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# THE CLOSING OF THE JAMAICA WEATHER SERVICE.

## THE CLOSING OF THE JAMAICA WEATHER SERVICE.

On the 14th of December, 1898, I received the following letter which is now published with the permission of the Government:—

Colonial Secretary's Office,  
Jamaica, 13th December, 1898.

Sir,

I am desired by the Governor to inform you that among other steps taken in the direction of reducing expenditure of the Colony, it has been decided to withdraw the annual contributions towards the Weather Office under your control, and to substitute a vote of £50 for the collection and tabulation of statistics of rainfall and temperature.

2. In intimating this, His Excellency desires me to convey an expression of the cordial thanks of the Government for the services you have rendered to the Colony during the past eighteen years in your capacity as Government Meteorologist, and regrets that the absence of that full co-operation on the part of other Colonies and Countries, which was necessary to make your scheme a complete one, was not forthcoming.

I have, &c.,  
(Sgd.) FRED. EVANS,  
Colonial Secretary.

Maxwell Hall, Esq.,  
Montego Bay.

Last year the Royal Meteorological Society, London, asked for a full account of the Jamaica Weather Service; and no sooner had the report been prepared when the Weather Bureau, Washington, asked for another; an abstract of the report was sent to Washington, and was published in the U.S. Monthly Weather Review for July, 1898. In connection with the closing of the Service it seems proper to reproduce the report sent to the R. Meteor. Society.

## THE JAMAICA WEATHER SERVICE

Was established in 1880 in order to have the usual instruments read and recorded at Kingston, the chief town in Jamaica, to encourage the registration of the Rainfall throughout the Island, and to give warning of approaching hurricanes.

Mr. Robert Johnstone, F.R.Met.S., has assisted me from the first; he undertook the registration of the instruments in Kingston, and thereby allowed me to return to my private residence, the Kempshot Observatory, near Montego Bay. These places are 78 miles apart on the line of usual approach of cyclones along the Caribbean Sea; consequently by an exchange of telegrams Mr. Johnstone and I have been able to make out fairly well what any cyclone was doing, and to issue the proper telegraphic notice or warning.

At times, during the absence of Mr. Johnstone, I have been assisted by Mr. J. F. Brennan, who has shown unusual skill in improving self-registering instruments.

The registration of the Rainfall has been encouraged by issuing a Monthly Weather Report to all the contributors, of whom there are about 200; and among these Weather Reports are published any special reports or investigations.

The only **FIRST CLASS STATION** is Kingston, elevation 50ft., equipped and maintained at my own expense. There is continuous registration of the atmospheric pressure, and of the direction, force and velocity of the wind. The thermometer screen is in the Public Gardens, which are now, however, too thickly overgrown with ornamental trees.

The **SECOND CLASS STATIONS** are:—  
Hill Gardens, elevation 4,907 ft. :  
Castleton Gardens, elevation 496 ft. :  
both of which are equipped and maintained by the Public Gardens and Plantations Department.

# **National Oceanic and Atmospheric Administration**

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Negril Point Light House, elevation 33 ft. is equipped and maintained by the Public Works Department.

The THIRD CLASS STATIONS are:—

Hope Gardens : 600 ft. (P. G. & P. D.)  
 Stony Hill Reformatory : 1,400 ft.  
 Morant Point Light House : 8 ft. (P. W. D.)  
 Montego Bay : 169 ft. where I now live instead of at the Observatory in order to attend to judicial duties.

There is also a screen with a Max. and Min. thermometer, and a rain gauge, on the top of the Blue Mountain Peak, 7,423 ft., the highest point in Jamaica. The instruments are read at the end of each month by a messenger from the Hill Gardens.

The observations and results made and obtained at all the above stations are published more or less fully in the monthly Weather Report.

#### FORECASTS.

With regard to Storm warnings, according to a revised list 38 depressions have passed within barometric range of Jamaica since the service was established; but many were so clearly due to cyclones at a distance which were not coming our way that we cannot claim to have seriously dealt with more than twenty or so. At any rate no mistake has yet been made; the hurricane signals have been ordered up only thrice, August 18, 1880, August 20, 1886, and September 15, 1889.

Forecasts for daily rainfall were fairly successful but could not reach those interested.

Forecasts for monthly rainfall were commenced in 1884 and discontinued in 1886; of these 80 per cent were correct but the subject required more attention than I could give it, and when a large rainfall was forecast for May, 1886, which month proved unusually dry, and when with an average forecast for June, 1886, heavy rains fell June 5 and 6, and floods did great damage, it was clearly time to stop this mode of forecasting.

#### INVESTIGATIONS, REPORTS, &c.

The following are the investigations which have been undertaken:—

*Barometer, diurnal variation of.*—For every hour for each month of the year. (Weather Report No. 192.)

*Barometric pressures, mean* (W. R. 192, and errata Vol. II.)—Very special photographic arrangements were made by Mr. J. F. Brennan, who took and reduced the observations. With regard to the mean, it was found that the mean of the three readings at 7 a.m., 3 p.m., and 11 p.m., exactly agreed with the mean of the readings taken every hour.

*Clouds, classification of* (W. R. 193.)—The classification is essentially the same as that adopted by the International Committee, but strato-cirrus was added; it is a cloud somewhat resembling cirro-stratus, but thick and wooly; it is a purely tropical cloud according to Mr. Abercrombie.

*Cyclones of 1880* (W. R. Vol I, introduction.)—An investigation of the two cyclones which passed over Jamaica August 18, that year, including their reciprocal movements.

*Cyclones, generally, as observed in Jamaica* (W. R. 96.)

*Cyclones, tropical* (Nature, vol. 46, p. 393.)—If a cyclone is approaching any place the time of arrival is the fall of the barometer below the mean divided by twice the rate of fall, and consequently it is possible to ascertain whether the cyclone is directly approaching or not, by the constancy in the time of arrival, as shown by observations made every two or four hours. This rule is most useful for isolated places.

*Earthquakes* (W. R. 77.)—The cause of the oppressive weather before an earthquake is due to the stopping or diminution of the wind as shown by self-registering instruments. The barometer is also affected, and there is a tendency for stratus to form over the sky. There are not enough earthquakes in Jamaica to complete the investigation, but the recording instruments are kept constantly in perfect working order.

*Health of Kingston* (W. R. 123.)—The connection between the meteorological results and the health of the chief town in Jamaica is interesting in many ways. In Jamaica the people suffer from cold, not from heat. There are nearly twice as many deaths in March after the cooler weather in January and February as there are in September after the hotter weather in July and August, and this is accentuated with respect to infantile mortality; for infants the ratio is thrice instead of twice.

*Lightning, protection of buildings from* (W. R. 136.)—Confirming the report of the British Lightning Rod Conference, 1882.

*Magnetic variation* (W. R. 182.)—Between the year 1700 and 1820 the variation of the compass was practically steady. Of late years it has been rapidly changing; the results of the investigation are given in a practical form.

*Rainfall Maps* (published by the Jamaica Institute).—The coloured maps are based upon observations made at about 153 stations for about twenty years, and they show the average distribution over the island for each month.

*Rainfall and sun-spot period* (Nature, vol. 49, p. 399.)—The table given in Nature takes in Barbados, Antigua and Trinidad, as well as Jamaica. It does not seem to be of much use for forecasting purposes. In 1893 I gave out that that year and the next few years would probably be drier than usual—the sun-spot maximum was then approaching, and 1891 had been unusually wet—but 1893 proved to be still wetter, and it was not until two or three years after the maximum in 1893 that drought was severely felt in certain parts of the island, and the connection preserved.

*Results, meteorological* (W. R. 123.)—These are for the most part means for ten years, 1880-89, with notes.

*Temperature and pressure* (Nature, vol. 35, p. 437, and vol. 36, p. 197.)—The decrease of minimum temperature as we ascend in the air follows a law which is useful in many ways, and if we define the temperature of space to be that shown by a thermometer at a great distance from the earth and shaded by the earth from the sun, we find its temperature to be—311° F.

*Tides in Kingston Harbour* (W. R. 227).—When the moon's declination is small there are two very small tides in the twenty-four hours; when the moon's declination exceeds 9° north or south there is only one small tide in the twenty-four hours. This investigation is referred to here in consequence of the discovery of the variation of mean sea level with monthly temperature of the air. Let  $T$  be half the sum of the mean temperature of the air for any month and for the preceding month, then the

Mean sea level = constant + 0.84 inch  $\times$  ( $T - 78.6^\circ$ ). This seems to show that the variation of  $T$  are carried down as much as 500 feet below the ocean level.

*Winds in Kingston* (W. R. 200).—A careful investigation of the sea and land breezes by Mr. Brennan, as felt in Kingston.

The only investigations I have on hand at present with respect to the Weather Service are connected with Cyclones, theoretical and practical.

#### THE GRANTS IN AID.

I receive a subsidy of £150 a year from the Government to maintain the Weather Service, and I have to pay my assistants and to find my own instruments; but the Government print the Weather Reports, supply the service with stationery, and send round what weather telegrams may be necessary.

July, 1898.

(Sgd.)

MAXWELL HALL.

In consequence of the reduction of the grant in aid, I shall have to discontinue the First-class station at Kingston, the Second-class station at Montego Bay, and to resume the work of preparing the Weather Reports.

And while ordering the closing of what is practically the Jamaica Weather Service on April 1st, 1899, I have to give Mr. Johnstone my special thanks for his long and faithful services, and to thank Mr. Romney for his daily care in reading, and in supplying the Press with copies of his daily readings.

With regard to the *Weather Reports*, I have to ask the contributors of Rainfall statistics and the superintendents of the different establishments where Meteorological registers are kept to send me at Montego Bay their returns for March as soon as possible in April, and so on from month to month.

The recent establishment of the United States Meteorological Station at Halfway Tree demands more than the mere notice I can here give. I have before me their most elaborate summary for January, which I hope to publish in the W. R.; and while we have to thank the observers at that Station for promised contributions, yet we shall miss the Kingston returns in connection with the Kingston vital statistics.

March 7th, 1899.

MAXWELL HALL,

Montego Bay.