

Observations at Rivas, Nicaragua—Continued.

JANUARY—Continued.

Table with columns for Date, Observations at 8 a. m. (Temperature, Wind, Clouds), Observations at 8 p. m. (Temperature, Wind, Clouds), and Rainfall at 8 a. m. Rows include dates from 17 to 31 and a Means row.

FEBRUARY, 1898.

Table with columns for Date, Observations at 8 a. m. (Temperature, Wind, Clouds), Observations at 8 p. m. (Temperature, Wind, Clouds), and Rainfall at 8 a. m. Rows include dates from 1 to 28 and a Means row.

Mr. Flint notes that on February 12 the cirro-stratus clouds covering the entire sky in the afternoon were arranged in parallel bands, all converging toward the vanishing points in the northwest and southeast, a phenomenon that he had never previously observed.

THE MAURITIUS CYCLONE OF DECEMBER 5, 1897.¹

By T. F. CLAXTON, Director Royal Alfred Observatory (dated December 29, 1897).

The center of a cyclone passed over Mauritius between 10 and 11 p. m. on Sunday, December 5.

Photographs from meteorological self-registers at the Royal Alfred Observatory of Mauritius during the passage of the cyclone of December 4-6, 1897, are shown on Chart X.

From observations received from different parts of the island it would appear that the center of the calm area approached from north by west, and traveled south by east.

More damage was done in the eastern districts than elsewhere.

¹The Editor regrets that by reason of some difficulty encountered in reproducing the diagram of curves communicated by Mr. Claxton, this article could not appear in the MONTHLY WEATHER REVIEW for December.

At the observatory the center passed a little to the eastward. A lull occurred suddenly at 9:54, the wind being from east-southeast. No change in the direction occurred till 9:58, when the wind rapidly backed to south-southwest, then to north-northwest one-half west, veered suddenly to south-southwest, and then backed again to west-southwest and west by north.

After the lull at 10:10 the wind came in puffs from south-southwest, increasing in force till the wind reached west by south (10:45 p. m.).

The following table shows the movements of the barometer, wind, etc., from 4 d. 9 h. to 6 d. 9 h.:

Table with columns for Day and hour, local mean civil time, Barometer (Corrected and reduced to sea level, Rise (+) or fall (-) per hour, corrected for variation), Wind (Mean direction, Velocity, in miles per hour), Temperature (Of the air, Of evaporation (wet bulb), Relative humidity). Rows include dates from Saturday, Dec. 4 to Monday, Dec. 6.

NOTE.—The values in brackets are the smoothed values derived from measurements made every 3 1/4 minutes.

At 5 d. 19.5 hours the photographic lamp of the dry-bulb thermometer was extinguished by the wind.

From the above table it will be seen that no remarkable fall in the barometer took place till Sunday afternoon. At 3:20 p. m. the following telegram was dispatched: "The wind will probably increase during the night, but no immediate danger."

Soon after 5 p. m. an accident happened to the observatory telegraph wire, and as in 1892, so now communication was cut off, however the following warning was issued and conveyed by hand to the Pamplemousses railway station:

6 p. m.—"Center of depression to north-northwest; conditions more unfavorable; precautions are necessary; will telegraph at 7 p. m."

7 p. m.—"The barometer is falling at an accelerated rate; the velocity of the wind will probably increase if the wind veers to northeast before midnight."

8 p. m.—"The center is approaching, but will pass to the eastward if the wind continues to back at its present rate."

As the center of the depression was to the west of north, the slight veering of the wind at 4 p. m., and the accelerated fall of the barometer were considered most unfavorable after a persistent east wind for seven hours. Shortly before 8

p. m. a decided backing set in, and it was thought that, although the center was not more than 30 or 40 miles to the northward, it might pass to the eastward, but the backing did not continue. The barometer continued to fall at an accelerated

rate, and at 9:13 p. m. was falling at the rate of 0.435 inch per hour. As already stated, the center of the calm area passed a little to the eastward of the observatory.

[To be continued.]

NOTES BY THE EDITOR.

CIVIL SERVICE EXAMINATIONS.

As the Weather Bureau desires to stimulate the study of meteorology in the schools and colleges, so as to disseminate rational methods of studying the weather map and the atmosphere, so, on the other hand, it needs to secure for its own service employees whose knowledge of the sciences warrants the expectation that they will individually exert a healthy influence in favor of the highest progress in every branch of the service. Parallel with the steady progress that is being made throughout this country in teaching all branches of natural science, there has also been a steady progress in the requirements for entrance into the service of the Weather Bureau. During the years 1870 to 1886 the elementary common school education was required before enlistment, and the special training in meteorological duties was acquired either at the school of instruction or at the regular stations. After 1880 a special effort was made to secure young college graduates or students, and many such men entered the service. In 1881 four gentlemen (Upton, Waldo, Hazen, and Russell) were added to the civil list, at salaries slightly above those of observers. They were graduates of long standing and had already distinguished themselves by activity in work bearing on the duties of the Bureau; they were accepted on the strength of their records, without special examination, as in the case of the full professors, Lapham, Abbe, Maury, Ferrel, and Mendenhall. In 1884, after the resignation of Mr. Upton, his place was filled by the help of the first civil service examination with which the Weather Bureau had to do, and one of the first of so high a grade that had as yet been established by the Civil Service Commission. Several of our best scientific men entered into this examination; one of these, Prof. R. S. Woodward, would undoubtedly have received the appointment had he not in the meantime been far more handsomely provided for by the United States Geological Survey; but his interest in meteorology as a part of the study of the whole earth has led him to the publication of several mathematical papers of importance to our science. At present, as the head of the Department of Mechanics in the school of pure science in Columbia University, New York City, he is doing much to turn the attention of young men toward investigations in meteorology. As the result of this examination, General Hazen selected Prof. C. F. Marvin to fill the vacancy, and his excellent record abundantly justifies the civil service method of making such appointments. During 1888-1895 the position of "meteorological clerk" was filled by competitive examination. Professor Bigelow was appointed in 1891 on his record, but since that date there has been no appointment and no promotion except by examination. Professor Moore, in 1894, and Professor Garriott, in 1895, were appointed after long competitive examinations.

From 1886 to 1893, in the absence of any special school of instruction, it was the custom to at first assign those who entered the service to instruction under the older observers in charge of the respective stations. In the latter year all the positions in the Weather Bureau were placed within the classified service; since this date, therefore, it has been necessary to arrange a system of examinations for those who desire the position of "Weather Bureau observer" or the higher scientific and technical positions up to anything below the grade of Chief or Assistant Chief of Bureau. This prin-

ciple of examination applies uniformly throughout all the bureaus and divisions of the Department of Agriculture, and, for that matter, throughout the other branches of the departmental service. In his Instructions No. 85, November 11, 1897, Professor Moore commended a course of study in English, arithmetic, algebra, trigonometry, physics, astronomy, and botany to those observers who desire to receive higher rating as to efficiency. The great variety of work that falls to the duty of the employees of the Weather Bureau demands corresponding versatility, adaptability, and energy.

The last "Manual of examinations for the classified Civil Service, Form 302, January, 1898," gives full details as to the examinations for observers and assistants, on pages 50 and 32, respectively. It appears from a table on page 22 that during the fiscal year ending June 30, 1895, there were 44 examined for the position of observer, of whom 28 passed to the list of eligibles and 2 were selected to fill vacancies at \$840 per annum; during the fiscal year ended June 30, 1896, 34 were examined, 22 passed and 1 was appointed; during the fiscal year ended June 30, 1897, 37 were examined, 23 passed and 6 were appointed; in October, 1897, the fall examinations were held, and 20 have since been appointed. A number of appointments will probably be made in the Weather Bureau when the results of the spring examination are known.

At the present time preparations are being made for two examinations to be held on Monday, April 25; one of these is to establish a new list of eligibles for the position of "Observer, Weather Bureau," the other for that of "Assistant in the Department of Agriculture." The examination for observer is outlined in section 91 of the above-mentioned manual and will embrace the following subjects with the respective weights: Spelling, 5; arithmetic, 5; letter-writing, 5; penmanship, 5; copying from plain copy, 5; copying from a rough draft, 5; practical questions in meteorology, 40; an essay on a practical subject in meteorology, 20; geography of the United States, 10; total, 100.

The examination for assistant in the Department of Agriculture will embrace three subjects, scientific or technical, bearing directly upon the work of the particular bureau or division of the Department. Thus, for one entering the Weather Bureau the applicant must be examined in meteorology as a major, but in physical geography of the United States and general physics as the two minors. Beside these certain other subjects are considered as electives, such as the languages, Latin, French, German, Italian, or Spanish. The whole list of subjects and the corresponding relative weights is as follows: Orthography, 1.5; arithmetic, 2.5; letter-writing, 2.5; penmanship, 1.5; copying, 2; general training and experience (namely, the applicant's past record), 5; English composition, 5; major examination in one special scientific or technical subject, 50; minor examinations in two required subjects, both together, 20; minor examinations in additional electives, 10; total, 100.

This "Manual of examinations" gives on pages 27 and 50 some questions illustrating the character of past examinations for the position of observer. A copy of the manual can be had gratuitously by direct application to the United States Civil Service Commission. A new schedule of dates for the

