

Observations at Rivas, Nicaragua, October, 1898—Continued.

OBSERVATIONS AT 7:17 A. M. LOCAL (8 A. M. EASTERN STANDARD) TIME.

Table with columns: Date, Temperature (Air, Dew-point), Wind (Direction, Force), Upper clouds (Kind, Amount, Direction from), Lower Clouds (Kind, Amount, Direction from). Rows 22-31 and Means.

5th, slight earthquake, 9:43 p. m.; 13th, slight earthquake, 4:10 a. m. Every night calm.

Observations at Rivas, Nicaragua, September, 1898.

OBSERVATIONS AT 7:17 A. M. LOCAL (8 A. M. EASTERN STANDARD) TIME.

Table with columns: Date, Temperature (Air, Dew-point), Wind (Direction, Force), Upper clouds (Kind, Amount, Direction from), Lower clouds (Kind, Amount, Direction from), Daily rainfall. Rows 1-30 and Means.

OBSERVATIONS AT 8 P. M. LOCAL (9 P. M. EASTERN STANDARD) TIME.

Table with columns: Date, Temperature (Air, Dew-point), Wind (Direction, Force), Upper clouds (Kind, Amount, Direction from), Lower clouds (Kind, Amount, Direction from). Rows 1-16.

Observations at Rivas, Nicaragua, 1898—Continued.

OBSERVATIONS AT 8 P. M. LOCAL (9 P. M. EASTERN STANDARD) TIME.

Table with columns: Date, Temperature (Air, Dew-point), Wind (Direction, Force), Upper clouds (Kind, Amount, Direction from), Lower clouds (Kind, Amount, Direction from). Rows 17-30 and Means.

CLIMATOLOGICAL DATA FROM PLAYA RICA, ECUADOR.

By Mr. D. C. STAPLETON.

We are indebted to Mr. D. C. Stapleton, Vice President of the Playa Oro Mining Company, at Playa Rica, Ecuador, for the following interesting climatological summary :

Our office here is located on the Santiago River a trifle less than one degree north of the equator and about 40 miles inland from the Pacific coast, at a known elevation of 260 feet above the sea; from this point toward the sea the river falls 200 feet in the first 23 miles. Above here the river ascends very rapidly—a perfect mountain stream—but carrying a large volume of water. The surface of the earth is most densely wooded, impossible of penetration in some parts until a trail has been cut out with machete and axe and is very rough.

We maintain on our estate four weather stations, looked after by interested persons, who record the readings of the thermometer three times daily, viz: 6 a. m., 1 p. m., and 6 p. m. [local time?—Ed.]. The precipitation is measured twice daily, 6 a. m. and 6 p. m. Our stations are located as follows: (A) At our office in Playa Rica, elevation 260 feet. (B) At Angostura camp, 4 miles above here, elevation 832 feet, in charge of competent men from the States. (C) At Sepayito camp, 6 miles distant from here, elevation 907 feet, in charge of an engineer from the States. (D) At Lapazo Grande camp, 7 miles from here, elevation 965 feet, in charge of foreman from the States. Excepting the difference in temperature, no doubt due to the difference in altitude, there is little difference in our records of the weather; possibly, also, we have more sunshine in Playa Rica than the higher up stations.

The records at our office station (A) for the past six months may safely be taken as a fair general average, and will give a very good general idea of climatic conditions of this locality, and are as follows:

April.—Total precipitation, 48 inches; daily average, 1.60. Rain fell every day; greatest fall in one day, 5.50 inches, on 17th; least fall on any one day, 0.10 inch, on the 5th and 27th. Temperature, daily average, 6 a. m., 73.5°; 1 p. m., 86.8°; 6 p. m., 79.6°; highest degree reached during month, 92°, at 1 p. m., of 25th; lowest, 71.6°, at 6 a. m., 19th.

May.—True precipitation, 51.10 inches; daily average, 1.65; one day, 30th, no rain fell; greatest fall in one day, 4.02, 24th. Temperature, daily average, 6 a. m., 75.3°; 1 p. m., 86.0°; 6 p. m., 77.1°. Highest degree reached during the month 90°, at 1 p. m., 2d and 17th; lowest, 72° at 6 a. m., 10th and 17th.

June.—Total precipitation, 34.68 inches; daily average, 1.16; on five days, 14th, 16th, 17th, 18th, 20th, there was no rain—a long dry spell—very unusual. The "oldest inhabitant" reports, it is said, "that at one time there were eleven consecutive days without rain;" all five above dates you would have recorded "trace," according to your system of marking. Greatest fall in one day, 4.02, 24th. Temperature, daily average, 6 a. m., 73.3°; 1 p. m., 86.4°; 6 p. m., 74°; highest degree reached, 90°, 1 p. m., 30th; lowest, 72°, at 23 morning and evening readings.

July.—Total precipitation, 43.55 inches; daily average, 1.41; rain every day; greatest fall in one day, 4.10 on 12th; least fall, 15.00, on 28th. Temperature, daily average, 6 a. m., 74°; 1 p. m., 87°; 6 p. m., 75°; highest degree reached, 91°, 1 p. m. 5th; lowest, 72°, occurred 17 times at morning and evening readings.

August.—Total precipitation, 30.59 inches, daily average, 0.99; two days, 9th and 28th, no rain; greatest fall in one day, 3.05, on 10th. Temperature, daily average, 6 a. m., 74.3°; 1 p. m., 86.7°; 6 p. m., 75°;

highest degree reached 90°, 1 p. m., 13th and 25th; lowest degree reached, 72°, occurred at 13 morning and evening readings.

September.—Total precipitation, 37.31 inches, daily average, 1.24; two days, 18th and 19th, no rain; greatest fall in one day, 4.74, on 9th. Temperature, daily average, 6 a. m., 73.9°; 1 p. m., 86.7°; 6 p. m., 75°; highest degree, 90°, on 30th; lowest degree, 72°, on 8 morning and evening readings.

There is little to add to the above; nearly all the rain falls after noon; the moon is less visible than the sun; rare indeed is it that we are able to distinguish any constellation. There is very little or no wind. The

rain always comes from the west, and seldom accompanied by either thunder or lightning, but the month of September past was a very notable exception to this. Some of the peculiar pranks of our telephone system would indicate that there is plenty of electrical force in the sky. The effect of this climate upon the human system is rather surprising to most men; we have no fevers and no rheumatism, though we have in our employ men from many places from the northern part of the States to the southern part of Chile. Our physician has little to do and is as much surprised at the good health of the community as any one. Our hygrometer (Mason's) shows about 8°.

NOTES BY THE EDITOR.

AMERICAN CLIMATOLOGICAL PUBLICATIONS.

The Editor has noticed several remarks in various publications to the effect that climatic data for the United States is very scarce and hardly to be obtained by European students. Probably many of those who are studying the climate of America are not aware of the fact that the Weather Bureau has organized climatological work in every State and Territory, and that for many years past there have been published monthly reports which are now known as the "Section Reports of the Climate and Crop Service of the Weather Bureau." Each of these reports contain from four to eight printed leaves, and gives the rainfall, the maximum and minimum temperatures for each day of the month, and for each station in the section or State, as also in another table the general climatological data and oftentimes excellent articles on local climatic peculiarities. When these monthly reports are bound up together with the Annual Summary, there results a volume of from fifty to a hundred large quarto leaves or 150 pages of material for the study of the climate of each section, and as there are about fifty sections, it may be said that the climatological data for the United States, as published in detail, would make an annual volume of 4,500 pages of tabular matter and 1,300 pages of charts. Additional matter is also given in the MONTHLY WEATHER REVIEW, published at the Central Office in Washington. Nothing comparable to this is done by any other nation in the world. In India the rainfall data is collected together in a similar way, monthly, for each province, and the collected reports constitute a large volume of rainfall data. But the United States does the same for both temperature and rainfall, as well as for other climatological elements. The summaries, as given in the MONTHLY WEATHER REVIEW, present only the broadest features of the local climates.

Each section prints from 50 to 250 copies of its monthly reports, according to the demand in the respective States, and we suppose that there has not been sufficient energy shown in distributing these reports to institutions outside of each State, otherwise the meteorologists of Europe would have realized the great work that has been accomplished in publishing this American data. We respectfully suggest to the section directors that they urge the observers to retain complete sets of these publications for the past few years, and that those who are willing to dispose of their sets offer them to the central meteorological bureaus and scientific libraries, where students of climatology may have access to this precious material.

It is very desirable that the section directors or other qualified persons should interest themselves in compiling general works on the climatology of each section, thus summarizing the data contained in the long series of section reports which are now so rarely accessible to the general student.

The principal journals published in England, France, and Germany, whether they make meteorology, climatology, or geography a specialty, frequently comment in an appreciative manner upon the work done by our State sections, in so

far as they have received their publications, and will certainly appreciate every further step that is taken to set forth the peculiarities of our various local climates.

BACK NUMBERS OF THE MONTHLY WEATHER REVIEW.

The Secretary of the Canadian Institute, Toronto, Canada, desires to complete his library set of the MONTHLY WEATHER REVIEW by obtaining the first fifteen volumes, 1873-1888. Any voluntary observer having a set to dispose of will confer a favor by informing the Chief of the Weather Bureau.

In general, the recipients of the MONTHLY WEATHER REVIEW will do well to preserve their sets in good order and offer them to libraries or second-hand book dealers if they do not wish to retain them for their own use. It is already quite impossible for the Weather Bureau, or the Superintendent of Public Documents, to supply the demand for past volumes, as no great stock is kept on hand.

NOTES FROM THE VOYAGE OF LA PÉROUSE.

We are indebted to Mr. O. J. Klotz, chief astronomer of the Department of the Interior, for calling our attention to the instructions prepared by the Academy of Sciences at Paris for the guidance of the astronomers and others who accompanied J. F. G. de la Pérouse in his voyage of exploration during the years 1785-1788. The Editor thereupon examined those volumes with the following results. Owing to the complete destruction of his ships, with all on board, the final results of the work accomplished by these distinguished men has been lost to the world. But occasional reports were made during their progress, from time to time, so that the National Assembly of France was able to publish a very important account of the voyage around the world. An English edition of this was published in 1799, in two volumes, from which we will make some extracts. The vessels were named the *Boussole* and *Astrolabe*. The principal scientists were Dagelet and Monge, as astronomers, De Lamanon and Dufresne, naturalists, including meteorology. The instructions given by the Academy were signed by Condorcet, as secretary, in March, 1795. These instructions give an interesting picture of the views entertained by the best men of that time as to points, some of which have not even yet been elucidated. The meteorological instructions will especially interest the readers of the MONTHLY WEATHER REVIEW:

METEOROLOGICAL INSTRUCTIONS IN 1785.

¹ It (the Academy) also invites the navigators to keep an accurate register of the height of the barometer in the vicinity of the equator at different hours of the day, with a view to the discovery, if possible, of the quantity of the variation of this instrument owing to the influence of the sun and of the moon, this variation being there at its *maximum*,

¹ See Vol. I, p. 122.