

ABSTRACT OF SANITARY REPORTS.

VOL. V.

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UNITED STATES.

SPECIAL REPORTS.

Vessels sailing from Stettin, Germany, for the United States neglecting to take bills of health—Action taken.

Through the honorable the Secretary of State information has been received that the German sailing-vessel *Ferdinand* left Stettin, Germany, bound for Philadelphia, on the 30th of April, without a bill of health. The United States consul at Stettin reports that this is the second instance of the kind since the 1st of January. The United States quarantine officer at the Delaware Breakwater has been notified to examine this vessel thoroughly on its appearance, and information was also sent to the president of the Philadelphia board of health for such action as he might deem proper. The following is his reply :

Your communication of June 5, in regard to vessel *Ferdinand*, Captain Düring, from Stettin, April 30, received. The fact of said vessel leaving port without a bill of health creates a suspicion which will render detention for observation, as well as penalty, necessary. The vessel has not yet arrived. Thanking you for your notice, I remain,

Yours truly,

WILLIAM H. FORD.

Yellow fever at Gulf quarantine station—Length of time that infection may be retained by fomites.

The following letter has been received from Passed Assistant Surgeon H. R. Carter, in command of the United States quarantine station at North Chandeleur Island, Louisiana :

JUNE 1, 1890.

SIR: I would respectfully invite your attention to the yellow fever aboard the *Avon* as illustrating the length of time which fomites can retain this infection.

From the officer's statements, the log, and other evidence submitted to me, I find no sickness aboard the vessel at Rio, where she lay at the Coal Islands, a healthy part of the harbor, no sickness en route, save

colics, etc., until the thirty-eighth day out, when two men of the port-watch reported sick; one of these has yellow fever.

The source of infection is quite certainly in the port fore-castle, probably in the dunnage of some of the men, most probably the one shipped in Rio.

She is a new ship and, all things considered, cleaner than the average.

Doctor Carter further reports, under the same date, that the condition of this vessel was fairly good on arrival; that there was no suspicious sickness while in Rio, or en route, until the 28th May, when two men sickened and were sick on arrival. One case proved to be yellow fever and the other a febricula, possibly from exposure. The first-named case died on the 1st instant. The master of the vessel states that no seamen went ashore in Rio, but he shipped one man there to replace a deserter. The ship lay at the Coal Island, and all ships there were healthy. The crew continued well until thirty-eight days out, when the boy sickened. He had not been at work cleaning the hold, being at the pump on deck. He was on the same watch and had the bunk above the man shipped in Rio. The log of the vessel confirms these statements as far as it could be expected to. There are several unacclimated persons on board, mostly on the opposite watch. The vessel has been disinfected as far as possible while in ballast, and is held for more complete disinfection after discharge of ballast. The remaining patient has been taken to the hospital.

CHelsea, MASS.—*Small-pox*.—Surgeon Fairfax Irwin, M.-H. S., reports a case of small-pox in Chelsea.

Reports of States, and yearly and monthly reports of cities.

CALIFORNIA—*Sacramento*.—Month of May, 1890. Population, 35,000. Total deaths, 37, including phthisis pulmonalis 5 and enteric fever 3.

COLOREADO—*Denver*.—Month of May, 1890. Population, 150,000. Total deaths, 218, including phthisis pulmonalis, 29; croup, 4; diphtheria, 26; enteric fever, 9; typhus, 1; measles, 9; and scarlet fever, 3.

INDIANA—*Evansville*.—Month of May, 1890. Population, 50,000. Total deaths, 51, including phthisis pulmonalis, 7; diphtheria, 4; enteric fever, 1; and whooping-cough, 1.

IOWA—*Dubuque*.—Month of May, 1890. Population, 40,000. Total deaths, 36, including phthisis pulmonalis 1 and diphtheria 2.

KEOKUK.—Month of May, 1890. Population, 19,825. Total deaths, 16, including phthisis pulmonalis, 5; scarlet fever, 1; and diphtheria, 2.

KENTUCKY—*Louisville*.—Month of May, 1890. Population, 227,000. Total deaths, 247, including phthisis pulmonalis, 24; diphtheria, 2; enteric fever, 5; and whooping cough, 1.

MASSACHUSETTS—*Fall River*.—Month of May, 1890. Population, 69,000. Total deaths, 101, including phthisis pulmonalis, 13; croup, 1; diphtheria, 1; and enteric fever, 3.

MICHIGAN.—Month of May, 1890 Reports to the State board of health, Lansing, compared with the preceding month, indicate that typho-malarial fever, cholera infantum, cholera morbus, and whooping-cough increased, and that typhoid fever, membranous croup, puerperal fever, and pneumonia decreased in prevalence.

Compared with the average for the month of May in the four years 1886-1890, membranous croup and cerebro-spinal meningitis were more prevalent, and small-pox, typhoid fever, cholera morbus, cholera infantum, dysentery, intermittent fever, and scarlet fever were less prevalent in May, 1890.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of May, 1890, at 62 places, scarlet fever at 49 places, typhoid fever at 24 places, and measles at 113 places.

Reports from all sources show diphtheria reported at 9 places more, scarlet fever at 5 places less, typhoid fever at 7 places more, and measles at 17 places more in the month of May, 1890, than in the preceding month.

For the week ending May 31, 1890, reports from 66 observers indicate that inflammation of brain, cholera infantum, diphtheria, pleuritis, and scarlet fever increased, and that erysipelas, cholera morbus, typho-malarial fever, and measles decreased in area of prevalence.

Diphtheria was reported at 28 places; scarlet fever, which increased by 32 per cent., at 25 places; enteric fever, which decreased by 77 per cent., at 3 places, and measles at 52 places.

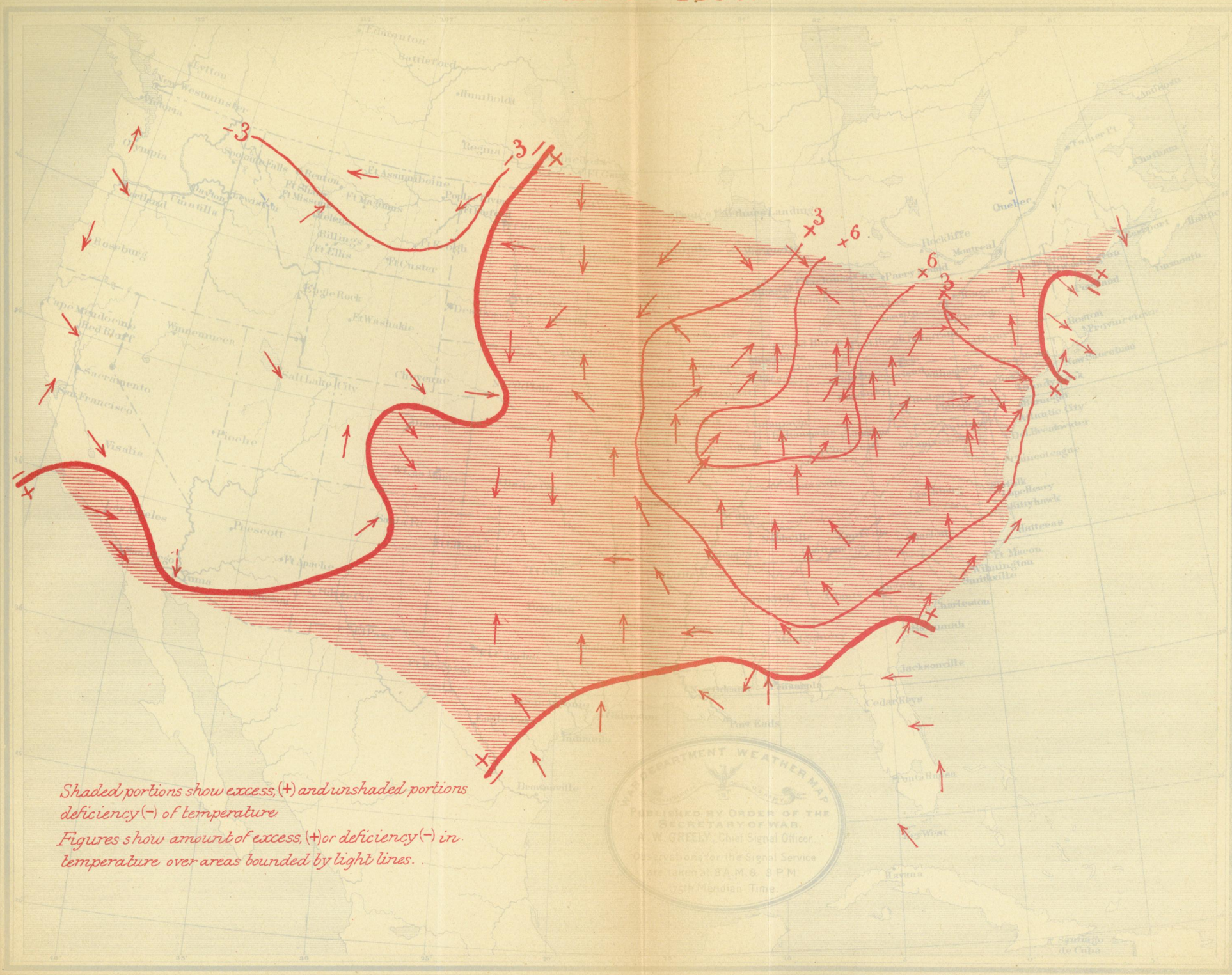
MINNESOTA.—Month of April, 1890. Reports to the State board of health show a total of 842 deaths in a population of 1,047,860, including measles, 5; scarlet fever, 9; diphtheria, 28; croup, 4; and enteric fever, 18.

During the first quarter of 1890 there were 464 deaths, including measles, 8; scarlet fever, 40; diphtheria, 151; croup, 37; whooping-cough, 10; enteric fever, 73; and phthisis pulmonalis, 314.

NEW JERSEY—*Hudson County*.—Month of April, 1890. Population, 292,734. Total deaths, 560, including phthisis pulmonalis, 61; measles, 2; scarlet fever, 4; diphtheria, 36; whooping-cough, 3; and enteric fever, 9.

*Temperature and Prevailing Direction of Wind, week ending
June 6th. 1890.*

Form 106 F



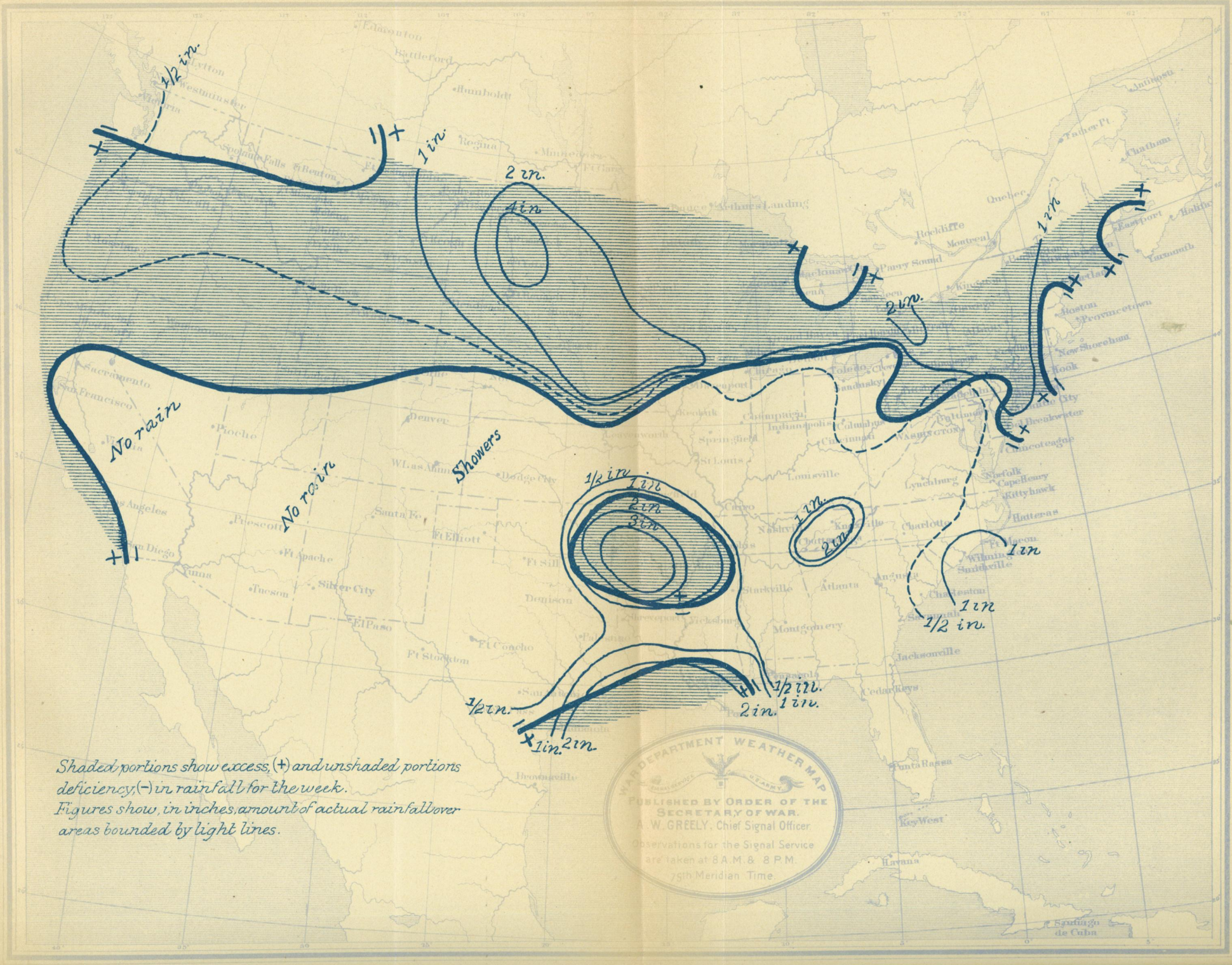
*Shaded portions show excess (+) and unshaded portions
deficiency (-) of temperature*

*Figures show amount of excess (+) or deficiency (-) in
temperature over areas bounded by light lines.*

WAR DEPARTMENT WEATHER MAP
PUBLISHED BY ORDER OF THE
SECRETARY OF WAR.
W. GREELY, Chief Signal Officer.
Observations for the Signal Service
are taken at 8 A.M. & 3 P.M.
on Mountain Time.

Rainfall, week ending June 6th. 1890.

Form 106 F.



Shaded portions show excess, (+) and unshaded portions deficiency, (-) in rainfall for the week. Figures show, in inches, amount of actual rainfall over areas bounded by light lines.

Temperature and precipitation, week ending June 7, 1890.

[Received from the Signal Office, War Department.]

TEMPERATURE.

The temperature during the past week has been above the average in all districts east of the Rocky Mountains, except in the extreme southern portion of the Gulf States, in Florida, and southern New England. In the northern plateau region and on the north Pacific coast it has generally been below the normal; in southern California it has been slightly above. The daily temperature has been from 1° to 3° above the average in the middle Atlantic States and the central valleys. In Ohio, Indiana, and lower Michigan, where the greatest excess of temperature for the week occurred, it has been from 6° to 7° above the average.

The temperature for the season, from January 1 to June 6, has been above the normal, except in the Northwest and on the Pacific coast. The greatest seasonal excess in temperature is reported from the middle Atlantic States, where the daily average for the entire period has been about 4° above the average. The daily excess of temperature ranged from 1° to 2° in New England, the lower lake region, the Ohio Valley, and Southern States. In the region where the seasonal temperature has been below the normal, the daily deficiency did not amount to more than 1° , except in northern Montana, where it was about 4° .

PRECIPITATION.

The rain-fall for the past week has been above the average in the Northern States and Territories, and slightly below in the Southern and Middle States, except in Arkansas, southern Louisiana, and extreme southern Texas. Heavy rain-falls have occurred in Arkansas, where the average has been about three and one-half inches. Three inches are reported from southern Louisiana, and three and one-half inches on the northeast Texas coast. The heaviest rain-fall for the week was reported from North Dakota, where the rain-fall ranged from 2.50 to nearly 4.50 inches. The greatest deficiency in rain-fall has been in the south Atlantic States and in the Ohio Valley and Tennessee.

The rain-fall for the season continues in excess in the Lake region, New England, the Ohio Valley, Tennessee, Arkansas, and Texas. There has been about one-half more rain than usual in Missouri and northern Arkansas, and about one-quarter more in the Lake region and the Ohio Valley. The south Atlantic and east Gulf States have received from 65 to 75 per cent. of the seasonal rain-fall. The rains of the past week in North and South Dakota have reduced the seasonal deficiency in those States, so that at the end of the week they had received from 85 to 90 per cent. of the seasonal rain-fall, except in the Red River Valley, where only about 60 per cent. of the usual amount has fallen.

The seasonal rain-fall has been above the normal in northern California and Oregon, while in southern California and Washington it has been slightly below the normal.

FOREIGN.

(Reports received through the Department of State and other channels.)

GREAT BRITAIN—*England and Wales.*—The deaths registered in 28 great towns of England and Wales during the week ended May 24 corresponded to an annual rate of 18.6 a thousand of the aggregate population, which is estimated at 9,715,559. The lowest rate was recorded in Huddersfield, viz, 9.4, and the highest in Manchester, viz, 28.0 a thousand. Diphtheria caused 2 deaths in Manchester, 4 in Salford, and 3 in Liverpool.

London.—One thousand four hundred and fifty-one deaths were registered during the week, including measles, 94; scarlet fever, 15; diphtheria, 24; whooping-cough, 91; enteric fever, 6; and diarrhoea and dysentery, 10. The deaths from all causes corresponded to an annual rate of 17.1 a thousand. Diseases of the respiratory organs caused 294 deaths. In greater London 1,865 deaths were registered, corresponding to an annual rate of 16.9 a thousand of the population. In the "outer ring" the deaths included measles, 14; diphtheria, 3; and whooping-cough, 23.

Ireland.—The average annual death rate, represented by the deaths registered during the week ended May 24, in the 16 principal town districts of Ireland, was 23.0 a thousand of the population. The lowest rate was recorded in Kilkenny, viz, 0.0, and the highest in Galway, viz, 43.7 a thousand. In Dublin and suburbs 162 deaths were registered, including enteric fever, 3; whooping-cough, 4; and typhus, 1.

Scotland.—The deaths registered in eight principal towns during the week ended May 24 corresponded to an annual rate of 22.4 a thousand of the population, which is estimated at 1,345,563. The lowest mortality was recorded in Edinburgh, viz, 17.6, and the highest in Dundee, viz, 27.2 a thousand. The aggregate number of deaths registered from all causes was 580, including measles, 50; scarlet fever, 3; diphtheria, 8; whooping-cough, 42; fever, 2; and diarrhoea, 13.

Saint Helena—Beri-beri.—The United States consul states, under date of April 17, 1890, that beri-beri is quite prevalent on board of ships touching that island from the East Indian ports, and that during this season it has appeared on board of most of the whaling vessels that cruised on the South American coast off the river Plata and the coast of Patagonia. In the whaling fleets it attacked the masters and officers, while in the merchant marine it seems to have appeared altogether in the fore-castle.

SPAIN—*Cádiz.*—Month of April, 1890. The United States consul

reports a total of 223 deaths, including measles, 3; diphtheria, 11; and typhus fever, 3.

BRAZIL—Para.—The United States consul furnishes the following sanitary report, under date of May 8, 1890:

Referring to my dispatch of April 19, 1890, I now beg to inclose herewith a report on the sanitary condition of the port of Para made to me by Dr. Jose Paes de Carvalho, first vice-president of the State of Para, and one of the leading physicians of this city.

[Translation.]

Report on the health of the city of Para, by Dr. Jose Paes de Carvalho.

The health of the city of Para, from September last to the present date, has been satisfactory, in spite of the effect of the many natural influences; these influences having in a great measure nullified the precautions taken as a preventive against the introduction of diseases of an epidemic character, especially of infectious and contagious natures, owing their origin to the micro-organisms which are well known to be pernicious. The geological and climatic conditions of this part of Brazil are exceptional, the land being low and swampy. The damp and heat combined cause dangerous miasmas, which have a deleterious effect upon the health of the city.

During the latter part of last year there was no epidemic, the city was exceptionally healthy, and in the absence of epidemic sickness it was not considered necessary to take any unusual precautions, and as a matter of fact the death average was smaller than usual. During the year 1889 the official report of mortality was 2,965, representing the average of 3.7 per cent. on a population of 80,000. The daily mortality is proved to be 8 in Para, and in almost all the other capitals of States of the Republic the average is higher, and therefore it may be concluded that hygienic conditions as well as guarantee of life in this city are superior to others, in spite of the erroneous statements made by those who write without knowledge of things concerning Para. The average death rate would have been smaller if it were not for the frequent appearance of small-pox during these last years, choosing as victims chiefly people from Ceara and Maranham, who object to be vaccinated.

Yellow fever and other kinds of fever, as well as beri-beri, are endemic here, and the former only attack a limited number of newly-arrived foreigners, who do not take good care of themselves, and abuse intoxicating drinks.

There were forty-nine cases of yellow fever during the year 1889, as follows: From January 1 to April 25, 26; from April 26 to August 14, 14; from August 15 to December 31, 9.

Death record, 1890.

Months.	Mortality.	Yellow fever.
January	163	1
February	166	.....
March	213	2
April	197	3

PARA, BRAZIL, May 7, 1890.

CUBA—*Havana*.—Week ended May 29, 1890. Ten deaths from yellow fever were reported.

Week ended June 5, 1890. Ten deaths from yellow fever were reported.

Month of May, 1890. There were 694 deaths, including yellow fever 26; enteric fever, 24; pernicious fever, 11; intermittent fever, 1; bilious fever, 2; small-pox, 2; diphtheria and croup, 8; measles, 6; and glanders, 2.

Small-pox, which had six or eight weeks ago invaded to a considerable extent the district contiguous to the military hospital, seems to be on the decline, while yellow fever is increasing with the warm and rainy weather now prevailing.

BAHAMAS—*Nassau, N. P.*—May 10, 1890. Population, 12,000. Weather hot and dry. City healthy.

NICARAGUA—*San Juan del Norte*.—During the period from January 27 to April 21, 1890, there were 9 deaths in a population of 950, none of which were from contagious diseases. The prevailing diseases were malarial fevers, colds, and rheumatism.

Statistics of mortality for the city of Brussels for the year 1888.

[Translated for this Bureau from *Le Journal d'Hygiène*, Paris, May 22, 1890.]

Population of Brussels, 181,270. Deaths, 4,153. Principal causes of death: Phthisis pulmonalis, 548; diphtheria and croup, 64; measles, 80; meningitis, 182; typhoid fever, 46; scarlatina, 5; small-pox, 1.

Statistics of mortality for Turin, Italy, for the year 1888.

Population, 294,826. Deaths, 7,670. Mortality, 26.72 to 1,000 inhabitants. Principal causes of death: Small-pox, 52; measles, 118; scarlatina, 50; typhoid fever, 103; diphtheria and croup, 163; meningitis, 201; pulmonary tuberculosis, 608.

Experimental studies in tuberculosis.

[Translated for this Bureau from *La Rivista Internazionale d'Igiene*, Naples, May, 1890.]

At the Heidelberg congress of German naturalists and physicians, Schottelius stated that some years ago he instituted a series of experiments with tuberculous lungs interred in a wooden box at a depth of five feet, the usual mode of sepulture of bodies. After two years and a half he removed from the earth a quantity of tuberculous bacilli, for the most part spore-producing. From this material he obtained pure cultures which furnished positive results in 80 per cent. of his experiments in inoculation. He is now engaged in investigations with the object of ascertaining whether the virulence resides in the bacilli taken from the soil or in their spores. Soyka expresses the opinion that the greater number of the bacilli perish, but that some possess durability

and may recover their virulence under favorable conditions. Gärtner has observed bacilli in a cemetery abandoned for twenty-five years.

As a practical outcome of his investigations, Schottelius advises the disinfection of bodies of persons dead from infectious diseases.

Gebhardt has experimented on the sputum of consumptives, his object being to test the virulence of the sputum in different grades of dilution, and to ascertain whether the potentiality of the tuberculous virus is essentially modified by the organ first infected—that is to say, by the manner of infection. With this object he practiced hypodermic and intraperitoneal inoculation and experiments in inhalation and alimentation, and ascertained that the subcutaneous connective tissue, the peritoneum, and the lungs are inclined to receive and multiply the tuberculous virus in about an equal degree, while the digestive apparatus offers resistance. Hence tubercular virus may, especially in small quantities, pass through certain organs without provoking local alterations. As the point of ingress is not always the seat of the disease, pulmonary tuberculosis is not always to be attributed to infection by inhalation.

Sputum which contains bacilli is enormously infectious, retaining its virulence even in dilution of 1:100000, apparently without regard to the manner of infection. The virulence of the sputum being in proportion to the quantity of bacilli present, Gebhardt employed pure cultures of the bacilli of tuberculosis, on the hypothesis that equal quantities of the same culture contain equal quantities of bacilli. With a subcutaneous inoculation of 1 C. C. of a dilution in the proportion of 1:400000 and an inhalation of 0.5 C. C. of the same dilution in a culture of agar-agar he obtained positive results. Hence the pure cultures retain their virulence when enormously diluted.

Malassez and Vignal desiccated the sputum of tuberculosis, moistened it with water, again desiccated and pulverized it, and this repeatedly, endeavoring to realize, as far as possible, the conditions to which the sputum daily ejected in our streets is subjected. After successive desiccation and humectation the bacillus of the sputum retained all its virulence.

With regard to the penetration of tuberculous bacilli into the organism, Dobroklonski states, as the result of his experiments in the Cornil laboratory at Paris, that tuberculosis may attack the organism by way of the digestive apparatus. For this infection to occur, no lesion of the intestinal wall, epithelial desquamation, local modification, nor anterior inflammation is necessary. The tuberculous virus (bacilli and spores) may easily traverse the completely normal epithelial lining of the intestine, but it does not determine inflammation unless it remains for a length of time in contact with the intestinal wall. Dobroklonski asserts that the tuberculous spores and bacilli do not penetrate the organism by any fixed means, but that they are carried by the current of the lymphatic system, and, being arrested by the tissues, determine in them the formation of tubercles.

As a natural inference from Hirschberger's experiments demonstrating that tuberculous cows, or cows infected with tubercular phthisis, produce, in 55 per cent. of cases, infectious milk, it was supposed that milk from large dairies would contract virulent properties from the infectious milk of one tuberculous cow. A series of experiments, conducted by Gebhardt, under the direction of Bollinger, in the Pathological Institute of Monaco, show that tuberculous milk loses its viru-

lence at a certain dilution. The mixing of milk, practiced in large dairies, diminishes the danger, and in most cases renders the milk innocuous. Milk served by large dairies is always to be preferred to the continued use of milk from the same cow.

Studies in the transmission of tuberculosis from animals to men by means of tuberculous milk directed the attention of hygienists to the derivatives of milk, the most important of these being butter. Gasparini inoculated guinea-pigs with butter containing the bacillus of Koch, and by microscopic observation verified tubercular lesions in almost all cases.

Referring to his studies of the infectious property in the flesh of tuberculous animals, Kastner stated that the object of his experiments was to ascertain if such flesh contained virus, and to what extent the consumption of such flesh, as meat, was dangerous to man. From the results of his experiments he concludes that the danger is slight, unless the nodules of tuberculosis are formed in the meat, which is rarely the case.

MORTALITY TABLE—FOREIGN CITIES.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—							
				Cholera.	Yellow fever.	Small-pox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
London.....	May 17.....	5,758,500	1,823	.....	.....	.....	8	19	.....	91	.....
Paris.....	May 17.....	2,260,945	999	.....	.....	.....	.....	.....	.....	31	63
Glasgow.....	May 24.....	545,678	245	.....	.....	.....	1	1	.....	18	19
Rome.....	Apr. 26.....	418,217	177	.....	.....	.....	1	1	.....	5	.....
Copenhagen.....	May 17.....	312,387	122	.....	.....	.....	.....	1	.....	7	.....
Edinburgh.....	Apr. 26.....	271,135	103	.....	.....	.....	2	1	.....	.....	6
Palermo.....	May 17.....	250,000	82	.....	.....	.....	.....	.....	.....	.....	.....
Bradford.....	May 17.....	240,515	104	.....	.....	.....	1	2	.....	.....	.....
Genoa.....	May 24.....	180,265	79	.....	.....	3	2	.....	.....	3	.....
Trieste.....	May 17.....	158,054	75	.....	.....	.....	.....	.....	.....	.....	.....
Stuttgart.....	May 24.....	125,510	53	.....	.....	.....	.....	.....	.....	4	.....
Havre.....	May 17.....	112,074	64	.....	.....	.....	.....	2	.....	.....	3
Barmen.....	May 17.....	109,000	36	.....	.....	.....	1	.....	.....	.....	.....
Leghorn.....	May 18.....	103,659	61	.....	.....	.....	.....	.....	.....	.....	.....
Leghorn.....	May 25.....	103,659	59	.....	.....	.....	.....	.....	.....	.....	.....
Leith.....	Apr. 26.....	78,538	29	.....	.....	.....	.....	.....	1	.....	.....
Mayence.....	May 3.....	65,802	25	.....	.....	.....	.....	.....	.....	.....	.....
Mayence.....	May 17.....	65,802	27	.....	.....	.....	.....	2	.....	.....	.....
Cardenas.....	May 31.....	24,000	19	.....	.....	.....	.....	.....	.....	1	.....
Vera Cruz.....	May 22.....	23,800	27	.....	.....	.....	.....	.....	.....	.....	.....
Vera Cruz.....	May 29.....	23,800	20	.....	.....	.....	.....	.....	.....	.....	.....
Gibraltar.....	May 18.....	23,681	6	.....	.....	.....	.....	.....	.....	.....	.....
La Guayra.....	May 17.....	7,428	1	.....	.....	.....	.....	.....	.....	.....	.....
La Guayra.....	May 24.....	7,428	2	.....	.....	.....	.....	.....	.....	.....	.....

JOHN B. HAMILTON,
Supervising Surgeon-General, Marine-Hospital Service.