped bacillus, with a tendency to assume filamentous forms, or in young cultures a species of elongated oval coccus; growing well in all ordinary culture media; coagulating milk; producing fermentation in bouillon containing lactose, with an evolution of carbon dioxide; rendering alkaline culture media acid, as evidenced by the change in color of litmus; the production of indol; lastly the production, in animals submitted to experimental inoculation, of peritonitis, pleurisy, pericarditis, hepatitis, with a special tendency to the retention of the biliary secretions, renal engorgements, and finally uræmia.

Compare these characteristics with the claims of the organism of Havelburg, and when to all of these are added an appearance of growth upon gelatine, agar-agar, potato, and in bouillon very characteristic of the colon bacillus, I think it must be admitted that Havelburg has simply added another one to the list of investigators who have fallen victims to the deceptive appearances of this omnipresent colon bacillus.

Again, is it true that the inoculation of the stomach contents of a yellow fever patient into a guinea pig will always cause illness or death

to the animal? The experiments of Sternberg and others would show that the inoculation and ingestion of large or small quantities of yellow fever stomach and intestinal contents into dogs, rabbits, guinea pigs, and other domestic animals, while sometimes followed by death, is usually attended by purely negative results.

Taking all these facts into consideration, therefore, I have no hesitation in reporting to you that the case of Dr. Havelburg is, to say the least, not proved, and that so far as he is concerned, *the specific microbe of yellow fever is not yet discovered.* The consideration of the organism of Dr. Sanarelli presents more difficulties, and can not be dismissed from our report as coming under the head of an error in interpretation of results. Here we have an organism with which we are up to this time unfamiliar; an organism certainly pathogenic, and in the majority of cases producing death when injected subcutaneously or intraperitoneally into guinea pigs. Consideration of the article of Dr. Sanarelli will show that he has formulated a theory of the infection of yellow fever which is at once new and in some respects startling to those familiar with the disease. Certainly it admits of no argument that the chief pathological changes in yellow fever are found in the stomach and upper portion of the small intestine, the liver and the kidneys; that death comes in one of three ways, either by a profound intoxication early in the malady, by the exhaustion to which the hemorrhages certainly contribute, or lastly by uræmia, due to the suppression of the urinary secretion, owing to the degenerative changes which exist in the kidneys. Therefore it is startling to be informed that the infection of the disease probably enters through the respiratory tract, that the organism is elaborated in the blood, that the well-known pathological changes are due to toxine poisoning, and that death is, in many cases, owing to a secondary infection from the colon and other bacilli normally resident in the stomach and intestinal canal. This is hard to believe, nor is it easier to accept the theory that yellow fever is a cyclical disease when we are told in his preliminary remarks on symptomatology that death may occur on from the second to the eighth day. Certainly the cycle is not well marked, for not only is there thus a very wide variation in the time of death, but when the virulence of the organism is increased by special methods of culture the time of death of the animal inoculated is vastly hastened, and again the question occurs, where is the cyclical characteristic?

Further, Dr. Sanarelli informs us that he has not found his bacillus in every one of the very small number of cases which he has examined, in fact it was wanting in very nearly 50 per cent of these cases, and while for this failure he gives us a sufficiently specious reason, still he has failed to fulfill the first postulate, viz, that the organism must be constantly found in the blood, organs, or tissues of men or animals sick with or recently dead of the disease. Has he succeeded any better in the second one, that the organism injected in pure culture into susceptible animals must invariably produce the disease in question? Unfortunately, it may be objected that the action of a given organism upon a guinea pig is not a sure index of its action upon the human economy. Nevertheless it is the best resource at our disposition and I am compelled to say, that after witnessing several necropsies of animals killed by the bacillus of Sanarelli, that I could find nothing in the microscopical appearances of the organs, especially of the liver, which was suggestive to me of yellow fever. I can only suggest that it will require extensive investigation of a very large number of cases of the disease,

the much more constant finding of the bacillus in question, and its trial on animals more closely allied to man, before the claims set forth can be accepted. Dr. Sanarelli promises further contributions on the subject. Indeed, I am informed that the manuscript of a second memoir had been received by the editors of the Annales de l'Institut Pasteur just prior to my departure from that institution. Possibly, therefore, it will be fairer to suspend judgment until his complete work on the subject has appeared, but it has been suggested that a fair plan would be to investigate the formation of toxines by the organism of Sanarelli, to endeavor with these toxines to immunize an animal, and then to ascertain if there is a corresponding production of antitoxines, to be evidenced by protection afforded to animals, both against the toxines and the culture itself. This would seem to me to be the most feasible plan, and I hope, in the interest of science, that it will be faithfully carried out.

Through the kindness of Professor Roux I am in possession of cultures of the organisms of both Havelburg and Sanarelli, and for much of the information herein contained I am indebted to Professor Novy, of Ann Arbor, Mich., who was investigating the questions at the Institut Pasteur.

Very respectfully, yours, H. D. GEDDINGS,
Passed Assistant Surgeon, U. S. M. H. S.

Yellow fever reported in Martinique and Puerto Rico.

DELAWARE BREAKWATER QUARANTINE STATION,
via Lewes, Del., July 23, 1897.

SIR: I have the honor to inform you that the master of the American schooner *Lelia Smith* states that yellow fever is prevailing on the Island of Martinique, and that yellow fever and smallpox exist in Puerto Rico. The *Lelia Smith* is just from St. Johns, Antigua, having previously come from New York to Guadeloupe. The master states that Guadeloupe has quarantined against Martinique, and while he was at Guadeloupe a vessel (French) arrived from Martinique, and was put in quarantine; that it was reported that 1 man died from yellow fever while the vessel was in quarantine, on or about June 20, 1897. He states that Antigua and Gaudeloupe are clean, and no contagious diseases are there. He brings clean bills of health. The public health reports of July 16 make no mention of any yellow fever, either at Martinique or Puerto Rico, and recent arrivals at this station from St. Pierre, Martinique, have all brought clean bills of health, viz: Italian bark *St. Anna*, arrived July 12, seventeen days on voyage, and Italian bark *Maria*, arrived July 15, thirteen days on voyage. The statements of the master of the *Lelia Smith* were corroborated by the steward. In view of the absence of any other information to the contrary, it might be well to investigate these statements.

Respectfully, yours, C. P. WERTENBAKER,
Passed Assistant Surgeon, U. S. M. H. S.

Plague on the British ship Annie Maud.

NATIONAL QUARANTINE STATION,
Angel Island, Cal., July 16, 1897.

SIR: I have the honor to report the British ship *Annie Maud*, one hundred and forty-three days from Calcutta, was placed in quarantine to-day for disinfection. A short while after leaving Calcutta one of the

crew was taken sick with swellings in the axilla, groin, and elbow, and died. Two more of the crew suffered with buboes, of which they recovered.

Very respectfully,

M. J. ROSENAU,
Passed Assistant Surgeon, U. S. M. H. S.

Smallpox on American steamer China.

[Telegram.]

SAN FRANCISCO QUARANTINE, *July 25, 1897.*

Three hundred and two Chinese and Japanese from steamer *China* quarantined fourteen days on account of smallpox.

ROSENAU,
Passed Assistant Surgeon, U. S. M. H. S.

Yellow fever on the Norwegian bark Rosenius.

BRUNSWICK QUARANTINE, GA., *July 26, 1897.*

SIR: The Norwegian bark *Rosenius*, thirty-two days from Bahia, crew of 11, arrived at this station at 6.30 p. m. yesterday. Captain died in Bahia of yellow fever. Three of the crew had yellow fever while in port of Bahia. I have remanded this vessel to South Atlantic Station for disinfection.

Respectfully, yours,

R. E. L. BURFORD,
Sanitary Inspector, U. S. M. H. S.

Yellow fever on the Norwegian steamship Nor.

[Telegram.]

CAPE CHARLES QUARANTINE, VA., *July 29, 1897.*

Norwegian steamer *Nor*, seven days from Kingston, Jamaica. Bill of health shows 2 cases of yellow fever there. Case of suspected yellow fever aboard. Will send to Fisherman's Island.

PETTUS,
Passed 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 30, 1897.

Places.	Date.	Cases.	Deaths.	Remarks.
Alabama:				
Birmingham	May 8	1		
Mobile	Dec. 28-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		

Smallpox in the United States as reported to the Supervising Surgeon-General United States Marine-Hospital Service, December 29, 1896, to July 30, 1897—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
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 24	2	1	
New York	Mar. 1-Mar. 31		2	Do.
	Apr. 17-May 15		10	
	June 13-June 19		3	
	July 4-July 24		3	
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 24, 1897.

OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
Port of Boston, July 24, 1897.

Number of alien immigrants who arrived at this port during the week ended July 24, 1897; also names of vessels and ports from which they arrived.

Date.	Vessel.	Where from.	No. of immigrants.
July 18	Steamship Yarmouth	Yarmouth, Nova Scotia	64
Do	Steamship Scythia	Liverpool, England, and Queenstown, Ireland.	133
July 19	Steamship Belvidere	Port Morant, Jamaica	4
Do	Steamship Halifax	Halifax, Nova Scotia	72
Do	Schooner Race Horse	Weymouth, Nova Scotia	1
Do	Schooner Diamond	Paspebiac, Nova Scotia	1
Do	Steamship Cestrian	Liverpool, England	5
July 20	Steamship Dalmatia	Hamburg, Germany	1
Do	Steamship Kansas	Liverpool, England	1
Do	Schooner F. Roessner	Hillsboro, New Brunswick	1
July 21	Schooner B. B. Hardwick	Clementsport, Nova Scotia	1
Do	Steamship Boston	Yarmouth, Nova Scotia	36
Do	Steamship Olivette	Halifax, Nova Scotia	19
July 22	Steamship Yarmouth	Yarmouth, Nova Scotia	36
Do	Schooner Howard	St. Marys Bay, Nova Scotia	1
Do	Steamship Pro Patria	St. Pierre, Miquelon	8
July 24	Steamship Boston	Yarmouth, Nova Scotia	27
Do	Steamship Olivette	Halifax, Nova Scotia	29
	Total		440

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

Report of immigration at New York for the week ended July 24, 1897.

OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
Port of New York, July 26, 1897.

Number of alien immigrants who arrived at this port during the week ended July 24, 1897; also names of vessels and ports from which they arrived.

Date.	Vessel.	Where from.	No. of immigrants.
July 18	Steamship La Gascogne	Havre	234
July 19	Steamship Burgundia	Marseilles and Naples	171
Do	Steamship Aurania	Liverpool and Queenstown	131
Do	Steamship Spaarndam	Rotterdam	196
July 20	Steamship Circassia	Glasgow	32
Do	Steamship Mongolian	do	13
July 21	Steamship Noordland	Antwerp	115
Do	Steamship Hesperia	Naples, etc	327
July 22	Steamship Ambria	Stettin	66
Do	Steamship Lahn	Bremen	82
Do	Steamship Koenigin Luise	do	220
Do	Steamship Kaiser Wilhelm II	Genoa, Gibraltar, etc	264
Do	Steamship Phœnicia	Hamburg	201
July 23	Steamship Normannia	do	119
Do	Steamship Britannic	Liverpool and Queenstown	147
July 24	Steamship Paris	Southampton	110
Do	Steamship Umbria	Liverpool and Queenstown	169
	Total		2,597

Dr. J. H. SENNER,
U. S. Commissioner of Immigration.

Report of immigration at Philadelphia for the week ended July 24, 1897.

OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
Port of Philadelphia, July 24, 1897.

Number of alien immigrants who arrived at this port during the week ended July 24, 1897; also names of vessels and ports from which they arrived.

Date.	Vessel.	Where from.	No. of immigrants.
July 18	Steamship Rhynland	Liverpool and Queenstown	118
July 21	Steamship Nederland	Antwerp	85
	Total		203

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

Work at the San Francisco Quarantine Station.

NATIONAL QUARANTINE STATION,
Angel Island, Cal., July 15, 1897.

SIR: I have the honor to report rather lively quarantine operations during the past few days. Four passenger steamers arriving on the same day needed attention, and four groups of passengers had to be treated in quarantine and kept separate.

The *City of Pueblo* brought 14 Japanese steerage passengers from Japan, via Victoria. They were bathed and their baggage and body clothing disinfected, and returned to the city the same day.

The *City of Sydney* arrived here with the record of having disembarked a steerage passenger with yellow fever at Panama. The vessel was disinfected throughout, and the crew and steerage passengers, with all their baggage, transferred to the island, passed through the usual process, and then released. All the bedding on the ship was steamed.

The *San Juan*, from San José de Guatemala, then arrived with the the body of a steerage passenger, who died the night before. The necropsy disclosed dark fluid blood in a pale heart. Blood tinged serous exudate into the peritoneal, pericardial, and pleuritic cavities. The stomach showed ecchymotic spots and contained bloody fluid contents. The liver was mottled and of a pale slate color. Spleen very large, soft, and pulpy, dark chocolate color. The kidneys to the naked eye indicated beginning parenchymatous change, and the bladder contained albuminous urine. Specimens held for microscopical examination.

All on board the *San Juan* were transferred to the island, bathed, and their clothing and baggage disinfected; all the bedding, linen, carpets, mattresses, hangings, etc., in the ship were steamed; the holds were filled with sulphur gas; the forecastle, decks, steerage, and petty officers' room flushed with bichloride solution from the hose; the salon and cabins were wiped over with the same solution, and the captain's room, chart room, the surgery and purser's room were disinfected with formaldehyde lamps. After the completion of the process, the company placed a new crew on board and the steamer was taken to the dock. All on board, including the pilot and customs officers, are now at the station and will be held five days from the completion of disinfection.

The steamer *Doric* arrived the same evening from China and Japan with 149 Chinese and Japanese from the Orient. They have also been passed through the usual process, and have been returned to the city.

Very respectfully,

M. J. ROSENAU,
Passed Assistant Surgeon, U. S. M. H. S.

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 24								2
Brunswick, Ga	July 17	Sw. bk. Julius Palm*	June 30	Rio	Brunswick	Disinfected and held	July 14		1
		Sp. bk. Joseph Formosa.*	July 5	Habana	do	do			
		Sp. bg. Isabel*	July 7	Santiago de Cuba.	do	do			
		Sp. bk. Maria Luiza*	do	Santos	do	Held for disinfection			
		Am. sc. Penobscot	July 14	Ponce, Puerto Rico.	St. Simonds	Disinfected and held			
		Sp. bkn. Amalia	July 17	Habana	Brunswick	Held for disinfection			
	July 24	Sp. bk. Joseph Formosa.*	July 5	do	do	Disinfected and held	July 20		1
		Sp. bg. Isabel*	July 7	Santiago de Cuba.	do	do	July 19		
		Sp. bk. Maria Luiza*	do	Santos	do	do			
		Am. sc. Penobscot*	July 14	Ponce, Puerto Rico.	do	do	July 19		
		Sp. bkn. Amalia*	July 17	Habana	do	do			
		Sp. bk. Tafalla	July 20	do	do	Held for disinfection			
		Sp. bk. Triunfo	July 21	do	do	Disinfected and held			
Cape Charles, Va	July 24								5
Cape Fear, N. C	do								2
Delaware Breakwater Quarantine, Del.	do								4
Eureka, Cal	July 14							No transactions	
Grays Harbor, Wash	July 21							do	
Gulf Quarantine, Ship Island, Miss.	July 17	Rus. bk. Hannah Blanchard.*	June 23	Rio	Ship Island	Disinfected and held	July 13		
		Nor. bk. Crown Prince.*	July 4	do	do	do			
		Am. sc. Jas. H. Dudley.*	July 6	Progreso	do	do	July 11	Leaking badly	
		Am. sc. H. J. Powell.*	July 7	Habana	Pascagoula	do	do		
		Am. sc. Florence and Lillian.	July 11	Sagua la Grande.	do	do	July 17	2 cases of diarrhea in quarantine.	
		Am. sc. Aloha	July 13	Colon	Ship Island	do		2 cases of intermittent malarial fever in quarantine.	

*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.
Gulf Quarantine, Ship Island, Miss.	July 17	Am. sc. R. D. Spear....	July 13	Kingston, Jamaica.	Pascagoula....	Disinfected and held.....	.....	.....	.....
		Am. sc. James Slater.	July 14	Sagua la Grande.	.....do.....	.....do.....	.....	.....	.....
		Am. sc. Robert Ruff...	.....do.....	Progreso.....	Ship Island....	.....do.....	.....	.....	.....
		Am. sc. L. N. Dantzler.	July 15	Coatzacoalcos.	Pascagoula....	.....do.....	.....	1 case of intermittent malarial fever in quarantine.	
		Am. sc. Rita Cué.....	July 17	.....do.....	.....do.....	Held for disinfection.....	.....	.....	.....
Newbern, N. C.....	July 24	.....	.....	.....	.....	.....	.....	No transactions.....	.....
Port Townsend Quarantine, Wash.	July 17	.....	.....	.....	.....	.....	.....	.....	11
Reedy Island Quarantine, Del.	July 24	.....	.....	.....	.....	.....	.....	.....	16
San Diego, Cal.....	July 17	.....	.....	.....	.....	.....	.....	.....	5
San Francisco Quarantine, Cal.	.....do.....	Am. ss. City of Pueblo.	July 11	Victoria.....	San Francisco	14 Japanese steerage passengers bathed, their clothing and baggage disinfected.	July 11	.....	14
		Am. ss. City of Sidney.	.....do.....	Panama.....	.....do.....	Disinfected and passed.....	July 12	2 malaria, 1 case yellow fever; 17 passengers and 89 crew treated at quarantine.	.....
		Am. ss. San Juan.....	.....do.....	.....do.....	.....do.....	.....do.....	July 13	1 case yellow fever and 1 death; 51 passengers and 65 crew disinfected and held five days.	.....
		Br. s. Doric.....	.....do.....	Hongkong.....	.....do.....	105 Chinese and 20 Japanese disinfected and released.	July 11	.....	.....
		Br. s. Annie Maud.....	July 16	Calcutta.....	.....do.....	Disinfected and held.....	.....	3 bubonic cases, 1 death en route; 28 of crew disinfected at station.	.....
South Atlantic Quarantine, Blackbeard Island, Ga.	.....	.....	.....	.....	.....	.....	.....	No transactions.....	.....
Tortugas Quarantine, Key West, Fla.	July 10	Am. sc. Talofa*.....	June 25	Colon.....	Port Tampa...	Disinfected	July 7	1 case and 1 death from yellow fever, and 3 cases of malarial fever at station.	.....

		Am. sc. John C. Smith*	June 29	Habana	Mobile	do	July 6		
		Sp. ss. Gracia*	July 2	Cienfuegos	Punta Gorda	do	July 8		
		Am. sc. Grace Andrews.	July 8	Habana	Apalachicola	Disinfected and held			
		Am. sc. B. Frank Neally.	July 10	do	Mobile	Held for disinfection		2 cases yellow fever	
	July 17	Am. sc. Grace Andrews.*	July 8	do	Apalachicola	Disinfected and held	July 16		
		Am. sc. B. Frank Neally.*	July 10	do	Mobile	do		2 cases yellow fever	
		Am. sc. Anna M. Stammer.	July 16	do	New Orleans via Honduras.	Held for disinfection		1 case suspicious fever	
Washington, N. C.	July 24							No transactions	

*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 24								2
Apalachicola, Fla								No report	
Bangor, Me	July 17								3
Boston, Mass								No report	
Carrabelle, Fla	July 26	Br. bk. Pohona *	July 12	Montevideo	Apalachicola	Disinfected and held	July 23		4
		Am. sc. J. W. Balano	July 18	Port of Spain	do	do	July 25		
Cedar Keys, Fla	July 17								43
Charleston, S. C	July 24								1
Charlotte Harbor, Fla								No report	
Elizabeth River, Va	July 24								8
Galveston, Tex								No report	
Gardiner, Oreg								do	
Georgetown, S. C								do	
Gloucester, Mass								do	
Key West, Monroe Co., Fla.	July 24	Br. bkn. Osburgha	July 22	Puerto Cabello.	Key West	Remanded to Key West Quarantine for disinfection.	July 22		7
Mayport, Fla	July 17	Am. sc. Chas. J. Willard.	July 17	St. Thomas, West Indies.	Jacksonville	Inspected and held			9
	July 24	do *	do	do	do	do	July 18		5
Mobile Bay, Ala	do	Br. sc. M. S. Smith	July 19	Belize via Ruatan.	Mobile	Disinfected	July 22		
		Br. ss. Blue Star	July 22	Port Limon	do	Disinfected and held			
		Br. sc. Walter Sumner.	July 24	Matanzas	do	Held for disinfection.			
New Bedford, Mass								No report	
New Orleans, La								do	
Newport News, Va	July 24								7
Newport, R. I								No report	
New York, N. Y								do	
Perth Amboy, N. J								do	
Portland, Me								do	
Port Royal, S. C	July 24	Fr. ss. Caledonie	July 21	St. Nazaire via French Guiana.	Beaufort, S. C	Disinfected and held	July 23		2
Providence, R. I	do								1
Sabine Pass, Tex	July 17								8
	July 24	Br. ss. Otterspool	July 20	Buenos Ayres		Held for disinfection			

St. Helena Entrance, Fla.	.....	.....	.....	.....	.....	.....	.....	No report.....	.....
Savannah, Ga.....	July 17	Nor. bk. Triumph* ...	July 7	Pernambuco..	Savannah	Ballast discharged; vessel disinfected.	July 12	1 death from enteric fever.	3
		Br. bkn. Cypher*.....	July 9	Rio	.....do.	Ballast discharged; vessel disinfected and held.	.....	.....	.....
Tampa Bay, Fla	July 24	Br. bk. Marian Woodside.*	July 6	Barbados	Port Tampa...	Disinfected and held.....	July 20	.....	25
		Br. bk. Carrizal *.....	July 10	Bahia.....	.....do	Held for disinfection.....	.....	.....	.....
		Am. sc. Henry J. Smith.	July 18	St. Lucia, West Indies.	.....do	Disinfected and held.....	.....	.....	.....
		Am. sc. Rhode Island.	July 20	St. Pierre, Martinique.	.....do	.....do.....	....	.....	.....

* Previously reported.

Reports of States and yearly and monthly reports of cities.

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 and membranous croup, 66; measles, 17, and whooping cough, 9.

IOWA—*Clinton.*—Month of June, 1897. Estimated population, 25,000. Total deaths, 35, including 7 from phthisis pulmonalis.

Oskaloosa.—Month of May, 1897. Estimated population, 8,500. Total deaths, 2. No deaths from contagious diseases.

MASSACHUSETTS—*Brockton.*—Month of June, 1897. Estimated population, 35,853. Total deaths, 42, including phthisis pulmonalis, 5; enteric fever, 3; scarlet fever, 1, and diphtheria and croup, 2.

MICHIGAN.—Week ended July 17, 1897. Reports to the State board of health, Lansing, from 65 observers indicate that erysipelas, pleuritis, influenza, and cholera morbus increased and consumption decreased in area of prevalence. Phthisis pulmonalis was reported present during the week at 190 places, measles at 61, diphtheria at 28, scarlet fever at 22, whooping cough at 18, and enteric fever at 12 places.

MISSOURI—*Kansas City.*—Month of June, 1897. Estimated population, 175,000. Total deaths, 197, including phthisis pulmonalis, 7; enteric fever, 6; measles, 1, and whooping cough, 3.

St. Louis.—Month of June, 1897. Estimated population, 600,000. Total deaths, 843, including phthisis pulmonalis, 81; enteric fever, 9; scarlet fever, 3; diphtheria, 8; croup, 2, and whooping cough, 7.

UTAH—*Salt Lake City.*—Month of June, 1897. Estimated population, 70,000. Total deaths, 28, including phthisis pulmonalis, 3, and whooping cough, 1.

VIRGINIA—*Norfolk.*—Month of June, 1897. Estimated population, white, 25,710; colored, 19,290; total, 45,000. Deaths, white, 50; colored, 53; total, 103, including phthisis pulmonalis, 10; enteric fever, 1, and whooping cough, 3.

WISCONSIN—*Milwaukee.*—Month of June, 1897. Estimated population, 275,000. Total deaths, 245, including phthisis pulmonalis, 24; scarlet fever, 1; diphtheria, 5; croup, 1, and whooping cough, 2.

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.	Varioloid.	Cholera.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Amesbury, Mass.	July 24	9,798	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashtabula, Ohio.	do	8,338	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baltimore, Md.	do	434,439	209	12	.....	.....	.....	.....	.....	2	1	.....	.....	2
Binghamton, N. Y.	do	35,005	9	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston, Mass.	do	448,477	206	15	.....	.....	.....	.....	.....	.....	1	11	.....	2
Braddock, Pa.	July 3	8,561	4	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Do	July 10	8,561	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 17	8,561	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bristol, R. I.	July 24	7,382	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brockton, Mass.	July 10	27,294	6	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Do	July 17	27,294	9	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brooklyn, N. Y.	July 24	806,343	508	27	.....	1	.....	.....	.....	3	2	9	4	1
Brownsville, Tex.	June 19	6,134	7	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	June 26	6,134	3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 3	6,134	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 10	6,134	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 17	6,134	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cambridge, Mass.	July 24	70,028	35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carlisle, Pa.	do	7,620	9	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Charleston, S. C.	July 17	*54,955	†20	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chicago, Ill.	do	1,099,850	481	36	.....	.....	.....	.....	.....	7	1	7	2	5
Cincinnati, Ohio.	July 23	296,908	108	16	.....	.....	.....	.....	.....	1	.....	1	.....	.....
Cleveland, Ohio.	July 24	261,353	138	3	.....	.....	.....	.....	.....	1	1	1	2	1
Columbus, Ind.	do	6,719	4	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Columbus, Ohio.	do	88,150	30	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Dayton, Ohio.	July 23	61,220	25	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Denver, Colo.	July 10	106,713	40	5	.....	.....	.....	.....	.....	1	1	.....	.....	.....
Dunkirk, N. Y.	July 17	9 416	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 24	9,416	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Everett, Mass.	July 16	11,068	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Do	July 23	11,068	3	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Fall River, Mass.	July 24	74,398	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fitchburg, Mass.	July 17	22,037	8	2	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Flint, Mich.	July 24	9,803	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gloucester, Mass.	July 17	24,651	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand Rapids, Mich.	July 19	60,278	16	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 24	60,278	13	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Haverhill, Mass.	do	27,412	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Hoboken, N. J.	do	43,648	23	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ironton, Mich.	do	10,939	9	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Jacksonville, Fla.	July 17	17,201	8	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 24	17,201	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jersey City, N. J.	July 18	163,003	‡93	8	.....	.....	.....	.....	.....	1	2	.....	.....	.....
Johnstown, Pa.	July 24	21,805	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Kalamazoo, Mich.	do	17,853	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lawrence, Mass.	July 17	44,654	38	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lebanon, Pa.	July 11	14,664	5	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 18	14,664	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 25	14,664	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lowell, Mass.	July 24	77,696	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lynchburg, Va.	do	19,709	10	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
McKeesport, Pa.	July 17	20,741	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 24	20,741	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Medford, Mass.	do	11,079	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Memphis, Tenn.	do	64,495	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Michigan City, Ind.	July 17	10,776	6	2	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Do	July 24	10,776	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Middletown, N. Y.	July 23	11,977	11	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Milwaukee, Wis.	July 24	204,468	58	2	.....	.....	.....	.....	.....	1	.....	3	.....	.....
Minneapolis, Minn.	July 17	164,738	48	4	.....	.....	.....	.....	.....	1	1	.....	.....	1
Do	July 24	164,738	48	2	.....	.....	.....	.....	.....	5	.....	.....	.....	.....
Mobile, Ala.	do	31,076	8	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Nashville, Tenn.	do	76,168	25	3	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
New Bedford, Mass.	do	40,733	33	3	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
New Brighton, N. Y.	July 10	16,423	15	3	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Do	July 17	16,423	14	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Do	July 24	16,423	9	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newburyport, Mass.	July 17	13,947	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Orleans, La.	do	242,039	101	13	.....	.....	.....	.....	.....	3	.....	1	.....	.....
Do	July 24	242,039	136	14	.....	.....	.....	.....	.....	7	.....	.....	1	.....
Newport, R. I.	do	19,457	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New York, N. Y.	do	1,515,301	920	78	.....	1	.....	.....	.....	9	6	22	5	8

* Estimated population, 65,165; white, 28,870; colored, 36,295; † White, 4; colored, 16.
‡ One death from leprosy.

MORTALITY TABLE, CITIES OF THE UNITED STATES—Continued.

Cities.	Week ended.	Population, U. S. Census of 1890.	Total deaths from all causes.	Deaths from—										
				Phthisis pulmonalis.	Yellow fever.	Smallpox.	Varioloid.	Cholera.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Morristown, Pa	July 24	19,791	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Adams, Mass	do	16,074	3	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Omaha, Nebr	July 17	140,452	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oneonta, N. Y	July 24	6,272	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pensacola, Fla	do	11,750	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Petersburg, Va	July 18	22,680	12	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Philadelphia, Pa	July 24	1,046,964	475	40	.....	.....	.....	.....	.....	5	7	15	1	5
Pittsfield, Mass	do	17,281	9	1	.....	.....	.....	.....	.....	2	.....	.....	.....	.....
Portland, Me	do	36,425	17	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Providence, R. I	do	132,146	57	5	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Pueblo, Colo	July 17	24,558	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Louis, Mo	do	451,770	227	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Salt Lake City, Utah	do	44,843	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Diego, Cal	do	16,159	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Santa Barbara, Cal	do	5,864	5	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scranton, Pa	July 24	75,215	32	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Sioux Falls, S. Dak	July 10	10,177	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 17	10,177	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Superior, Wis	do	11,983	6	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Taunton, Mass	do	25,448	10	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....
Do	July 24	25,448	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utica, N. Y	July 17	44,007	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Waltham, Mass	July 24	18,707	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Warren, Ohio	do	5,973	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington, D. C	July 17	230,392	122	15	.....	.....	.....	.....	.....	3	.....	.....	.....	7
Winona, Minn	do	18,208	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Woburn, Mass	July 24	13,499	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Worcester, Mass	July 16	84,655	37	3	.....	.....	.....	.....	.....	.....	1	1	.....	.....
Yonkers, N. Y	July 23	32,033	12	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Youngstown, Ohio	July 24	33,220	9	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Table of temperature and rainfall, week ended July 26, 1897.

[Received from Department of Agriculture, Weather Bureau.]

Locality.	Temperature in degrees Fahrenheit.			Rainfall in inches and hundredths.		
	Normal.	*Excess.	*Defic'ncy.	Normal.	Excess.	Deficiency.
Atlantic Coast:						
Eastport, Me	61		1	.89	.71	
Portland, Me	68	0		.84		.14
Northfield, Vt	65	5		.74	.96	
Boston, Mass	72	0		.77	1.33	
Vineyard Haven, Mass	71	3		.63	.67	
Nantucket, Mass	68	2		.58	.42	
Woods Hole, Mass	69	1		.76	.84	
Block Island, R. I	70	0		.72	1.68	
New Haven, Conn	72	2		1.19	1.81	
Albany, N. Y	72	2		.91		.01
New York, N. Y	74		2	1.00	.80	
Harrisburg, Pa	73	3		.98		.48
Philadelphia, Pa	76	0		.98	1.62	
New Brunswick, N. J	74	0		1.13	2.77	
Atlantic City, N. J	72	0		.77	1.03	
Baltimore, Md	77	1		1.04	.56	
Washington, D. C	76	2		1.05	.37	
Lynchburg, Va	77	0		.91	2.49	
Cape Henry, Va	77	3		1.37		.27
Norfolk, Va	78	2		1.40		.40
Charlotte, N. C	78	0		1.26	.44	
Raleigh, N. C	77	1		1.85	.25	
Kittyhawk, N. C	78	0		1.37	.53	
Hatteras, N. C	78	0		1.53	.27	
Wilmington, N. C	79	1		1.73	1.67	
Columbia, S. C	81	1		1.35	1.85	
Charleston, S. C	81	1		1.81	.09	
Augusta, Ga	81	1		1.19		.39
Savannah, Ga	82	0		1.32	2.58	
Jacksonville, Fla	82	2		1.47		1.17
Jupiter, Fla	81	1		1.03		.93
Key West, Fla	84	0		.85		.75
Gulf States:						
Atlanta, Ga	78	0		1.03	1.97	
Tampa, Fla	82	0		2.17		2.07
Pensacola, Fla	81	3		1.57		1.47
Mobile, Ala	81	1		1.53		.13
Montgomery, Ala	81	3		.98		.58
Vicksburg, Miss	81	1		1.02	.58	
New Orleans, La	82	0		1.47	.33	
Shreveport, La	82	4		.78		.58
Fort Smith, Ark	81	1		.97		.47
Little Rock, Ark	80	4		.91		.41
Palestine, Tex	82	4		.52		.52
Galveston, Tex	84	0		.73		.73
San Antonio, Tex	83	3		.52		.52
Corpus Christi, Tex	82	0		.32		.32
Ohio Valley and Tennessee:						
Memphis, Tenn	80	2		.77	.03	
Nashville, Tenn	79	1		.91	.39	
Chattanooga, Tenn	78	2		.91		.01
Knoxville, Tenn	76	2		.98		.18
Louisville, Ky	78	2		.84	.26	
Indianapolis, Ind	76	2		.95	1.95	
Cincinnati, Ohio	77	1		.74	2.86	
Columbus, Ohio	75	3		.70	1.00	
Parkersburg, W. Va	74	4		.98		.08
Pittsburg, Pa	75	0		1.07		.07
Lake Region:						
Oswego, N. Y	68	6		.70	.80	
Rochester, N. Y	70	4		.63	37	
Buffalo, N. Y	69	5		.70	1.00	
Erie, Pa	70	2		.63		.03
Cleveland, Ohio	71	3		.77	.03	
Sandusky, Ohio	73	3		.70		.50
Toledo, Ohio	72	4		.63		.43
Detroit, Mich	71	3		.77		.67
Lansing, Mich	71	1		.70		.10
Port Huron, Mich	68	4		.52	.18	
Alpena, Mich	65	3		.63	.67	

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

Table of temperature and rainfall, week ended July 26, 1897—Continued.

Locality.	Temperature in degrees Fahrenheit.			Rainfall in inches and hundredths.		
	Normal.	*Excess.	*Defic'ncy.	Normal.	Excess.	Deficiency.
Lake Region—*Continued.*						
Sault Ste. Marie, Mich	62	4		.63	.77	
Marquette, Mich	65	1		.65	.65	
Green Bay, Wis	70	0		.63	.77	
Grand Haven, Mich	68	4		.56	1.14	
Milwaukee, Wis	69	1		.63	.27	
Chicago, Ill	72	2		.77		.07
Duluth, Minn	67		5	.79	1.21	
Upper Mississippi Valley:						
St. Paul, Minn	71		1	.70	1.90	
La Crosse, Wis	73		1	.89		.09
Dubuque, Iowa	74		0	.88	1.12	
Davenport, Iowa	75	1		.83	1.27	
Des Moines, Iowa	74	2		.77	.63	
Keokuk, Iowa	76	2		.89	3.91	
Springfield, Ill	76	2		.56	.74	
Cairo, Ill	79	1		.76	.34	
St. Louis, Mo	78	2		.84	1.96	
Missouri Valley:						
Columbia, Mo	76	4		1.07	.93	
Springfield, Mo	77	1		1.07		.07
Kansas City, Mo	77	5		.91		.41
Wichita, Kans	80	2		.56		.46
Concordia, Kans	77	1		.70	1.60	
Lincoln, Nebr	77	1		.81		.11
Omaha, Nebr	76	2		.99		.39
Sioux City, Iowa	75		1	.70	1.00	
Yankton, S. Dak	73		1	.83	.97	
Valentine, Nebr	74		4	.49	.01	
Huron, S. Dak	72		2	.70	1.00	
Pierre, S. Dak	76		6	.42	.68	
Moorhead, Minn	68		0	.84	3.16	
Bismarck, N. Dak	70		4	.49	.51	
Williston, N. Dak	69		1	.40		.30
Rocky Mountain Region:						
Havre, Mont	69		5	.42		.42
Helena, Mont	67		5	.20	.60	
Miles City, Mont	75		3	.28		.18
Rapid City, S. Dak	74		4	.35		.24
Spokane, Wash	71		5	.14		.14
Wallawalla, Wash	77		5	.07		.07
Baker City, Oreg	69		5	.07		.07
Salt Lake City, Utah	76		6	.12		
Lander, Wyo	71		7	.14	.46	
Cheyenne, Wyo	66		4	.42		.12
North Platte, Nebr	73		1	.56	.44	
Denver, Colo	71		5	.42	.18	
Pueblo, Colo	74		4	.54		.26
Dodge City, Kans	77	1		.70	2.90	
Oklahoma, Okla	80		0	.90	.60	
Amarillo, Tex	75		1	.42	1.08	
Abilene, Tex	83	1		.37		.37
Santa Fe, N. Mex	67		3	.75		.75
El Paso, Tex	81		1	.54	.16	
Phœnix, Ariz	90		2	.25		.25
Pacific Coast:						
Fort Canby, Wash	59		1	.21		.11
Portland, Oreg	67		1			
Roseburg, Oreg	68		2	.07		.07
Eureka, Cal	56		2	.00	.00	
Redbluff, Cal	83		3	.00	.00	
Carson City, Nev	68		0	.00	.30	
Sacramento, Cal	73		3	.00	.00	
San Francisco, Cal	58		2	.00	.00	
Fresno, Cal	84		4	.00	.00	
Los Angeles, Cal	70		2	.00	.00	
San Diego, Cal	68		2	.00	.00	
Yuma, Ariz	93		3	.07		.07

* 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 27, 1897.

CHOLERA.

Places.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay	Dec. 8–Dec. 15	.....	1	
	Dec. 22–Dec. 29	.....	1	
	Mar. 23–Mar. 30	.....	1	
	Mar. 31–June 29	.....	68	
Calcutta	Nov. 14–Jan. 30	.....	267	
	Jan. 31–Feb. 27	.....	311	
	Feb. 28–Mar. 6	.....	125	
	Mar. 6–May 29	.....	1,310	
	May 30–June 19	.....	119	
Madras	Nov. 21–Nov. 27	.....	2	
	Nov. 28–Dec. 4	.....	1	
	Dec. 12–Dec. 25	.....	6	
	Dec. 26–Jan. 29	.....	22	
	Jan. 30–Feb. 26	.....	13	
	Feb. 27–Mar. 5	.....	2	
	Mar. 6–Mar. 19	.....	1	
	Mar. 20–Mar. 26	.....	2	
	May 29–June 11	.....	2	
Singapore	Nov. 1–Nov. 30	.....	12	
	Dec. 1–Dec. 31	.....	5	
Ceylon:				
Colombo	Nov. 28–Jan. 23	.....	114	
	Jan. 23–Jan. 30	1	1	
England:				
Plymouth	Jan. 9	.....	4	On steamship *Nubia*. No cases in city.
Japan:				
Fukuoka Ken	June 28–July 6	1	.....	
Hiogo Ken	June 28–July 6	1	1	
Osaka Ken	May 1–July 6	13	2	
Oyama Ken	June 28–July 6	1	.....	
Tokyo	Dec. 4–Dec. 29	8	7	
	Dec. 30–Jan. 18	3	3	
	June 28–July 6	3	.....	
Yokohama	Dec. 4–Dec. 29	4	3	
	Dec. 30–Jan. 18	2	2	

YELLOW FEVER.

Brazil:				
Bahia	May 13–May 19	5	3	
Para	Dec. 12–Jan. 30	.....	32	
	Jan. 31–Feb. 27	.....	20	
	Feb. 27–Mar. 6	.....	9	
	Mar. 13–Mar. 20	.....	3	
	Apr. 3–Apr. 10	.....	3	
	May 30–June 5	.....	4	
	June 20–July 3	.....	7	
Rio de Janeiro	Nov. 21–Dec. 26	.....	10	
	Dec. 26–Jan. 30	.....	28	
	Jan. 31–Feb. 6	12	5	
	Feb. 13–Feb. 20	21	6	
	Feb. 20–Mar. 6	.....	16	
	Mar. 7–May 29	174	78	
	May 30–June 12	5	2	
Cuba:*				
Cardenas	Dec. 25–Jan. 30	84	8	
	Jan. 31–Feb. 27	38	1	
	Apr. 17–June 26	46	9	
	June 27–July 17	7	1	
Cienfuegos	Dec. 20–Dec. 27	.....	8	
	Dec. 28–Jan. 17	.....	2	
	Apr. 4–Apr. 11	.....	1	
	May 17–May 23	.....	1	
	June 20–July 18	.....	17	

* 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. 23	400	144	
	Jan. 28–Feb. 25	117	44	
	Feb. 25–Mar. 25	130	38	
	Mar. 25–Apr. 29	342	85	
	Apr. 30–July 1	750	279	
	July 2–July 22	.....	152	
Manzanillo	Apr. 1–Apr. 15	.....	1	
	May 15–May 31	.....	1	
	June 1–June 15	.....	1	
Matanzas	Dec. 9–Dec. 23	.....	8	
	Dec. 23–Jan. 27	.....	19	
	Jan. 27–Feb. 24	.....	4	
	Feb. 25–Mar. 31	.....	2	
	Apr. 1–June 30	9	24	
	July 1–July 21	.....	11	
Santiago	Dec. 5–Dec. 26	.....	17	
	Dec. 26–Jan. 30	.....	16	
	Jan. 16–Jan. 30	.....	5	
	Jan. 30–Feb. 27	.....	6	
	Feb. 27–Mar. 27	.....	3	
	May 2–July 3	54	64	140 cases in military hospital.
	July 4–July 17	.....	42	
Sagua la Grande	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	.....	
Jamaica:				
Kingston	July 19	2	1	
Mexico:				
Vera Cruz	June 28	.....	.....	Yellow fever reported.
	June 25–July 1	.....	2	
	June 29	.....	2	
Peru:				
Callao	June 10–June 17	.....	2	In harbor on steamship *Santiago* 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.

Arabia:				
Jeddah	June 10	16	23	
Egypt:				
Suez	Mar. 31	.....	.....	One case of plague on Br. S. S. *Dilwara* 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.

*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	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.
	Mar. 9–Mar. 30		1,431	Estimated deaths for this same period, 2,730.
	Mar. 31–June 1		1,681	Estimated deaths from March 31 to April 20, 2,892.
	June 2–June 29		90	
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	
	June 1–June 3	43		
	June 1			Plague epidemic reported.
Swato	May 4			Epidemic of plague reported.
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 28–July 6	13		
Nagasaki Ken	June 9–June 27	3	3	
Taihoku	Apr. 20–Apr. 27	3		
Russia:				
St. Petersburg	Apr. 10–Apr. 17		1	
Theodosia	Mar. 31			One case of plague on Br. S. S. *Baldwin.*

ARABIA.

Bubonic plague in Jeddah.

CONSULATE OF THE UNITED STATES,
Aden, Arabia, June 15, 1897.

SIR: For some few weeks past there has been a rumor that the bubonic plague had appeared in Jeddah, Arabia, which is the seaport for Mecca, and on the 12th the report was officially confirmed. I can give no definite information at present as to how bad the disease really is, as so far all facts have been suppressed.

In the daily telegrams of yesterday we were informed that the Sultan of Turkey was sending a sanitary commission to combat the plague, but, owing to the woefully unsanitary condition of the place, fears were expressed that it would take some time to overcome the disease. As soon as the rumor was confirmed in regard to the plague, strict quarantine regulations were at once put in force against Jeddah and all neighboring ports. With these precautions taken thus early no fears are entertained of the disease reaching Aden. Fortunately for this place, as well as for the balance of the Mohammedan world, the plague did not appear in Jeddah until after the pilgrim season for the year was over. Owing to the plague in Bombay this year, no Mohammedans

from Judea were allowed to go to Mecca on the annual pilgrimage, so it is somewhat of a mystery how the plague came to appear in Jeddah, but some hold to the opinion that as the annual travel was stopped by sea it must have been transmitted by the overland route by the way of the Persian Gulf from India.

I shall make reports from time to time of all the facts that I can gather about this disease, and should it reach this place, will cable for instructions as to what shall be done about goods shipped to the United States.

I have the honor to be, sir, your obedient servant,

W. W. MASTERSON,
United States Consul.

Hon. ASSISTANT SECRETARY OF STATE.

PLAGUE.

[Translated in this Bureau from the "Veröffentlichungen des Kaiserlichen Gesundheitsamtes," Berlin, July 7, 1897.]

ARABIA—*Djeddah.*—On June 10, 6 deaths from plague were reported in different quarters of the city, especially in Hadramanti. From June 11 to 16 there were on the several days 3, 1, 4, 3, 3, 3 deaths from plague.

BRITISH EAST INDIES—*Bombay.*—According to the Bombay Government Gazette there were in the four weeks, from May 19 to June 15, 56, 34, 34, and 26 deaths, respectively.

Macao.—According to advices from Hongkong, plague has not yet assumed an epidemic character in Macao. Only isolated cases appear in the vicinity of Canton.

JAPAN.—From April 13 to May 5 there were in the prefecture of Taipefu, in Kilung Sinchu, and some small places in north Formosa, 10 cases and 14 deaths, which occurred among Chinese, besides 2 suspicious cases and 1 suspicious death reported among Chinese and Japanese. In middle Formosa 1 case, 1 death occurred among the Chinese population; in south Formosa 6 cases, 4 deaths among Japanese and 163 cases, 109 deaths among Chinese. Total for the Island of Formosa, including suspicious cases, 184 cases and 130 deaths.

BRAZIL.

Sanarelli on the Germ of Yellow Fever.

[Continued.]

[Translated in this Bureau from the Portuguese.]

DECISIVE EXPERIMENTATION—VEHICLES AND CONTAGION.

Experiment in the human living subject must naturally encounter opposition and prejudice, but it would seem to be essential to the solving of problems of incalculable importance to the human race.

The autoexperiments of Pettenkofer, Emerich, Metchnikoff, and others, who voluntarily swallowed cultures of choleraic microbes, pointed out the way to the experimenter who would definitely settle a question of pathologic importance. Metchnikoff succeeded in inducing a typical attack of cholera in man by living cultures of Koch's vibrio, thus probably demonstrating the specific nature of the microbe after ten years of discussion. There have also been courageous experimenters in yellow fever. Repeated experiment in self-inoculation has been made directly with the products of the disease, but without in any case producing an attack of the disease. The cause of this ill success is now explained. Those who have made the attempt, believed the yellow fever virus

to be in the black vomit, and it was chiefly with this substance that their experiments were made. It is now evident that the icteroid bacillus finds its way into the stomach by means of hemorrhage, and that it exists in a state of dilution in the blood. My experiments were performed on five men.

For reasons that will be readily understood, living cultures were not used, but simply cultures in broth fifteen to twenty days old, filtered by a Chamberlain filter and sterilized with a few drops of formic aldehyde. In two individuals the injection was subcutaneous, and in three, intravenous. The results of these slight but perfectly successful experiments cast an unexpected light on the pathogenic mechanism of icteroid typhus, formerly so little understood. They are in brief, as follows:

Injection of filtered culture, in relatively small doses, reproduces in man typical yellow fever symptoms—fever, congestions, hemorrhages, vomit, steatosis of the liver, cephalalgia, rachialgia, nephritis, anuria, uræmia, jaundice, delirium, collapse—in short all the symptomatic and anatomic elements which constitute the basis for the diagnosis of yellow fever. This fact represents not only a brilliantly convincing argument in favor of the specific value of the icteroid bacillus, but a success of the first order in the rich field of experimental science.

The accepted theory represents the digestive system, especially the stomach, as the seat of the disease, simply because the gastrointestinal phenomena are strongly pronounced. Eliminate this theory, however, and demonstrate that these phenomena are due to a specific virus manufactured by a microbe and circulating in the blood, and yellow fever falls into its proper place among diseases of microbic origin.

All the symptomatic phenomena, all the functional alterations, all the anatomical lesions of yellow fever are the consequence of the steatogenic, emetic, and hemolytic substances fabricated by the icteroid bacillus.

The general symptoms of yellow fever, its ataxo-adynamic manifestations, its tendency to hæmorrhage, jaundice, etc., have caused it to be compared to poisoning by the venom of certain serpents.

Another point of contact between the two morbid processes is the hœematogenous gastroenteritis, which in cases of serpent poisoning has been erroneously attributed to an effort to eliminate the poison from the system.

Having got rid of the purely arbitrary theory with regard to the mode of ingress and the proper seat of energy of the yellow fever virus, we have the difficult task of demonstrating the avenues of entrance of the microbe.

No literature exists in yellow fever countries sufficiently demonstrative in character to prove transmission by water. There is, however, an inexhaustible supply of facts demonstrating its atmospheric transmission.

The one example cited relative to the decrease of yellow fever in Vera Cruz after the installation of a good water supply system has only a relative value. The tendency is to attribute improvement in public health to one hygienic measure when it should rather be ascribed to a conjunction of sanitary improvements. The remarkable resistance of the icteroid bacillus to desiccation and to water, authorizes the admission of the diffusion of the yellow fever virus by air and water.

Contagion by the respiratory system has been proved by animal experiment.

With regard to the mechanism of contagion by water, it is an indubitable fact that the epithelia of the digestive system, when intact, do not in general permit the passage of any species of pathogenic germ. But it must be remembered that in our yellow fever countries the slightest disturbances of the digestive functions, such as the abuse of alcoholic drinks, ices, fruits, etc., especially on the part of recent arrivals, depress the system and prepare for the entrance upon the scene of yellow fever. It can not be denied that persons recently arrived in yellow fever countries are subject to catarrh of the biliary system, which, united with the over exertion of the liver, which accompanies it, may facilitate the entrance of the bacillus into the intestines. Nothing is easier than such an entrance of the bacillus at the season when it forms part of the microbic flora of the yellow fever locality.

We have now to study the origin, development, duration, and termination of those secondary infections which have so long and so obstinately contributed to obscure the true cause of yellow fever.

The icteroid bacillus, whether through effect of its specific virus or through the grave hepatic lesions which are its most immediate consequence, favors at a given moment the entrance into the organism of septic microbes, which not only terminate the disease much sooner than the specific microbe would do, but attack this specific agent, invading its domain, suppressing its vegetative faculty and even affecting its vitality. Consequently, this microbic antagonism between the yellow fever bacillus and septic infection, instead of being useful to the patient who represents the theatre of action, hastens his end.

TRANSMISSION OF YELLOW FEVER BY WAY OF THE SEA.

Explicative theory.—There is a curious biologic phenomenon which acquires an immense value in the epidemiology of yellow fever. The maritime propagation of yellow fever is now a fact so firmly established that we should direct our attention to discovering its cause, basing our researches on our knowledge of the specific microbe.

The behavior of the yellow fever microbe on board vessels differs greatly from that of the cholera vibrio under the same circumstances. When cholera is introduced on board a vessel it breaks out with a violence varying with the quantity and energy of the choleraic vibrio and with individual predisposition; after the outbreak the cholera vibrio does not seem to find in the ordinary conditions of maritime transportation a medium favorable to its existence. It rapidly yields to measures of disinfection and is extinguished. Yellow fever, on the contrary, once installed on board a vessel, maintains itself long and tenaciously, especially in summer, and is transferred to warehouses and stores. Old and much-used vessels are extremely unfit to be used in countries where yellow fever is endemic.

Those who are especially concerned with naval hygiene consider close, unventilated ships, in which the air is vitiated and the water in the hold fetid, to be veritable yellow fever factories.

Humidity, heat, and want of light appear, therefore, to be the agents best adapted to the preservation of the icteroid bacillus. But in the present state of our knowledge it is not possible to attribute to these agents alone a specific value, when other conditions exist which militate in its favor. We must, therefore, look for some other cause favoring in some way the nautical habitat of the icteroid bacillus.

A singular phenomenon, which frequently attracted my attention during these studies, suggested to me that the probable cause of this mysterious resistance of the icteroid bacillus is, that the fungus of common mould, in the atmosphere, protects the bacillus.

The microbe of yellow fever, although endowed with remarkable resistance in the presence of physico-chemical agents, can not remain indifferent to substances adopted to its nourishment.

It is certain that during its saprophytic existence outside of the organism, as during summer on board a vessel, it could not make use of nutritive principles of much value; it is also true that it has been sometimes found incapable of developing in ordinary gelatine. But if in close proximity to it there should develop an accumulation of vegetable mould, this would suffice for the nourishment and development of the bacillus which without it would be condemned to a more or less speedy death. This quality in mould of favoring the growth of the bacillus may be demonstrated experimentally by depositing the spores of such fungi on gelatine previously planted with the icteroid microbe, but which has remained for some time sterile. After the mould has commenced to develop its mycelium there soon appears a circle of small point-like colonies of the icteroid microbe. As the mycelium grows these colonies become more numerous, extending rapidly around the central nucleus of mycelium. After some days the gelatine in which the mould developed presents a singular appearance. Around each fungus the colonies of the bacillus, which might be supposed to be dead or incapable of further development, form a sort of constellation of colonies the more numerous the nearer they approach the point of first development. It would seem from this that there exists a radiating influence within which the microbe developes. Outside of this circle the microbic development ceases abruptly, and the remaining gelatine continues sterile. It is probable that this property is possessed by the fungi in general. It is also probable that there exist in nature, especially in localities in which yellow fever is installed in great vigor, fungi not now classified, which are endowed with a strong and specific potency. This strange phenomenon of parasitism, which may be called "a loan of the means of existence;" this curious form of soprophytism may represent the principal cause of the ready acclimatization of yellow fever on shipboard. Humid heat and lack of air are precisely the conditions most favorable to the growth of fungus, and are therefore indirectly favorable to the vitality of the icteroid bacillus. This property of symbiosis, which was observed by Metchnikoff, with regard to the cholera vibrio, is in accord with many observations made during the progress of a yellow-fever epidemic. We may therefore consider the fungi as the natural protectors of the specific agent of yellow fever, since it is only by their assistance that the microbe continues to live and multiply. The intervention of this factor, apparently so insignificant, may constitute the principal cause of the acclimatization of yellow fever, not only on board ship, but also in localities in which the conditions would not appear to be favorable to its development.

We are already aware that one of the factors considered indispensable to the development of yellow fever is humidity, which, accompanied by heat, forms the condition

required for the formation of fungus. It is in fact to defective ventilation and high hygrometric conditions of the atmosphere that the unhealthiness of Rio de Janeiro is attributed.

During the great epidemic of yellow fever of 1872 at Montevideo the disease showed an inexplicable predilection for attacking houses fronting to the north. Now the houses on the north side of streets in Montevideo are conspicuous for their dampness. It is, therefore, probable that the factor of humidity whether on board ships, along the coast or in the interior, is the principal coefficient in this biologic phenomenon, and not some commonplace meteorological influence. On the other hand the natural resistance of the icteroid bacillus to desiccation, nature's method of disinfection, and its longevity in sea water are sufficient to explain the acclimatization of icteroid typhus on ships and in maritime localities.

Extract from a paper entitled "Experimental and Anatomical Researches in Yellow Fever."

[Transmitted by Passed Assistant Surgeon H. D. GEDDINGS—Translated in this Bureau from the Annals de l'Institut Pasteur, Paris, June 25, 1897.]

By Dr. W. HAVELBURG, Rio de Janeiro.

The idea of looking for the specific germ of yellow fever in the contents of the stomach and intestines naturally suggests itself. Yellow fever begins with gastric symptoms. This condition of the stomach and intestines continues throughout the disease.

But this study of stomachic flora seemed to me so difficult that I endeavored to avoid it by making plantings from the organs most attacked, even from those which presented nothing from the anatomic point of view. The first plantings on gelatin of the substance of the liver, kidney, spleen, the mesenteric glands, the walls of the biliary vessels, the blood, and the bile remained sterile, especially in the first cases examined. It was only after continued experiment that I saw appear in the sporadic state, now in one organ, now in another, and always very much disseminated, colonies of a microbe, which I found also when I studied the contents of the stomach and intestines and the famous black vomit which gives to this disease its specific character. I found this microbe with a certain constancy in all cases, and in grave cases it was almost the only inhabitant of the blood contents of the stomach. Moreover, it showed itself pathogenic for the guinea pig.

This fact gave me the idea of isolating it by passage through this animal, and from the first this attempt was attended with good results.

Before describing them, I will allude to an important question suggested to me by Dr. Roux. In the absence of a microorganism in the organs and liquids, is it possible to find a toxic substance circulating in the body which may produce manifestations of the disease? After some fruitless attempts in several directions I drew blood, with a sterilized syringe, from a vein of the arm, prepared as for bleeding, and immediately injected this blood into the peritoneal cavity of a guinea pig. Former experiments showed me that these animals support relatively large quantities of human blood. Ten cubic centimeters of blood taken from a person who was seriously ill, and who died next day, produced in the animal slight malaise, which disappeared next day. A slight rise of temperature of 38.7° to 39.7° continued some days.

In five days the animal had lost 60 grams of its weight, but it subsequently recovered. I repeated this experiment with another patient, also seriously attacked, and with the same success. These facts do not speak in favor of the special efficacy of a toxic substance existing in yellow fever. It then occurred to me that to place a guinea pig, weighing 500 grams, in the same conditions, relatively, to the blood injected, I should inject about 35 grams of the blood of the patient. I repeated my experiments when the patient was dying and injected a guinea pig, weighing 535 grams, with 30 grams of blood. The initial temperature was 38.7°. It rose to 39.9° and remained at this point for two days. On the fourth day the temperature fell to 37.1°. and the animal died. This experiment was repeated with 4 patients severely attacked, the prognosis being doubtful in all the cases. The results in the case of the guinea pig solved the problem, not only as to the existence of a poison, but as to the intensity of the disease. All 4 animals became sick. Two of them are dead, as are also the persons whose blood they received. The two other patients will recover, also the guinea pigs injected. The existence of a toxic substance in yellow fever is, therefore, indubitable.

The most important experiment, with the point of departure for any other researches, is the following:

When we inject under the skin of a guinea pig 1 to 2 c. c. of the contents of the stomach of a person dead of yellow fever, the animal infallibly dies, and we find in his blood, in pure culture, the microorganism which I believe I may consider specific.

This fact was verified 21 times in the cases I examined in 1896. No case gave negative results. In 10 complete necropses the diagnosis of yellow fever was incontestable. In the other partial necropsies I made bacteriological examination of the contents of the stomach, and at the same time verified macroscopically and microscopically the alterations proper to the disease.

In two control experiments consisting of a hypodermic injection of the same quantity of the stomach contents of persons dead of another disease, the guinea pigs remained alive.

When yellow fever material is used the guinea pig dies after the injection, and the result is the same whether the contents of the stomach be sanguineous or catarrhobilious, which happened in two cases. Death supervened in from eight to twenty-four hours. In one case, which clinically was very grave, I saw a guinea pig, weighing about 400 grams, die five hours after a hypodermic injection of 1 c. c., and notwithstanding this short space of time the existence of bacilli in the blood of the heart was abundant. The simplest means of obtaining a pure culture of the pathogenic germ is by the hypodermic injection of guinea pigs.

This microorganism is a small and extremely slender bacillus, the length of which is about 1 micromillimeter and the width from 0.3 to 0.5 micromillimeter. It is a straight rod, generally isolated, but often occurring in pairs. It does not show flagellæ in any of the several culture media. The two poles of the bacillus are more brilliant, and this property, which recalls the bacillus of chicken cholera, makes it resemble a diplococus. In fresh and recent cultures, half of the microorganisms present this appearance, which is most frequent when the bacillus is most virulent. It colors easily with all the colors which have an aniline base, but suffers decoloration from absolute alcohol and acids. It does not take coloration by the Gram method; with weak solutions we may succeed in coloring it distinctly.

I at first thought the bacillus motile. I have not succeeded in coloring the flagellæ by the Lœffler method, as its movements persist in antiseptic solutions, and after three hours' exposure to a temperature of 65° the movement must be Brownian. I have seen no sign of spore formation.

On a gelatin plaque the bacillus grows visibly at the end of twenty-four hours like a white point, which increases in size during twenty-four or forty-eight hours. The gelatin is not liquefied. The colonies, whether large or small, exhibit a yellowish disk, finely granulated with a finely indented border.

Puncture of the gelatin makes the microorganism grow at a depth in the form of a fine thread, consisting of white grains. On the surface they form a thick, white cupola, shaped like a nail head.

On the surface of the gelose, it forms, when the planting is not very copious, round, grayish white disks, which may remain isolated or commingle. When it is planted in streaks on gelose, grayish white masses are seen to form, which, starting from the points planted, extend on all sides, but the growth is very limited.

Common broth clouds rapidly. After twenty-four hours we find a cloudy gray deposit, which soon condenses when agitated. The deposit is never very considerable. The surface of the bouillon remains clear. It is only in old cultures that a thin and slender layer is formed which precipitates when the liquid is agitated, leaving a layer more or less adherent on the walls of the glass. Cultures in bouillon always have a disagreeable odor and always retain an alkaline reaction.

Sugar bouillon ferments rapidly. In gelose which contains either sugar of milk or glucose the formation of gas is observed.

At the end of twelve hours the milk is coagulated. On potato, culture is relatively slight, and it is covered with a grayish layer.

In blood serum the microorganism does not grow in characteristic manner. The serum is troubled and forms a deposit. On coagulated serum a thin gray layer forms.

The production of indol is always very intense. There is also a considerable production of hydrosulphuric acid.

The microorganisms grow also in media of acid cultures, even when the acidity is very intense.

Gelose with litmus is not discolored, unless it contains sugar.

The microorganism is a facultative anærobe. In the absence of air and in hydrogen its culture is luxuriant, and it appears to have more virulence than is observed for other microorganisms.

The infection of the guinea pig is possible hypodermically and by the intraabdominal process. If 1 c. c. of a bouillon culture, hypodermically administered, is enough to kill the animal in twenty-four hours, 0.2 c. c. would produce this effect administered intraabdominally. Death may be caused more quickly with larger doses. Small doses prolong the duration of the disease and the animal becomes very thin. Some escape and recover.

Whatever be the progress of the disease, whether slow or rapid, whether the injection be made with the stomach contents or with the culture of my microorganisms, we always find this microorganism in pure culture in the blood of the heart of the animal.

The mouse has the same receptivity. About 0.1 c. c. of the bouillon culture injected into the peritoneal cavity is sufficient to cause death in six hours. After a hypodermic injection of 0.25 c. c. the animal dies in twenty-four hours.

It is somewhat different with rats. I have found some which did not react, with either hypodermic or intraabdominal injection. Most of them have a certain disposition to react to injection of the contents of the stomach, and also of my cultures.

The chicken has an almost perfect immunity. We may inject either the contents of the stomach or the culture subcutaneously, or into the abdominal cavity, without producing any apparent alteration in its condition.

The dog shows some remarkable symptoms. If the stomach contents are injected into this animal subcutaneously he presents symptoms of slight infection, manifested by restlessness, loss of appetite, etc. After twenty-four hours he recovers, and some days later an abscess forms at the point of infection.

After injection of my culture the dog shows the same disturbances, but no abscess forms. I have not injected the contents of the stomach into the abdomen of the dog, but in injecting 5 c. c. of my culture into the peritoneal cavity, general and uncertain morbid symptoms showed themselves. These last about two days. A dog weighing 10 kilos injected with 10 c. c. dies with symptoms of poisoning.

If the injection of culture in a dog results in no appreciable reaction, and if injection of the contents of the stomach produced only an abscess, and if again we make an injection stronger than the first and the dog reacts little, but does not die, I think these facts should be taken as signs of the commencement of immunization. Last year I increased the immunization of the dog to such a degree that the injection of its serum saved guinea pigs which had been injected with my culture, while the control animals died. At that time my labors were not sufficiently established, and I refer to the fact cited above only in passing. I propose to recur to it again.

The bacillus of which I speak tends to lose its virulence rapidly and at the same time to change its form, which is a species of degeneration. The virulent culture shows great numbers of bipolar bacilli, which transform themselves into uniform rods. In old cultures these rods became longer at the same time that their virulence greatly diminishes. When we pass these cultures through animals we restore the toxicity of the microbe, and if we continue these passages they again deteriorate.

In my former experiments and those of this year I verified the results as to the toxicity of the bacillus, as follows:

When a bouillon culture of some days growth is filtered and we inject the filtered liquid even in large quantities into a guinea pig the animal remains alive. When there have been errors in the experiment some microorganisms may pass through the filter and cause the death of the animal, but there is no toxic substance present. I forestalled this objection by passing the liquid through three Pukal filters at the same time that I made cultures of the filtered liquid and injected. The experiment had no value except when the cultures remained sterile. The result is that the toxic substance of the bacillus does not diffuse itself throughout the liquid but remains inherent to its own body.

Another important fact is the following:

When a virulent bouillon remains for three hours at a temperature of 65° the bacilli die. They may be injected even in large quantities with impunity.

This fact proves that the toxic substance of the bacillus destroys itself with relative ease.

From this exposition of the subject I conclude that *yellow fever is a disease, the toxic specific agent of which enters into the stomach and intestines, where it develops. It is only in exceptional cases that it invades other organs, and then only in small quantities.* In the stomach and the intestinal tube it forms a toxic substance, probably by dissolution of the body of the bacillus by the digestive fluids. The reabsorption of this poison causes grave alterations in the disease and eventually death. The guinea pig may be made to swallow large quantities of the stomach contents of yellow fever cadavers, and whether the stomach (gastric juice) be neutralized or not the animal does not react. This is true also of the cultures. When I had injured the œsophagus or the walls of the stomach, slightly, the animals died, but in these cases there was infection of the blood, for bacilli were found in it. I hope that the future will solve this question, as the question relative to cholera was solved by Nicati, Rietsch, and Koch himself.

It took me some time to differentiate my bacillus from that of the colon. When my bacillus is very virulent, it occurs in large numbers in the bipolar form. The bacillus coli behaves in a very different fashion. The colon bacillus is very motile; mine is probably immotile. The first (colon) grows in smooth plaques on gelatin; the other, in the form of pin heads. The bacillus coli develops, on potato, in abundance, with a

brownish color; mine grows moderately, and has a grayish color. Doubtless the bacillus coli exists also in the stomach, but its special seat is the lower part of the intestines, where it develops perfectly, and it never exists in the stomach in as great quantity as the one described. It is not as virulent and does not kill as speedily as mine. The bacillus which I have described, belongs, however, to the group of the bacilli of the colon and of typhus. It serves as a transition between these and the bacilli of hæmorrhagic septicæma, with which it has also some points of resemblance, and this conclusion is very satisfactory to me, for the clinical picture of yellow fever resembles very much that of diseases produced by the bacilli of this group.

CUBA.

Smallpox and yellow fever in Cuban seaports.

July 20: The United States consul at Cardenas reports that during the week ended July 17 there was in that city 1 death from yellow fever.

July 19: The United States consul at Cienfuegos reports that during the week ended July 18 there were in that city 5 deaths from yellow fever.

July 23: The United States consul at Matanzas reports that during the two weeks ended July 21 there were in that city 7 deaths from yellow fever.

July 23: The United States sanitary inspector at Habana reports that during the week ended July 22 there were in that city 48 deaths from yellow fever and 3 deaths from smallpox.

July 17: The United States consul at Santiago de Cuba reports that during the two weeks ended July 17 there were in that city 42 deaths from yellow fever.

Sanitary report from Habana.

HABANA, CUBA, *July 23, 1897.*

SIR: I have the honor to submit the following report for the week ended Thursday, July 22, 1897:

By the reports from the military hospitals yellow fever is decreasing both in number of cases and deaths from that disease. There is certainly no reason for either of these conditions, as the weather continues warm and the rainy season is at its height, with plenty of material on which the fever could feed.

Up to the last two weeks it was noticed that there were no cases occurring among the sailors of the Spanish navy, but lately five or six war vessels have gone to the navy yard, which is in close proximity to the Tallapiedra Wharf and closely adjoins a military hospital, where several cases have developed in the crews of said vessels. There are seven or eight war vessels now in the harbor and their complement must aggregate 1,500 men, many of whom, I learn, are not acclimated. This being true they will be doubly exposed to the danger of contracting the disease, being in close proximity to the worst infected wharves of the city.

But few cases are reported in the city and but one death outside of the military hospitals. Smallpox still exists to some extent, probably about 20 cases in the city, but few cases are reported in the military hospitals, and no deaths have occurred in those institutions in two weeks. The deaths from intestinal diseases have increased rapidly and have greatly augmented the deaths from all causes.

Lumber-laden schooners are still entering this port. Two of this number discharged their cargoes in the open bay, which was a wise movement, as, if they had gone to a wharf, it would have been to the Tallapiedra, now in its worst conditon. Vaccination of crews still continues and as several successful vaccinations occur among each vessel's crew it is a wise precaution of the bureau to carry out compulsory vaccination.

Deaths from all causes for the week ended Thursday, July 22, 1897.—Yellow fever, military hospitals, 47; city, 1; total, 48. Enteric fever, 14; pernicious fever, 6; paludal fever, 3; dysentery, 22; enteritis, 23; diphtheria, 1; smallpox, city, 3; total, 3; pneumonia, 3; tuberculosis, 28. Deaths from all causes, 264. Annual ratio per 1,000, 68.90.

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

Sanitary reports from Santiago.

SANTIAGO DE CUBA, *July 10, 1897.*

SIR: I have the honor of submitting the following report on the sanitary condition of Santiago de Cuba for the week ended July 10:

One hundred and seven deaths have been registered, 21 more than last week. Of these, 22 were from yellow fever, 36 from dysentery, 5 from tuberculosis, 12 from enteritis, 15 from pernicious, and 8 from remittent fevers; the rest from common diseases of noncontagious character. The military hospital is full of sick soldiers, and the number increases daily. Fresh troops are constantly arriving to open the campaign and most of them are unacclimated. Yellow fever increases to an alarming extent; malarial fevers abound, while dysentery and diarrhea prevail among the native population.

Respectfully, Dr. H. S. CAMINERO,
Sanitary Inspector, U. S. M. H. S.

SANTIAGO DE CUBA, *July 17, 1897.*

SIR: I have the honor to inform you that there were 102 deaths in Santiago for the week ended July 17. Of these, 20 were from yellow fever, 26 from dysentery, 10 from enteritis, 4 from tuberculosis, 6 from remittent, and 9 from pernicious fevers; the rest from common maladies of non contagious or infectious character.

There are 160 cases of yellow fever at present in the military hospital and about 2,000 sick soldiers, suffering from dysentery, malarial fevers, and tuberculosis. In the town among civilians it is impossible to estimate the number of sick cases, and the death rate is very high, owing, among other causes, to the want of medical assistance for the poor. The civil hospital is overcrowded, and its condition for the proper care of the sick not very favorable.

Respectfully, Dr. H. S. CAMINERO,
Sanitary Inspector, U. S. M. H. S.

FRANCE.

Epidemic of enteric fever in Marseilles declining.

CONSULATE OF THE UNITED STATES,
Marseilles, June 30, 1897.

SIR: Referring to my dispatch, No. 110, of May 19, I have the honor to further inform the Department that the epidemic of typhoid fever

here is declining. There are still many cases in the city, but the mortality has not been very high recently. According to the official report of the board of health for the seven days ended June 23, the total death rate was as follows:

June 17, 44 deaths; June 18, 40 deaths; June 19, 24 deaths; June 20, 31 deaths; June 21, 46 deaths; June 22, 39 deaths; June 23, 53 deaths; making a daily average of 39 and a fraction. The normal death rate at this season is about 35 per day.

Hence I feel warranted in assuring the Department that health conditions here now are fairly satisfactory.

I have the honor to remain, dear sir, your obedient servant,

CHAS. P. PRESSLY,
Vice and Deputy Acting Consul.

Hon. ASSISTANT SECRETARY OF STATE.

JAPAN.

Report of vessels inspected at Yokohama during year 1896–97.

YOKOHAMA, *July 1, 1897.*

SIR: I have the honor to report that, during the year July 1, 1896, to June 30, 1897, I have, as sanitary inspector, United States Marine-Hospital Service, inspected 152 ships bound for United States ports, or an average of 1 every two and one-half days. Of this number 80 carried steerage passengers. Of these I inclose a detailed statement showing that, of these vessels, 56 were British, 14 under United States flag, and 10 Japanese, and that, as all passengers already on board, and those destined for way ports, are examined quite as thoroughly as those embarking here for the United States, I have personally inspected 18,552 passengers during the year. If to these are added the crews of all the ships inspected, which will average fully 80 men for each vessel, the total of persons examined amounts to 30,712.

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

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

[Inclosure.]

Report of steerage passengers carried on ships bound for United States ports through and from Yokohama, Japan, and individually inspected, from July 1, 1896, to June 30, 1897.

Date of departure.	Name of ship.	Destination in United States.	Line.	In transit—		From Yokohama—		Total.	Landed Yokohama.
				To U. S. A.	Way.	To U. S. A.	Way.		
1896.									
July 4	China	San Francisco via Honolulu	P. M	228	234	50	79	591	
July 14	Belgic	do	O. & O	81	551	19	3	654	
July 23	Peru	do	P. M	40	43	14	34	131	10
Do	Victoria	Tacoma via Victoria	N. P	61	54	8		123	7
Aug. 1	Coptic	San Francisco	O. & O	184		23		207	19
Aug. 2	Altmore	Portland via Victoria	O. S. N	5	7			12	
Aug. 5	Annandale	Tacoma via Victoria	N. P	20	6	8		34	
Aug. 6	Miike Maru	Seattle via Honolulu	N. Y. K		9		260	269	3
Aug. 11	Rio de Janeiro	San Francisco via Honolulu	P. M	44	45	9	173	271	15
Aug. 15	Olympia	Tacoma via Victoria	N. P	28	13	6	8	55	2
Aug. 23	Evandale	do	N. P	9	21	8		38	
Aug. 27	Peking	San Francisco	P. M	220		41		261	16
Aug. 29	Monmouthshire	Portland	O. S. N		5			5	
Sept. 5	Doric	San Francisco via Honolulu	O. & O	84	224	10	7	325	30
Sept. 10	Yamaguchi Mar	Seattle via Honolulu	N. Y. K		46		31	77	7
Sept. 14	Braemar	Tacoma via Victoria	N. P	9	11	8	2	30	23
Sept. 15	China	San Francisco via Honolulu	P. M	122	189	21	16	348	44
Sept. 23	Belgic	San Francisco	O. & O	140		10		150	38
Sept. 25	Tacoma	Tacoma via Victoria	N. P	42	13	3	1	59	10
Sept. 27	Mount Lebanon	Portland via Victoria	O. S. N	12				12	
Oct. 2	Peru	San Francisco via Honolulu	P. M	38	296	12	221	567	29
Oct. 10	Coptic	do	O. & O	188	685	20	1	894	28
Oct. 13	Mount Lebanon	Portland via Victoria	O. S. N		12	3	2	17	
Oct. 15	Victoria	Tacoma via Victoria	N. P	80	33	8	39	160	
Do	Kiushiu Maru	Seattle via Honolulu	N. Y. K		204	5	42	251	7
Oct. 20	Ettrickdale	San Francisco				2		2	
Do	Rio de Janeiro	San Francisco via Honolulu	P. M	31	114	14	304	463	6
Oct. 31	Olympia	Tacoma via Victoria	N. P	34	15	9	7	65	
Do	Altmore	Portland via Honolulu and Victoria	O. S. N		72	1	141	214	
Nov. 7	Peking	San Francisco via Honolulu	P. M	134	389	36	11	570	21
Nov. 16	Doric	San Francisco	O. & O	148		27		175	22
Nov. 17	Sakura Maru	Seattle via Honolulu	N. Y. K			3	222	225	
Nov. 21	Macduff	Tacoma via Victoria	N. P	5		5	6	16	
Nov. 24	China	San Francisco via Honolulu	P. M	139	269	23	9	440	27
Nov. 30	Monmouthshire	Portland via Victoria	O. S. N	13	7		3	23	
Dec. 3	Braemar	Tacoma via Victoria	N. P	25	27	11	4	67	
Dec. 5	Belgic	San Francisco via Honolulu	O. & O	92	38	12	3	145	6
Dec. 21	Tacoma	Tacoma via Victoria	N. P	47	4	18	5	74	
Dec. 22	Coptic	San Francisco via Honolulu	O. & O	102	395	9	1	507	26
Dec. 24	Tenshin Maru	Seattle via Honolulu	N. Y. K		37		299	336	
Dec. 31	Rio de Janeiro	San Francisco via Honolulu	P. N	49	71	11	129	260	4

Report of steerage passengers carried on ships bound for United States ports, etc.—Continued.

Date of departure.	Name of ship.	Destination in United States.	Line.	In transit—		From Yokohama—		Total.	Landed Yokohama.
				To U. S. A.	Way.	To U. S. A.	Way.		
1897.									
Jan. 9	Victoria	Tacoma via Victoria	N. P.	49	39	6		94	1
Jan. 10	Gaelic	San Francisco	O. & O.	139		9		148	37
Jan. 19	Peking	San Francisco via Honolulu	P. M.	55	193	19	1	268	7
Jan. 20	Wakanoura Mar.	Seattle via Victoria	N. Y. K.			1	99	100	
Jan. 28	Doric	San Francisco via Honolulu	O. & O.	52	136	4	1	193	16
Jan. 30	Olympia	Tacoma via Victoria	N. P.	48	65	11	14	138	
Feb. 2	Mount Lebanon	Portland via Victoria	O. S. N.		12		3	15	
Feb. 6	China	San Francisco	P. M.	45		22		67	19
Feb. 25	Peru	San Francisco via Honolulu	P. M.	25	132	26		183	18
Mar. 4	Monmouthshire	Portland via Victoria	O. S. N.	130		2		132	
Mar. 5	Sakura Maru	Seattle via Honolulu	N. Y. K.	5	232	6	84	327	
Mar. 7	Coptic	San Francisco	O. & O.	82		45		127	15
Mar. 9	Braemar	Tacoma via Victoria	N. P.	18	18	14	54	104	1
Mar. 13	Rio de Janeiro	San Francisco via Honolulu	P. M.	39	300	6	29	374	8
Mar. 22	Tacoma	Tacoma via Victoria	N. P.	182	52	36	19	289	1
Mar. 24	Gaelic	San Francisco via Honolulu	O. & O.	220	88	86		394	23
Mar. 30	Tenshin Maru	Seattle	N. Y. K.	8		4		12	
Apr. 3	Victoria	Tacoma via Victoria	N. P.	367	68	33	32	500	3
Apr. 4	Peking	San Francisco	P. M.	174		36		210	19
Apr. 13	Doric	San Francisco via Honolulu	O. & O.	227	551	45		823	46
Apr. 19	Pelican	Tacoma via Victoria	N. P.	42	3	7	11	63	
Apr. 22	Olympia	do	N. P.	109	53	6	20	188	
Apr. 24	China	San Francisco via Honolulu	P. M.	581	61	40	275	957	42
May 4	Belgic	do	O. & O.	199	314	26	107	646	40
May 11	Mt. Lebanon	Tacoma via Victoria	N. P.		12	1		13	
May 14	Peru	San Francisco via Honolulu	P. M.	104	190	39		333	17
May 17	Pathan	Tacoma via Victoria	N. P.	12				12	
May 18	Yamaguchi Mar.	Seattle	N. Y. K.			2		2	11
May 22	Coptic	San Francisco via Honolulu	O. & O.	215	538	3		756	68
May 24	Monmouthshire	Portland via Victoria	O. S. N.	53	51	9	27	140	
May 29	Braemar	Tacoma via Victoria	N. P.	2	7		129	138	1
June 1	Rio de Janeiro	San Francisco	P. M.	180		42		222	25
June 7	Tacoma	Tacoma via Victoria	N. P.	110	35			145	3
June 10	Gaelic	San Francisco via Honolulu	O. & O.	299	272	1	2	574	31
June 12	Victoria	Tacoma via Victoria	N. P.						3
June 20	Peking	San Francisco via Honolulu	P. M.	135	218	53	14	420	12
June 25	Matsuyama Mar.	Seattle	N. Y. K.	5		2		7	
June 27	Pelican	Tacoma via Victoria	N. P.	13	29		70	112	
June 29	Doric	San Francisco	O. & O.	183		20		203	19
Total				6,561	7,808	1,129	3,054	18,552	906

Report of vessels inspected at Yokohama during June, 1897.

YOKOHAMA, *July 6, 1897.*

SIR: I have the honor to report that, from June 1 to June 30, inclusive, I inspected vessels as follows: June 1, steamship *Rio de Janeiro*, for San Francisco; June 5, steamships *Glenshiel* and *Mogul*, for San Francisco; June 7, steamship *Tacoma*, for Tacoma via Victoria; June 10, steamship *Gaelic*, for San Francisco via Honolulu; June 12, steamship *Victoria*, for Tacoma via Victoria, and steamship *Argyll*, for New York via ports; June 14, steam vessel *R. D. Rice*, for New York via Kobe; June 15, steam vessel *Iranian*, for San Francisco; June 19, steamship *City of Peking*, for San Francisco via Honolulu; June 21, steam vessel *St. Paul*, for Delaware Breakwater via Manila; June 25, steamship *Matsuyama Maru*, for Seattle; June 27, steamship *Pelican*, for Tacoma; June 29, steamship *Doric*, for San Francisco, and steamship *Glenesk* for New York via ports; June 30, steamship *Afridi*, for New York via ports.

All the above-named ships were free from infection.

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

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

Sanitary report from Yokohama.

YOKOHAMA, *July 8, 1897.*

SIR: I have the honor to forward herewith my regular report of infectious diseases in Japan for period June 28 to July 6.

And 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 28 to July 6, 1897.

Locality.	Cholera.		Dysentery.		Smallpox.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Kioto Fu			1	1		
Osaka Fu	*13	2	10		19	
Tokyo Fu	3		65	(†)		
Aichi Ken			63	13	16	4
Akita Ken						
Awomori Ken			2		10	2
Chiba Ken			1		1	
Fukui Ken			1	1		
Fukuoka Ken	1					
Fukushima Ken					5	2
Gifu Ken			3	1		
Gumma Ken			13	2	4	
Hiogo Ken	1	1	3		1	
Hiroshima Ken						
Ibaraki Ken			7	1	1	3
Ishikawa Ken					1	
Iwate Ken			2	1	2	
Kagawa Ken						
Kagoshima Ken			53	1	5	
Kanagawa Ken (Yokohama)			7		1	1
Kochi Ken						
Kumamoto Ken			26		6	
Miyagi Ken					12	1
Miyazaki Ken			6		1	

* May 1 to June 27, not before reported by Government. † No report.

Report of infectious disease in Japan, June 28 to July 6, 1897—Continued.

Locality.	Cholera.		Dysentery.		Smallpox.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Miye Ken					20	8
Nagano Ken					1	
Nagasaki Ken					94	23
Nara Ken						
Niigata Ken			8		75	17
Oita Ken			2		11	4
Oyama Ken	1					
Okinawa Ken			1		3	2
Saga Ken					3	
Saitama Ken			1			
Shidzuoka Ken						
Shiga Ken			1	1	10	1
Shimane Ken						
Tochigi Ken			19	8	1	
Tokushima Ken					6	
Tottori Ken			1	1	5	2
Toyama Ken						
Wakayama Ken						
Yamagata Ken					1	
Yamaguchi Ken						
Yamanashi Ken			1		1	
Yehime Ken			20		7	1
The Hokkaido					51	14
Taiwan (Formosa)	*13					
Totals			317	31	374	86

* Plague.

MEXICO.

Sanitary report from Tampico.

TAMPICO, MEXICO, *July 18, 1897.*

SIR: The health of this port remains about the same as per last report. Mortality for April, 76; May, 83; June, 72. No deaths from yellow fever, smallpox, cholera, or typhus fever, on official record. Arrivals of American seamen for quarter ended June 30, 1,692, with no sickness or deaths.

The boards of health of Mobile and New Orleans have a health inspector at this port who makes reports direct to them. The mortality of this port is in a great measure confined to the Indian village, 4 miles below the city. They persist in their refusal to employ medical advice.

I am sir, yours respectfully, JOHN MAGUIRE,
United States Consul.

STATISTICAL REPORTS.

BAHAMAS—*Dunmore Town.*—Two weeks ended July 16, 1897. Estimated population, 1,472. One death. No death from contagious disease.

Governors Harbor.—Two weeks ended July 17, 1897. Estimated population, 1,500. One death. No death from contagious disease.

Green Turtle Cay—Abaco.—Estimated population, 3,900. Two weeks ended July 15, 1897. No deaths.

Inagua.—Month of June, 1897. Estimated population, 1,200. No deaths.

Long Cay.—Month of June, 1897. Estimated population, 3,900. No deaths.

BERMUDA.—Two weeks ended July 16, 1897. Estimated population, 15,013. Total deaths, 1. No death from contagious disease.

CHILE—*Valparaiso.*—Month of May, 1897. Estimated population, 126,500. Total deaths, 419, including enteric fever, 11; scarlet fever, 1; diphtheria, 4, and whooping cough, 2.

FRANCE—*Nice.*—Month of May, 1897. Estimated population, 108,227. Total deaths, 160, including phthisis pulmonalis, 16; enteric fever, 1, and diphtheria and croup, 3.

Roubaix.—Month of June, 1897. Estimated population, 126,000. Total deaths, 169, including enteric fever, 1, diphtheria, 2, and whooping cough, 1.

GREAT BRITAIN—*England and Wales.*—The deaths registered in 33 great towns in England and Wales during the week ended July 10 correspond to an annual rate of 15.1 a thousand of the aggregate population, which is estimated at 10,992,524. The highest rate was recorded in Preston, viz, 23.1, and the lowest in Croydon, viz, 7.3 a thousand.

London.—One thousand two hundred and ninety-three deaths were registered during the week, including measles, 26; scarlet fever, 18; diphtheria, 43; whooping cough, 30; enteric fever, 10, and diarrhea and dysentery, 84. The deaths from all causes correspond to an annual rate of 15.1 a thousand. In greater London, 1,577 deaths were registered, corresponding to an annual rate of 13.1 a thousand of the population. In the "outer ring" the deaths included 5 from diphtheria, 3 from measles, 1 from scarlet fever, and 7 from whooping cough.

Ireland.—The average annual death rate represented by the deaths registered during the week ended July 10 in the 23 principal town districts of Ireland was 19.3 a thousand of the population. The lowest rate was recorded in Armagh, viz, 0.0, and the highest in Sligo, viz, 35.5 a thousand. In Dublin and suburbs 145 deaths were registered, including scarlet fever, 1; whooping cough, 2; diphtheria, 2; typhus fever, 1, and enteric fever, 1.

Scotland.—The deaths registered in 8 principal towns during the week ended July 10 correspond to an annual rate of 17.7 a thousand of the population, which is estimated at 1,549,907. The lowest mortality was recorded in Greenock, viz, 11.8, and the highest in Dundee, viz, 22.6 a thousand. The aggregate number of deaths registered from all causes was 529, including measles, 17; scarlet fever, 7; diphtheria, 0, and whooping cough, 20.

RUSSIA—*Riga.*—Month of April, 1897. Estimated population, 282,000. Total deaths, 488, including phthisis pulmonalis, 59; enteric fever, 12; scarlet fever, 20; diphtheria, 10; measles, 32, and whooping cough, 6.

UNITED STATES OF COLOMBIA—*Panama.*—Ten days ended July 13, 1897. Estimated population, 16,000. Total deaths not reported. Fifteen cases and 7 deaths from yellow fever.

MORTALITY TABLE, FOREIGN CITIES.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—								
				Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Aix la Chapelle	July 3	112,862	42	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alexandria	June 10	231,396	241	.....	.....	.....	.....	.....	.....	1	4	3
Do	June 24	231,396	240	.....	.....	.....	.....	1	.....	2	8	1
Amapala	June 19	1,500	0	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	June 26	1,500	1	.....	.....	.....	.....	1	.....	.....	.....	.....
Amherstburg	July 17	2,300	0	.....	.....	.....	.....	.....	.....	.....	.....	.....
Amsterdam	July 10	496,511	123	.....	.....	.....	.....	.....	.....	.....	.....	2
Belfast	..do	281,431	101	.....	.....	.....	.....	4	.....	.....	.....	3
Belleville	July 20	10,399	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bergen	June 30	57,800	19	.....	.....	.....	.....	1	.....	.....	.....	.....
Birmingham	July 10	505,772	157	.....	.....	.....	.....	.....	.....	.....	8	3
Bluefields	do	3,000	0	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bradford	do	221,600	61	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bremen	June 26	142,501	42	.....	.....	.....	.....	.....	.....	1	.....	.....
Bristol	July 10	232,242	55	.....	.....	.....	.....	.....	1	.....	.....	.....
Brussels	July 3	507,985	158	.....	.....	.....	.....	3	.....	.....	2	.....
Budapest	July 9	640,000	.....	.....	.....	.....	1	.....	2	.....	2	3
Cairo	June 10	374,838	392	.....	.....	3	1	9	.....	1	6	.....
Do	June 24	374,838	385	.....	.....	1	2	7	.....	3	5	1
Callao	June 20	20,000	27	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	June 27	20,000	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cardenas	July 17	23,517	37	.....	1	.....	3	10	.....	1	.....	.....
Cardiff	July 10	170,063	49	.....	.....	.....	.....	1	2	1	2	.....
Catania	July 6	120,000	69	.....	.....	.....	.....	2	2	2	.....	.....
Cologne	July 3	334,970	186	.....	.....	.....	.....	1	.....	.....	1	6
Colombo	June 12	130,000	75	.....	.....	.....	.....	2	.....	.....	.....	.....
Copenhagen	July 3	333,714	104	.....	.....	.....	.....	1	.....	.....	.....	1
Dublin	July 10	350,000	145	.....	.....	.....	.....	1	.....	.....	.....	.....
Dundee	do	163,090	71	.....	.....	.....	.....	3	.....	.....	.....	2
Dusseldorf	July 3	185,759	85	.....	.....	.....	.....	.....	.....	1	.....	.....
Edinburgh	July 10	292,364	103	.....	.....	.....	.....	.....	3	.....	6	4
Flushing	do	17,193	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Frankfort on the Main	do	240,000	66	.....	.....	.....	.....	.....	.....	.....	.....	1
Gibraltar	July 4	25,900	9	.....	.....	.....	.....	.....	.....	2	.....	.....
Girgenti	July 3	24,428	14	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 10	24,428	13	.....	.....	.....	.....	.....	.....	.....	.....	.....
Glasgow	do	714,919	230	.....	.....	.....	.....	5	?	.....	2	6
Gothenburg	July 3	115,896	29	.....	.....	.....	.....	.....	.....	.....	.....	.....
Halifax	July 17	38,700	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hamburg	July 10	641,780	194	.....	.....	.....	.....	.....	.....	.....	.....	1
Kingston, Canada	July 23	18,040	13	.....	.....	.....	.....	.....	.....	.....	.....	.....
Konigsberg	July 10	171,700	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Leeds	do	402,449	46	.....	.....	.....	.....	1	1	1	3	4
Leghorn	July 3	103,755	37	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	July 10	103,755	37	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leith	do	75,186	32	.....	.....	.....	.....	.....	.....	.....	5	4
Licata	July 3	20,000	9	.....	.....	.....	2	1	.....	.....	.....	.....
Do	July 10	20,000	14	.....	.....	.....	1	2	.....	.....	.....	.....
Liege	do	166,110	43	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liverpool	do	644,129	246	.....	.....	.....	1	2	3	.....	12	8
Livingston	do	2,000	0	.....	.....	.....	.....	.....	.....	.....	.....	.....
London, Canada	July 17	34,855	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
London, England	July 3	6,291,677	1,521	.....	.....	.....	.....	5	17	37	34	28
Lyons	June 26	466,767	163	.....	.....	.....	.....	.....	1	.....	1	.....
Do	July 3	466,767	195	.....	.....	.....	.....	.....	.....	1	.....	.....
Magdeburg	June 12	218,203	73	.....	.....	.....	.....	.....	.....	1	2	.....
Do	June 19	218,203	79	.....	.....	.....	.....	.....	.....	1	.....	1
Mannheim	July 3	101,500	58	.....	.....	.....	.....	.....	.....	.....	2	.....
Do	July 10	101,500	54	.....	.....	.....	.....	.....	.....	1	3	.....
Matamoras	July 16	12,000	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mayence	July 10	74,917	29	.....	.....	.....	.....	.....	.....	1	1	.....
Moscow	June 26	989,000	851	.....	.....	1	1	1	10	19	8	2
Do	July 3	989,000	754	.....	.....	.....	1	.....	9	11	15	3
Munich	do	418,000	208	.....	.....	.....	.....	2	...	5	7	2
Nagasaki	June 22	71,730	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Newcastle on Tyne	July 3	212,223	63	.....	.....	.....	.....	.....	.....	.....	6	.....
Do	July 10	212,223	62	.....	.....	.....	.....	1	.....	1	4	.....
Nuremberg	June 26	173,817	61	.....	.....	.....	.....	.....	1	.....	.....	.....
Odessa	July 3	404,000	188	.....	.....	.....	.....	.....	2	.....	1	.....
Osaka and Hiogo	June 26	182,730	93	1	.....	.....	.....	1	.....	.....	.....	.....
Do	July 3	182,730	99	.....	.....	.....	.....	.....	.....	1	.....	.....
Palermo	do	273,000	143	.....	.....	.....	1	.....	.....	3	.....	.....
Do	July 10	273,000	111	.....	.....	.....	.....	1	.....	.....	.....	.....
Plymouth	do	97,340	27	.....	.....	.....	.....	.....	.....	.....	.....	1

MORTALITY TABLE, FOREIGN CITIES—Continued.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—								
				Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Port Antonio	July 10							1				
Prague	July 3	193,097	125					1		8	2	
Puerto Cortez	July 14	2,000	0									
Rheims	June 26	108,943	54									1
Rotterdam	July 10	288,863	94									
St. Georges	do	2,150	1									
Do	July 17	2,150	0									
St. Petersburg	July 10	1,267,023	641			3		15	16	40	25	1
St. Stephen	July 17	3,000										
St. Thomas	June 11	12,019	11									
Do	June 18	12,019	12									
Do	June 25	12,019	14									
San Juan del Norte	June 26	1,437	2									
Do	July 10	1,437	0									
Schiedam	do	26,627	9									
Sheffield	do	354,390	103						1		3	4
Sonneberg	June 12	12,000	6									
Do	June 19	12,000	7									
Do	June 26	12,000	3									
Do	July 3	12,000	3									
Southampton	July 10	98,002	24								2	
South Shields	July 3	95,798	34					1			1	
Do	July 10	95,798	25						1			
Stettin	July 3	150,000	76									
Stockholm	do	277,611	82									
Stuttgart	July 8	158,378	55							1		
Sunderland	July 10	142,107	37								1	1
Swansea	Apr. 3	98,250	29									
Do	Apr. 10	98,250	26									
Do	Apr. 17	98,250	21									
Do	Apr. 24	98,250	20									
Do	May 1	98,250	33					1				
Do	May 8	98,250	27									
Do	May 15	98,250	20					1				
Do	May 22	98,250	27						1			1
Do	May 29	98,250	24						1			
Do	June 5	98,250	20									
Do	June 12	98,250	24									
Do	June 19	98,250	24									
Do	June 26	98,250	30									
Trapani	July 3	45,095	15									
Do	July 10	45,095	13									
Trieste	July 3	158,314	103						1	1		
Tuxpan	do	10,280	4									
Vera Cruz	July 15	30,000	30									
Warsaw	July 3	601,408	243			1	2		1	5	3	1
Yarmouth	July 18	6,500	1							1		
Yokohama	June 17	170,252								1		
Do	June 26	170,252								1		
Zürich	July 3	155,000	46				1			1		

By authority of the Secretary of the Treasury:

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