

*See Colonies  
Feb 1924*

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M.O. 287.

AIR MINISTRY

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METEOROLOGICAL OFFICE

NOTES ON THE  
METEOROLOGICAL OBSERVATIONS

MADE IN

BRITISH COLONIES AND PROTECTORATES

IN

1923

AND

Summarized in the Annual Reports of Colonial Governments

*Box  
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A complete list will be forwarded on application to the Director, Meteorological Office, Air Ministry, London, W.C.2.

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  2. JOURNALS.
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  4. PUBLICATIONS OF NORMALS OR AVERAGES.
  5. CHARTS OF MARINE METEOROLOGY (*see complete list*).
  6. PUBLICATIONS OF RESEARCHES.
- 
1. HANDBOOKS, TEXTBOOKS, TABLES.
  - Barometer Manual** for the use of Seamen. A Textbook of Marine Meteorology. With an Appendix on the Thermometer, Hygrometer and Hydrometer. 10th edition. 1925. (No. 61.) (8vo.) 1s. 6d. Postage 2½d.
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  - Computer's Handbook**. Issued in Sections. (No. 223.) (8vo.):—  
**Introduction**. C.G.S. Units of Measurement in Meteorology, with their abbreviations and their equivalents. 1921. 3s. 6d. Postage 1d.  
**Section I**. Computations based on the Physical Properties of Atmospheric Air—Humidity and Density. (*Out of print.*)  
**Section II**, Subsection I. The Computation of Wind Components from Observations of Pilot Balloons and Shell Bursts. 1920. 2s. Postage 1d.  
Subsection II. Computation of Height and Temperature by means of Registering Balloons.  
Subsection III. The Dynamics of the Upper Air.  
Subsection IV. Tables for the Estimation of Geostrophic Winds.  
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  - International Codex of Resolutions** adopted at Congresses, Conferences, and at Meetings of the Permanent International Meteorological Committee, 1872-1907. (No. 200. 1909.) (8vo.) 1s. 3d. Postage 1½d.
  - Marine Observer's Handbook**. (No. 218.) 3rd edition, 1922. (8vo.) 5s. Postage 2d.
  - Meteorological Correction for the use of Gunners**. Notes on. By D. Brunt, M.A., and J. Durward, M.A. (No. 241. 1921.) (8vo.) 3d. Postage ½d.
  - Meteorological Glossary** (continuation of the **Weather Map**, *q.v.*). 4th issue. 1918. (No. 225ii.) (Royal 16mo.) 1s. Postage 2½d.
  - Meteorological Observer's Handbook**. Approved for the use of Meteorological Observers by the Meteorological Office and the Royal Meteorological Society. 1926 edition. (No. 191.) (8vo.) 5s. Postage 3½d.
  - Supplement No. I**. Instructions for Meteorological Telegraphy. (No. 191/1.) (8vo.) (*In the press.*)
  2. JOURNALS.
  - Marine Observer**. Commencing January, 1924, in substitution for the monthly issues of Meteorological Charts of the North Atlantic Ocean and East Indian Seas. (No. 262.) (124 in. by 9½ in.) Published monthly. 2s. Postage 2d. (*Annual subscription, 25s. post free.*)
  1. HANDBOOKS, TEXTBOOKS, TABLES—*contd.*
  - Meteorological Reports issued by Wireless Telegraphy** in Great Britain and by the Countries of Europe and North Africa. 4th edition, 1926. (No. 252.) (8vo.) 4s. Postage 2½d. (*Supplements issued as necessary and priced separately.*)
  - Meteorological, Elementary**. A Short Course in. By W. H. Pick, B.Sc. 2nd edition, 1926. (No. 247.) (8vo.) 1s. 6d. Postage 2½d.
  - New International Code for Meteorological Messages**. Reprint of Section IV of No. 252. (No. 253. 1922.) (8vo.) 4d. Postage ½d.
  - Observer's Primer**, being Short Instructions in the Method of Taking and Reporting Readings of Temperature and Rainfall, specially prepared for Meteorological Observers in the British Colonies. (No. 266. 1924.) (8vo.) 6d. Postage ½d.
  - Priced Vocabulary of Meteorological Stores**. (No. 268. 1924.) (*Not on sale.*)
  - Seaman's Handbook of Meteorology**. A Companion to the Barometer Manual for the use of Seamen. 3rd edition. (No. 215. 1917.) (8vo.) 3s. 6d. Postage 2d.
  - Stevenson Thermometer Screen** in accordance with the Specification drawn up by a Committee of the Royal Meteorological Society. Instructions for making. (Form 63. 1922.) (8vo.) (*Out of print.*)
  - Tables for the Reduction of Meteorological Observations**. Published by the Indian Meteorological Department. Includes Tables for finding the Absolute and Relative Humidities from Readings of Wet and Dry Bulb Thermometers. (4to.) 2s. Postage 5d.
  - Tropical Africa**. Hints on Meteorological Observers in. With Instructions for taking Observations, and Notes on Methods of recording Lake Levels. 2nd edition. Revised 1907. (No. 162.) (8vo.) 9d. Postage 1d.
  - Weather Forecasting for Seamen**, in the Eastern North Atlantic and Home Waters. By Commander L. A. Brooke-Smith, R.D., R.N.R. (No. 246. 1921.) (8vo.) 6d. Postage 1d.
  - Weather Forecasts Transmitted by Telegraphy or Radio-telegraphy**. Forecast Code for the Abbreviation of. (No. 244. 1922.) (8vo.) 1s. Postage 1d.
  - Weather Map**. An introduction to Modern Meteorology. By Sir Napier Shaw, F.R.S. 6th issue. 1925. (No. 225i.) (Royal 16mo.) 1s. 3d. Postage 1½d. (*See also Meteorological Glossary, in continuation of the Weather Map.*)
  - Weather of the British Coasts**. (No. 230.) 1918. (8vo.) 4s. 6d. Postage 4d.
  - Wireless Weather Manual**, being a Guide to the Reception and Interpretation of Weather Reports and Forecasts distributed by Wireless Telegraphy in Great Britain. (No. 255. 1922.) (8vo.) 9d. Postage ½d. (*Supplements issued as necessary and priced separately.*)

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## METEOROLOGICAL OFFICE

# NOTES ON THE METEOROLOGICAL OBSERVATIONS

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## BRITISH COLONIES AND PROTECTORATES

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## Summarized in the Annual Reports of Colonial Governments



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## NOTES ON THE METEOROLOGICAL OBSERVATIONS MADE IN BRITISH COLONIES AND PROTECTORATES IN 1923,

And Summarized 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 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, has therefore been prepared in the Meteorological Office and has been circulated through the Colonial Office to the Governors of the Colonies and Protectorates concerned. The following notes have been prepared from the replies received and from a scrutiny of the printed summaries, and also of the daily observations when available. For ready reference it is suggested that they may be bound or filed with the meteorological observations for the year 1923 with which they are circulated.

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." Until recently the thermometers at stations of the Meteorological Service of the Government of India 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. Recent experiments in India\* 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. In many tropical countries it is not possible to place the rain-gauge over grass and there is risk of in-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. 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," etc., any point being included which throws light on the meanings of the tables and the reliability of the data. It appears that in some instances the figures in certain columns have been computed under a misunderstanding of the

\* *Indian Meteorological Memoirs*. Vol. 24. Part 3, 1922.

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



meaning of the headings to the columns. In a few instances it has been possible to give corrections which must be applied to the data to render them comparable with those from other stations. In the remaining cases the figures should be rejected. 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.

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, 1923

### Gibraltar

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

The site and the exposure of the instruments are "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 tables based on "Glaisher's Hygrometric Tables." Fifth edition.

Rainfall—Rim of rain-gauge is 2 feet above the ground. Totals refer to the 24 hours beginning at 7h.

Definition of—Day with rain - - - 1 mm. or more.

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

Day with overcast sky - - - mean cloud 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, Nicosia, Acheritou and Limassol, under the Public Works Dept.

Hours of observation, 8h. and 15h., zone time, 2 hrs. 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.

The readings for Limassol are 0.026 in. too low.

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

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.

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 - - - not stated, but is probably a day with 0.01 in. or more.

Day with clear sky - - - cloudless sky.

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

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

No data of wind force are published, but it is stated that the wind force is estimated on a scale 0-10. The highest force recorded is between 5 and 6 and it is stated that no gales are experienced.

### Malta

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."

Pressure—The figures given are the values of maximum pressure during the month reduced to 32°F., lat. 45° and M.S.L.

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

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

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

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

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

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 less than 2 tenths.

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

Day with gale - - - not stated.

Wind—A Robinson cup anemometer and an anemobiograph are in use. The cups are 79 feet above the ground and about 10 feet above the roof. The head of the anemobiograph is 15 to 20 feet above the roof. The wind summary is from observations at 8h. only. The direction is observed to 32 points; the number of entries under N. include 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., etc. 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

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 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 less than 20 per cent.

Day with overcast sky - - - mean cloud 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

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.

The height of the station at Gallé was changed on May 9, 1923, from 13 feet to 30 feet.

Pressure— $\frac{1}{2}(9½ + 15½h.)$ ; readings are reduced to lat. 45°, M.S.L. The barometers in use at all stations were re-calibrated during 1922 and the new index error corrections were brought into use at the beginning of 1923.

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

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  $\frac{1}{2}(\text{maximum} + \text{minimum})$  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  $\frac{1}{2}(\text{maximum} + \text{minimum})$  dry bulb and  $\frac{1}{2}(\text{maximum} + \text{minimum})$  wet bulb. These values are considered to give an approximation to the average humidity during the 24 hours.



*Rainfall*—The heights of the rims of the rain-gauges above the ground are :—  
 Colombo - - - 5 ft. 3½ in. Batticaloa - - - 1 ft. 0½ in.  
 Puttalam - - - 2 ft. 2 in. Hambantota - - - 1 ft. 9 in.  
 Mannar - - - 1 ft. 0½ in. Gallé - - - 2 ft. 2 in.  
 Jaffna - - - 1 ft. 9 in. Ratnapura - - - 2 ft. 2 in.  
 Trincomalee - - - 3 ft. 7 in. Nuwara Eliya - - - 1 ft. 1 in.

Totals refer to 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,
Puttalam - 21 ft.	which are 15 ft.
Mannar - 13½ ft.	above ground.
Jaffna - 14 ft.	Hambantota 11½ ft.
Trincomalee - 14 ft. 9 in.	Gallé - 12½ ft.
	Ratnapura - 15 ft.

#### Straits Settlements

Station	Lat.	Long.	Height of Barometer above M.S.L.	Standard of Time.
Singapore -	1° 18' N.	103° 51' E.	*	105th meridian, 7 hrs. fast on G.M.T.
Malacca (Durian Daun).	2° 13' N.	102° 14' E.	23 feet	Local time, 6 hrs. 49 mins. fast on G.M.T.
Labuan -	5° 15' N.	115° 15' E.	55½ feet	Local time, 7 hrs. 41 mins. fast on G.M.T.
Penang -	3° 34' N.	100° 20' E.	16½ feet	Local time, 6 hrs. 41 mins. 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*—½ (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	Maximum		Entered to previous day	Minimum	
	Set	Read		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*—The heights of the rims of the rain-gauges above the ground are :—  
 Singapore 12 in., Malacca 16 in., Penang 25½ in. The 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. Other stations not stated.

Day with clear sky and overcast sky—mean cloud amount less than 2 tenths or more than 8 tenths respectively, at Singapore, Labuan and Penang. Incorrect at Malacca.

Day with gale—not recorded except at Malacca, where the criterion is not stated.

*Wind*—At Singapore the wind observations refer to “magnetic” north; at Penang and Malacca to true north. This information is not available for Labuan.

*Sunshine*—The type of recorder in use at Labuan is not stated.

\* Changed from 10 ft. 10 in. to 35 ft. 10 in. during 1923; the exact date is not stated, but from the barometer readings it would appear to be in April.

#### Sierra Leone

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 wire cages under shelters.

*Pressure*—½ (9 + 17h.); readings are reduced to 32° F. and M.S.L. at station latitude.

*Temperature*—The figures entered in the columns headed “9 a.m.”, “5 p.m.” and “Mean” should be rejected.

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.

*Rainfall*—Heights of rims above ground :—

Freetown -	1 ft. 3 in.	Daru -	1 ft. 10 in.
Batkanu -	0 ft. 9½ in.	Kaballa -	1 ft. 10½ in.
Kissy -	1 ft.	Hill Station -	2 ft. 6 in.
Bo -	1 ft. 10 in.	Makene -	1 ft. 6 in.
Bonthe, Sherbro -	1 ft.	Pujehun -	2 ft.
Moyamba -	1 ft. 4 in.		

Totals refer to the 24 hours beginning at 9h.

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

Days with clear sky - - - total number of observations at 9h. and 17h. at which the cloud amount is 0 or 1. A month in which the sky was completely clear throughout would therefore have as the “days with clear sky” twice the number of days in the month.

Days with overcast sky - - - total number of observations at 9h. and 17h. at which the cloud amount is 9 or 10.

Day with gale - - - force 8 or more.

*Wind*—The winds are observed to 16 points at 9h. and 17h. The figures in the columns give only the numbers of winds from N., NE., E., etc. at 9h. and 17h. the observations from intermediate points being omitted.

#### Gambia

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

MacCarthy Island—Latitude 13° 33' N. Longitude 14° 45' W. Height unknown.

The thermometers are exposed in a wire cage under shelter at Bathurst and on a stand in a grass hut at Georgetown, MacCarthy Island.

*Pressure*—9h.; readings are reduced to 32° F. and M.S.L. at station latitude.

*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.

*Rainfall*—The heights of the rims of the rain-gauges above the ground are as follows :—

Bathurst -	1 ft.
MacCarthy Island -	1 ft. 2½ in.

The totals refer to the 24 hours beginning at 9h.

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



## Gold Coast

Annual summary for 12 stations. The latitudes, longitudes and heights of the stations are as follows:—

Latitude	Longitude	Height feet.	Latitude	Longitude	Height feet.
Accra - 5° 33' N	0° 12' W	84	Tarkwa - 5° 11' N	2° 0' W	245
Aburi - 5° 50' N	0° 10' W	1500	Kumasi - 6° 44' N	1° 10' W	970
Keta - 5° 55' N	0° 59' E	3	Kintampo - 8° 5' N	1° 30' W	1203
Assuantsi - 5° 18' N	1° 15' W	330	Tamale - 9° 20' N	0° 45' W	660
Sekondi - 4° 57' N	1° 42' W	130	Akuse - 6° 6' N	0° 7' E	50
Axim - 4° 52' N	2° 15' W	20	Ho - 6° 36' N	0° 29' E	558

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

## Nigeria

Hour of observation 9h., zone time, one hour fast on G.M.T. 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) and also the heights of the rims of the rain-gauges above the ground. (The Northern Provinces are placed before the Southern):—

Station	Exposure of thermometer	Height of rain-gauge	Station	Exposure of thermometer	Height of rain-gauge
Ankpa - - - -	D	in.	Benin City - - -	C	in.
Bauchi - - - -	D	11	Bonny - - - -	unsatisfactory	24
Birnin Kebbi - -	D	8½	Brass - - - -	E	22½
Hadeija - - - -	D	12	Calabar - - - -	E	30
Ibi - - - -	A	10	Degema - - - -	E	22
Ilorin - - - -	A	11	Ebute Metta - -	"wooden cage"	22
Ilorin - - - -	A	12	see below*		12
Jos - - - -	D	20½	Enugu Ngwo - -	C	24
Kaduna - - - -	A	12	Forcados - - -	D	22
Kano - - - -	A	12	Ibadan - - - -	B	16
Keffi - - - -	D	12	Ikom - - - -	D	30
Katsina - - - -	—	—	Ikot-Ekpene - -	D	14
Lokoja - - - -	A	13	Lagos - - - -	A	12
Maiduguri - - -	D	11	Nsukka - - - -	D	23
Minna - - - -	D	—	Obubra - - - -	—	12
Offa - - - -	D	11	Obudu - - - -	C	11½
Sokoto - - - -	D	10	Ogbomosho - - -	C	12
Yola - - - -	B	9½	Olokemeji - - -	D	15
Zaria - - - -	A	12	Ondo - - - -	C	9½
Zungeru - - - -	"covered box"	15½	Opobo - - - -	unsatisfactory	18
Abakaliki - - - -	B	12	Owerri - - - -	B	22½
Abeokuta - - - -	unsatisfactory	30	Oyo - - - -	see below†	8½
Afikpo - - - -	A	24	Port Harcourt - -	B	12
Agbor - - - -	E	18	Sapele - - - -	D	5
Agege - - - -	D	11	Victoria - - - -	C with double felt roof	14
Asaba - - - -	D	18	Warri - - - -	A	14
Bamenda - - - -	D	26	Yaba - - - -	D	15

\* "Under double wooden cover over cabinet."

† "Usual Government constructed cage."

Pressure—Lagos only—9h.; readings are reduced to 32°F. and M.S.L. at station latitude. The height of the barometer above M.S.L. is 15 feet.

Temperature—Mean - - - ½ (maximum + minimum).

Maximum - - - at all stations except Lagos the maximum thermometer is read and set at 9h., and entered to the previous day. At Lagos the maximum thermometer is read and set at 15h.

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

Relative Humidity—Computed from "Glaisher's Hygrometric Tables."

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

Totals refer to the 24 hours beginning at 9h.

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

## Uganda

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

Notes on Exposures:—

Entebbe: Until Oct. 13, 1923, the thermometers were exposed in a Stevenson screen; afterwards in a Soudan pattern screen, under a wooden shelter.

Jinja: in a Soudan pattern screen under a thatched shelter.

Masaka: in a standard screen under thatched shelter.

Arua: single louvred screen.

Bukalasa: in a cage under wood and iron roof.

Bombo, Fort Portal, Gulu, Mbarara, Tororo: in a cage under thatched shelter.

Kampala, Masindi, Mbale, Mubendi, Serere, Simsa: in a cage under verandah.

Nagichot: Exposure not stated.

Pressure—Entebbe: readings are reduced to 32° F. at station latitude and level.

Jinja: as read, no corrections having been applied.

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

						Entered to		
						previous		
							Minimum	
						day	Set	Read
							Set	Read
Entebbe -	-	-	-	21h.	21h.	—	21h.	7h.
Jinja, Mbale -	-	-	-	7h.	7h.	yes	7h.	7h.
Arua, Bombo, Tororo	-	-	-	9h.	9h.	yes	9h.	9h.
Bukulasa	-	-	-	7h.	18h.	—	18h.	7h.
Fort Portal	-	-	-	14h.	14h.	—	14h.	14h.
Gulu, Masindi	-	-	-	8h.	8h.	yes	8h.	8h.
Kampala	-	-	-	7h.	7h.	yes	14h.	14h.
Masaka	-	-	-	21h.	21h.	—	21h.	21h.
Mbarara	-	-	-	16h.	14h.	—	16h.	14h.
Mubendi	-	-	-	7h.	21h.	—	21h.	7h.
*Serere.	*Simsa	-	-	7h.	7h.	yes	7h.	7h.

The values headed "Maximum Temperature" and "Minimum Temperature" refer to mean daily maximum and mean daily minimum. At Entebbe the grass minimum thermometer is set at 21h. and read at 7h. and the solar maximum is set at 21h. and read at 14h.

Rainfall—Totals refer to the 24 hours beginning at 7h., except at Arua, Bombo, Tororo, 9h.; and Gulu and Masindi, 8h.

The heights of the rims of the rain-gauges are all 1 foot above the ground, with the exception of Jinja (18 in.), Bukulasa (10 in.), Fort Portal (15 in.), Mbale (8½ in.).

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

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

Sunshine—A Campbell-Stokes recorder, which is sheltered by trees at an angle of 10° on E. and W., is in use at Entebbe.

## Nyasaland—Zomba:

Hours of observation 9h. and 21h. local time, 2h. 21m. fast on G.M.T.

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

Pressure—½ (9 + 21h.); readings are reduced to 32°F., at station latitude and level.

Temperature—Mean - - - ½ (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 the "Smithsonian Physical Tables," 1897.

Rainfall—The height of the rim of the rain-gauge above the ground is 15 in. 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.

\* Minimum readings also entered to previous day.



Day with gale, day with 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

Mean - - -  $\frac{1}{2}$ (maximum + minimum).

No other details are available.

#### Zanzibar and Pemba Island

##### Zanzibar :

Latitude  $6^{\circ} 10' S$ . Longitude  $39^{\circ} 14' E$ . Height of barometer above M.S.L. 50 feet.

Hour of observation 8h., local time, 2 hours 36 minutes 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—The rim of the rain-gauge is 50 feet above the ground. The totals refer to the 24 hours beginning at 8h.

Definition of—Day with rain - - - not stated.

##### Pemba Island

Latitude  $5^{\circ} 15' S$ . Longitude  $39^{\circ} 44' E$ . Height of rain-gauge above M.S.L. 55 feet.

Hour of observation 7h., local time, 2 hours 39 minutes 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—The rim of the rain-gauge is 3 ft. 8 in. above the ground.

The totals refer to the 24 hours beginning at 7h.

Definition of—Day with rain - - - not stated.

##### Swaziland

Hour of observation  $8\frac{1}{2}$ h., time of longitude  $30^{\circ} E$ ., 2 hours fast on G.M.T.

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

Pressure—The pressure readings at Mbabane are stated by the Chief Meteorologist, Pretoria, to be inaccurate.

At Natalia, the pressure readings are at  $8\frac{1}{2}$ h., reduced to  $32^{\circ} F$ ., but are not corrected for latitude or height.

Temperature—Maximum - - - read and set at  $8\frac{1}{2}$ h., and entered to previous day.

Minimum - - - read and set at  $8\frac{1}{2}$ h., and entered to day of reading.

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

Rainfall—The heights of the rims of the rain-gauges above the ground are all 4 feet.

The totals refer to the 24 hours beginning at  $8\frac{1}{2}$ h.

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

Day with clear sky and overcast sky - - - criteria not stated.

Day with gale - - - no. of observations at  $8\frac{1}{2}$ h. when wind is force 7 or more on Beaufort scale.

##### Basutoland

Hour of observation  $8\frac{1}{2}$ h., South African Mean Time, two hours fast on G.M.T.

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

Pressure—In inches.  $8\frac{1}{2}$ h. It is not stated what corrections, if any, have been applied to the readings.

Temperature—In  $^{\circ} F$ . Mean - - -  $\frac{1}{2}$ (maximum + minimum).

Maximum - - - read and set at  $8\frac{1}{2}$ h., and entered to previous day.

Minimum - - - read and set at  $8\frac{1}{2}$ h., 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.—The height of the rim of the rain-gauge above the ground is 4 feet.

The totals refer to the 24 hours beginning at  $8\frac{1}{2}$ h.

Definition of—Day with rain—not stated.

#### Bechuanaland Protectorate.

Hour of observation  $8\frac{1}{2}$ h., South African Mean Time, two hours fast on G.M.T.

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

#### British Honduras—Belize.

Latitude  $17^{\circ} 31' N$ . Longitude  $88^{\circ} 11' W$ . Height of barometer above M.S.L. 17 feet.

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

Pressure—The extreme readings at the hours of observation are given, corrected for temperature and height but not for latitude.

Temperature—Maximum - - - read and set at 6h., and not entered to previous day.

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

The values given refer to the absolute highest and lowest temperatures.

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

The totals refer to the 24 hours ending 20h. June to November and beginning 8h. December to May.

Wind—An anemometer with cups 45.7 feet above the ground is in use.

#### Bermuda

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

Site and exposure "conventional."

Pressure— $\frac{1}{3}(8 + 15 + 20h.)$ ; readings are reduced to  $32^{\circ} F$ . and M.S.L. at station latitude.

Temperature—Mean - - - the values given in the column "Mean Max." refer to the values for  $\frac{1}{2}$ (maximum + minimum).

To obtain mean daily maximum and mean daily minimum readings, see note under Ceylon.

Maximum - - - read and set at 20h.

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

Relative Humidity—Computed from Guyot's Tables, Smithsonian collection of meteorological and physical tables, 1859.

Rainfall—The height of the rim of the rain-gauge above the ground is 1 foot.

Totals refer to the 24 hours beginning at 8h.

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

Day with overcast sky ("completely cloudy") - - - mean cloud amount 8 tenths or more.

Day with gale - - - when wind velocity is 32 mi/hr or more at any time during 24 hours.

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

#### Bahamas—Nassau.

Lat.  $25^{\circ} 5' N$ . Long.  $77^{\circ} 21' W$ . Height of the barometer cistern above M.S.L. 23.9 feet.

Hours of observation 8h. and 15h., 75th meridian time, 5 hours slow on G.M.T.

The instruments are exposed on the roof of a building.

Pressure—Readings are reduced to  $32^{\circ} F$ ., lat.  $45^{\circ}$ , M.S.L.

Temperature—Maximum - - - read and set at 15h.

Minimum - - - read and set at 8h., 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—The tables used for the computation are not stated.

\* "Practical Exercises in Elementary Meteorology," Boston, 1899.



**Rainfall**—The rim of the rain-gauge is 50 feet above the ground. Height of rim above roof not stated.

The totals refer to the 24 hours beginning at 8h.

**Wind**—The values given as "Wind Force" apparently refer to velocity in miles per hour. A cup anemometer is in use, but the type is not stated. The cups are 66.3 feet above the ground.

#### Jamaica

	Kingston	Negril Point	Morant Point
Standard of time - - -	75th meridian	75th meridian	75th meridian
Hours slow on G.M.T. - - -	5 hours	5 hours	5 hours
Pressure—	$\frac{1}{2}(7 + 15h)$	$\frac{1}{2}(7 + 15h)$	$\frac{1}{2}(7 + 15h)$
Readings are reduced to - -	32°F. lat. 45° M.S.L.	32°F. lat. 45° M.S.L.	32°F. lat. 45° M.S.L.
Temperature—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.	set at 15h. and read at 7h.	set at 15h. and read at 7h.
(entered to day of reading)			
Vapour Pressure and Relative Humidity—"Glaisher's Hygrometric Tables," 1915 edition.			
Rainfall—			
Rim above ground - - -	51 feet	6½ feet	3 feet
For 24 hours beginning - -	7h.	7h.	7h.
Definition of—			
Day with rain - - -	0.01 in. or more	0.01 in. or more	0.01 in. or more
Day with clear sky - - -	0 to 30% of cloud	3/10 of cloud or less.	1/10th of cloud or less.
Day with overcast sky - -	70 to 100% of cloud	9/10th of cloud or more.	entirely covered
Day with gale - - -	40 mi/hr or more	40 mi/hr or more	40 mi/hr or more
Wind—			
Anemometer in use - - -	U.S. Weather Bureau pattern.	Robinson's	not stated
Cups above ground - - -	69 feet	94 feet	18 feet

\* The mean temperature is obtained by the following formula devised by the late Maxwell Hall:  
 $\frac{1}{3}(7h + 15h + \text{Max.} + \text{Min.}) - 0.5^\circ\text{F.}$

#### Leeward Islands

	Antigua	St. Kitts	Dominica	Montserrat	Tortola
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.	24 feet	157 feet	50 feet	See below	20 feet.
Hours of observation	9h., 15h.	9h., 15h.	9h., 15h.	9h., 15h.	9h.
Standard of time -	Local	local	probably local	local	60th meridian
Hours slow on G.M.T.	4h. 7m.	4h. 11m.	4h. 5m.	4h. 8m.	4h.
Pressure—	$\frac{1}{2}(9 + 15h)$	$\frac{1}{2}(9 + 15h)$	aneroid	$\frac{1}{2}(9 + 15h)$	9h.
	Reduced to 32° F., lat. 45° M.S.L.	Reduced to 32° F., lat. 45° M.S.L.	barometer	Reduced to 32° F., lat. 45° M.S.L.	Reduced to 32° F., lat. 45° M.S.L.
Temperature—					
Mean - - -	$\frac{1}{2}(9 + 15h)$	$\frac{1}{2}(9 + 15h)$	$\frac{1}{2}(9 + 15h)$	$\frac{1}{2}(\text{max.} + \text{min.})$	—
Maximum - - -	read and set at 9h. entered to previous day.	read and set at 9h. entered to previous day.	Set at 9h. and read at 15h.	read and set at 9h. entered to previous day.	read and set at 9h. entered to previous day.
Minimum - - -	read and set at 9h.	read and set at 9h.	set at 15h. and read at 9h.	read and set at 9h.	read and set at 9h.
(entered to day of reading)					
Rainfall—					
Rim above ground.	4 feet	1 foot	3 feet 6 inches	3 feet	1 foot 7 inches.
Day with rain -	0.01 inch or more.	0.01 inch or more.	Not stated	0.01 inch or more.	Not stated.
Day with clear sky.	criterion indefinite.	criterion indefinite.	—	mean cloud less than 2/10.	—
Day with overcast sky.	"	"	—	mean cloud more than 8/10.	—

Totals of rainfall refer to the 24 hours beginning at 9h.

#### Special Notes—

**Antigua**—Cloudiness—The values given are the totals of the cloud amount taken each day at 9h. & 15h. and  $\frac{1}{2}(9 + 15h)$ . To obtain the mean cloudiness (0–10) divide by the number of days in the month.

**St. Kitts**—The screen containing the thermometers is 10½ feet to the west of the laboratory, 20 feet high. The site of the rain-gauge is not stated.

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

**Montserrat**—The height of the barometer above M.S.L. was 130 feet to April 1923, 120 feet from May to December.

The summary of wind observations should be rejected.

#### Windward Islands

##### Grenada—Richmond Hill

Hours of observation 9h. and 18h., local time, 4 hours 7 minutes 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 the height of which is not stated.

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 feet.

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 Glaisher's Hygrometric Tables.

Rainfall—The rim of the rain-gauge is 2 feet above the ground.

The totals refer to the 24 hours beginning at 9h.

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

Days with clear sky and overcast sky - - - the criteria are not definite.

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

##### St. Lucia—Reunion Experiment Station

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

Thermometers are in a wire cage under a thatched roof.

Pressure—Aneroid barograph readings, apparently about 0.2 in. too low.

Temperature—Mean - - -  $\frac{1}{3}(7 + 12 + 17h)$

Maximum - - - read and set at 17h.

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

Vapour Pressure and Relative Humidity—Computed from "The Observers' Handbook," Meteorological Office, London, 1921.

Rainfall—Height of rim of rain-gauge above the ground 1 foot.

Totals refer to 24 hours beginning at 7h.

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

Day with clear sky - - - no cloud at any hour of observation.

Day with overcast sky - - - overcast at all hours of observation.

Day with gale - - - should be rejected.

##### St. Vincent—Agricultural Experiment Station

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

Thermometers are exposed in a single louvred screen; the rain-gauge is of an obsolete 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 previous day.  
*Vapour Pressure (in inches) and Relative Humidity*—Computed from “Glaisher’s Hygrometric Tables.”  
*Rainfall*—In inches. Height of the rim of the rain-gauge above the ground is 13 in.  
 Totals refer to the 24 hours beginning at 9h.  
*Definition of*—Day with rain - - - 0.01 inch or more.  
 Day with clear sky - - - no cloud at either hour of observation.  
 Day with overcast sky - - - overcast at both hours of observation.

#### Barbados

Latitude 13° 8' N. Longitude 59° 36' W.  
 Hours of observation 9h. and 15h. (except for rainfall), 60th meridian time, 4 hours slow on G.M.T.  
 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*—In °F. Mean - - -  $\frac{1}{2}(9 + 15h)$ .  
 Maximum - - - set at 9h. and read at 15h.  
 Minimum - - - set at 15h. and read at 9h., and entered to day of reading.  
*Vapour Pressure (in inches) and Relative Humidity*—Computed from “Hints to Meteorological Observers” by W. Marriott, 7th Ed., 1911.  
*Rainfall*—The height of the rim of the rain-gauge above the ground is 1 foot.  
 Totals refer to the 24 hrs. beginning 6h.  
*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*—Wind directions refer to “magnetic” north.

#### Trinidad—St. Clair, Port of Spain.

Hours of observations 7h. and 15h., 60th meridian time, 4 hours slow on G.M.T.  
 Site and exposure “conventional.”  
*Pressure*—In inches; it is not stated what corrections, if any, have been applied.  
 Height of barometer cistern above M.S.L. 72 feet.  
*Temperature*—in °F. 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 “Glaisher’s Hygrometric Tables.”  
*Rainfall*—Height of the rim of the rain-gauge above the ground is 2 ft. 8 in.  
 Totals refer to the 24 hrs. beginning at 7h.  
*Definition of*—Day with rain - - - not stated.

#### British Guiana

The following notes refer to Georgetown and Mazaruni only.  
 Hours of observation 7h., 13h., 18h., local official time, 3 hours 45 minutes slow on G.M.T.  
 Height of barometer cistern above M.S.L. Georgetown 6 ft. 6 in. Mazaruni 55 ft.  
 At Georgetown, the standard thermometer screen is protected from direct sunshine by a shelter.  
*Pressure*—Readings are reduced to 32°F., lat. 45° and M.S.L.  
*Temperature*—Mean - - -  $\frac{1}{2}(\text{maximum} + \text{minimum})$ .  
 Maximum - - - read and set at 18h.  
 Minimum - - - set at 18h. and read at 7h.  
*Vapour Pressure and Relative Humidity*—Computed from “Glaisher’s Hygrometric Tables.”  
*Rainfall*—The heights of the rims of the rain-gauges above the ground are 1 foot.  
 Totals refer to the 24 hrs. beginning at 7h.  
*Wind*—A Dines pressure tube anemometer is in use at Georgetown with cups 74 feet above the ground.  
*Sunshine*—Campbell-Stokes recorders are in use at both stations.

#### Falkland Isles—Port Stanley

Hour of observation 9h., local time, 3 hours 27 minutes slow on G.M.T.  
 The site and the exposure of the instruments are “conventional.”  
*Pressure*—9h.; values as read, no corrections having been applied. The statement at the head of the column is incorrect. Height of the barometer above M.S.L. 6 feet.  
*Temperature*—Mean - - -  $\frac{1}{2}(\text{maximum} + \text{minimum})$ .  
 Maximum - - - read and set at 9h. and entered to previous day.  
 Minimum - - - read and set at 9h., and entered to day of reading.  
 The values of mean minimum temperature are 3°F. too high and consequently the values of  $\frac{1}{2}(\text{max.} + \text{min.})$  are 1.5°F. too high.  
 The absolute minimum temperatures are correct.  
*Relative Humidity*—Tables used not stated, but the values are correct.  
*Rainfall*—Height of the rim of the rain-gauge above the ground is 1 foot.  
 Totals refer to the 24 hrs. beginning at 9h.  
*Definition of*—Day with rain—0.01 in. or more. Previous to September 1923 no measuring glasses for rainfall were available, and the days with rain are therefore doubtful.  
 Day with clear sky - - - cloud 1 tenth or less.  
 Day with overcast sky - - - cloud 9 tenths or more.  
 Day with gale - - - force 8 (Beaufort scale) or more.  
*Wind*—The values of wind force given under the heading “anemometer” are from estimations on the Beaufort scale, at 9h.

#### Mauritius—Royal Alfred Observatory

The site and the exposure of the instruments are “conventional.”  
*Pressure*—Mean of 24 hrs.; readings are reduced to 32°F., lat. 45°, at station level. Height of barometer cistern above M.S.L. 181 feet.  
*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*—The 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

Hours of observation 10h. and 16h., 60th meridian time, 4 hours fast on G.M.T.  
 The thermometers are exposed in a wire cage under a thatched shelter. The rain-gauge is of an obsolete pattern.  
 The site is “conventional.”  
*Pressure*— $\frac{1}{2}(10 + 16h)$ ; values as read, no corrections having been applied.  
*Temperature*—Values appear to be unreliable.  
*Cloudiness*—The column under “Rainfall, Mean,” refers to mean cloudiness,  $\frac{1}{2}(10 + 16h)$ .  
*Rainfall*—The height of the rim of the rain-gauge above the ground is 1 foot.  
 Totals refer to the 24 hours beginning at 10h.  
*Definition of*—Day with rain - - - trace or more.  
 Day with clear sky - - - mean cloud amount 5 tenths or less.  
 Day with overcast sky - - - mean cloud amount 8 tenths or more.



## Fiji—Suva

Hour of observation 9h. for maximum and minimum thermometers and rainfall, all other elements 9h. January to September, 8½h. October to December.

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

The thermometers and the rain-gauge are at the Public Works Department and the barometer is at the harbour. Eye observations are made at the harbour.

**Pressure**—9h. Readings are reduced to 32°F., M.S.L., at station latitude.

**Temperature**—Dry Bulb at 9h.

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."

**Rainfall**—The height of the rim of the rain-gauge above the ground is 1 foot. Totals refer to the 24 hrs. beginning at 9h.

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

Day with clear sky - - - cloud amount 0.

Day with overcast sky - - - cloud amount 10.

**Wind**—The direction is observed to 16 points; the number of entries under N. include only winds from N., and similarly entries under E. include only winds from E. Under NE. are entered all observations between NNE. and ENE. inclusive (i.e., NNE., NE. and ENE.), similarly under SE. all observations between ESE. and SSE. are included. The entries under the headings N., E., S. and W. are therefore relatively low and those under NE., SE., SW. and NW. relatively high.

## ERRATA, 1923.

## Gibraltar

November. Means of min. and max. :—

For 51.5, 61.7 read 53.2, 63.8.

## Cyprus

Acheritou. Height :—For 78.4 ft. read 78 ft. 4 ins.

Limassol. Height :—For 55.2 ft. read 55 ft. 2 ins.

## Malta—Valletta

**Pressure**—The figures entered under "Mean Pressure" are the maximum corrected values.

## Sierra Leone

Kaballa. Latitude :—For 8° 29' N. read 9° 34' N.

## Trinidad, St. Clair

January mean temperature for 71.1 read 77.1.

## Falkland Islands—Port Stanley

**Temperature**—

Abs. min. Jan. for 40 on 11th, 23rd, read 38 on 20th.

May for 30 on 10th read 29 on 13th.

Aug. for 25 on 1st read 20 on 3rd.

**Relative Humidity**—

May for 77 read 84.

July „ 86 „ 89.

Sept. „ 81.4 „ 85.

**Cloudiness**—

Nov. for 6.1 read 6.8.

**Rainfall**—

Sept. for 1.72 read 2.00.

Dec. „ 2.14 „ 2.18.

## Bermuda

Values given in column under heading "Mean Max." are  $\frac{1}{2}$  (max. + min.) and the heading of the column should be "Mean."

Meteorological Office,  
Air Ministry, London,  
August, 1926.

## Abridged List of Publications published by the Authority of the Meteorological Committee

2. JOURNALS—*contd.*

**Meteorological Magazine.** Symon's Meteorological Magazine, incorporated with the Meteorological Office Circular. (8vo.) Published monthly. 6d. Postage 1d.  
(Annual subscription, from February to January, 6s. 6d. post free.)

## 3. PUBLICATION OF DATA (CURRENT PERIODICAL ISSUES).

**The Observatories' Year Book,** commencing 1922. (4to.) In continuation of Parts III (2) and IV of the British Meteorological and Magnetic Year Book. Volume for 1922, 63s. Postage 9d. (The sections relating to the several observatories are obtainable separately.)

**British Rainfall.** (8vo.) A Report upon the progress of Rainfall Investigations and full records of the Rainfall of each year, with Maps and Illustrations :—  
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1880 to 1918, each 10s.  
1919 to 1921, each 12s. 6d.  
1922 (No. 261), 1923 (No. 269) and 1924 (No. 275), each 15s.  
(Volumes for 1876, 1881, 1911, 1917 and 1918, out of print.)

**Daily Weather Report.** (4to.) 1. British Section. 2. International Section. 3. Upper Air Section. Subscription 13s. post free per official quarter for two or three sections, 6s. 6d. per official quarter for one section. Single copies, price 1d. each.

Orders or correspondence should be addressed to the Director, Meteorological Office, Air Ministry, Kingsway, London, W.C.2. Cheques and Postal Orders should be made payable to the "Secretary, Air Ministry," and crossed "Bank of England, a/c of H.M. Paymaster-General."

**Monthly Weather Report.** (4to.) The publication of the Monthly Weather Report began in 1884. After 1887 it was published as a Supplement to the Weekly Weather Report, and formed Part II of the British Meteorological and Magnetic Year Book from 1908 to 1921. Contains summaries of observations from about 330 Stations in the British Isles, and Charts. Monthly Parts and Annual Summary, each 9d. Postage 1d.  
(Annual subscription, including Introduction and Annual Summary, 10s. post free.)

**Réseau Mondial.** (4to.) Monthly and Annual Summaries of Pressure, Temperature, and Precipitation at Land Stations, generally two for each 10 degree square of Latitude and Longitude. Commencing 1910 :—  
Charts.—1910, 8s. 6d.; 1911, 3s. 6d.  
Tables.—1910, 15s.; 1911 to 1913, each 7s. 6d.; 1914, 18s.; 1915, 24s.; 1916, 22s. 6d.; 1917, 22s. 6d.; 1918, 21s.

**Weekly Weather Report.** (4to.) The publication of the Weekly Weather Report began in February, 1878. From 1908 to 1921 it was published as Part I of the British Meteorological and Magnetic Year Book. Each 9d. Postage 1d.  
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## 4. PUBLICATIONS OF NORMALS OR AVERAGES.

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**Diurnal Range of Rain** at the Seven Observatories in connection with the Meteorological Office. 1871-90. (No. 143. 1900.) (8vo.) 2s. 6d. Postage 1d.

**Normals of Meteorological Elements for the British Isles.** Book of. For periods ending 1915. (No. 236.) (8vo.) :—  
**Section I.** Monthly Normals of Temperature, Rainfall and Sunshine for Stations. 2s. Postage 1d.  
**Section II.** Normals, Weekly, Monthly, Quarterly and Seasonal for Districts. 9d. Postage 1d.  
**Section III.** Maps of the Normal Distribution of Temperature, Rainfall and Sunshine for the British Isles. 1s. 6d. Postage 1d.

4. PUBLICATIONS OF NORMALS OR AVERAGES—*contd.*

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**Rainfall Tables** of the British Isles for 1866-80. Compiled by G. J. Symons, F.R.S. (No. 47. 1883.) (8vo.) 7s. 6d. Postage 3d.

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**Ten Years' Sunshine** in the British Isles, 1881-90. (No. 98. 1891.) (8vo.) 2s. Postage 1½d.

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**Barometric Gradient and Wind Force.** Report to the Director of the Meteorological Office, by E. Gold, M.A., Fellow of St. John's College, Cambridge, Superintendent of Instruments. (No. 190. 1908.) (4to.) 2s. 6d. Postage 2½d.

**Free Atmosphere** in the Region of the British Isles. First Report by W. H. Dines, F.R.S., with an Introduction and Note on the Perturbations of the Stratosphere by W. N. Shaw, Sc.D., F.R.S., Director. (No. 202. 1909.) (4to.) 2s. 6d. Postage 2½d.

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**Relation between Pressure, Temperature and Air Circulation** over the South Atlantic Ocean. By M. W. Campbell Hepworth, C.B., R.D., Captain R.N.R., Marine Superintendent. (No. 177. 2nd edition, 1917.) (8vo.) 1s. Postage 1d.

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**Wind Force.** Beaufort Scale of. Report of the Director of the Meteorological Office upon an Inquiry, with a Paper by G. C. Simpson, M.Sc., and Notes by Sir G. H. Darwin, K.C.B., F.R.S., W. H. Dines, F.R.S., and Commander Campbell Hepworth, C.B., R.N.R., Marine Superintendent. (No. 180. 1906.) (4to.) (Out of print.)

**Wind Structure.** Reports on. (8vo.) From reports of the Aeronautical Research Committee. (Nos. 1, 2 and 3 are out of print as separate copies.) Fourth Report (1912-13.) 1s. 6d. Postage 2d.



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