

FOR OFFICIAL USE.

M.O. 332.

AIR MINISTRY

METEOROLOGICAL OFFICE

NOTES ON THE
METEOROLOGICAL OBSERVATIONS

MADE IN

BRITISH COLONIES AND PROTECTORATES, ETC.

IN

1928

AND

Summarised in the Annual Reports of Colonial Governments

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TABLE OF CONTENTS.

	Page
Gibraltar	4
Cyprus	4
Malta	5
Hong Kong	5
Ceylon	6
Federated Malay States	6
Straits Settlements	7
Palestine	8
Gambia	8
Gold Coast	9
Nigeria	9
Sierra Leone	10
Nyasaland	10
Tanganyika	11
Uganda	11
Zanzibar and Pemba Island	12
Basutoland	13
Bechuanaland Protectorate	13
Northern Rhodesia	13
Swaziland	14
British Honduras (1927 and 1928)	14
Bermuda	14
Bahamas	15
Jamaica	15
Leeward Islands	16
Grenada	16
St. Lucia	17
St. Vincent	17
Barbados	17
Trinidad	18
British Guiana (1927 and 1928)	18
Falkland Islands	18
Mauritius	19
Seychelles	19
Fiji	20
Errata	20
Addendum—Federated Malay States	25

NOTES ON THE METEOROLOGICAL OBSERVATIONS MADE IN BRITISH COLONIES AND PROTECTORATES, ETC. IN 1928

And Summarised in the Annual Reports of Colonial Governments

Regular meteorological observations have been made for many years past in the British Colonies and Protectorates at the request of the Home Government and since 1907 summaries of these observations, on a form drawn up in the Meteorological Office, have been included in the Annual Reports of the Colonial Governments. In order to render the valuable material thus accumulated more readily available, the Secretary of State for the Colonies has requested the Colonial Governments to forward reprints of these tables to the Meteorological Office, London, for distribution among the meteorological institutions in the Empire and in foreign countries with which it maintains an exchange of publications. This scheme has now been in operation since 1910 and through it valuable meteorological information has been rendered accessible.

The observations are in most cases taken under the supervision of officers who are engaged in scientific work but who have not all received special training in meteorological work. The procedure adopted in the different Colonies has varied and the tables do not always contain all the information required for full use of the material. A questionnaire requesting further information as to the observations, was therefore prepared in the Meteorological Office and circulated through the Colonial Office to the Governors of the Colonies and Protectorates concerned. From the replies received and from a scrutiny of the printed summaries, and also of the daily observations when available, a compilation of "Notes" was made and issued with the summaries for 1923. Supplementary notes were issued with the summaries for 1924 and 1925; beginning with 1926 the "Notes" have been published annually as an introduction to the collection of reprints. Changes which have been introduced since 1923 are marked by the date of the change in square brackets. For ready reference it is suggested that this introduction may be bound or filed with the meteorological observations for the year 1928.

The "Notes" include a statement as to the hours of observations, the standard of time in use, and a brief reference to the exposure of the instruments. The exposure for thermometers recommended in the *Observer's Handbook* of the Meteorological Office, is in a Stevenson screen, freely exposed to sun and wind and not shaded by trees or buildings. The site prescribed for the exposure of the rain-gauge is a level grass plot, the rim of the gauge being one foot above the ground. The sheltering effect of trees, bushes, buildings, &c., must be avoided and the regulations adopted by the Meteorological Office specify that the distance between the gauge and any object should be at least twice the height of that object. When the site and exposure of the instrument appear to satisfy these conditions they are described as "conventional." Formerly the thermometers at stations of the Meteorological Services of the Governments of India and Ceylon were exposed in wire cages, placed in huts with open sides, freely exposed to wind and sun. That form of exposure was regarded as generally appropriate for tropical conditions and was described in *Hints to Observers in Tropical Africa* issued by the Meteorological Office in 1907. It has been adopted at many tropical stations outside the Indian system. Instances are given in these notes. Experiments in India* and Ceylon† have shown that Stevenson screens, if freely exposed, afford as much protection against solarisation as the other form of exposure, even under tropical conditions, and it is understood that Stevenson screens are being introduced at the Indian stations; they have also been in use during 1928 at certain stations in Ceylon indicated on page 6. In many tropical countries it is not possible to place the rain-gauge over grass and there is risk of splashing of rain-drops during heavy showers. The gauges are therefore placed at greater heights than one foot above the ground. Particulars are given in each instance.

* *Indian Meteorological Memoirs*. 24, Part III, 1922.

† *Colombo, Ceylon J. Sci. (Sec. E.)*, 1, 1928, pt. 2, p. 153.

The latitudes, longitudes and heights of the stations are stated when this information is not given in the reprints. Then follows information as to the corrections applied to the readings of the barometer, the method of deducing the mean pressure for the day from the observations at the specified hours,† the hours of setting and reading the self-registering thermometers, the definitions adopted by the observer of "a day with rain," &c., any point being included which throws light on the meanings of the tables and the reliability of the data. Unless otherwise stated the heights of stations are the heights of the barometer cisterns above M.S.L., or if no barometer is in use, the heights above M.S.L. of the sites of the rain-gauges. For some stations, indicated by an asterisk against the name of the station, the daily observations are available in print or in manuscript and it has been possible to examine the published summaries in detail, in this way a number of errata have been discovered which are set out on pp. 20-25. For purposes of reference the years for which observations were first published have been noted for the majority of the stations.

The order in which the various Colonies are arranged is the same as that given in the geographical section of the *International Catalogue of Scientific Literature*, published by the Royal Society. This order has been adopted in the lists of contents of previous sets of summaries.

NOTES ON THE TABLES, 1928.

*Gibraltar

[Observations first published, 1852; interrupted, 1862-1863].

Hours of observation—7h., 13h., 18h., 21h., G.M.T.

The Observatory is situated in an obsolete bastion of the fortifications on the sea front, S.W. side of the Rock and 50 ft. above M.S.L. The exposure of the instruments is "conventional."

The height of the barometer above M.S.L. is 53 feet.

Pressure— $\frac{1}{3}$ (7 + 13 + 21h.); readings are reduced to 32°F., lat. 45° and M.S.L.

Temperature—Mean $\frac{1}{3}$ (7 + 13 + 21h.).

Maximum set at 7h. and read at 18h.

Minimum set at 18h. and read at 7h.

The absolute extremes refer, however, to the whole period of 24 hours.

Vapour Pressure and Relative Humidity—Computed from "Hygrometric Tables" published by the Meteorological Office, London, 1924 (M.O. 265). [1926.]

Rainfall—Rim of rain-gauge is 2 feet above a sloping roof.

Totals refer to the 24 hours beginning at 7h.

Definition of—Day with rain .. 0.1 mm. or more. [1927.]

Day with clear sky .. mean cloud amount (from observations taken 4 times a day) less than 2 tenths.

Day with overcast sky .. mean cloud amount (from observations taken 4 times a day) more than 8 tenths.

Day with gale wind force 8 or more (Beaufort scale).

Wind—The wind direction refers to "magnetic" north.

Cyprus

There are three stations, under the control of the Public Works Dept.

[Nicosia observations first published, 1907].

[Acheritou " " " 1912].

[Limassol " " " 1913].

Hours of observation, 8h. and 15h., zone time, 2 hours fast on G.M.T.

The site and the exposure of the instruments are "conventional" and the instruments are tested, usually once every two years, by an official of the Physical Department, Cairo.

Pressure— $\frac{1}{2}$ (8 + 15h.); readings are reduced to 32°F., lat. 45° and M.S.L.

Temperature—Mean $\frac{1}{2}$ (max. + min.)

Maximum read and set at 8h., and entered to previous day.

Minimum read and set at 8h., and entered to day of reading.

Vapour Pressure and Relative Humidity—Computed from Glaisher's Hygrometric Tables.

† E.g. the mean of observations at 7h., 13h. and 21h., is represented by the formula $\frac{1}{3}$ (7 + 13 + 21h.).

Rainfall—Rim of rain-gauge is 1 foot above the ground.

Totals refer to the 24 hours beginning at 8h.

Definition of—Day with rain .. 0.01 in. or more.

Day with clear sky cloudless sky.

Day with overcast sky .. mean cloud amount more than 5 tenths.

Wind—The wind direction refers to "magnetic" north.

Robinson cup anemometers are in use, but no data of wind force are published. It is stated that no gales are experienced.

Malta (*January-April.)

[Observations first published, 1852; interrupted, 1855-1857].

Hours of observation—8h., 14h., 19h., zone time, one hour fast on G.M.T.

The site and the exposure of the instruments are "conventional."

There has been no change of site.

The observations were taken at the University throughout the year, and not at the new station established at the Meteorological Office on April 20, 1928, which supplies data for the British *Monthly Weather Report*.

Pressure— $\frac{1}{2}$ (8 + 19h.); readings are reduced to 32°F., lat. 45° and M.S.L. [1924].

Temperature—Mean $\frac{1}{3}$ (8 + 14 + 19h.).

Maximum set at 8h. and read at 19h.

Minimum set at 19h. and read at 8h.

Vapour Pressure and Relative Humidity—Computed from "Hygrometric Tables" published by the Meteorological Office, London, 1924. (M.O. 265). [1926].

Rainfall—Rim of rain-gauge is 59 feet above the ground.

Totals refer to the 24 hours beginning at 8h.

Definition of—Day with rain 0.01 in. or more.

Day with clear sky mean cloud amount less than 2 tenths.

Day with overcast sky mean cloud amount more than 8 tenths.

Day with gale day on which the autographic record shows that a force of 8 on Beaufort scale was reached at any time between 0h. and 24h.

Wind—A Robinson cup anemometer and an anemobiograph are in use. The cups are 79 feet above the ground and 8 feet above the roof. The head of the anemobiograph is 15 feet above the roof. The wind summary is based on observations at all three hours [1927]. The direction is observed to 32 points; the number of entries under N. includes only the winds from N by W., N., and N by E.; similarly the entries under E. include only the winds from E by N., E., and E by S. But under NE. are entered all observations between NNE. and ENE. inclusive (i.e., NNE., NE by N., NE., NE by E. and ENE.); under SE. all observations between ESE. and SSE., &c. The entries under the headings N., E., S. and W. are therefore relatively low and those under NE., SE., SW. and NW. relatively high.

Hong Kong—*Royal Observatory

[Observations first published, 1884].

First order station of the International Classification.

Some elements published for hours of 7h., 13h., 21h., zone time, 8 hours fast on G.M.T.

Pressure.—Mean of 24 hourly observations; readings are reduced to 32°F., and lat. 45° at a height of 109 feet above M.S.L.

Temperature—The mean temperature at fixed hours is taken by whirling thermometers.

The daily extremes are taken from the records of a thermograph, and refer to the civil day.

Vapour Pressure and Relative Humidity—Computed from "Tables for the Reduction of Meteorological Observations," published by the Government of India Meteorological Department, 1910.

Rainfall—Rim of rain-gauge is 18 in. above the ground.

Totals refer to the civil day.

Definition of—Day with rain 0·01 in. or more.
 Day with clear sky mean cloud amount less than 20 per cent.
 Day with overcast sky mean cloud amount more than 80 per cent.
Wind—A Beckley anemometer is in use, with the cups 45 feet above the ground and 13 feet above the roof.
Sunshine—A Campbell-Stokes universal recorder is in use.

Ceylon

Station.	Rain-gauge Ht. of rim.	Years of Observation.	Station.	Rain-gauge Ht. of rim.	Years of Observation.
† §Colombo	.. † 1 ft. 6 in.	21	Ratnapura	.. 2 ft. 2 in.	60
§Puttalam	.. 2 ft. 2 in.	60	Anuradhapura	3 ft. 3 in.	59
§Mannar	.. 1 ft. 0½ in.	59	Kurunegala	.. 1 ft. 1 in.	42
§Jaffna	.. 1 ft. 9 in.	58	Kandy	.. 1 ft. 6 in.	59
§Trincomalee	.. 3 ft. 7 in.	59	§Badulla	.. 2 ft. 0 in.	56
Batticaloa	.. 1 ft. 0½ in.	59	§Diyatalawa	.. 2 ft. 0 in.	28
Hambantota	.. 1 ft. 9 in.	60	Hakgala	.. 1 ft. 5 in.	45
Gallé	.. 2 ft. 2 in.	60	Nuwara Eliya	1 ft. 1 in.	60

Hours of observation 9½h. and 15½h., time of meridian 82½°E., 5½ hours fast on G.M.T.

The thermometers are exposed in wire cages under shelters with open sides, except at stations indicated by §, where Stevenson screens were in use during 1928.

Pressure—½ (9½ + 15½h.); readings are reduced to 32°F., lat. 45°, and M.S.L.

Temperature—mean ½ (max. + min.).

The mean maximum and mean minimum temperatures (both dry bulb and wet bulb) are not given separately as such, but the "Average Daily Range" is given (*i.e.*, the difference between the mean maximum and mean minimum) and from this table and the ½ (max. + min.) values, the mean maximum and mean minimum temperatures can be computed. The maximum is read and set at 15½h. and the minimum at 9½h.

Relative Humidity—Computed from "Tables for the Reduction of Meteorological Observations," published by the Government of India Meteorological Department, 1910. Two sets of relative humidity values are published :—

(1) Mean of 9½h. and 15½h.

(2) Values computed from ½ (max. + min.) dry bulb and ½ (max. + min.) wet bulb. These values are considered to give an approximation to the average humidity during the 24 hours.

Rainfall—For heights of rims of rain-gauges above ground see above.

Totals refer to the 24 hours beginning at 9½h.

Definition of—Day with rain 0·01 in. or more.

Wind—Robinson cup anemometers are in use. The heights of the cups above the ground are as follows :—

Colombo	.. 18½ ft.	Batticaloa	.. 35 ft. above the ramparts, which are 15 ft. above ground.
Puttalam	.. 14 ft.		
Mannar	.. 13½ ft.		
Jaffna	.. 14 ft.	Hambantota	11½ ft.
Trincomalee	14 ft. 9 in.	Gallé	.. 12½ ft.
		Ratnapura	.. 15 ft.
		Diyatalawa	.. 12 ft. 10 in.

Federated Malay States ||

Station	Rain-gauge Ht. of rim.	First year of Observation.
Kuala Lumpur (Railway Hill)	.. 1 ft.	1879
Fraser's Hill	.. 1 ft.	1925
Tanah Rata	.. 1 ft. 10 in.	1925
Rhododendron Hill	.. 1 ft.	1925

† Data from 1869 for neighbouring station.

‡ There is in addition a pluviograph with its rim at 5 ft. 3 in. the catch of which differs very little from that of the standard gauge.

|| See p. 25.

The site of the station at Kuala Lumpur has been changed to Railway Hill, 287 feet above M.S.L.

Hours of observation—9h., 15h., 21h., zone time, 7 hours fast on G.M.T. (9h. and 15h. only at Rhododendron Hill).

At Kuala Lumpur and Fraser's Hill, the thermometers are exposed in standard screens.

The exposures of the stations at Cameron's Highlands are not stated.

Temperature—

Mean ½ (max. + min.).

Maximum read and set at 9h., and entered to previous day.

Minimum read and set at 9h., and entered to day of reading.

Vapour Pressure and Relative Humidity—Computed from "Tables for the Reduction of Meteorological Observations," published by the Government of India Meteorological Department, 1910.

Rainfall—For heights of rims of rain-gauges above ground see above.

Definition of—Day with rain 0·2 mm. or more.

Day with clear sky mean cloud amount less than 2 tenths.

Day with overcast sky mean cloud amount greater than 8 tenths.

Sunshine—Campbell-Stokes recorders are in use.

Straits Settlements

Station.	Lat.	Long.	Height of Barometer above M.S.L.	Standard of Time.	First year of Observation.
Singapore	.. 1° 18' N.	103° 51' E.	36 feet	105th meridian, 7 hr. 1841† fast on G.M.T.	
Malacca (Durian Daun).	2° 13' N.	102° 14' E.	23 feet	Local time, 6 hr. 49 1880 min. fast on G.M.T.	
Labuan	.. 5° 15' N.	115° 15' E.	55½ feet	Local time, 7 hr. 41 1890‡ min. fast on G.M.T.	
Penang	.. 5° 34' N.	100° 20' E.	16½ feet	Local time, 6 hr. 41 1880 min. fast on G.M.T.	

Hours of observation 9h., 15h., 21h.

The instruments are exposed in a screen with single-louvred walls and a double top at Singapore, and in cages beneath thatched shelters at Penang and Malacca. No information is given regarding the exposure at Labuan.

Pressure—⅓ (9 + 15 + 21h.); readings are reduced to 32°F., lat. 45° at station level.

Temperature—The following are the hours at which the maximum and minimum thermometers are set and read :—

Station	Set	Maximum Read	Entered to previous day	Minimum Set	Read
Singapore	.. 21h.	21h.	—	21h.	21h.
Malacca	.. 9h.	15h.	—	9h.	9h.
Penang	.. 9h.	9h.	yes	9h.	9h.
Labuan	.. 9h.	9h.	not stated	9h.	9h.

Rainfall—Heights of rims of rain-gauges above ground are :—

Singapore 12 in., Malacca 16 in., Penang 10 in., Labuan 18 in.

Totals refer to the 24 hours beginning at 9h.

Definition of—Day with rain—Singapore 0·2 mm. or more. Malacca 0·5 mm. or more. Penang—the raindays are entered under "overcast days". Labuan—not stated.

Day with clear sky and overcast sky—The criteria are not as stated at Penang.

† Interrupted 1846–1868.

‡ Interrupted 1896–1910.

Wind—At Singapore the wind observations refer to "magnetic" north; at Penang and Malacca to true north. Information is not available for Labuan.

Sunshine—A Campbell-Stokes recorder is in use at Singapore.

Palestine

Station.	Rain-gauge Ht. of rim.	First year of Observations.	Station.	Rain-gauge Ht. of rim.	First year of Observations.
Jericho ..	1 metre.	1925	Jerusalem ..	1 metre.	1895†
Jenin ..	1 metre.	1925	Gaza ..	1 metre.	1900§
Haifa ..	1.3 metres.	1897†	Beersheba ..	1 metre.	1925
Tel-Aviv ..	1.2 metres.		Acre ..	1 metre.	

Hours of observation 8h., 14h., 20h. at Jericho, Jenin and Acre; 7h., 14h., 21h. at Tel-Aviv; 8h. and 14h. at Haifa; 8h. at Jerusalem, Gaza and Beersheba. Egyptian standard time, 2 hours fast on G.M.T.

The instruments are exposed in standard Egyptian pattern single-louvred screens.

Pressure—readings are reduced to 0°C. and lat. 45° at station level.

Temperature—

Jericho, Jenin and Acre.

Mean ..	..	..	$\frac{1}{4}$ (8 + 14 + 20h. + min.).
Maximum ..	..	..	read and set at 20h. and entered to day of reading.
Minimum ..	..	..	read and set at 8h. and entered to day of reading.

Tel-Aviv.

Mean ..	..	..	$\frac{1}{4}$ (7 + 14 + 2 × 21 h.).
Maximum ..	..	..	read and set at 21h. and entered to day of reading.
Minimum ..	..	..	read and set at 7h. and entered to day of reading.

Haifa, Jerusalem, Gaza and Beersheba.

Mean ..	..	..	$\frac{1}{2}$ (max. + min.).
Maximum ..	..	..	read and set at 8h. and entered to previous day.
Minimum ..	..	..	read and set at 8h. and entered to day of reading.

Relative Humidity and Vapour Pressure—Computed from "Jelinek's Psychrometer-Tafeln. Anhang: Hygrometer-Tafeln" by J. M. Pernter. 6th edition. Leipzig, 1911.

Rainfall—For heights of rims of rain-gauges above ground see above. Totals refer to the 24 hours beginning at 8h.

Gambia—Cape St. Mary

[Observations first published, 1926].

Hour of observation, 9h., time of meridian 16° 40' W., 1 hr. 6 min. 40 sec. slow on G.M.T.

The site and exposure of the instruments are "conventional."

Temperature—

Maximum ..	..	..	read and set at 9h. and entered to previous day.
Minimum ..	..	..	read and set at 9h. and entered to day of reading.

Vapour Pressure and Relative Humidity—Computed from Glaisher's Hygrometric Tables. The values of vapour pressure ("Elastic Force of Vapour") are in inches of mercury.

Rainfall—Rim of rain-gauge is 1 ft. above the ground.

Totals refer to the 24 hours beginning at 9h.

Definition of—Day with rain .. 0.01 in. or more.

Wind—The velocity is obtained by means of a Robinson cup anemometer, the cups being 10 ft. above the ground.

Gold Coast

[Observations first published, *Accra, 1888; Axim, Tamale and Kumasi, 1914].

Hour of observation, 9h., G.M.T.

At Accra and Kumasi the site and exposure of the instruments are "conventional." At Tamale, the thermometers are exposed in a wire cage under a thatched roof; at Axim in a single louvered screen under a thatched shelter.

Pressure—the values are as read, no corrections having been applied.

The heights of the barometer cisterns above M.S.L. are:—Accra, 52.6 ft. Kumasi, 980 ft.

Temperature—Mean, $\frac{1}{2}$ (max. + min.).

Maximum and minimum—at Accra, Axim and Tamale the maximum is read and set at 9h. and entered to the previous day; the minimum is read and set at 9h. and entered to day of reading. At Kumasi both maximum and minimum are read and set at 9h., and entered to day of reading.

Relative Humidity—at 9h., computed from Glaisher's Hygrometric Tables.

Rainfall—Height of rim of rain-gauge (h_r) above ground at Kumasi should be 1 ft. 10½ in., and at Tamale 10¼ in.

Totals refer to the 24 hours beginning at 9h.

Definition of—Day with rain—0.01 in. or more.

Day with clear sky—at Accra, mean cloud amount less than 2 tenths [1928]. At other stations the criteria are not stated.

Day with overcast sky—at Accra, mean cloud amount greater than 8 tenths [1928]. At other stations the criteria are not stated.

Wind—At Accra an electrical cup anemometer was in use until November 5.

Calms are entered only for complete absence of wind.

At Axim the winds are usually observed to 4 points only.

Nigeria

Hour of observation 9h., local mean time. The following notes give the exposure of the thermometers (A, standard screen; B, modified screen; C, wooden screen under thatched roof or shelter; D, tropical shelter, roof usually thatched, sometimes wood; E, verandah or shaded wall), the heights of the rims of the rain gauges above the ground, and the year for which observations were first published.

Station.	Exposure of thermometer.	Height of rain-gauge.	First Year of Observations.	Station.	Exposure of thermometer.	Height of rain-gauge.	First Year of Observations.
		in.				in.	
Abeokuta ..	unsatisfactory	15	1905	Kano ..	A	12	1905
Afikpo ..	A	30	1905	Katsina ..	—	—	1923
Asaba ..	D	18	1903	Keffi ..	D	12	1909
Bamenda ..	D	26	1923	*Lagos ..	A	12	1886
Bauchi ..	D	12	1906	Lokoja ..	A	12	1901
Benin City ..	C	24	1903	*Maiduguri ..	D	12	1909
Birnin Kebbi ..	D	12	1909	Makurdi ..	—	—	1926
Brass ..	E	30	1907	Minna ..	D	12	1914
Calabar ..	E	22	1895	Ogoja ..	—	—	1924
Debundscha ..	—	—	1926	Ondo ..	C	9½	1901
Enugu Ngwo ..	C	24	1916	Owerri ..	B	22½	1907
*Hadeija ..	D	9	1918	Port Harcourt ..	B	14	1915
Ibadan ..	B	16	1901	*Sokoto ..	D	12	1905
Ibi ..	A	12	1909	Victoria ..	C with double felt roof	14	1922
Ilorin ..	A	12	1905	Warri ..	A	23	1907
Jos ..	D	22½	1921	Yelwa ..	—	—	1925
*Kaduna ..	A	12	1913	*Yola ..	B	12	1904

Pressure—Lagos—9h.; readings are reduced to 32° F. and M.S.L. at station latitude, but the height correction applied appears to be too great by .004 in.

Kaduna Capital—9h.; values are inaccurate.

† Interrupted 1905–24. ‡ Interrupted 1914–24. § Interrupted 1905–24.

Temperature—Mean $\frac{1}{2}$ (max. + min.).
 Maximum read and set at 9h., and entered to the previous day.
 Minimum read and set at 9h., and entered to day of reading.
Relative Humidity—Computed from "Glaisher's Hygrometric Tables."
 At Lagos the relative humidity is the mean of observations at 9h. and 15h. [1927.]
Rainfall—For heights of rims of rain-gauges above ground see above. Totals refer to the 24 hours beginning at 9h.
Definition of—Day with rain 0.01 in. or more.

Sierra Leone

Station.	Rain-gauge Ht. of rim.	First Year of Observations.	Station.	Rain-gauge Ht. of rim.	First Year of Observations.
*Freetown ..	1 ft. 3 in.	1874	Kaiyima ..	No informa- tion.	1927
Batkanu ..	0 ft. 9½ in.	1913			
Bo ..	1 ft. 10 in.	1913	Kissy ..	1 ft.	1913
Bonthe, Sherbro	1 ft.	1913	Makeni ..	1 ft. 6 in.	1923
Daru ..	1 ft. 10 in.	1913	Moiamba ..	1 ft. 4 in.	1913
Hill Station..	2 ft. 6 in.	1916	Njala ..	1 ft.	1926
Kabala ..	1 ft. 10 in.	1913	Pujehun ..	2 ft.	1923

Hours of observation 9h., 17h., Freetown local time, 53 minutes slow on G.M.T.

The heights of the stations (where known) are as follows:—

Freetown (barometer) 224 ft.; rain-gauges:—Batkanu 300 ft., Kissy 350 ft., Bo 320 ft., Bonthe, Sherbro 11 ft., Daru 600 ft., Hill Station 650 ft.

The thermometers are exposed in Stevenson screens.

Pressure— $\frac{1}{2}$ (9 + 17h.); readings are reduced to 32° F., lat. 45° and M.S.L. [1924]. For Freetown, see table of corrections, p. 21.

Temperature—Mean $\frac{1}{2}$ (9 + 17h.). [1925].

Maximum read and set at 9h., and entered to previous day.

Minimum read and set at 9h., and entered to day of reading.

Vapour Pressure and Relative Humidity—Computed from "Hygrometric Tables" published by the Meteorological Office, London, 1924 (M.O. 265).

Rainfall—For heights of rims of rain-gauges above ground see above.

Totals refer to the 24 hours beginning at 9h.

Definition of—Day with rain Day with some precipitation, whether measurable or not [1925], except Freetown, where it is day with 0.01 in. or more [1928].

Day with clear sky Day when cloud amount was 0 at either hour of observation [1927]. For Freetown, where criterion is mean less than 2 tenths, see table of corrections, p. 22.

Day with overcast sky Day when cloud amount was 10 at either hour of observation [1927]. For Freetown, where criterion is mean greater than 8 tenths, see table of corrections, p. 22.

Day with gale force 8 or more.

Wind—The winds are observed to 16 points at 9h. and 17h. For Freetown, see table of corrections, p. 22.

Nyasaland—*Zomba

[Observations first published, 1892].

Hours of observation 9h., and 21h. South African mean time, 2hr. fast on G.M.T.

The thermometers are exposed in a wire cage under a thatched shelter.

Pressure— $\frac{1}{2}$ (9 + 21h.); readings are reduced to 32° F., at station latitude and level.

Temperature—Mean $\frac{1}{2}$ (9 + 21h.).
 Maximum read and set at 9h., and entered to previous day.
 Minimum read and set at 9h., and entered to day of reading.

Vapour Pressure and Relative Humidity—Computed from "Hygrometric Tables" published by the Meteorological Office, London, 1924 (M.O. 265).

Rainfall—Rim of rain-gauge is 15 in. above the ground.

Totals refer to the 24 hours beginning at 9h.

Definition of—Day with rain—a day with some precipitation, whether measurable or not.

Day with clear sky and overcast sky—The observations of cloud amount made at 9h. and 21h. are classified either as "clear" or as "overcast," but the special definitions of these terms are not given.

Day of gale, day of strong wind—The numbers in these columns are derived from observations of the bending of eucalyptus trees in the wind and not from estimates of the wind force on a numerical scale.

Tanganyika

Station.	Rain-gauge Ht. of rim.	Observations first published.	Interruptions.
*Dar-es-Salaam ..	1 ft. 8 in.	1893	1913–22.
Mwanza ..	— 10 in.	1894	1896–97; 1900; 1912–22.
Arusha ..	3 ft. 3 in.	1903	1905; 1912–22.
Amani ..	2 ft. 7 in.	1901	1912–23.
Kigoma ..	3 ft. 1½ in.	1927	—
Manyoni ..	3 ft. —	1924	—
Moshi ..	1 ft. 6 in.	1928	—
Kilwa ..	2 ft. 4 in.	1928	—

Hours of observation, 9h. and 14h., Dar-es-Salaam local time, 2hr. 39min. fast on G.M.T., except for Kigoma and Manyoni, 9h. only, and Kilwa, 9h. 30m.

The site and exposure of the instruments at Dar-es-Salaam, Amani, Kigoma, Manyoni, Moshi and Kilwa are "conventional." At Arusha and Mwanza, the thermometers are exposed under thatched shelters.

Temperature—Mean $\frac{1}{2}$ (max. + min.).

Maximum read and set at 9h., and entered to previous day.

Minimum read and set at 9h., and entered to day of reading.

Rainfall—For heights of rims of rain-gauges above ground see above.
 Totals refer to the 24 hours beginning at 9h.

Definition of—Day with rain—0.2 mm. or more [1927].

Uganda

[The first years of published observations are shown for convenience under "Temperature."]

Standard of Time adopted is that of longitude 37½° E., 2½ hours fast on G.M.T.

Notes on Exposures:—

Entebbe, Kampala, Serere: in Sudan pattern screens.

Masaka: in a standard screen under a thatched shelter.

Arua, Katera: in a single louvered screen.

Bombo, Fort Portal, Gulu, Mbarara, Ngetta: in cages under thatched shelters.

Mbale: in cage inside Sudan pattern screen.

Masindi, Mubende, Simsa: in cages under verandahs.

Hoima: on wall under thatched verandah.

Kamuli: on a stone pillar under verandah, facing towards house.

Dwoli: under a thatched verandah.

Pressure—Entebbe: $\frac{1}{3}$ (7 + 14 + 21h); readings are reduced to 32° F. and lat. 45° at station level. [1927].

Temperature—The following are the hours at which the maximum and minimum thermometers are set and read and also the first years of published observations:—

	Set	Read	Maximum Entered to previous day	Set	Read	Minimum	First year of Observations.
*Entebbe	..	21h.	21h.	—	21h.	7h.	1896
Arua	..	9h.	9h.	yes	9h.	9h.	1923
Bombo	..	9h.	9h.	yes	9h.	9h.	1915
Dwoli	..	8h.	8h.	yes	8h.	8h.	1926
Fort Portal	..	14h.	14h.	—	14h.	14h.	1901
Gulu	..	8h.	8h.	yes	8h.	8h.	1911
Hoima	..	9h.	9h.	yes	9h.	9h.	1909
Kampala	..	7h.	7h.	yes	7h.	7h.	1907
Kamuli	..	7h.	7h.	yes	7h.	7h.	1926
Katera	..	19h.	19h.	—	19h.	19h.	1928
*Masaka	..	21h.	21h.	—	21h.	21h.	1902
Masindi	..	8h.	8h.	yes	8h.	8h.	1906
Mbale	..	7h.	7h.	yes	7h.	7h.	1907
Mbarara	..	16h.	14h.	—	16h.	14h.	1901
Mubende	..	7h.	21h.	—	21h.	7h.	1909
Ngetta	..	7h.	7h.	yes	14h.	7h.	1926
Serere	..	7h.	7h.	yes	7h.	7h.	1920
Simsa	..	7h.	7h.	yes	7h.	7h.	1923

At Entebbe the grass minimum thermometer is set at 21h. and read at 7h. Information about Budo is not available.

Relative Humidity—Computed from "Hygrometric Tables," published by the Meteorological Office, London, 1924 (M.O. 265) [1927].

Rainfall—Totals refer to the 24 hours beginning at 7h., except at Arua, Bombo, Hoima, 9h., Gulu, Masindi, Kitgum, Dwoli, 8h.

Heights of rims of rain-gauges are 1 ft. above ground, except at Dwoli (2 ft. 6 in.).

Definition of—Day with rain .. 0.01 in. or more.
Day with clear sky .. mean cloud amount less than 2 tenths.
Day with overcast sky .. mean cloud amount greater than 8 tenths.

Wind—A Robinson cup anemometer, with cups 15 ft. above the ground, is in use at Entebbe.

Sunshine—A Campbell-Stokes recorder is in use at Entebbe; it is shaded on the west by a hill subtending an angle of 10°.

Zanzibar and Pemba Island

Zanzibar

[Observations first published, 1891.]

Latitude 6° 10' S. Longitude 39° 14' E. Height of barometer above M.S.L. 50 ft.

Hour of observation 8h., local time, 2hr. 36min. fast on G.M.T.

The thermometers are exposed in a wire cage with a wooden top under a specially erected shelter with a board and tile roof.

Pressure—8h. It is not stated what corrections, if any, have been applied.

Temperature—Maximum .. read and set at 8h., and entered to previous day.
Minimum .. read and set at 8h., and entered to day of reading.

Dew Point and Relative Humidity—Probably computed from the "Tables for the Reduction of Meteorological Observations," published by the Government of India Meteorological Department 1910.

Rainfall—Rim of rain-gauge is 50 ft. above the ground.

Totals refer to the 24 hours beginning at 8h.

Definition of—Day with rain .. not stated.

Pemba Island

[Observations first published, 1910.]

Latitude 5° 15' S. Longitude 39° 44' E. Height of rain-gauge above M.S.L. 55 ft.

Hour of observation 7h., local time, 2hr. 39min. fast on G.M.T.

The thermometers are exposed in the shade under a verandah.

Temperature—Maximum .. read and set at 7h., and entered to previous day.

Minimum .. read and set at 7h., and entered to day of reading.

Rainfall—Rim of rain-gauge is 3 ft. 8 in. above the ground.

Totals refer to the 24 hours beginning at 7h.

Definition of—Day with rain .. not stated.

Basutoland

[Observations first published, 1922.]

Hour of observation 8½h., South African mean time, two hours fast on G.M.T.

The site and the exposure of the thermometers are "conventional."

Pressure—8½h. In inches as read. For corrected values see p. 23.

Temperature—In °F. Mean .. $\frac{1}{2}$ (max. + min.).

Maximum .. read and set at 8½h., and entered to previous day.

Minimum .. read and set at 8½h., and entered to day of reading.

Relative Humidity—Computed from tables by R. de C. Ward.†

The values given in the column headed "Tension of Vapour" are the computed temperatures of the dew point in degrees Fahrenheit.

Rainfall—In Inches.—Rim of rain-gauge is 4 ft. above the ground.

Totals refer to the 24 hours beginning at 8½h.

Definition of—Day with rain—not stated.

Bechuanaland Protectorate

[Observations first published, 1922.]

Hour of observation 8½h., South African mean time, two hours fast on G.M.T. The site and exposure of the instruments are stated to be conventional.

No information is available as to the observations beyond that given on the sheet.

Northern Rhodesia (July 1927 to June 1928).

[Observations first published, 1906.]

The following particulars refer only to *Livingstone and Fort Jameson; no information has been received for other stations.

Hours of observation—8h. and 18h. at Livingstone, 8h. at Fort Jameson, South African mean time, 2 hours fast on G.M.T.

The site and exposure of the instruments are "conventional" at Livingstone. At Fort Jameson the thermometers are exposed under a thatched shelter.

Pressure—Readings are corrected to 32°F., at station latitude and level.

Temperature—Mean .. $\frac{1}{2}$ (max. + min.).

Maximum .. read and set at 8h. and entered to previous day.

Minimum .. read and set at 8h. and entered to day of reading.

Relative Humidity—Computed from "Glaisher's Hygrometric Tables," 10th edition, 1910.

Rainfall—Rims of rain-gauges are 4 ft. above the ground.

Totals refer to the 24 hours beginning at 8h.

Definition of—Day with rain .. 0.01 in. or more.

Wind—At Livingstone a cup indicating anemometer is in use, with the cups 26 ft. 6 in. above the ground.

Sunshine—At Livingstone a sunshine recorder of Campbell-Stokes type is in use.

† "Practical Exercises in Elementary Meteorology," Boston, 1899.

Swaziland

[Observations first published, 1922.]

Hour of observation 8½h., time of longitude 30°E., 2 hours fast on G.M.T.

The site and the exposure of the instruments are "conventional" as far as is stated.

Temperature—Mean .. ½ (max. + min.).
Maximum read and set at 8½h., and entered to previous day.
Minimum read and set at 8½h., and entered to day of reading.

Vapour Pressure and Relative Humidity—Computed from the "Smithsonian Physical Tables," 1897.

Rainfall—Rims of rain-gauges are 4 ft. above the ground.

Totals refer to the 24 hours beginning at 8½h.

Definition of—Day with rain 0.005 in. or more.

Day with clear sky .. a day when cloud amount at 8½h. was 0.

Day with overcast sky.. a day when cloud amount at 8½h. was 10.

Day with gale .. no. of observations at 8½h. when wind is force 7 or more on Beaufort scale.

British Honduras—*Belize 1927 and 1928.

Hours of observation, 6h. and 18h., June to November; 6h., January to May and December. Standard of Time, 90th meridian, 6 hours slow on G.M.T.

Pressure—The extreme readings at the hours of observation are given, reduced to 32° F., lat 45°, and M.S.L.

Temperature—Maximum .. read and set at 6h. and entered to day of reading (all months).

From June to November the maximum appears to be read and set also at 18h., and entered to day of reading, the highest of the two readings (6h. and 18h.) being taken as the maximum.

Minimum .. read and set at 6h. and entered to day of reading.

The values given are the highest and lowest temperatures of each month.

Relative Humidity—Computed from Smithsonian Meteorological and Physical Tables, 1906 edn.

Rainfall—The height of the rim of the rain gauge above the ground is 34 in.

For June to November the totals refer to the 24 hours ending 18h.; for December to May, to the 24 hours beginning 6h.

Definition of—Day with rain .. not specified, but appears to be a day with some precipitation whether measurable or not.

Wind—A cup anemometer with cups 45.7 feet above ground is in use.

*Bermuda.

Hours of observation, 8h., 15h., 20h., local time, 4hr. 19min. slow on G.M.T.

The site and exposure of the instruments are "conventional."

Pressure—½ (8 + 20h.); readings are reduced to 32° F., at station latitude and a height of 151 ft. above M.S.L.

Temperature—Mean .. ½ (max. + min.).

Maximum read and set at 20h.

Minimum read and set at 8h., and entered to day of reading.

Relative Humidity—½ (8 + 15 + 20h.), computed from the tables supplied by the Meteorological Service of Canada.

Rainfall—Rim of rain-gauge is 1 ft. above the ground.

Totals refer to the 24 hours beginning at 8h.

Definition of—Day with rain a day with some precipitation whether measurable or not.

Day completely overcast .. a day on which the mean amount of cloud from observations at 8h., 15h. and 20h. is greater than 8.

Day with gale a day on which force 8, Beaufort scale, or upwards was recorded at any time.

Wind—A cup anemometer is in use with the cups 50 ft. above the ground.

Sunshine—A Campbell-Stokes recorder is in use.

Bahamas—*Nassau

[Observations first published, 1855.]

Lat. 25° 5' N. Long. 77° 20' W. Height of the barometer cistern above M.S.L. 31.4 ft. The instruments were moved to the Wireless Telegraph Station on August 3rd, 1927.

Hours of observation 7½h. and 15h., 75th meridian time, 5 hours slow on G.M.T.

The site and the exposure of the instruments are "conventional."

Pressure—Readings are reduced to 32° F., lat. 45° and M.S.L.

Temperature—Maximum .. read and set at 7½h., and entered to day of reading.

Minimum .. read and set at 7½h., and entered to day of reading.

The values given under the headings of "Temperature. Max. and Min." refer to mean daily maximum and minimum.

Relative Humidity—Computed from "Psychrometric Tables" by C. F. Marvin, published by the U.S. Weather Bureau, 1915.

Rainfall—Rim of rain-gauge is 1 ft. above the ground.

Totals refer to the 24 hours beginning at 7½h.

Wind—The values given as "Wind Force" are velocities in miles per hour. A Belfort standard U.S. Weather Bureau pattern anemometer is in use. The cups are 20 ft. above the roof of a building which is 15 ft. high.

Jamaica

	*Kingston	Negril Point	Morant Point
Observations first published ..	1881	1895	1881
Standard of time	75th meridian	75th meridian	75th meridian
Slow on G.M.T.	5 hours	5 hours	5 hours
<i>Pressure</i> —			
Readings are reduced to ..	32° F., lat. 45°, M.S.L., and corrected for diurnal range.		
<i>Temperature</i> —Mean	†	†	†
Maximum	read and set at 7h., entered to previous day.	set at 7h. and read at 15h.	set at 7h. and read at 15h.
Minimum	read and set at 15h. (entered to day of reading)	set at 15h. and read at 7h.	set at 15h. and read at 7h.
<i>Vapour Pressure and Relative Humidity</i> —"Hygrometric Tables," Meteorological Office, London, 1924 (M.O. 265) [1928].			
<i>Rainfall</i> —			
Rim above ground	51 ft.	6½ ft.	3 ft.
For 24 hours beginning ..	7h.	7h.	7h.
<i>Definition of</i> —			
Day with rain	0.01 in. or more	0.01 in. or more	0.01 in. or more
Day with gale	40 mi/hr or more	40 mi/hr or more	40 mi/hr or more
<i>Wind</i> —			
Anemometer in use	U.S. Weather Bureau pattern.	U.S. Weather Bureau pattern.	U.S. Weather Bureau pattern.
Cups above ground	69 ft.	94 ft.	18 ft.

† The mean temperature is obtained by the following formula devised by the late Maxwell Hall:
½ (7 + 15h + Max. + Min.) — 0.5° F.

Leeward Islands

	*Antigua	St. Kitts	Dominica	*Montserrat	Tortola
Years of observation	53	59	30	14	27
Latitude	17° 5' N.	17° 18' N.	15° 30' N.	16° 45' N.	18° 25' N.
Longitude	61° 45' W.	62° 48' W.	61° 20' W.	62° 5' W.	64° 36' W.
Height of barometer above M.S.L.	120.6 ft.	157 ft.	50 ft.	130 ft.	20 ft.
Hours of observation	9h., 15h.	9h., 15h.	9h., 15h.	9h., 15h.	9h.
Standard of time ..	local	local	probably local	local	60th meridian
Slow on G.M.T. ..	4hr. 7min.	4hr. 11min.	4hr. 5min.	4hr. 8min.	4hr.
Pressure—	$\frac{1}{2}(9 + 15h.)$ reduced to 32°F., lat. 45° M.S.L.	$\frac{1}{2}(9 + 15h.)$ reduced to 32°F., lat. 45° M.S.L.	$\frac{1}{2}(9 + 15h.)$ reduced to 32°F., station level and lat.	$\frac{1}{2}(9 + 15h.)$ reduced to 32°F., lat. 45° M.S.L.	9h. reduced to 32°F., lat. 45° M.S.L.
Temperature—					
Mean	$\frac{1}{2}(9 + 15h.)$	$\frac{1}{2}(9 + 15h.)$	$\frac{1}{2}(9 + 15h.)$	$\frac{1}{2}(9 + 15h.)$ [1927]	—
Maximum	read and set at 9h. entered to previous day. read and set at 9h.	read and set at 9h. entered to previous day. read and set at 9h.	set at 9h. and read at 15h.	see special notes.	read and set at 9h. entered to previous day. read and set at 9h.
Minimum	(entered to day of reading)		set at 15h. and read at 9h.	read and set at 9h.	
Rainfall—					
Rim above ground.	4 ft.	1 ft.	3 ft. 6 in.	1ft. [July, 1927]	1 ft. 7 in.
Day with rain	0.01 in. or more.	0.01 in. or more.	Not stated.	0.01 in. or more.	Not stated.
Day with clear sky.	criterion indefinite.	criterion indefinite.	—	criterion indefinite.	—
Day with over-cast sky.	criterion indefinite [1927].	criterion indefinite.	—	criterion indefinite [1924]	—

Totals of rainfall refer to the 24 hours beginning at 9h., except for Montserrat from January to October, 1928, when the totals refer to the 24 hours ending at 9h.

Relative Humidity—Computed from "Hints to Meteorological Observers" by W. Marriott.

Special Notes—

St. Kitts—Until the beginning of March 1927, the screen containing the thermometers was 10½ ft. to the west of the laboratory, 20 ft. high, when it was moved to a "conventional" site. The site of the rain-gauge is not stated.

Montserrat—

Temperature—Maximum thermometer read and set at 9h.; January to October, 1928, entered to day of reading; November and December, 1928, entered to previous day.

Wind—The summary appears to be unreliable chiefly owing to the number of missing observations.

Dominica—The thermometers are exposed in a wire cage suspended in a shed with open sides. The rain-gauge is on Morne Bruce, 400 ft. above M.S.L.

Antigua and Montserrat—The means are based on about 20 to 25 observations each month. The missing observations have not been interpolated.

Grenada—*Richmond Hill

[Observations first published, 1891.]

Hours of observation 9h. and 18h., local time, 4hr. 7min. slow on G.M.T.

Site and exposure of the barometer and thermometers "conventional."

The rain-gauge is 2 ft. 3 in. distant from a wall 1 ft. 2 in. high, which is surmounted by an iron fence 6 ft. high composed of one-inch bars set 8 in. apart.

Pressure—Mean $\frac{1}{2}(9 + 18h.)$; values as read, no corrections have been applied. (See below for attached thermometer.)

The height of the barometer cistern above M.S.L. is 509 ft.

Temperature—The figures under 9 a.m., 6 p.m. and Mean refer to readings of the attached thermometer.

Maximum read and set at 9h., and entered to previous day.

Minimum read and set at 9h., and entered to day of reading.

Vapour Pressure and Relative Humidity—Computed from "Hygrometric Tables" published by the Meteorological Office, London, 1924 (M.O. 265).

Rainfall—Rim of rain-gauge is 1 ft. above the ground. [1927].

Totals refer to the 24 hours beginning at 9h.

Definition of—Day with rain—0.01 in. or more.

Day with clear sky ..

Day with overcast sky ..

Day with gale

Wind—The wind direction refers to "magnetic" north.

St. Lucia—Castries.

[Station moved from Reunion at end of 1927.]

Hours of observation 7h., 12h., 17h., 60th meridian time, 4 hours slow on G.M.T.

Thermometers are in a narrow double-louvred screen, under a light shelter.

Temperature—Mean $\frac{1}{2}(7 + 12 + 17h.)$

Maximum read and set at 17h.

Minimum read and set at 7h., and entered to day of reading.

Rainfall—Rim of rain-gauge is 1 ft. above the ground.

Totals refer to the 24 hours beginning at 7h.

Definition of—Day with rain 0.01 in. or more.

St. Vincent—Agricultural Experiment Station

[Observations first published, 1830; interrupted, 1842–1893.]

Hours of observation 9h. and 15h., local time, 4hr. 5min. slow on G.M.T.

Thermometers are exposed in a single-louvred screen; the rain-gauge is of "Snowdon" pattern.

Pressure—In inches— $\frac{1}{2}(9 + 15h.)$; readings are reduced to 32°F., lat. 45°, and M.S.L.

Temperature—In °F. Mean $\frac{1}{2}(9 + 15h.)$

Maximum read and set at 9h. and entered to previous day.

Minimum read and set at 9h. and entered to same day.

Vapour Pressure (in inches) and Relative Humidity—Computed from "Glaisher's Hygrometric Tables."

Rainfall—In inches. Rim of rain-gauge is 13 in. above the ground.

Totals refer to the 24 hours beginning at 9h.

Definition of—Day with rain 0.01 in. or more.

Day with clear sky mean cloud amount less than 2 tenths.

Day with overcast sky mean cloud amount more than 8 tenths.

Barbados

[Observations first published, 1853; interrupted, 1863–1864.]

Latitude 13° 8' N. Longitude 59° 36' W.

Hours of observation: 8h. and 17h., 60th meridian time, 4 hours slow on G.M.T.; pressure and attached thermometer readings at 9h. and 15h.; other observations at 8h. and 17h.; rainfall observations at 6h.

The site and the exposure of the instruments are "conventional."

Pressure—In inches— $\frac{1}{2}(9 + 15h.)$; readings are reduced to 32°F., lat. 45° and M.S.L.

Temperature—Mean $\frac{1}{2}(\text{max.} + \text{min.})$.

Maximum read and set at 17h., and entered to day of reading.

Minimum read at 17h. each day and at 8h. on the following day, the lower reading being taken as the minimum temperature of the day on which the 17h. reading is made.

Vapour Pressure (in inches), Relative Humidity and Dew Point—Computed from "Hints to Meteorological Observers" by W. Marriott, 7th Ed., 1911.

Rainfall—Rim of rain-gauge is 1 ft. above the ground.

Totals refer to the 24 hours beginning at 6h.

Definition of—Day with rain . . . 0.01 in. or more.

Wind.—A cup anemometer is in use, with cups 9 ft. above the ground.

Trinidad—St. Clair, Port of Spain

[Observations first published, 1862.]

Hours of observation 7h. and 15h., 60th meridian time, 4 hours slow on G.M.T.

Site and exposure "conventional."

Pressure—Mean— $\frac{1}{2}$ (7 + 15h.); readings are corrected to 32° F., and M.S.L. at station latitude.

Temperature—Mean . . . $\frac{1}{2}$ (7 + 15h.)

Maximum . . . read and set at 15h.

Minimum . . . read and set at 15h.

Vapour Pressure (in inches) and Relative Humidity—Computed from "Hygrometric Tables," published by the Meteorological Office, London, 1924 (M.O. 265), 2nd edition.

Rainfall—Rim of rain-gauge is 1 ft. 2 in. above the ground. [1927].

Totals refer to the 24 hours beginning at 7h.

Definition of—Day with rain . . . 0.01 in. or more.

British Guiana—1927.

[Observations first published, 1887.]

The following notes refer to **Georgetown** and **Mazaruni** only.

Hours of observation, 7h., 13h., 18h., local official time, 3hr. 45min. slow on G.M.T.

At Georgetown, the standard thermometer screen is protected from direct sunshine by a shelter. At Mazaruni the site and exposure of the instruments are "conventional."

Pressure—Readings are reduced to 32° F., lat. 45° and M.S.L.

Temperature—Maximum . . . read and set at 18h.

Minimum . . . set at 18h., and read at 7h.

Vapour Pressure and Relative Humidity—Computed from tables based on "Glaisher's Hygrometric Tables."

Rainfall—Rims of rain-gauges are 1 ft. above the ground.

Totals refer to the 24 hours beginning at 7h.

Wind—Three anemometers are in use at Georgetown, a Lowne's electrical recording and a Robinson's cup, with vane or cups 60 ft. above the ground, and a Dines' pressure tube anemometer with vane 74 ft. above the ground.

Sunshine—Campbell-Stokes recorders are in use at both stations.

1928.

The details are as for 1927, with the exception of the following:—

Vapour Pressure and Relative Humidity—Computed from "Hygrometric Tables," published by the Meteorological Office, London, 1924 (M.O. 265).

Wind—At Georgetown a second Robinson's cup anemometer was brought into use, with cups 5 ft. above the ground. At Mazaruni a Robinson's cup anemometer is in use, with cups 50 ft. above the ground.

Falkland Islands—*Port Stanley

[Observations first published, 1904.]

Hour of observation, 9h. local time, 3hr. 51min. slow on G.M.T.

The site and the exposure of the instruments are "conventional."

Pressure—readings are reduced to 32° F., lat. 45° and M.S.L. [1924].

Height of the barometer above M.S.L., 6 ft.

Temperature—Mean . . . $\frac{1}{2}$ (max. + min.).

Maximum . . . read and set at 9h. and entered to day of reading.

Minimum . . . read and set at 9h., and entered to day of reading.

Rainfall—Rim of rain-gauge is 1 ft. above the ground.

Totals refer to the 24 hours beginning at 9h.

Definition of—Day with rain—a day with some precipitation, whether measurable or not. [1926].

Day with clear sky . . . cloud amount 1 tenth or less.

Day with overcast sky . . . cloud amount 9 tenths or more.

Mauritius—*Royal Alfred Observatory

[Observations first published, 1861.]

The site and the exposure of the instruments are "conventional."

Pressure—Mean of 24 hours; readings are reduced to 32° F., lat. 45°, at station level. Height of barometer cistern above M.S.L., 181 ft.

Temperature—"Mean" is mean of 24 hours.

Maximum and minimum values refer to the civil day 0h. to 24h.

Dew Point, Vapour Pressure and Relative Humidity—The mean temperature of the dew-point, the degree of humidity and the elastic force of vapour are derived from the mean daily temperature of the air and of evaporation, by means of tables based on "Glaisher's Hygrometric Tables," and are not the means of 24-hourly values.

Rainfall—Totals refer to the civil day, 0h. to 24h.

Definition of—Day with rain—0.1 mm. or more.

Evaporation—The amount of evaporation is obtained from the readings of a Negretti and Zambra evaporimeter which consists of a cylindrical brass vessel 8 in. in diameter and 4 in. deep. The amount of water in the vessel is measured at midnight.

Sunshine—A Campbell-Stokes recorder is in use.

Wind—A Robinson cup anemometer is in use.

Seychelles

[Observations first published, 1891.]

Hours of observation 10h. and 16h. local time (10h. 18m. and 16h. 18m. 60th meridian time, 4 hours fast on G.M.T.)

The thermometers are exposed in a Stevenson screen.

The rain-gauge is of an obsolete pattern.

The site is "conventional."

Pressure— $\frac{1}{2}$ (10 + 16h.); readings are reduced to 32° F., lat. 45° and M.S.L. [1928].

Temperature—Mean . . . $\frac{1}{2}$ (10 + 16h.).

Maximum—read and set at 10h. and 16h. and the highest value entered to the day of reading.

Minimum—read and set at 10h. and 16h. and the lowest value entered to the day of reading.

Rainfall—Rim of rain-gauge is 1 ft. 4 in. above the ground.

Totals refer to the 24 hours beginning 10h.

Definition of—Day with rain . . . 0.01 in. or more [1928].

Day with clear sky . . . not stated.

Day with overcast sky . . . cloud amount 9 tenths or more [1928].

Wind—Direction N. includes winds from N. only; N.E., from N.N.E. to E.N.E. inclusive. Winds from other directions are summarised in an analogous way.

Fiji—*Suva

[Observations first published, 1886.]

Hours of observation 8½h. and 15½h., zone time, 12 hours fast on G.M.T.

The site and the exposure of the instruments are "conventional."

Pressure.—Readings are reduced to 32° F., lat. 45° and M.S.L.

Temperature.—

Maximum read and set at 8½h. and entered to previous day.

Minimum read and set at 8½h. and entered to day of reading.

Vapour Pressure and Relative Humidity.—Computed from "Hygrometric Tables," published by the Meteorological Office, London, 1924 (M.O. 265).

Rainfall.—Rim of rain-gauge is 1 ft. above the ground.

Totals refer to the 24 hours beginning at 8½h.

Definition of.—Day with rain 0.01 in. or more.

Day with clear sky cloud amount less than 2 tenths.

Day with overcast sky cloud amount greater than 8 tenths.

[1926].

Wind.—A Dines electric cup anemometer is in use. A Dines pressure-tube anemometer was brought into use on January 29, 1928.

Sunshine.—A Campbell-Stokes sunshine recorder is in use.

ERRATA, 1927.**British Honduras—Belize, 1927.**

Pressure.—Highest, May, 30.010; August, 30.000; December, 30.139. Mean, 30.077.

Temperature.—Maximum, June, 87.0; July, 87.0. Minimum, April, 68.0; June, 70.0; August, 69.0. Mean, 65.1.

ERRATA, 1928.**Gibraltar.**

Mean Pressure.—January, 30.239; February, 30.283; October, 30.061; November, 30.137; Year, 30.068.

Temperature.—13h., Year, 68.3. Mean minimum, April, 54.8. Mean maximum, October, 72.8; Year, 70.3.

Vapour Pressure.—13h., October, 17.0; Year, 15.5. 21h., May, 13.4; December, 11.7. Mean, May, 13.3; October, 16.6; December, 11.7.

Relative Humidity.—Mean, July, 70; August, 70.

Cloud Amount.—7h., Year, 4.5. 21h., October, 3.0; Year, 3.5. Mean, October, 3.9; Year, 4.1.

Rainfall.—Total, January, 0.36; March, 4.49; April, 1.71; September, 2.69; December, 3.06; Year, 25.39.

Wind.—January, SW. 8; NW. 31. October, SE. 5; SW. 22. December, N. 1; W. 22. Year, N. 17; SE. 69; SW. 237; W. 256; NW. 142.

Malta (January–April).

Pressure.—February, 30.108; March, 29.927.

Gold Coast—Accra.

Pressure.—September, 1017.6; October, 1016.8; November, 1015.1; Year, 1016.2.

Temperature.—Mean, January, 80.9; March, 81.1; April, 81.4; June, 79.1; July, 77.1; October, 79.2; December, 80.8; Year, 79.5. Mean maximum, April, 87.0; July, 81.1; November, 87.3; December, 87.7. Mean minimum, January, 74.6; March, 75.6; April, 75.8; June, 74.1; October, 73.8. Absolute maximum, March, date 7th. Absolute minimum, January, 70.6, date 2nd.

Relative Humidity.—Mean, May, 78.8; Year, 74.6.

Amount of Cloud.—Mean, February, 2.9; July, 7.6; August, 7.5; October, 6.3; November, 5.7; December, 4.9.

Wind.—June, NE. 0. Year, NE. 41. Average force, delete 7.3. The mean velocity in the period January to October was 7.9 m.p.h. In November and December the cup anemometer was out of action.

Nigeria—Abeokuta.

The mean minimum temperature for November appears to be too high.

Bamenda.

The mean temperature for the eight months should read 68.9.

Hadeija.

Temperature.—9h., February, 72.1; March, 86.3; August, 77.6; Year, 80.9.

Mean, mean minimum and absolute minimum, delete all values.

Relative Humidity.—January, 44; February, 44; March, 40; August, 81; September, 70; October, 46; Year, 52.2.

Kaduna Capital.

Mean Pressure.—Delete all values.

Temperature.—9h., February, 75.7; mean, delete all except August. Mean minimum and absolute minimum, delete all except August. Mean minimum, August, 66.8. Mean maximum, April, 94.3; Year, 88.4.

Relative Humidity.—Delete January and February; March, 79; April, 85; June, 80; September, 84; November, 46.

Rainfall.—April, 2.08; Year, 50.62.

Lagos.

Mean Pressure.—January, 29.89; Year, 29.951.

Temperature.—9h., January, 79.7; March, 81.7; May, 80.8; August, 77.4; Year, 79.9. Mean, January, 81.9; February, 82.1; April, 82.7; October, 78.9. Mean minimum, February, 76.3; April, 76.9. Mean maximum, January, 88.3; February, 88.0; March, 87.0; October, 83.9. Absolute minimum, April, 70. Absolute maximum, February, 92; Year, 92.

Relative Humidity.—Heading should read ½ (9 + 15h.); January 77.6; September, 84.3; November, 77.5; Year, 79.1.

Number of days.—Rain—May, 19; July, 12; Year, 140.

Maiduguri.

Temperature.—9h., February, 76.9; July, 83.0; August, 77.3; September, 81.5; October, 88.5; Year, 83.8. Mean, July, 84.3; September, 84.1; Year, 84.0. Mean minimum, February, 59.6; July, 72.8; September, 74.9; Year, 69.4. Absolute minimum, May, 71; December, 52; Year, 52. Absolute maximum, March, 112.

Relative Humidity.—January, 39; February, 34; March, 39; August, 89; September, 83; October, 47; Year, 63.0.

Sokoto.

Temperature.—9h., August, 79.7. Mean, March, 89.5; April, 92.4; June, 86.0; August, 79.9; December, 76.1; Year, 83.1. Mean maximum, March, 106.4; April, 107.5; June, 96.7; August, 87.8; December, 92.7.

Yola.

Temperature.—Mean, January, 79.7; February, 81.9; March, 89.0; June, 81.6; August, 78.7. Mean minimum, January, 67.0; March, 74.3; June, 70.3; August, 69.9. Mean maximum, January, 92.3; February, 96.3. Absolute minimum, May, 70. Absolute maximum, April, 104.

Relative Humidity.—January, 55; February, 32; March, 36; April, 54; July, 69; August, 88.

Rainfall.—July, date of maximum, 7th.

Sierra Leone—Freetown.

Pressure.—(32° F., lat. 45° and M.S.L.), ½ (9 + 17h.). January, 1011.0; February, 12.0; March, 11.2; April, 11.3; May, 12.0; June, 12.5; July, 14.3; August, 14.4; September, 14.1; October, 14.3; November, 12.9; December, 12.0; Year, 1012.7.

Temperature—9h., June, 80; August, 76; October, 79; December, 81; Year, 79.6. 17h., June, 80; August, 76; September, 78.5; October, 80; Year, 80.9. Mean, June, 80; August, 76; September, 78.5; October, 79.5; December, 81.5; Year, 80.3. Mean maximum, September, 83; December, 87. Mean minimum, October, 72; December, 74; Year, 73. Absolute maximum, date, September, also 19th; December, also 14th.

Vapour Pressure—9h., September, 28.1; November, 28.2; December, 28.7; Year, 27.3. 17h., September, 27.8; December, 28.3. Mean, February, 19.3; April, 28.1; September, 27.9; October, 28.1; November, 28.3; Year, 27.1.

Relative Humidity—9h., September, 86; November, 81; December, 79; Year, 78.9. 17h., May, 78; October, 82. Mean, May, 79; September, 85; November, 78.5; December, 77; Year, 77.3.

Cloud Amount—9h., April, 7; Year, 5.9. 17h., April, 6; Year, 5.4. Mean, April, 6.5; Year, 5.7.

Rainfall—Maximum fall, November, 1.30 on 8th.

Number of Days—Thunderstorm—March, 2; December, 2. For number of days on which *thunder* was reported, see below.

The following figures should be substituted for those in the Annual Report for 1928.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
<i>Number of Days</i> —													
Clear Sky ..	14	17	12	2	0	0	0	0	1	7	17	19	89
Overcast Sky ..	3	3	3	8	15	18	24	28	17	8	2	0	129
Thunder ..	0	0	2	1	10	5	1	0	0	0	0	2	21
<i>Wind</i> —Number of observations from:—													
N. ..	0	0	2	4	0	2	1	1	2	2	1	0	15
NE. ..	5	7	5	15	23	21	28	26	27	18	15	11	201
E. ..	12	10	1	5	8	6	4	4	8	6	4	0	68
SE. ..	2	0	0	5	1	1	1	0	2	2	3	0	17
S. ..	1	0	2	2	2	2	1	0	1	1	2	1	15
SW. ..	8	19	36	21	12	6	2	3	6	8	9	3	133
W. ..	1	3	12	3	6	2	1	1	2	2	7	2	42
NW. ..	0	3	3	3	3	0	0	1	0	0	0	0	13
Calm ..	33	16	1	2	7	20	24	26	12	23	19	45	228

Bo.

Temperature—Absolute minimum, date, Year, June 8th, Nov. 2nd.

Nyasaland—Zomba.

Pressure—February, 26.753; April, 26.835; May, 26.923; July, 26.989; September, 26.853; October, 26.794; Year, 26.837.

Temperature—21h., March, 70; May, 61; September, 68; Year, 67. Mean, March, 71; September, 70. Minimum, September, 61; October, 65; Year, 61.

Vapour Pressure—The values are in millibars.

Relative Humidity—9h., February, 76; May, 79; June, 71; July, 61.

Rainfall—Total, April, 4.70; Year, 40.08. Maximum, June, 0.08. Date, January 23rd.

Tanganyika—Dar-es-Salaam.

Temperature—9h., Dry bulb, June, 24.2; October, 27.0. 14h., Dry bulb, October, 28.2; November, 28.6. Wet bulb, January, 26.3. Absolute maximum, September, dates, 4, 11, 12.

Uganda—Entebbe.

Pressure—February, 26.086; March, 26.076; May, 26.138.

Temperature—7h., February, 69.3. 14h., April, 74.6. 21h., May, 68.0. Mean maximum, April, 77.7.

Vapour Pressure—7h., April, 20.9.

Relative Humidity—7h., February, 85.

Cloud Amount—7h., December, 7.7.

Number of days—Clear sky—March, 2; November, 0; Year, 13. Overcast sky—March, 5; December, 4; Year, 56.

Wind—January, S. 15; W. 11. March, S. 23; SW. 32; W. 8; calm, 19. April, S. 23; SW. 14; W. 7. July, SE. 11; S. 30. August, N. 14; W. 9. September, E. 5; SW. 8. October, S. 20; NW. 8. November, E. 2; calm, 23. December, N. 11; S. 20; SW. 23; W. 7. Year, N. 101; E. 29; SE. 104; S. 276; SW. 158; W. 96; NW. 48.

Masaka.

Temperature—7h., August, 64.2. 14h., May, 74.9. 21h., Year, 69.9. Maximum, February, 87.0. Absolute maximum, December, date 6. Absolute minimum, May, 56, date 3; December, date 27.

Vapour Pressure—14h., July, 18.2; October, 18.6; December, 20.7. 21h., November, 19.6.

Basutoland.

The following are mean monthly values of pressure reduced to 32° F., lat. 45°, at station level.

January, 24.662; February, 24.682; March, 24.705; April, 24.768; May, 24.804; June, 24.862; July, 24.888; August, 24.797; September, 24.773; October, 24.716; November, 24.716; December, 24.650.

Northern Rhodesia—Livingstone. July, 1927, to June, 1928, at 8h. only.

Temperature—Mean dry bulb, May, 60.4. Mean wet bulb, September, 53.5; October, 59.6; January, 68.9. Mean maximum, September, 89.7. Mean minimum, June, 48.3. Mean monthly temperature, September, 75.1; December, 78.3; January, 77.1; May, 65.3; June, 64.5. Absolute minimum, January, 61.2; April, 47.9; May, 41.8. Mean daily range, September, 29.1; June, 32.3. Earth temperature, 4 ft., March, 85.8.

Wind—July, SE. 3; SSE. 0. Year, SE. 19; SSE. 6.

Sunshine—Per day, May, 10.06.

British Honduras—Belize.

Pressure—Highest, January, 30.300; June, 29.908; Mean, 30.105. Lowest, February, 29.820; Mean, 29.796.

Temperature—Minimum, April, 63.0; Mean, 64.1.

Relative Humidity—Lowest, Mean, 88.

Bahamas—Nassau.

Daily returns for October are not available.

Pressure—7½h., January, 30.17; March, 30.07; April, 30.07; May, 29.98; Year, 30.06.

Temperature—7½h., Dry bulb, January, 69.0; March, 72.8; May, 76.5; Year, 76.8. 15h., Dry bulb, May, 78.7; September, 84.5; Year, 79.3. Wet bulb, May, 71.8; September, 78.6. Mean minimum, February, 67.8.

Relative Humidity—7½h., March, 88; November, 75. 15h., February, 82; April, 67; Year, 75. The means of temperature and relative humidity at 15h. in September are based on only 19 observations.

Wind Velocity, m.p.h.—7½h., January, 6.8; February, 6.1; March, 5.9; April, 8.4; June, 5.6. 15h., January, 10.6; February, 9.2; March, 9.1; June, 5.7; Year, 8.1.

Cloud Amount—7½h., January, 3.6; March, 3.1; July, 3.9; September, 3.7; November, 4.1; Year, 3.6. 15h., January, 3.3; March, 2.8; April, 3.9; May, 4.3; July, 3.6; September, 4.3; November, 4.4; Year, 3.7.

Jamaica—Kingston.

Delete heading ° under date of max. and min. Columns headed "Tension of Vapour" are apparently Dew Points. It is not known how the mean relative humidity is arrived at. The entries under Days of clear and overcast sky are numbers of observations, but it is not known what criteria are used.

Pressure—October, Mean, 29.906.

Temperature—Absolute Min., October, date is 5th only. Delete asterisk against 69·3.

Number of days—Rain—August, 13; September, 10; October, 9; November, 13.

Morant Point.

Heading “Tension of Vapour” should presumably be “Dew Point”.

Negril Point.

Heading “Tension of Vapour” should presumably be “Dew Point”.

There is an error in the numbers of wind observations for December. The numbers should total 62.

Grenada—Richmond Hill.

Mean Pressure—January, 29·510; February, 29·537; April, 29·523; June, 29·513; July, 29·537; August, 29·517; October, 29·487; November, 29·465; December, 29·489; Year, 29·513.

Temperature—Attached thermometer at 9h., February, 78; April, 81; May, 83; July, 81; September, 82; November, 79; at 18h., February, 82; March, 83; April, 84; May, 84; July, 83; August, 84; September, 83; December, 80. Mean, March, 81; April, 83; May, 83; June, 82; July, 82; August, 83; September, 83; October, 81; December, 79; Year, 81. Mean maximum, February, 85; April, 86; July, 87; September, 87; October, 87; November, 86; Year, 86. Mean minimum, February, 72; March, 72; May, 74; June, 74; July, 74; October, 74; December, 73. Absolute minimum, dates, February, S.D.; September, 4th, 19th; November, 6th.

Relative Humidity—9h., June, 77.

Cloud Amount—9h., February, 5. 18h., Year, 4. Mean, February, 4; Year, 4½.

Rainfall—Total, February, 2·12; June, 7·57; August, 10·81; November, 9·78; December, 7·17.

Number of Days—Rain—August, 16; September, 15; October, 21; November, 19; December, 20; total for year, 215. *Thunderstorms*—Total for year, 22. *Overcast*—January, 0; February, 0; March, 0; April, 0; May, 0; June, 0; delete “mean”. *Gale*—January, 0; March, 0; May, 0; November, 0; December, 0; Year, 0.

Wind—Number of observations, NE. August, 4; SE. May, 15. Calm, February, 3; March, 1; May, 0; June, 0; July, 0; August, 0; September, 0; October, 0; November, 0; December, 0. Year, N.1; NE. 105; E. 491; SE. 119; S. 1; SW. 1; W. 3; Calm, 11.

St. Lucia.

Temperature—Mean, June, 82·1; October, 81·2; November, 81·4; Year, 81·1.

Barbados.

Heading should read “Barometric Pressure, reduced to 32° F., lat. 45°, and M.S.L.”

Temperature—April, “Mean for month” probably should be 79·6.

Falkland Islands—Stanley.

Pressure—January, 995·2; February, 1000·8; March, 1000·8; April, 997·8; May, 1004·8; July, 1001·6; August, 1005·0; September, 1003·5; Year, 1000·9. Highest pressure, December, 13th. Lowest pressure, May, 989·1.

Temperature—Mean, January, 48·1; February, 46·9; March, 46·2; April, 42·7; May, 37·9; June, 35·1; July, 35·1; August, 38·2; September, 40·9; October, 42·3; November, 43·3; December, 45·3; Year, 41·8. Maximum, dates, September, 9, 11, 20. Minimum, dates, January, 24, 25, 26.

Rainfall—Total, January, 2·74; March, 2·99; May, 1·24; July, 1·39; August, 0·46; September, 0·43; Year, 22·23.

Number of Days—Rain—May, 24; June, 19; Year, 251.

Clear sky—March, 3; April, 0; August, 3; October, 1; December, 0; Year, 12.

Overcast sky—April, 16; July, 12; August, 10; September, 7; October, 13; December, 17; Year, 120

Wind—Number of observations of force 4 to 7, October, 18; Year, 198.

Direction, June, ESE. 1. August, NNE. 1; Calm, 1. October, SW. 6; NW. 3. November, S. 3; NNW. 1. Year, NNE. 3; ESE. 3; S. 35; SW. 49; NW. 49; NNW. 9; Calm, 14.

Mean Force, January, 4·2; February, 5·0; August, 3·5; October, 4·5.

Fiji—Suva.

Pressure—8½h., August, 30·019; Year, 29·903.

Temperature—Dry bulb, 8½h., April, 78·7. Wet bulb, 8½h., February, 76·0; October, 72·0. Mean maximum, March, 86·8; May, 83·1; July, 78·9; August, 77·5.

Vapour Pressure—8½h., February, 28·9.

Relative Humidity—15½h., June, 70·5.

Number of Days—Thunderstorms—January, 3; October, 1; Year, 12. The following means for 8½h. in April are based on 29 observations: Dry bulb: Wet bulb: Vapour Pressure: Relative Humidity: Cloud Amount. The numbers of days of clear and overcast sky at 8½h. in April are also based on 29 observations.

ADDENDUM :

Federated Malay States.

The publication containing tables for Taiping, Kuala Lumpur, Seremban and Raub was received after the main part of the text had been sent for printing. Details for these stations are as follows:—

Hours of Observation—9h., 15h., 21h., 105th meridian time, 7 hours fast on G.M.T.

The thermometers are exposed in large Stevenson screens and all exposures are stated to be “conventional”.

The site of the station at Kuala Lumpur is now at Railway Hill, 287 feet above M.S.L.

Temperature—Mean, $\frac{1}{3}$ (9 + 15 + 21h.).

Maximum, read and set at 9h. and entered to previous day.

Minimum, read and set at 9h. and entered to day of reading.

Vapour Pressure and Relative Humidity—It is not stated what tables are in use.

Rainfall—Heights of rims of rain-gauges are:

Taiping	1 ft. 2in.
Kuala Lumpur	1 ft.
Seremban	1 ft.
Raub	1 ft. 6in.

Definition of—Day with rain, 0.2 mm. or more.

Day with clear sky, mean cloud amount less than 2 tenths.

Day with overcast sky, mean cloud amount greater than 8 tenths.

