ABSTRACT OF SANITARY REPORTS.

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UNITED STATES.

SPECIAL REPORTS.

Entero-malarial fever.

By J. J. KINYOUN, Assistant Surgeon, M. H. S.

During the past year a careful search has been made in the majority of malarial and enteric fevers occurring at the Marine Hospital, New York, for the purpose of establishing the presence of the *Plasmodium malariae* in the blood and of the bacillus of Eberth in the spleen or intestinal canal.

The majority of malarial cases (over one hundred) were from one locality, viz, Virginia. They came from schooners engaged in the pine-wood trade between this port and Richmond. According to statements made by the patients, in nearly every instance only sufficient water was taken aboard in New York to last until they reached the pine-wood section, when they were compelled to drink river water or that from stagnant pools. Such water was also taken aboard for the return trip, and on arrival it not infrequently happened that several cases of malarial fever had developed.

The same statement will apply to many other vessels plying between New York and the more southerly ports, it being found that malarial infection becomes more frequent on those vessels whose sailors are obliged to go ashore and drink the water of the locality than in those that carry sufficient water to last them for the round trip. This fact alone suggests that almost if not all cases of malarial fevers are contracted by means of drinking water.

Connected with this series of cases several others of mixed infection have been encountered; a combination of malarial and enteric fevers, presenting clinically some deviations from the general course of either disease, and deemed of sufficient importance to record.

No difficulty has been encountered in establishing the source and time of malarial infection, but with regard to the enteric infection the difficulty has been great. Generally, however, the history was to the effect that the patient had remained ashore for some time previous to sailing to the malarial districts.

This combination of these diseases has presented two sets of symptoms, dividing the cases into two groups:

1st. Cases in which the symptoms of malarial fever predominate, masking the enteric lesion.

2d. Cases in which the symptoms of enteric fever are most prominent.

In the first group (2 cases), at the onset of the attack the patients presented clinically all the symptoms of malarial fever, remittent, giving a clear history of infection, the attack being characterized by a chill followed by fever and remissions, constipation and irritable stomach, etc., this chain of symptoms completely masking the graver trouble, so that suspicions were not aroused as to the true character of the malady until the patients were under observation for four or five days. On admission the blood of the patients was examined for the malarial organism, which being found in abundance, the cases were put on appropriate treatment.

A brief synopsis of the symptoms of one case will serve for both:

H. M., aet. 23. Was taken sick two days before admission, the attack commencing with a chill followed by fever, marked by a remission. On the day of his admission he had chilly sensations, then a rise in temperature, followed later by remission. A careful physical examination revealed nothing abnormal except a slight tenderness of the epigastric region, and a considerable enlargement of the spleen. The bowels were constipated. A microscopical examination of the blood was made, and a large number of the *plasmodia malariae* were found free both in the serum and within the blood corpuscle. This established the diagnosis of malarial fever of the remittent type.

On the fifth day after admission there appeared on his abdomen several suspicious-looking spots suggestive of enteric complications. On the day following he had slight epistaxis and a tendency to diarrhœa, tenderness in the right iliac fossa. At this juncture a bacteriological examination was made of the feces, and after several trials a bacillus answering to the description of that described by Eberth was isolated from the stools. An examination of the blood at this time demonstrated the presence of the malarial parasite, but in greatly diminished numbers, being confined to the corpuscle. During the next week the enteric symptoms became so marked that without any microscopical examination there could be no doubt concerning the enteric fever. At this time the remissions had ceased and the temperature curve was characteristic.

In the second case (group 1), the symptoms were not so pronounced as in the first, but it did not differ from it on the whole. The *plasmodium malariae* was found in the blood in abundance, and later the typhoid bacillus was isolated from the stools.

In the second group of cases (3 in number), the enteric symptoms were well marked, giving a clear history of the disease. The patients had just returned from the South, where malaria was rife. The history gave the prodromal period, lassitude, etc., followed by diarrhœa, epistaxis, and tympanites, and in one case slight hæmorrhage.

As a matter of routine the blood was examined for the parasite, which was found confined to the corpuscle not free in the blood serum.

A bacteriological examination was made in each case, and the bacillus of enteric fever isolated, thus establishing the co-existence of both factors in the disease.

In one of these cases, during the third week of the attack, when convalescence appeared to have been established, the temperature being normal and the appetite returned, he had a sudden elevation of temperature that rose to 39° and lasted about four hours. The cause of this was attributed to some dietary indiscretion, a not infrequent mishap during convalescence from enteric fever. In twenty-four hours

after the first attack he had another similar in all respects, which suggested that the probable cause was malarial. The blood was again examined, and the *plasmodium* found to be present. A return to antiperiodic treatment for a few days, and then the case went on to speedy convalescence.

The other cases of this group terminated fatally, one by peritonitis following perforation, and the other by pneumonia. The combination of the two causes appears to have produced a more adynamic form than has been observed in other cases with like symptoms occurring here during the past two years.

Calling attention to the history of these cases is for the purpose of demonstrating that there is a combination of the two diseases, producing two distinct sets of symptoms, and that it is difficult, if not next to impossible, to demonstrate it without recourse to both microscopical and bacteriological examination, notwithstanding the statement made by an eminent scientist that enteric fever can be differentiated from malarial infection by examination of the blood.*

This class of cases without doubt gave rise to the fallacy that malarial fevers not infrequently terminate in typhoid, this opinion being held largely by the medical profession in malarial districts.

My observations on the blood of malarial fever cases have not been attended with any difficulty. Drawing the blood from the finger tips usually sufficed; in but few instances was it necessary to draw blood from the spleen.

In making examinations of the feces for the bacillus of Eberth, failures outnumber the successes, owing to the fact of the enormous number of other bacteria present.

To make any deduction as to the duration of this form of disease will require more cases than I have cited, this preliminary note being offered for the purpose of inviting the attention and co-operation of other observers, and to elicit their views upon the points in question.

The conclusions arrived at may be summed up as—

1st. Malarial and enteric fevers are not antagonistic to each other.

2d. A differential diagnosis between the two diseases is sometimes impossible.

3d. There exists a mixed form of infection which can be diagnosed by means of a bacteriological and microscopical examination.

BIOLOGICAL LABORATORY OF THE U. S. M.-H. S.,
New York, N. Y., April 5, 1890.

NOTICE TO QUARANTINE OFFICERS.

Vessels that have sailed from India without bills of health.

The following letter, dated Calcutta, February 25, 1890, addressed to the Assistant Secretary of State, has been transmitted to this Bureau:

SIR: Referring to paragraph 336 of the Revised Consular Regulations, I have the honor to report to you that I am in receipt of a letter from Mr. C. May Somerville, United States consular agent at Chittagong, dated the 19th instant, saying that the following-named sailing vessels had cleared from his port at the dates and for the ports in the United States hereinafter named, respectively, without bills of health,

* *Councilman, A. P. H. A.*, 1888, vol. xii.

to wit: Ship *Knight of the Garter*, cleared December 27, 1889, for New York; ship *Asia*, cleared January 4, 1890, for Boston; barque *Africa*, cleared January 13, 1890, for New York; ship *Ravens Hall*, cleared January 24, 1890, for New York.

These are the first cases which have come to my knowledge since I have been here in which vessels have sailed from any of the ports within my jurisdiction to ports in the United States without carrying bills of health from the proper consular officer at the port of departure. I have instructed my consular agent at Chittagong to tender the proper bill of health to each master of any vessel which may hereafter sail from his port for a port in the United States, and if the same should be refused, to report the fact to this office at once.

I am, sir, your obedient servant,

B. F. BONHAM,
Consul-General.

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

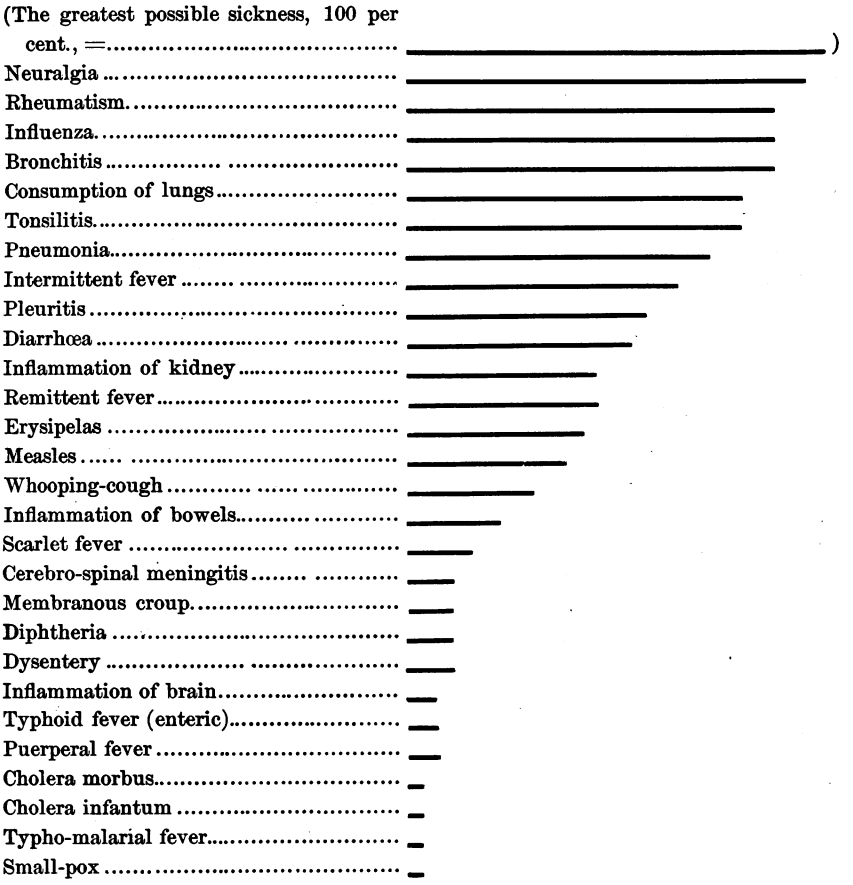
IOWA—*Keokuk.*—Month of March, 1890. Population, 16,000. Total deaths, 17, including phthisis pulmonalis 3.

MICHIGAN.—Week ended March 29, 1890. Reports to the State board of health, Lansing, from 44 observers, indicate that inflammation of brain, puerperal fever, typhoid fever, scarlet fever, inflammation of kidney, and cerebro-spinal meningitis increased, and that dysentery, diphtheria, cholera morbus, membranous croup, diarrhœa, and inflammation of bowels decreased in area of prevalence.

For the month of March, 1890, compared with the preceding month, the reports indicate that cholera infantum increased, and that typho-malarial fever, cholera morbus, inflammation of brain, diphtheria, and puerperal fever decreased in prevalence.

Diphtheria was reported present at 61 places, scarlet fever at 70, typhoid fever at 25, measles at 111, and small-pox at 1 place.

The comparative prevalence of the important diseases during the month is indicated as follows:



Grand Rapids.—Month of March, 1890. Population, 80,000. Total deaths, 70, including phthisis pulmonalis, 15; diphtheria, 9; measles, 1; whooping-cough, 1; and influenza, 2.

NORTH CAROLINA.—Month of February, 1890. Reports to the State board of health, Wilmington, from 16 towns, having an aggregate population of 103,100, show a total of 151 deaths, including enteric fever, 1; diphtheria, 3; whooping-cough, 1; and phthisis pulmonalis, 18.

MINNESOTA.—Month of February, 1890. The official publication of the State board of health, *Public Health in Minnesota*, states that during February there were reported to the board 62 cases of diphtheria and 21 deaths, also 29 cases of scarlatina and 5 deaths.

The following statistics show the distribution of, and mortality from, the specified diseases for the month:

(Estimated population, 1889, cities over 2,000 inhabitants, 539,900; towns and villages, 1,047,860.)

Total number of deaths, 859, against 1,169 last month, and 1,038 for same month in 1889; 50 per cent. occurred in cities of over 2,000 inhabitants.

Measles.—2 deaths, in 2 localities, 2 counties. Mortality same as last month, but only one-tenth compared with same month last year.

Scarlatina.—8 deaths, in 5 localities, 5 counties; 36.25 per cent. occurred in cities. Mortality about one-third as great as last month, but distribution not diminished in proportion. Mortality one-fourth compared with corresponding month of 1889.

Diphtheria.—43 deaths, in 15 localities, 15 counties; 76.74 per cent. occurred in cities. A decided decrease in mortality and distribution compared with last month and the same month last year.

Croup.—9 deaths; 11.11 per cent. occurred in cities. Mortality one-half that of last month, but distribution about the same.

Typhoid fever.—16 deaths, in 11 localities, 11 counties; 63.12 per cent. occurred in cities. Mortality not one-half compared with last month.

Diarrhœal diseases of children.—14 deaths, in 10 localities, 10 counties 71.44 per cent. occurred in cities. An increase in mortality and distribution compared with last month.

Bronchitis.—17 deaths, in 9 localities, 9 counties; 64.7 per cent. occurred in cities. A decided increase in mortality and distribution compared with last month.

Pneumonia.—96 deaths, in 59 localities, 42 counties; 47 per cent. occurred in cities. Mortality and distribution much less than last month.

Influenza and la grippe.—88 deaths reported from these causes, their complications, and sequelæ; 79 in towns and 9 in cities.

Concerning leprosy in Minnesota, it is announced that Dr. Christian Gronvold, of Norway, Goodhue County, has been asked to make a thorough investigation and report.

Attention is called by Dr. Gronvold, in a letter to the board, to an incorrect statement by a public lecturer to the effect that there are now 160 lepers in the three Northwestern States of Wisconsin, Minnesota, and Dakota. The published report on which the above misstatement was based is from the pen of Dr. G. Armaner Hanson, who states that "of 160 lepers who have come to these States, only 13, whom I have myself seen, and perhaps three or four more, are now alive. Among all the descendants of lepers that I have seen (and I have seen them in the third generation—great-grandchildren), not one has been leprous."

OHIO.—Months of February and March, 1890. The March number of the *Monthly Sanitary Record*, the official publication of the State board of health, contains complete mortuary reports from 50 cities and

towns, of which the following is a summary for the month of February: Fifty cities, total population, 1,196,350. Total deaths from all causes, 1,621, an annual rate of 16.33 in each thousand. Deaths from croup and diphtheria, 139; cerebro-spinal meningitis, 6; measles, 30; scarlet fever, 6; typhoid fever, 34; whooping-cough, 25; phthisis pulmonalis, 205.

The following table is compiled from the reports of health officers from 49 cities and towns for the four weeks ending March 21: Diphtheria, 153 cases, 65 deaths; scarlet fever, 288 cases, 7 deaths; typhoid fever, 32 cases, 23 deaths; whooping-cough, 62 cases, 12 deaths; measles, 586 cases, 27 deaths.

The *Record* also contains the following editorial showing how the business of life insurance might be made to stimulate municipal sanitation:

The business of life insurance has reached gigantic proportions in our country. Such a business belongs to an advanced stage of civilization, and is undoubtedly a boon to struggling humanity.

But we want to call attention to a fact not taken into consideration in the "risk" assumed by any company. That is the different death rates in various cities and sections of our country. In our State, for instance: In Cincinnati or Cleveland, our largest cities, the annual death rate per thousand of living inhabitants is something over eighteen; while in Columbus and Dayton it is not more than sixteen. That is, a man's "expectancy" is greater in the two last-named cities. Doubtless greater differences exist, and yet the rate of insurance is the same in all. Should not our life insurance companies take note of this fact, and give a man the benefit of the difference? So, too, different parts of the same city differ in regard to their healthfulness. Why should heredity and present condition entirely control the rate of insurance when the surroundings of a man have such an important bearing on the length of his days? Fire insurance recognizes this difference in "risks." When life insurance companies come to do so, another incentive will be added to secure better sanitary conditions and a consequent lower death rate.

RHODE ISLAND—*Newport.*—Month of March, 1890. Population, 22,200. Total deaths 26, including phthisis pulmonalis 3 and diphtheria 2.

TENNESSEE—*Chattanooga.*—Month of March, 1890. Population, 40,000. Total deaths 47, including enteric fever 2 and phthisis pulmonalis 7.

TEXAS—*San Antonio.*—Month of March, 1890. Population, 50,000. Total deaths 74, including diphtheria 1 and phthisis pulmonalis 15.

VIRGINIA—*Lynchburg.*—Month of March, 1890. Population, 25,000. Total deaths 60, including scarlet fever, 1; diphtheria, 1; and measles, 4.

Publications received.

From the Tennessee State board of health, annual reports, volumes 1, 2, and 3, for fiscal years 1886, 1887, and 1888, and Nos. 1 and 2, of Vol. IV ; Nos. 2 and 5, Vol. 5.

MORTALITY TABLE, CITIES OF THE UNITED STATES.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—										
				Cholera.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y	Apr. 5	1,607,221	758	.....	.....	.....	.....	.....	.....	3	14	28	13	8
Chicago, Ill	Apr. 5	1,100,000	377	.....	.....	.....	.....	.....	.....	17	9	21	1	1
Philadelphia, Pa	Mar. 29	1,064,277	438	.....	.....	.....	.....	.....	.....	13	1	6	3	3
Baltimore, Md	Apr. 5	500,343	191	.....	.....	.....	.....	.....	.....	4	1	5	11	2
St. Louis, Mo	Mar. 29	450,000	165	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....
Boston, Mass	Apr. 5	420,000	169	.....	.....	.....	.....	.....	.....	.....	2	6	.....	1
Cincinnati, Ohio	Apr. 5	325,000	113	.....	.....	.....	.....	.....	.....	2	.....	8	3	1
New Orleans, La	Mar. 29	254,000	113	.....	.....	.....	.....	.....	.....	2	.....	3	.....	.....
Washington, D. C	Apr. 5	250,000	84	.....	.....	.....	.....	.....	.....	2	.....	1	.....	.....
Detroit, Mich	Mar. 29	250,000	69	.....	.....	.....	.....	.....	.....	1	2	8	.....	.....
Milwaukee, Wis	Apr. 5	210,000	92	.....	.....	.....	.....	.....	.....	3	.....	5	.....	.....
Providence, R. I	Apr. 5	130,000	51	.....	.....	.....	.....	.....	.....	1	.....	2	1	.....
Indianapolis, Ind	Apr. 4	129,346	31	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Richmond, Va	Mar. 31	100,000	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
Toledo, Ohio	Apr. 5	92,000	32	.....	.....	.....	.....	.....	.....	1	.....	5	.....	.....
Fall River, Mass	Apr. 5	69,000	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nashville, Tenn	Apr. 5	68,531	16	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Charleston, S. C	Apr. 5	60,145	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manchester, N. H	Apr. 5	43,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Portland, Me	Apr. 5	42,000	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Galveston, Tex	Mar. 28	40,000	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Council Bluffs, Iowa	Mar. 30	35,000	3	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....
Binghamton N. Y	Apr. 5	35,000	11	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	2
Yonkers, N. Y	Apr. 4	31,000	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Altoona, Pa	Mar. 29	30,000	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Auburn, N. Y	Apr. 5	26,000	21	.....	.....	.....	.....	.....	.....	.....	1	1	2	1
Newton, Mass	Apr. 5	22,011	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rock Island, Ill	Mar. 30	16,000	5	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Keokuk, Iowa	Apr. 6	16,000	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pensacola, Fla	Mar. 29	15,000	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rochester, N. Y	Mar. 29	.....	32	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....

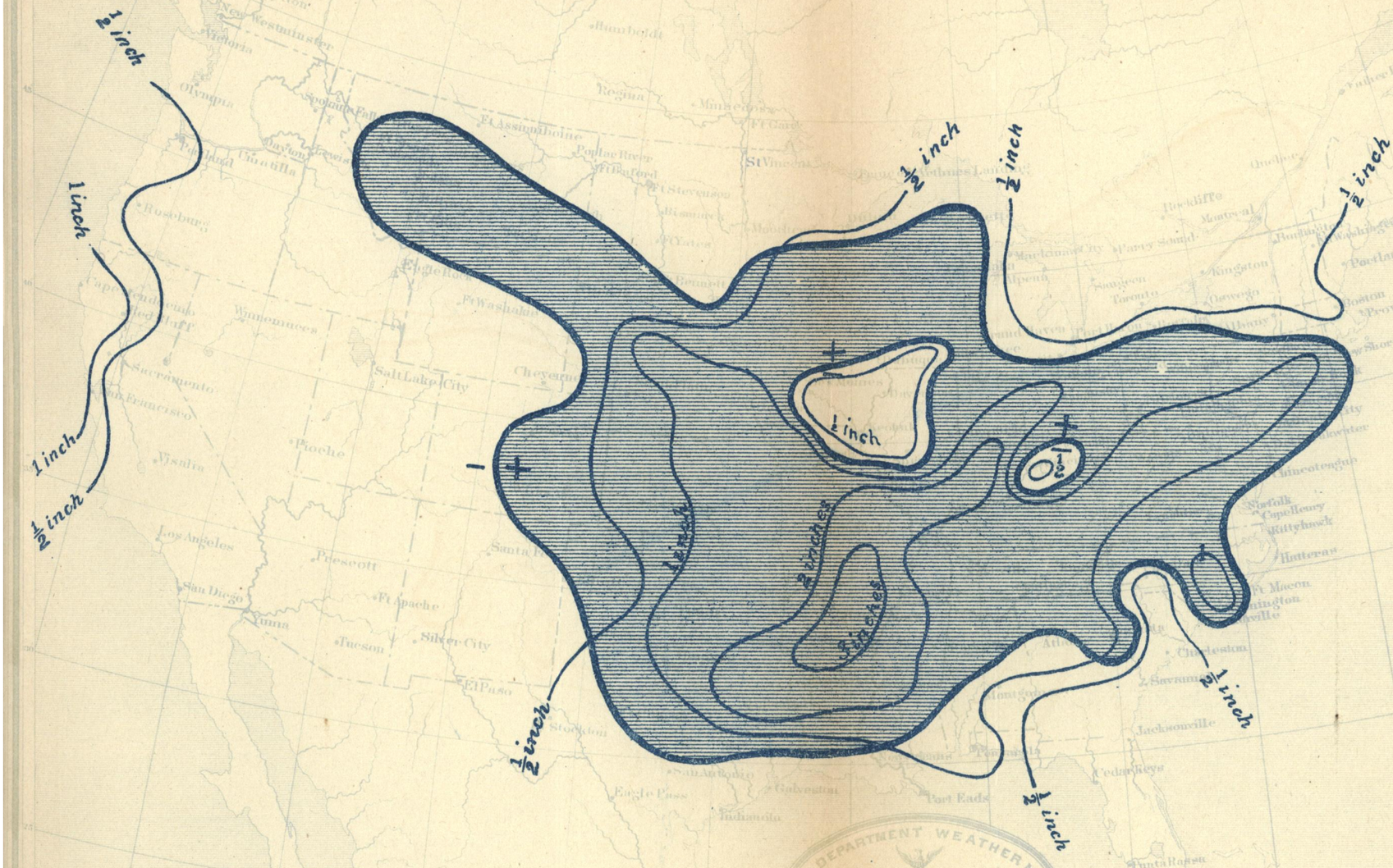
Weather Maps.

With this number of the abstract there is begun the publication of weekly maps showing the rain-fall and temperature throughout the United States, together with a description of the thermal and rain-fall conditions for the corresponding period.

At the end of each quarter a seasonal map will be published in addition. These maps and descriptions are kindly furnished, on request, by Brig.-Gen. A. W. Greely, Chief Signal Officer United States Army, and are specially prepared under his direction by Capt. H. H. C. Dunwoody, signal officer, United States Army.

Rainfall, week ending April 4th. 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 Prevailing Direction of Wind, week ending April 4th. 1890.

Form 106 F

Shaded portions show excess (+) and unshaded portions deficiency (−) of temperature for the week.
Figures show amount of average daily excess or deficiency in temperature over areas bounded by light lines.

WAR DEPARTMENT WEATHER MAP

PUBLISHED BY ORDER OF THE SECRETARY OF WAR.

A. W. GREELY, Chief Signal Officer.

Observations for the Signal Service are taken at 8 A.M. & 8 P.M. 75th Meridian Time

Statement of temperature and precipitation, week ending April 5, 1890.

[Received from the Signal Office, War Department.]

TEMPERATURE.

The week ending April 5 was slightly cooler than usual in the central valleys and the middle Atlantic States. It was decidedly a cool week in the Rocky Mountain regions, while it was slightly warmer than usual in the Gulf and south Atlantic States, New England, and New York. The cool weather in the Rocky Mountain regions extended southward over western Texas, and also westward to the Pacific coast, where the daily mean temperature was about 3° below the average.

The thermal conditions for the season, from January 1 to April 5, show an excess of temperature amounting to a daily average of from 4° to 6° over the southern and middle Atlantic States, the Ohio Valley, and southern New England. It has also been slightly warmer than usual in the central Mississippi and lower Missouri valleys, but in the remaining portions of the country the season has been colder than usual.

PRECIPITATION.

Generally there has been an excess of rain-fall over the regions east of the Rocky Mountains during the week, although in the extreme southern and extreme northern portions of the United States a deficiency of rain-fall is reported, the greatest deficiencies occurring in the southern portions of the south Atlantic States and in the northern portions of Minnesota and Dakota. The heaviest rains occurred in the west Gulf States, extending from central Texas and Louisiana northward to the Missouri Valley, over which region the rain-fall ranged from two to five inches. The precipitation for the week generally exceeded one inch over Tennessee and the Ohio Valley, the middle Atlantic States, and southern New England.

On the Pacific coast the rain-fall for the week was below the normal, but well-distributed showers occurred from central California northward.

The rain-fall for the season continues in excess in the central valleys, the middle Atlantic States, and the interior of New England, and also on the Pacific coast at stations north of San Diego. Since January 1 there has been very much less rain than usual in the south Atlantic and east Gulf States, the total amount for the period being less than 50 per cent. of the normal, while in the Ohio and central Mississippi valleys almost double the usual amount of rain-fall has occurred.

Over the wheat regions of California and Oregon the seasonal rain-fall has been about 50 per cent. more than usual.

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 March 22 corresponded to an annual rate of 21.7 a thousand of the aggregate population, which is estimated at 9,715,559. The lowest rate was recorded in Leicester, viz, 14.5, and the highest in Manchester, viz, 30.5 a thousand. Diphtheria caused 3 deaths in Liverpool, 2 in Sheffield, 3 in Birmingham, 3 in Manchester, and 3 in Salford.

London.—One thousand six hundred and thirty-seven deaths were registered during the week, including measles, 45; scarlet fever, 11; diphtheria, 23; whooping-cough, 76; enteric fever, 7; and diarrhœa and dysentery, 14. The deaths from all causes corresponded to an annual rate of 19.3 a thousand. Diseases of the respiratory organs caused 381 deaths. In greater London 2,083 deaths were registered, corresponding to an annual rate of 18.9 a thousand of the population. In the "outer ring" the deaths included measles, 17; diphtheria, 8; and whooping-cough, 23.

Ireland.—The average annual death rate, represented by the deaths registered during the week ended March 15, in the 16 principal town districts of Ireland, was 30.6 a thousand of the population. The lowest rate was recorded in Lisburn, viz, 9.7, and the highest in Waterford, viz, 55.06 a thousand. In Dublin and suburbs 196 deaths were registered, including measles, 3; enteric fever, 2; whooping-cough, 7; influenza, 3; and typhus, 2.

The average annual death rate, represented by the deaths registered during the week ended March 22, in the 16 principal town districts of Ireland, was 31.9 a thousand of the population. The lowest rate was recorded in Drogheda, viz, 8.5, and the highest in Dundalk, viz, 43.6 a thousand. In Dublin and suburbs 209 deaths were registered, including measles, 6; enteric fever, 1; whooping-cough, 4; influenza, 1; and typhus, 1.

Scotland.—The deaths registered in eight principal towns during the week ended March 22 corresponded to an annual rate of 24.8 a thousand of the population, which is estimated at 1,345,563. The lowest mortality was recorded in Aberdeen, viz, 18.9, and the highest in Perth, viz, 28.1, a thousand. The aggregate number of deaths registered from all causes was 599, including measles, 33; scarlet fever, 2; diphtheria, 10; whooping-cough, 31; fever, 5; and diarrhœa, 4.

CUBA—*Havana.*—One death from yellow fever during the week ending March 27, 1890.

Santiago de Cuba.—Total number of deaths for the two weeks ending February 15, 1890, 37, including yellow fever, 1; diphtheria, 2; tetanus, 1; infantile tetanus, 2; and phthisis pulmonalis, 6.

The United States consul writes: "You will, in perusing these statistics, see that the health of this city is better than ever, and the death rate in a population of 50,000 is remarkably small."

INDIA—*Singapore.*—Town and suburbs, month of January, 1890. Total deaths, 458, including fevers, 111; bowel complaints, 50; smallpox, 3; and beri beri, 28.

Leprosy.—Transmission of leprosy from China to foreign countries by prostitutes.

The following report, dated Canton, China, February 8, 1890, addressed to the Assistant Secretary of State, has been forwarded to this Bureau:

SIR: I have the honor to inclose copy of a translation of an editorial published December 3, 1889, in the *Wei Sun*, the leading native newspaper in Hong-Kong, having considerable circulation in Canton, in regard to leprous prostitutes from China to foreign countries, some of whom were compelled to return to Hong-Kong and Canton from California and Australia.

The comments of American and British newspapers elicited the editorial statement of the *Wei Sun*, which makes no denial as to the leprous prostitutes having gone to foreign countries.

A copy of the *Wei Sun* accompanies the translation.

It should not be inferred from the *Wei Sun's* statement that China provides asylums for all of its lepers, as they are visible on the streets of the cities and villages in all directions, and in numerous small boats. Besides, there are many leper villages. But the fact that leprous women have been sent to America, Australia, and other foreign countries as prostitutes can not be disputed, and this reference to the fact as a "rumor" may be regarded as a gentle recognition of the custom. I saw one group, of about twenty passengers, of that class apparently, on the Pacific Mail Steamship *City of New York*, which left Hong-Kong on or about October 11, 1887, and was assured there were many similar shipments.

I am, sir, your obedient servant,

CHARLES SEYMOUR,
United States Consul.

[Inclosure.]

The following is a copy of the translation of an editorial in the leading Chinese newspaper, *Wei Sun*, published in Hong-Kong, December 3, 1889, with reference to the return from California and Australia of

leprous prostitutes to Hong-Kong and Canton, which elicited comments from American, Australian, and Hong-Kong newspapers:

"*Leprous women as prostitutes.*—There are Government asylums for lepers. Men and women having contracted the disease of leprosy are compelled to enter the asylum as inmates, for fear of infecting those of sound health.

"It is recently heard that sometimes most of the females in the leprous asylum, being slightly infected with leprosy, are married to the lower or water population; but those being more heavily infected would secretly frequent the private houses of ill-fame, where they receive and bid adieu to incomers and outgoers, and those who derive pleasure from them can hardly escape without contracting that loathsome disease.

"Recently there is another rumor circulated that the last-mentioned kind of leprous women are sold into foreign countries, in great numbers, to be the denizens of irreputable houses, and the injury that is to be wrought by them is immeasurable and without limit."

Sulphurous-acid gas as a disinfectant—Result of recent experiments.

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

In the last few years the antiseptic properties of sulphurous acid, which have been known from the remotest antiquity, have been made the subject of experimental study, with contradictory results. While Vallin, Pettenkofer, and Beaumetz-Dujardin attribute great value to sulphurous acid as an antiseptic, Richard, Koch, Löffler, and Dubroslawin reject sulphurous-acid fumigation on the ground of its inefficiency, and in Germany and Russia sulphurous acid is never reckoned among disinfectants of practical application.

At the time of the cholera epidemic of 1884 at Naples the question of the antiseptic power of sulphurous acid was raised. Professor Fazio demonstrated then that anhydrous sulphurous acid, when used to disinfect the atmosphere, was not only useless, but positively injurious to respiration. It can be effective only when used in quantity sufficient to produce an absolutely irrespirable atmosphere. In the limited proportion in which it can be utilized for open disinfection it is wholly valueless and causes serious disturbances in the breathing apparatus of persons compelled to breathe the air impregnated with it.

Conclusions identical with those of Fazio were reached by Beaumetz-Dujardin in his lectures on prophylactic hygiene delivered at Paris in 1888.

The following are the results of late experiments in local disinfection by sulphurous-acid gas made at the laboratory of the Cochin Hospital, at Paris, by Doctors Dubief, Brutel, and Gaillard:

1. Sulphurous gas has a marked effect on the germ contents of the atmosphere.

2. This action is exerted with most energy in the presence of aqueous vapor.

3. The action of sulphurous gas is exerted also in a marked manner on perfectly desiccated germs.

4. The action of sulphurous gas in the atmosphere is exerted on bacterial germs; it seems in some degree to respect the cryptogamous spores, which are less sensible to dilute acid.

C. Paul upon the antiseptic agents proper to each pathogenic microbe.

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Microbiology, by demonstrating that a large proportion of diseases result from micro-organisms, has greatly extended the scope of anti-parasitic medication, and made it possible to tabulate microbicides in a scale of decreasing activity. The fact that a substance which possesses antiseptic properties is active against one microbe and ineffective against another suggested the grading of antiseptic agents according to their activity against a special micro-organism.

The action of microbicides on pathogenic micro-organisms is considered here not as exercised in the animal organism, but directly on the pure cultures. Those which resist the process of putrefaction are the first in order. The following are the microbicides, given in order of activity and with the minimum dosage necessary to arrest putrefaction in a liter of beef broth thoroughly neutralized:

1. Substances in the highest degree antiseptic:

	gm.
Oxygenated water	0 05
Sublimate	0 07
Nitrate of silver	0 08

2. Substances very highly antiseptic:

	gm.
Iodine	0 25
Chloride of gold	0 25
Bichloride of platinum	0 30
Hydrocyanic acid	0 40
Bromine	0 60
Sulphate of copper	0 90

3. Substances highly antiseptic:

	gm.
Cyanide of potassium	0 20
Bichromate of potash	1 20
Ammoniacal gas	1 40
Chloride of aluminum	1 40
Chloroform	1 50
Chloride of zinc	1 90
Thynic acid	2
Chloride of lead	2
Nitrate of cobalt	2 10
Sulphate of nickel	2 50
Nitrate of uranium	2 80
Phenic acid	3 20
Permanganate of potash	3 50
Nitrate of lead	3 60
Alum	4 50
Tannin	4 80

4. Substances moderately antiseptic:

	gm.
Hydrobromate of quinine	5 80
Arsenious acid	6
Sulphate of strychnine	7
Boric acid	7 50
Arseniate of soda	9
Hydrate of chloralum	9 30
Salicylate of soda	10
Sulphate of protoxide of iron	11
Caustic soda	18

5. Substances slightly antiseptic:

	gm.
Protochloride of manganese	25
Chloride of calcium	40
Borate of soda	70
Hydrochlorate of morphine	75
Chloride of strontium	85
Chloride of lithium	90
Chloride of barium	95
Alcohol	95

6. Substances very slightly antiseptic:

	gm.	
Chloride of ammonium	115	50
Arseniate of potash	125	
Iodide of potash	150	
Sea-salt	165	
Glycerine	225	
Sulphate of ammonia	250	
Hyposulphite of soda	275	

The few substances that prevent the culture of the micro-organism of typhoid fever are as follows:

Sublimate, 1 p	20,000
Sulphate of quinine, 1 p	800
Phenic acid, 1 p	200
Hydrochloric acid, 1 p	100
Chloride of calcium, 5 p	100

The bacillus of cholera does not develop in an acid medium. A drop of a solution of hydrochloric acid, 1 p. 100, is sufficient to prevent development.

The other substances that oppose the development of the bacillus virgula are as follows:

Sublimate, 1 p	100,000
Sulphate of quinine, 1 p	5,000
Sulphate of copper, 1 p	500
Phenic acid, 1 p	400

An immense number of substances have been used experimentally in tuberculosis. Hydrofluorsilicic acid, ammonia, fluorsilicate of iron, fluorsilicate of potash, sulphurated potassa, silicate of soda, completely sterilize the culture of the bacillus of tuberculosis.

Temperature influences the principal pathogenic micro-organisms.

Tuberculous material, heated for 20 minutes to 60°, 10 minutes to 71°, or perfectly desiccated at 30°, can infect guinea-pigs as quickly as when fresh.

Tuberculous tissue, macerated or allowed to putrefy in water at an ordinary temperature for from 5 to 20 days, or subjected to congelation of from 5° to 80° and slowly melted, is capable of producing a true tuberculosis perfectly transmissible in series.

The typhus bacillus exhibits a perceptible development at 4°. The most favorable temperature is from 25° to 35°. At 46° the culture is arrested. The typhus bacillus supports a prolonged desiccation, which is due to spores and easily resists congelation.

The cholera bacillus has slight vitality. The cultures perish after a half-hour's desiccation at an ordinary temperature. In a liquid state a temperature of from 50° to 55° is sufficient to destroy the miro-organisms. The cholera bacillus increases but little in sterilized water.

Water rich in organic material is unfavorable to its development. Development is abundant between 30° and 40°. The culture is arrested at a temperature below 15°. It can endure a congelation of 10° for one hour.

The pneumococcus of Fränkel does not develop at a temperature under 24° nor over 42°. Its most favorable temperature is 35°.

The pneumococcus of Friedländer multiplies easily at the ordinary temperature.

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	Mar. 15	5,758,500	2,242	.....	.....	.....	.....	3	19	32	48	.....
Paris	Mar. 15	2,260,945	1,185	.....	.....	3	.....	7	6	44	25	19
Glasgow	Mar. 22	545,678	278	.....	.....	.....	1	.....	2	5	.....	.....
Warsaw	Mar. 8	445,790	267	.....	.....	8	.....	3	.....	9	.....	.....
Calcutta	Feb. 15	433,219	319	62	.....	33	.....	.....	.....	1	.....	.....
Edinburgh	Mar. 1	271,135	140	.....	.....	.....	.....	1	.....	.....	.....	.....
Palermo	Mar. 15	250,000	106	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bradford	Mar. 15	240,515	111	.....	.....	.....	.....	.....	.....	.....	1	1
Bristol	Mar. 22	232,248	108	.....	.....	.....	.....	1	1	.....	.....	.....
Genoa	Mar. 15	177,688	99	.....	.....	4	3	.....	.....	1	.....	.....
Trieste	Mar. 15	158,054	131	.....	.....	.....	.....	.....	1	2	.....	.....
Stuttgart	Mar. 22	125,510	46	.....	.....	.....	.....	.....	.....	5	.....	.....
Havre	Mar. 15	112,074	61	.....	.....	.....	.....	1	.....	1	1	1
Barmen	Mar. 22	109,000	45	.....	.....	.....	1	.....	1	1	.....	2
Leghorn	Mar. 16	94,423	58	.....	.....	.....	.....	1	8	3	.....	.....
Mayence	Mar. 15	65,802	39	.....	.....	.....	.....	.....	.....	4	.....	.....
Cadiz	Mar. 15	57,157	52	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kingston, Can	Mar. 28	18,284	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. John's, Antigua	Mar. 8	15,847	15	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. John's, Antigua	Mar. 15	15,847	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sagua	Mar. 22	15,605	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Juan del Norte	Jan. 20	1,000	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Juan del Norte	Jan. 27	1,000	2	.....	.....	.....	.....	.....	.....	.....	.....	.....

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