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AIR MINISTRY.

METEOROLOGICAL OFFICE.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR-BOOK, 1921,

PART III, SECTION 2.

GEOPHYSICAL JOURNAL, 1921,

COMPRISING

DAILY VALUES OF THE METEOROLOGICAL AND GEOPHYSICAL ELEMENTS

AT THREE OBSERVATORIES OF THE METEOROLOGICAL OFFICE;
DAILY VALUES OF SOLAR RADIATION AT SOUTH KENSINGTON;
WIND COMPONENTS AT FIXED HOURS AT FOUR ANEMOGRAPH STATIONS;
AND RESULTS OF OBSERVATIONS OF CLOUD AND AURORA;

TOGETHER WITH AN ANNUAL SUPPLEMENT.

Published by Authority of the Meteorological Committee.

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ANNUAL SUPPLEMENT.

METEOROLOGICAL OFFICE.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR-BOOK:

GEOPHYSICAL JOURNAL, 1921.

PREFACE.

The Geophysical Journal originated in 1911 upon the transfer to the Meteorological Office, from the National Physical Laboratory, of responsibility for the administration of Kew Observatory, Richmond, and its offshoot, Eskdalemuir Observatory. Previous to that date the Meteorological Office had been responsible only for the meteorological work of Kew Observatory, the results of which had been published by the Office since 1881 in volumes entitled *Hourly Readings* (*Hourly Means* since 1887). The magnetic and other geophysical observations made at the observatories had appeared in the Annual Reports of the Kew Committee (up to 1899) and later in the Observatory Section of the Annual Reports of the National Physical Laboratory. After completion of the administrative transfer all daily observations, whether in meteorology or in geophysics, published for the observatories, were gathered into a new publication which has appeared in monthly parts (with annual supplements) under the title of *The Geophysical Journal*. Since 1912 upper air observations, though not strictly daily observations, have been included in the Journal.

Since 1908 the statistical publications of the office had been grouped together under the general title *British Meteorological Year Book*. This Year Book was divided into four parts as follows :—

Part I. dealing with *Weekly* summaries.
Part II. dealing with *Monthly* summaries.
Part III. dealing with *Daily* or occasional observations (generally at fixed hours).
Part IV. dealing with *Hourly* values.

As it was desired to bring the new Journal into relation with the other statistical publications of the Office, it was incorporated in the Year Book as Part III, Section 2, the title being amplified to *British Meteorological and Magnetic Year Book*. The corresponding hourly values of magnetic data have appeared under the sub-title " Hourly Values from Autographic Records, Geophysical Section," and have formed Part IV, Section 2, of the Year Book since 1911.

The present volume, the eleventh of the series, contains the observations for the year 1921 and is the last which will be issued in the old form of monthly sections under the title *Geophysical Journal*. From the commencement of 1922, the tabulated results of the work of the observatories formerly included in the *Geophysical Journal* and in *Hourly Values* (Parts III and IV of the old Year Book) will be consolidated into a single volume entitled *The Observatories Year Book of the Meteorological Office*. It will appear annually and separate sections in it will be devoted to each observatory.

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The volume of the *Geophysical Journal* for 1921 differs from its predecessors (1) by the omission of the observations made at St. Louis Observatory, Jersey, and (2) by the reductions in the amount of information given for the upper air. Daily meteorological observations for Jersey for the years 1914–20 have appeared in the Journal; those for 1914–16 were incorporated in a supplement to the volume for 1916, while those for more recent years have been printed month by month.

Results of the exploration of the upper atmosphere by means of kites, pilot balloons and aeroplanes appeared in the *Geophysical Journal* from 1912 to 1920. Such information is now published in the Upper Air Supplement to the *Daily Weather Report*, but results obtained by Ballons Sondes are still included in annual supplement to the present volume and will appear in future in *The Observatories Year Book*.

As in previous volumes, the reader will find in the present volume, daily values of the meteorological and geophysical elements observed at the three observatories of the Meteorological Office.

Kew Observatory,
Richmond, Surrey ... Lat. 51° 28′ N. Long. 0° 19′ W.
Valencia Observatory,
Cahirciveen, Co. Kerry Lat. 51° 56′ N. Long. 10° 15′ W.
Eskdalemuir Observatory,
Dumfriesshire ... Lat. 55° 19′ N. Long. 3° 12′ W.

and also some subsidiary observations made at other stations.

The arrangement of the material is generally on geographical lines, the data for each observatory being kept together, but the observations of bright sunshine and solar radiation made at various places are gathered together into special tables devoted exclusively to these elements. Separate tables are also assigned to the seismological data and to the tabulation of aurorae.

Each monthly number contains tables giving the following particulars :—

Table 1.—Bright sunshine and solar radiation at Westminster, South Kensington, Richmond (Kew Observatory), Eskdalemuir and Cahirciveen (Valencia Observatory).

Table 2.—Meteorological and magnetic data for Cahirciveen (Valencia Observatory).

Table 3.—Meteorological data for Richmond (Kew Observatory) *facing*:—

Table 5.—Geophysical data for Richmond (Kew Observatory).

Table 4.—Meteorological data for Eskdalemuir, *facing* :—

Table 6.—Geophysical data for Eskdalemuir.

Table 7.—Wind components for four selected anemograph stations, Holyhead, Deerness, Scilly and Gorleston.

Table 8.—Seismological Diary for Eskdalemuir and Richmond (Kew Observatory).

Table 9.—Nephoscope Observations at Aberdeen.

Table 10.—Observations of Aurora.

The Annual Supplement is on similar lines and contains in addition a section giving the results of Soundings of the Free Atmosphere made with Registering Balloons (Ballons Sondes) at Benson Observatory, Oxon.

Normals.—Normal values are given for comparison of the current data at the foot of each table if available. The length of the period to which these normals refer is stated in each case.

As a general rule the terminal year of the period is 1915, but for Eskdalemuir, in view of the short length of record available, the normals have been brought up to the year 1920 for all elements.

In computing the normals for Cahirciveen (Valencia Observatory) no allowance has been made for the removal of the observatory from Valencia Island to Cahirciveen in 1892, except that allowance was made for the change of level in the case of the normals of pressure at station level.

NOTES ON THE TABLES FOR 1921.

Greenwich Mean Time is used throughout, and the hours are counted from midnight and numbered 0 to 23 ; the second midnight of the day is referred to as 24 h. All the units employed are based on the C.G.S. system. Data to which the letters x and n are attached represent the maximum and minimum values in the column.

Table 1. Sunshine and Solar Radiation.—Daily values of the duration, in hours, of bright sunshine as measured by the Campbell-Stokes Recorder are given for Westminster,* Richmond, Eskdalemuir and Cahirciveen ; also the percentage of the " possible," regarded as the number of hours from sunrise to sunset.

Measurements of the amount of solar radiation are given for South Kensington, Richmond (Kew Observatory), and Eskdalemuir. At the two latter stations use is made of the Ångström pyrheliometer, which gives the intensity of the radiation received from the sun by a surface which is normal to the line drawn from the instrument to the sun. At Richmond the observations are always made within half an hour of noon ; for this observatory the vertical component of the radiation *i.e.*, the intensity multiplied by the cosine of the zenith distance of the sun, is tabulated, in addition to the total intensity, to facilitate comparison with the South Kensington records (see below). At Eskdalemuir the hour of observation is more variable and is given explicitly ; the value is also given of the function (p/p_0) sec Z, in which p is the barometric pressure at the observatory in millibars at the time of the observation, p_0 is 1,000 millibars, and Z is the zenith distance of the sun, which affords a measure of the mass of atmosphere which the solar radiation has had to penetrate before reaching the earth. The entries in the columns " sky " at Richmond and Eskdalemuir are intended to show the presence or absence of any visible obstruction, such as haze, mist, or cloud, in the direct path of the solar radiation recorded. Observations are taken so far as possible in the absence of cloud ; but upper cloud, when there is a great deal of it, cannot always be avoided, and, unless the cloud is very thin, the fall in the radiation recorded is conspicuous.

At South Kensington the radiation is measured by the Callendar Radiograph, which instrument records the amount received on a horizontal surface from all sources. In bright sunshine the greater part of this radiation consists of the vertical component of the direct solar radiation, but even then an appreciable part comes from the general atmosphere and clouds. Thus if a Callendar and an Ångström instrument were simultaneously recording side by side, one would expect the radiation recorded by the former to exceed the vertical component of that recorded by the latter.

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* The exposure of the recorder at South Kensington was interrupted by building operations at the end of September 1918, and the record made at the Wesleyan Training College, Westminster, has been tabulated since that date.

The intensity of radiation, whether at South Kensington, Richmond, or Eskdalemuir, is expressed in milliwatts per square centimetre. For conversion to the unit more ordinarily employed abroad, we may use

1 mw. per sq. cm. = 0·01435 gramme-calorie per sq. cm. per minute.

For South Kensington two measurements are given for the maximum radiation—the highest value shown on the trace of the Callendar instrument at whatever hour it occurs, and also the highest value recorded between 11h. 30m. and 12h. 30m. It is the latter that is most appropriate for comparison with the vertical component of the solar intensity recorded by the Ångström instrument at Richmond. The daily total radiation at South Kensington, representing the integrated value of the radiation throughout the 24 hours, is also given, being expressed in joules (*j*) per sq. cm. A watt equals 1 joule per second, and therefore a uniform radiation at the rate of 1 milliwatt amounts in 24 hours to 86·4 joules. The daily total at South Kensington is also expressed as a percentage of the " planetary " radiation, *i.e.*, the radiation that would be received if the earth's atmosphere were non-existent, assuming the average intensity of direct solar radiation in space at the earth's mean distance from the sun to be 135 milliwatts per sq. cm.

The instruments used for determining the intensity of radiation have been calibrated in different ways and the published figures may require correction.

A discussion of a comparison between the scale of the Ångström Instrument No. 24 in use at Richmond during the year 1921 and that of an Abbot Silver Disc. Pyrheliometer is contained in Geophysical Memoir No. 21 M.O., " Pyrheliometer comparisons at Kew Observatory, Richmond, and their bearing on data published in the *Geophysical Journal*," by R. E. Watson. According to Watson's results, and they are in close agreement with those of Marten (Potsdam),* Andres Ångström (Stockholm),† Savinoff (Pavlovsk) and Kimball (Washington)‡ readings on Ångström's scale should be increased by 3·5 per cent. to bring them into accordance with Abbot's scale. Moreover, it appears that owing to changes in the Ångström instruments at Kew Observatory some of the data for earlier years require amendment. Revised figures will be found in Mr. Watson's memoir.

The Callendar Radiograph was not in use at South Kensington after September 8th, 1921. The results of a recent re-calibration are under discussion.

Table 2. Meteorology and Magnetism :—Cahirciveen (Valencia Observatory).—This table is in the form adopted for Part III., Section 1, of the *Year Book* (*Daily Readings at Meteorological Stations of the First and Second Orders*). Pressure, temperature, wind, and rainfall are taken from the self-recording instruments at the observatory. Some account of these instruments will be found in the Introduction to *Hourly Values from Autographic Records,* Meteorological Section, 1913. It may be noted here that the temperatures refer to a large louvred screen on the north wall of the Observatory, not to the Stevenson Screen which contains the thermometers used for the observations printed in the *Daily Weather Report.*§

Pressure is given in " millibars " (1000 millibars = one megadyne per square centimetre). One millibar is approximately equivalent to the pressure of 0·75008 mm. or 0·02953 inch of mercury under standard conditions (273a, lat. 45°). Conversion Tables will be found in *Hourly Values from Autographic Records,* 1913, and in the *Computer's Handbook.* The necessary reductions of the readings of the barometer on account of temperature and latitude have been made.

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* W. Marten—" Veröff des Königl. Preuss Meteor. Institut. No. 267."

† Dr. A. Ångström—U.S. Dept. of Agric.—Monthly Weather Review, Vol. 47, No. 11.

‡ Savinoff and Kimball—Smith. Mi. Coll., Vol. 60, No. 18.

§ Temperatures for Richmond refer to a North Wall Screen, those for Eskdalemuir to a Louvred Hut in the open. These Screens also contain the thermometers used for the Daily Weather Service.

Temperatures are given in units on the Kelvin Absolute Scale, *i.e.*, in centigrade degrees measured from a zero 273° below the normal freezing point of water.* Temperatures at or below 273a (0° C.) are printed in small type. The extreme temperatures refer to the calendar day.†

Vapour-Pressure, deduced from the readings of the dry and wet bulb thermometers, is given in millibars. For the computation of Vapour Pressure and of Relative Humidity tables depending on Glaisher's hypothesis, that the depression of the wet-bulb readings below the air-temperature is proportional to the depression of the dew point below the same temperature, are utilised.

Wind-Speed is expressed in metres per second. The values are estimated for periods of 60 minutes centering at the hours named. The Robinson anemograph‡ (9-inch cups, 24-inch arms, factor 2·2) is used for this purpose.

Wind-Direction in the present volume is given by the deviation from North reckoned in degrees as a " veer," in the sense N, E, S, W. The general direction for the 60 minutes is estimated from the anemogram.§ No direction is given when the anemogram shows a mean velocity for the hour smaller than 1·6 metres per second.

Precipitation is given in millimetres of equivalent rainfall. The rainfall is for the calendar day ; previous to May 1st, 1914, the period was the 24 hours beginning at 10 h. 30 m., and from that date to the end of 1917 the 24 hours beginning at 9 h.†

The estimation of cloud amount and the symbols for weather are in accordance with the conventions of the International Meteorological Committee.

A summary of the weather for each day is given in the column headed **Remarks,** the international weather symbols and the letters of the Beaufort Notation being used as far as possible. These symbols and letters are as follows :—

BEAUFORT NOTATION AND INTERNATIONAL WEATHER SYMBOLS.

b. blue sky. (Cloud amt. 0, 1, 2, 3
bc. some cloud. ,, 4, 5, 6
c. cloudy. ,, 7, 8
o. overcast. ,, 9, 10)
g. gloomy, dull appearance.
u. ugly, threatening appearance.
v. 0 visibility, unusually clear atmosphere.
z. ∞ haze.
m. ≡⁰ mist, light fog.
f. ≡ fog.
fe. ≡⁝ wet fog, *i.e.* fog which deposits water copiously on exposed surfaces.
w. dew.
x. hoar frost.
← ice crystals in the air.
V rime.
~ glazed frost.
e. water deposited copiously on exposed surfaces, without rain falling.
y. dry air. (Relative Humidity less than 61 per cent.)
p. passing showers.
d. drizzling rain.
r. ● rain.
s. ✲ snow.
rs. ✱ sleet. ,,
drift snow.
snow lying (more than half the surrounding country covered with snow).
h. ▲ hail.
△ soft hail.
t. T thunder.
l. ≺ lightning.
tlr. ⊼ thunderstorm.
gale.
q. squally.
⊙ solar corona.
⊕ solar halo.
Ⓤ lunar corona.
☾ lunar halo.
⌒ rainbow.
aurora.
zodiacal light.
mirage.

The figure ⁰ attached to a symbol indicates very slight, whilst the figure ² indicates strong or heavy : thus ●⁰=slight rain, ●²=heavy rain. When economy of space is necessary, morning, afternoon, and night are denoted by *a.*, *p.*, *n.* respectively. The gale symbol ✓ is normally used in this publication to indicate that the wind as recorded by the anemometer averaged at least 17·2 *m/s* for one or more "centered" hours. In the Kew Observatory tabulations the symbol has been used with the word gust in brackets to indicate gusts reaching 17·2 *m/s*.

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* The propriety of the definition has been discussed by F. J. W. Whipple, *Lond. Phys. Soc. Proc.*, vol. xxxi, 1919, p. 240.

† Extreme temperatures and rainfall for the 24 hours to 7h. are printed in the *Daily Weather Report* and utilised in the *Weekly Weather Report.* For the *Monthly Weather Report* the figures of this Journal are used.

‡ At Eskdalemuir the wind data are obtained from the records of a Dines Pressure Tube anemometer.

§Formerly it was the practice to take the direction at the exact hour. The present rule was adopted as from 1st May 1915. The Introductions to the *Geophysical Journal*, 1915, 1916, should be amended in this sense.

Table 2 also contains results for Magnetic Horizontal Force, Declination, and Inclination from absolute observations, usually two a month. The observations* are made at fixed hours on days not subject to abnormal magnetic disturbance, and may be regarded as referring: Horizontal Force to 11h. 45m., Declination to 10h. 20m., and Inclination to 14h. 30m. The unit of force employed, 1γ, represents 0·00001 C.G.S. magnetic unit. It is equal to the magnetic force due to an electrical current of 5 amperes in an infinitely long straight conductor a kilometre away. A memorandum by Dr. Chree on the probable errors in absolute observations of the magnetic elements is printed with the Introduction to the *Geophysical Journal*, 1918.

Tables 3 and 4. Meteorology : Richmond (Kew Observatory) and Eskdalemuir, Dumfriesshire.—These tables contain corresponding meteorological observations for Richmond (Kew Observatory) and Eskdalemuir, Dumfriesshire. The notes on individual elements given for Table 2 apply, except that at Eskdalemuir the velocity of the wind is determined from the readings of a Dines Pressure Tube Anemograph.

Table 5. Geophysics : Richmond (Kew Observatory).—In addition to Magnetic and Electrical data, this table contains the readings at 9h. of earth thermometers placed in iron tubes in the ground with their bulbs at depths of 30 cm. and 120 cm. below the surface. The mean Level of Underground Water is also given for each day, together with the highest and lowest levels recorded during the month. A description of the apparatus used will be found in the Annual Supplement of the *Geophysical Journal*, 1914. The variation of level through the year is shown by a graph.

Magnetic Data for Richmond (Kew Observatory). The magnetic data published in the *Geophysical Journal* up to 1915 were maxima and minima derived from measurements of the magnetograms. The adoption by the London and South-Western Railway of electric traction for the line which passes some 1000 m. from the observatory has made the record useless for the determination of extreme values. The results of absolute observations* taken usually four times a month are now given.

The magnetic character of the day is determined by examination of the magnetograms, and is given on the scale approved by the International Magnetic Commission, "0" representing quiet, "1" moderately disturbed, and "2" highly disturbed conditions.

Values of the Electric Potential Gradient in the open are given for 3h., 9h., 15h., and 21h., representing means for the sixty minutes centering at the hour. A factor, whose value is given, is applied to the electrograph curve readings to deduce the corresponding potential gradient in the open, *i.e.*, the potential gradient as it would be if unaffected by the presence of buildings or apparatus. The gradient is measured in volts per metre. It is positive when the potential in the atmosphere exceeds that of the earth. A negative value is indicated by the sign "—" before the number. When the fluctuations of potential are too large or too rapid to permit of a satisfactory numerical estimate of the hourly mean, "*z*" is inserted with an appropriate sign to indicate whether the gradient was on the whole positive or negative, or too oscillatory to admit of the dominant sign being determined. The means for the month are obtained from values measured to 1 v/m. not from the printed figures which are rounded to the nearest 5 v/m.

The factor for reduction to the open is usually determined month by month, from a comparison of the absolute values, obtained from a standardised electrometer over a flat area, with the corresponding readings from the electrograms.

* Notes on the observations are to be published in *Hourly Values from Autographic Records*, 1921.

The electric character of the day is indicated by the figures 0, 1, or 2 according to the character of the trace of the electrograph as regards negative potential; thus 0 means no negative potential; 1, one or more excursions of limited duration to the negative side of the scale; 2, negative potential extending in the aggregate over at least three hours.

The charges on the ions, positive and negative, are determined by measurements with Ebert's Aspiration Apparatus, extending over fully half an hour between 14 h. and 16 h. The charge per cc. is multiplied by 10^{-16} and given in coulombs* to facilitate comparison with the data in neighbouring columns.

In addition to all the ions with mobilities of the order of 1 cm. per second, the Ebert apparatus captures, it is believed, a very appreciable number of the slow-moving or Langevin ions. If all the Langevin ions were captured the figures given in the Table would probably, in most cases, be largely increased.

The Ebert apparatus is designed to determine not merely the number but also the mobility of the more mobile ions; the results of such determinations were given in the years 1911–1912 together with the deduced values of the conductivity and of the air-earth current. The figures were found, however, to present many inconsistencies, and the mobilities are no longer observed. The data now published for the air-earth current are derived from observations made with the apparatus designed by Mr. C. T. R. Wilson, combined with readings from the electrograms. Observations taken with the Wilson apparatus near 15 h. supply a value for the electrical conductivity, and this is combined with the mean value of the potential gradient in the open for the sixty minutes centering at 15 h., as derived from the electrograms. The observations are taken in a uniform way, and should be strictly comparable amongst themselves, but it is believed that multiplication by a factor exceeding unity would be required to give the true air-earth current.

Table 6. Geophysics : Eskdalemuir.—This table contains magnetic and electrical data of the same general character as those for Richmond in Table 5, but with modifications. The Eskdalemuir magnetographs record the three rectangular components North, West, and Vertical. The extreme daily values, and their hours of occurrence, are given for each. In view of the uniformity of the temperature to which the magnetograph is exposed, no temperature correction has been applied.

In the electrical character statistics, 0, 1, and 2 have the same significance as at Richmond, but letters *a*, *b*, *c* are attached according to the range of oscillation of the potential gradient : *a* means that for no hour of the day was there a range as large as 1000 volts; *b* that a range of 1000 volts or more was reached in one hour at least, but in fewer than six hours; *c* that a range of 1000 volts or more was reached in at least six hours. These specifications must not be regarded as absolutely rigid criteria. After longer experience more definite specifications may be found possible.

Table 7. Wind Components.—These are given for four principal anemograph stations of the Meteorological Office, representing different parts of the country. As in Table 2, the wind velocities are expressed in metres per second, and represent

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* In earlier volumes other units were used for the ionic charges.

In 1911 the number of ions was given. In computing the number the value $3{\cdot}4\times10^{-10}$ C.G.S. electrostatic unit or 11×10^{-20} coulomb was accepted as the charge upon an ion. Recent research has shown that this value was too low. Millikan's experiments (*Phil. Mag.*, Series 6, vol. xxxiv., 1917, p. 3) give $4{\cdot}77\times10^{-10}$ C.G.S. electrostatic unit, or $15{\cdot}9\times10^{-20}$ coulomb, for the ionic charge.

To reduce the 1911 entries to the form adopted in the current tables they must be multiplied by 11×10^{-4}.

For the years 1912–1915 the charge per cc. $\times10^{-20}$ is given in terms of the C.G.S. electromagnetic unit, which is equal to 10 coulombs. To reduce the entries for these four years to the present form, which was adopted for the year 1916, they must be divided by 1000.

To derive the number of ions per cc. from the entries in the present volume they must, if Millikan's results be accepted, be multiplied by 629. To derive the charge in C.G.S. electrostatic units per cubic metre multiply by 0·3.

The figures published for the year 1919 were unfortunately subject to certain errors which are discussed in the Memorandum printed in the Annual Supplement for 1919.

mean values for the sixty minutes centering at the specified hours 3 h., 9 h., 15 h., and 21 h. The data at these four hours are not the resultant wind velocities, but their rectangular components in the North-South and East-West directions. North and South winds are treated separately, and so are East and West. The anemographs at Holyhead and Deerness are of the Robinson type, and of the same large size as those at Valencia and Kew Observatories, the length of the arms being 610 mm., the diameter of the cups 230 mm., and the factor used for deriving the run of the wind from the run of the cups 2·2. The Scilly instrument is smaller, the length of the arms being 305 mm., the diameter of the cups 127 mm., and the factor 2·8.

Recent investigations have shown that the correct factor depends on the speed, but it is not proposed to depart from the use of the constant factors until the corrections have been determined with greater certainty.* The rule is that when the tabulated wind-speed is less than 1·6 m/s., components are not shown, and the word " calm " is printed.

At Holyhead and Gorleston there are Dines pressure-tube anemographs, and the entries given under the heading " Maximum in a Gust " represent the highest speeds recorded by these instruments in the course of the day. The time of occurrence of the highest gust is also given. At Deerness, where there is only a Robinson cup anemograph, particulars are given as to the largest of the twenty-four mean hourly velocities, and the hour or hours of its occurrence. Similar data are also printed for Scilly, the pressure-tube anemograph at this station being out of adjustment during 1921. For Gorleston the hourly wind components as well as the gusts are derived from Dines pressure-tube anemograms. Shoeburyness appeared in the tables for 1919 and 1920 in place of Yarmouth, at which station the direction recorder of the Robinson anemograph failed at the beginning of 1919. The instrument was not repaired because it was proposed to combine a direction recorder with the pressure tube anemometer at Gorleston. This improvement was carried out and the recorder has been in action since May 1920.

It may be noted here that monthly means of Hourly Values of the Wind Components at Kew, Valencia, Aberdeen and Falmouth Observatories were published in *Hourly Means* from 1887 to 1899. Wind data for anemograph stations round the coast were published in *Daily Reading at Meteorological Stations of the First and Second Orders* for the years 1908 to 1910. The present series of wind components is in continuation. Monthly Totals of the Wind Components for the years 1911 to 1918 are printed in the Annual Supplement to the *Geophysical Journal*, 1918.

Table 8. Seismological Diary.—This table contains results given by the Galitzine Seismographs† (two horizontal components and the vertical component) at Eskdalemuir, and also some data from a Milne Seismograph at Richmond (Kew Observatory). The Eskdalemuir data include (i) particulars of the earthquakes recorded, and (ii) the amplitude and period of the microseisms shown by the North component Galitzine instrument on each day at 0 h., 6 h., 12 h., and 18 h. Disturbances attributed directly to wind or other purely local circumstance are excluded. The notation employed is as follows :—

P is the time of arrival of the first phase (longitudinal waves). S is the time of arrival of the second phase (transverse waves). L is the time of arrival of the long waves (surface waves).

PR_1, PR_2 . . . are longitudinal waves reflected once, twice . . . at the earth's surface, prior to their arrival at the station. SR_1, SR_2 . . . similarly denote reflected transverse waves. Any times given for reflected waves refer to the beginning of the disturbance at the observatory.

M_1, M_2 . . . are the times of successive maxima of the displacement of the ground, corrected, if necessary, for the lag of the instrument.

i is the sudden commencement of a phase. *i*P means a sudden commencement of the P phase. *e* means an indistinct commencement of a phase. F is the end.

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* Cf. Notes on the Robinson Anemometer, F. J. W. Whipple, *Advisory Committee for Aeronautics, Reports and Memoranda*, No. 669, 1920.

† Vide *Geophysical Journal*, Annual Supplement, 1913 ; or C. W. Walker's *Modern Seismology*.

T, the period in seconds, is the duration of a double oscillation (to-and-fro movement). μ represents a micron (0·001 mm.).

Δ is the distance in kilometres of the epicentre measured along the arc of the great circle passing through the station. *a* the azimuth of the epicentre (0° to 360°) measured from North through East. The distance is estimated from Klotz's Seismological Tables (*Publication of the Dominion Observatory, Ottawa*, vol. iii. No. 2), which are also used for computing the time at which the disturbance originated. The time of origination is denoted by the letter O.

A_N, A_E and A_Z are the amplitudes of the components of the true displacement of the ground from the position of rest, and are measured in microns. When the displacement shown by the North-South seismograph is to the North a + sign is shown ; for a displacement to the South a − sign is used. Similarly + is used for displacements to the East and upwards, − for displacements to the West and downwards. When the oscillations are of a simple harmonic character no sign is prefixed to the amplitude.

The suffixes N, E, Z indicate that the estimates refer to the records from the North-South, East-West and Vertical seismographs respectively.

All the microseisms recorded are believed to arise from other than local causes. Microseisms are practically always in evidence, and their period usually remains at least approximately constant during a good many minutes.

The group of waves of greatest amplitude occurring in the 30 minutes centering at the hour in question is selected, and the amplitude tabulated is the mean obtained from two or three waves in that group.

The period is derived from a measurement made on the same group.

The data given for Richmond include the times of commencement of the disturbance and the time of the largest displacement shown on the trace. Additional information is given under the heading "Remarks." The boom of the instrument is oriented North-South, and moves when the ground is tilted East to West. It has, however, to be remembered that in reality the boom responds to ground movements of various kinds, and that the amplitude of the movement shown on the trace depends to a considerable extent on whether the oscillatory movement in the ground has a period near to or remote from the natural period of the boom. At the same time, a really large movement on the trace invariably means a large earthquake. Amplitudes, all measured on the trace in mm., are not printed unless at least 1·0 mm. Those less than 0·2 mm. are charactered as very small, those between 0·2 and 0·5 mm. as small. During the year 1921 the period of the boom was approximately 17 seconds, and a movement of 1 mm. on the trace was produced by a tilting of about 0″·50.

Table 9. Nephoscope Observations.—This table gives the results of observations of cloud motion at Aberdeen taken with Fineman's nephoscope.

The nomenclature used for clouds is in accordance with the specifications given in *The International Cloud Atlas* and in the *Observer's Handbook*. Information as to the usual heights of the several forms is given in the following table :—

Form.	Abbreviation.	Height of base (metres).
Cirrus	Ci.	mean 9000
Cirro-stratus	Ci-St.	,,
Cirro-cumulus	Ci-Cu.	3000 to 7000
Alto-stratus	A-St.	,,
Alto-cumulus	A-Cu.	,,
Strato-cumulus	St-Cu.	Below 2000
Nimbus	Nb.	,,
Cumulus	Cu.	Mean 1400
Cumulo-nimbus	Cu-Nb.	,,
Stratus	St.	Below 1000

The following abbreviations are also used : cuf.=cumuliformis, lent.=lenticularis, and fr.=fracto.

The observations give what is termed for brevity the "velocity-height-ratio," *i.e.* the true cloud velocity divided by the height of the cloud. The velocity-height-ratio is equal to the instantaneous value of the angular velocity of the cloud about a point vertically beneath it, and on the same level as the observer. It is conveniently expressed in milliradians per second. For comparison with the nomenclature used in previous volumes it may be noted that for a low cloud at the height of one kilometre the velocity in metres per second is the same as the velocity-height-ratio in milliradians per second. A short discussion of the results for the five years 1912 to 1916 will be found in the Supplement to the 1916 volume.

Table 10. Aurora.—This table, introduced in January 1917, gives Aurora observations at various stations, and also shows the phases of the Moon and the "magnetic character" assigned for Richmond and Eskdalemuir. As "magnetic character" refers to a period of 24 hours beginning at midnight, it is convenient to show the characters for the two calendar days which include the night of the Aurora observations.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).
DAILY VALUES.—*Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology.*
Eleventh YEAR.—No. 1. JANUARY, 1921.] Units based on the C.G.S. System. [*Price* 1s. 6*d*.

1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	11·30 h. to 12·30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p_0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	0·0	0	97	14	14	11 00	10	0·0	0	..	..	..	0·0	0	..	..	..	..	0·2	3
2	0·1	1	138	20	16	13 00	6	0·0	0	..	..	..	0·0	0	..	..	..	..	2·5	32
3	1·5	19	221	33	17	12 28	17	1·8	23	19	5	Thro' Ci	0·0	0	..	..	..	..	0·0	0
4	0·0	0	66	10	5	13 28	4	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
5	0·0	0	104	15	11	12 25	11	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
6	0·0	0	133	19	12	11 32	12	0·0	0	..	..	..	1·3	18	..	..	..	..	3·0	38
7	0·0	0	56	8	3	11 20	2	0·0	0	..	..	..	0·0	0	..	..	..	..	1·0	13
8	0·3	4	188	26	—	—	—	2·0	25	16	4	Thro' Ci	0·0	0	..	..	..	..	0·0	0
9	1·2	15	115	16	14	12 50	10	1·5	19	..	..	..	0·0	0	..	..	..	..	0·0	0
10	0·0	0	111	15	9	11 45	9	0·0	0	..	..	..	0·0	0	..	..	..	..	0·7	9
11	3·0	37	185	25	20	12 20	20	3·1	38	20	6	Thro' Ci	2·2	30	..	..	..	..	0·0	0
12	0·0	0	152	20	19	15 05	15	0·2	2	..	..	..	0·0	0	..	..	..	..	2·9	36
13	0·1	1	136	18	*x*25	11 20	10	0·1	1	..	..	..	3·5	47	12 19	Hazy	4·46	68	3·1	38
14	1·3	16	246	32	19	12 55	16	*x*4·1	50	38	11	Hazy	*x*5·8	76	..	..	..	..	2·1	26
15	0·2	2	178	23	15	11 05	14	2·7	33	..	..	..	0·0	0	..	..	..	..	0·0	0
16	*x*3·6	43	262	33	17	12 30	17	3·8	46	28	8	Misty	0·0	0	..	..	..	..	*x*3·2	39
17	0·0	0	88	11	8	12 05	8	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
18	2·3	27	199	24	21	12 15	21	2·4	29	..	..	..	2·0	26	..	..	..	..	3·1	37
19	2·3	27	237	28	21	12 10	21	2·8	33	37	12	Hazy	3·6	46	12 17	Ci.	4·03	62	1·2	14
20	1·5	18	235	28	23	13 05	11	1·9	22	..	..	..	0·0	0	..	..	..	..	0·3	4
21	2·7	32	*x*265	31	22	11 50	22	0·5	6	..	..	..	0·0	0	..	..	..	..	0·1	1
22	0·8	9	156	18	15	14 50	8	0·7	8	..	..	..	1·6	20	..	..	..	..	1·7	20
23	0·0	0	231	26	13	11 40	13	0·6	7	..	..	..	0·0	0	..	..	..	..	0·0	0
24	0·0	0	145	16	10	10 42	7	0·0	0	..	..	..	0·0	0	..	..	..	..	0·4	5
25	0·0	0	122	13	12	11 35	12	0·0	0	..	..	..	0·0	0	..	..	..	..	0·4	5
26	0·2	2	158	17	14	9 36	7	0·6	7	..	..	..	0·0	0	..	..	..	..	0·4	5
27	0·0	0	143	15	12	10 25	11	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
28	0·0	0	140	14	18	12 30	18	0·1	1	..	..	..	0·0	0	..	..	..	..	0·0	0
29	0·0	0	70	7	8	13 35	4	0·0	0	..	..	..	0·0	0	..	..	..	..	0·3	3
30	0·0	0	97	10	14	9 20	6	0·0	0	..	..	..	4·4	52	..	..	..	..	0·8	9
31	0·6	7	195	19	21	10 35	17	0·4	4	..	..	..	0·0	0	..	..	..	..	2·3	26
Means.	0·69	8	157	19	†15	—	†12	0·95	11	—	—	—	0·94	13·0	—	—	—	—	0·96	12
Normals.	0·68	8	104	20	—	—	—	1·39	17	—	—	—	1·06	14	—	—	—	—	1·55	19
	◄—35 years—►		◄—8 years—►					◄—35 years—►					◄—10 years—►						◄—35 years—►	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day.	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. Veer	9 h. Speed	21 h. Veer	21 h. Speed	Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	21 b.	*a* 200+	*a* 200+	*a* 200+	*a* 200+	millibar.		%	%	°	m/s.	°	m/s.	Tenths of Sky covered.		mm.	*a* 200+		
1	1004·2	1002·4	83·4	83·4	84·5	82·4	11·5	12·0	92	96	190	4	180	3	10	3	0·6	80·9	o. early; o. p⁰. *p.*; Fine, *n*.	
2	1003·2	1015·9	82·2	81·9	83·1	81·4	11·0	10·2	95	90	255	3	210	2	10●	2	7·4	78·7	Fine, *n*; ● *a*; Dull day.	
3	1010·1	1003·6	83·2	85·1	85·2	81·4	11·4	12·8	92	91	170	11	180	9	10	10	7·2	79·2	b. early; o, ●⁰, *a.*; d. *p.*; ●⁰. *n*.	
4	1001·8	1011·4	83·2	80·0	85·2	79·1	11·9	8·5	96	85	320	4	265	3	10●	3	12·1	82·6	● at first; o. *a. and p.*; b. *n*.	
5	1010·9	1008·0	82·3	84·2	84·3	79·1	9·6	11·1	82	84	185	7	190	9	10	10	0·1	76·1	Fine early, then o.	
6	1006·5	1014·9	82·2	79·6	84·4	77·3	10·1	7·9	87	81	245	7	—	1	9	1	7·9	80·7	● at first; bc. to c. *a. and p.*; b. *n*.	
7	1009·5	1012·7	79·5	80·5	82·2	77·1	8·2	7·0	85	68	190	4	285	7	6	2	5·2	74·6	b. early; ● *a.*; c. *p. and n*.	8 {17846γ 19° 13′·6
8	1008·0	1008·6	80·0	84·3	84·5	79·4	9·3	12·6	93	95	175	10	240	11	10●	10	8·8	76·9	b. early; ● *a.*; o. *p. and n*.	
9	1011·9	1010·7	84·7	84·6	*x*85·5	84·4	13·0	12·9	95	95	230	9	230	10	10	10	0·4	83·6	o. all day; d.⁰ *n*.	
10	997·9	1007·5	83·6	81·2	85·0	80·0	10·8	7·3	85	68	225	11	295	9	10	3	4·8	81·8	o., ●⁰. *a. and p.*; Fine, *n*.	
11	1004·6	995·9	80·2	80·8	82·4	79·5	9·1	8·7	90	83	190	4	225	5	10●	3	7·2	77·4	p. to ● *a.*; o. to c. *p.*; b. *n*.	11 68° 3′·2
12	985·1	989·2	78·8	78·3	80·9	77·4	8·4	7·5	91	84	360	3	35	2	10●⁰	2	13·1	77·5	● *a.*; o. to c. *p.*; b. *n*.	
13	999·6	1010·5	77·6	75·2	79·9	74·1	6·5	6·2	77	87	60	5	—	1	9	3	0·1	73·6	Fair to fine day.	
14	1016·2	1016·9	76·2	82·0	82·7	*n*74·0	7·3	10·8	95	95	—	1	175	6	10	10	3·3	*n*71·3	p⁰. *a.*; bc. to c. *p.*; d. *n*.	
15	1017·9	1020·7	83·3	84·0	84·3	82·6	12·0	12·2	97	94	175	5	180	6	10	10	4·0	80·6	●⁰, *a.*; Damp day.	
																		80·3		
16	1027·0	1024·3	82·4	81·7	84·5	80·3	10·9	9·0	93	81	225	2	215	6	9	8	0·7		d. *a.*; bc. to c., *p. and n*..	
17	1013·5	1011·1	83·7	84·6	84·6	82·1	11·9	12·1	93	89	235	13	240	16	10	10	1·4	78·3	p. early; Dull damp day.	
18	1010·8	1025·0	82·0	80·9	84·5	80·3	8·4	7·8	74	73	290	15	290	12	9	8	1·9	78·6	p. *a.*; c. *p.*; p⁰. *n*.	
19	1030·0	1031·1	81·5	83·0	83·1	80·5	8·3	11·6	75	95	270	7	240	8	10	10	0·3	77·9	c. to o. *a. and p.*; d⁰. *n*.	
20	1031·3	1030·8	83·2	82·8	84·3	82·5	11·4	11·5	92	96	240	7	220	4	10	10	0·6	82·1	o. to c., *a. and p.*; d⁰. *n*.	
21	1027·7	1021·2	82·7	83·3	83·5	82·2	10·7	10·4	89	84	190	6	220	11	10	10	0·2	81·4	o. to d⁰. *a.*; Damp day.	
22	1022·2	1026·3	81·4	81·0	83·5	80·5	8·5	8·0	78	75	290	8	285	6	9	10	2·0	79·5	d. to ●⁰. *a.*: Fair, *p. and n*.	22 {17857γ 19° 13′·5
23	1024·7	1022·2	82·2	83·1	84·2	80·5	11·1	11·7	96	95	185	5	225	6	10	10	1·1	78·9	d. early; Damp day; d. *n*.	68° 3′·7
24	1019·8	1018·3	83·8	84·4	84·7	83·0	11·9	12·6	93	94	230	6	195	5	9	10	0·8	81·5	d. early; p. *a.*; o. to c. later	
25	1016·4	1015·0	83·9	83·0	84·7	82·7	12·3	11·7	95	96	195	3	—	1	10	10●⁰	*x*16·3	82·5	●⁰ at first; o. to c. *a.*; ● after.	
26	1019·2	1018·5	82·3	83·9	84·2	82·3	10·4	11·9	89	92	260	6	260	9	7	10	1·4	79·5	bc. *a.*; o, with p., *p. and n*.	
27	1020·3	1022·6	83·8	84·1	84·6	83·6	12·4	12·7	97	97	260	4	220	3	10	10	5·1	82·9	●⁰. *a.*; ≡ or p. ≡⁰ *p.*; od⁰. *n*.	
28	1019·6	1016·0	84·3	84·3	85·1	83·9	11·9	12·2	90	92	205	7	195	6	10	10	—	83·3	o. *a. and p*; c. to o. *n*.	
29	1007·2	1002·5	83·8	81·5	84·9	81·0	10·7	9·3	83	84	180	8	270	7	10	4	7·6	82·1	p⁰. *a*; ● *p.*; c. *n*.	
30	993·9	985·8	80·9	77·0	81·6	76·6	8·8	7·1	83	88	170	9	190	4	10T	4	11·2	76·0	p. ⌈ *a*; c, to o. *p.*; p. *n*.	31 {17900γ 19° 14′·6
31	986·9	996·5	75·3	79·3	80·6	74·6	6·3	7·2	88	75	—	1	10	7	7	2	1·7	72·3	b. to c. *a.*; p. *p.*; b. *n*.	68° 3′·9
Means.	1011·5	1012·8	81·9	82·0	83·8	80·2	10·2	10·1	89	87	—	6·3	—	6·3	9·5	7·0	134·5	79·1	Monthly Totals or Means	17868γ.
Normals.	1012·6	1012·8	79·8	79·9	82·3	77·6	8·6	8·6	87	87	—	6·4	—	6·4	—	—	148·2 (45 years)	—	Normals	19° 13′·9 68° 3′·6
	◄—45 years—►						◄—30 years—►				◄—35 years—►									

* By Campbell-Stokes Sunshine Recorder. † Mean for 30 days only. *x* denotes the maximum and *n* the minimum value in the column.

(5657) Wt. 400 3/22 Harrow G.69/7

3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind—Veer from North in degrees and Speed in metres per second.				Cloud Amount Weather and Visibilty.		Rain o h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	Remarks.
					Max.	Min.	Vapour Pressure.		Percentage										
	9 h.	21 h.	9 h.	21 h.	o h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.		21 h.		9 h.	21 h.			
			a	*a*	*a*	*a*									Tenths of Sky covered.				
	mb.	mb.	200+	200+	200+	200+	millibar.		%	%	°	m/s.	°	m/s.			mm.	200+	
1	1014·1	1011·8	82·8	85·2	85·6	79·2	11·3	13·0	94	92	215	2	190	7	10 ☂ F	10 ●0 J	6·4	75·1	Dull. ● 12h.-21h.
2	1005.1	1009·9	84·4	82·2	85·3	82·1	12·0	10·7	90	93	180	7	235	4	10 H	10 J	2·1	82·7	● d *a*. Showers *p*. Dull.
3	1021.9	1020·3	81·4	82·9	83·2	80·9	9·8	10·5	89	87	265	3	190	5	7 G	8 I	—	78·4	Dull to fine.
4	1015·1	1011·1	84·9	83·8	85·5	83·1	11·9	11·9	86	93	205	7	190	5	10 I	10● J	2·8	80·7	Dull. ● 18h-21h.
5	1012·9	1019·3	83·0	80·9	84·3	79·9	11·2	8·3	92	78	205	2	230	3	10 G	8 I	0·2	81·4	● d. *a*. Dull most of day.
6	1018·3	1016·2	82·1	82·5	83·2	79·3	9·0	11·0	78	93	190	5	190	6	10 H	10 J	0·9	76·3	Dull. ● 19h-21h.
7	1012·8	1010·5	80·6	78·3	82·8	76·0	10·2	8·5	98	96	—	1	250	3	10● C	0 I	*x*12·0	75·8	≡ till 11h. Dull and wet.
8	1015·6	1013·3	75·3	80·3	81·1	74·9	6·7	9·4	93	92	—	1	190	9	0 ☂ F	10q J	1·0	70·5	● early. Fine to dull. ⊕ 13h.
9	1011·8	1013·8	84·3	84·8	*x*86·4	81·1	11·8	11·5	89	84	215	5	215	7	10 H	6 I	—	78·0	Dull to fine.
10	1009·9	999·0	85·1	82·8	85·9	82·0	12·2	9·4	87	78	205	8	220	7	9 H	10● I	4·3	82·3	Mostly dull and wet. Line q, 16h. ⁄ (gusts).
11	1009·0	1000·2	77·7	81·2	82·0	77·3	7·3	9·8	85	91	225	6	200	7	1 H	10● H	4·4	74·6	Fine till 12h, then dull. ● *n*.
12	996.6	990·9	79·0	80·9	82·7	78·1	8·7	9·0	94	85	175	3	215	5	9 G	3 I	3·6	75·1	Cloudy to dull. ● in *p*.
13	990·2	997·9	79·0	77·9	81·0	76·2	8·3	7·9	89	91	190	3	355	8	10● G	10●q I	1·9	73·1	Dull. Showery.
14	1014·7	1021·3	73·9	75·1	77·7	73·4	5·0	6·2	77	87	340	3	270	2	1 ☂8 H	0 ☂ G	—	68·7	Fine *a*, dull to cloudy *p*.
15	1028·0	1031·5	72·9	71·4	77·5	70·4	5·6	5·4	92	99	—	1	—	1	10 ☂ D	0 ☂ X	—	67·9	≤ ≡ *a*, fine later. ≡ *n*.
16	1034·1	1029·7	69·5	78·1	79·7	*n*69·4	4·7	8·0	100	91	—	0	195	4	0 ☂ B	10● H	0·6	67·0	≤ to 11h. ≡. Fine to o'cast. ● 21b.
17	1017·7	1005·1	82·2	83·6	84·2	78·7	11·5	11·2	99	88	210	5	220	5	10 G	10 I	2·4	77·1	Dull and wet.
18	997·4	1008·6	85·0	78·7	85·5	77·6	10·6	6·2	76	68	235	10	275	9	10q I	8q K	2·4	82·2	Dull to fine. ⁄ (gusts). Showers
19	1021·7	1029·1	76·9	79·9	81·0	76·7	6·1	7·3	75	73	270	3	250	3	6☂ G	10 H	—	73·9	⁄ (gust) early. Fine to o'cast.
20	1029·3	1031·0	80·6	82·8	85·0	77·4	9·8	10·4	94	86	220	3	250	2	10 G	10 H	—	74·1	Dull till 11h 30m, then fine.
21	1031·9	1027·4	82·0	82·1	83·6	80·8	9·9	9·3	87	81	225	4	220	7	8 G	10 I	—	77·9	☂. Dull to cloudy.
22	1019·4	1022·8	82·7	79·5	83·7	78·3	9·3	6·6	78	68	225	9	275	3	10 K	8 I	—	80·4	o till 14h 30m, then bc to c. ⊔.
23	1026·1	1022·1	77·7	81·9	83·2	77·0	7·0	9·1	82	81	250	3	240	6	4☂ H	10 I	—	73·4	Dull after 10h.
24	1018·5	1021·0	83·2	82·9	84·2	82·2	9·6	10·4	78	86	250	5	260	3	9 H	10 H	—	79·4	Dull.
25	1021·9	1020·1	82·0	83·0	84·4	81·1	10·6	10·7	93	88	240	2	225	4	10 G	10● H	0·6	78·2	Dull with ≡0; ● d *a*.
26	1016·2	1012·1	81·1	81·6	83·6	80·1	9·2	8·8	85	79	215	5	235	6	7 H	10 I	1·0	77·6	Mostly dull. ● at times.
27	1019·5	1024·8	79·1	77·4	83·1	77·1	8·5	7·6	90	91	—	1	355	2	9☂ F	10☂ G	—	70·7	Dull after 9h. ≡ 17h.
28	1022·2	1022·0	82·9	84·3	85·2	79·3	11·4	11·1	94	84	200	4	225	4	10 G	10 H	0·2	71·0	● early. Mostly dull.
29	1019·5	1012·5	83·7	82·9	84·2	82·8	11·5	10·6	90	88	200	6	190	5	10 H	10 I	0·1	81·0	Dull. ● d. at times.
30	1005·3	996·9	83·0	82·0	83·9	80·9	10·6	9·4	87	82	190	7	175	5	8 H	10 H	0·9	80·8	Dull and showery.
31	987·8	993·8	79·9	76·1	81·3	74·9	8·6	6·6	87	87	175	5	195	2	9 H	0☂ H	4·0	76·9	Dull to fine. ● at times.
Means	1015·0	1014·4	80·6	80·9	83·2	78·3	9·4	9·2	88	86	—4·1		—4·7		8·0	8·1	51·8	76·2	Monthly Totals or Means.
Normal	1016·4	1016·2	76·3	76·8	79·2	74·5	6·8	7·0	86	85	—3·5		—3·6		—	—	46·7	—	Normals.
			45 years.				30 years.				35 years.						45 years.		

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

1	978·2	979·8	80·8	80·0	81·7	79·9	9·7	10·0	92	100	210	11	—	1	10 H	10 D	0·2	77·6	o≡0 to c: d0≡0 12h.-14h.: ≡⋮ *n*.
2	975·4	981·7	79·7	78·2	80·9	77·5	8·8	7·4	90	84	40	2	—	0	9 I	1 J	0·3	78·0	d0≡ to 3½h.: o *a and p*: b: *n*.
3	989·2	979·8	75·9	80·2	81·5	75·0	7·4	9·7	98	96	170	3	190	10	10 C	10● F	10·1	72·2	c early: ≡⋮ *a*: ●2≡0 after 16h. ⁄23 h.
4	974·2	979·4	81·9	76·9	82·2	72·6	10·8	6·2	96	77	200	7	—	1	10● F	2 I	22·9	78·3	⁄3 h.: ●2≡0 till 12 h.: o *p*: b *n*.
5	982·7	980·0	69·4	80·1	80·3	68·4	4·4	9·1	95	90	—	0	210	11	6 ☂ I	10q I	0·1	65·9	b ⊔ early: bc to o *a*; d0 *p*: oq *n*.
6	975·3	980·7	80·9	77·1	82·3	75·9	10·1	6·7	96	82	200	19	260	7	10●0 G	2 K	13·5	78·8	oq ●0≡0⁄ *a*; o-b, p.*p*: bc-p: *n*.
7	984·1	976·8	72·2	75·3	76·4	71·8	5·0	6·7	87	93	—	0	220	3	10 ☂ H	6 I	1·4	69·9	b & c ⊔ ≡0 *a*: o ≡0p.*p*: cb-c: *n*.
8	980·9	969·1	75·9	81·0	82·2	73·7	7·0	10·2	93	96	200	6	230	12	8 I	10●2 H	25·4	74·1	bc-o, p.*a*: o●2≡0 *p and n*.
9	970·8	969·6	82·8	83·0	83·4	81·6	11·4	11·2	95	92	230	12	220	15	10● G	10● H	*x*34·3	77·7	o≡0●: all day.
10	966·8	964·7	77·8	75·0	81·6	74·6	8·1	5·9	94	84	—	1	250	8	10● H	1 K	30·8	77·3	o≡0● *a and p*: o-b *n*.
11	970·3	966·4	75·5	74·7	77·4	73·5	6·1	6·3	84	91	260	9	—	1	5 I	10✲ I	7·0	74·7	o, ✱, *a*: o-b p.*p*: ●✱ *n*.
12	964·4	960·0	73·4	74·6	74·8	73·3	5·9	6·6	93	96	50	5	30	9	10 H	10● H	8·0	72·7	✱, ✱, o, *a*: ✱0≡0, *p and n*.
13	969·8	979·1	74·1	67·6	75·0	65·2	5·2	3·3	79	83	30	9	—	0	8 I	0 ☂ K	1·5	72·8	o ●0≡0, q,-bc *a*: b, bx, *p and n*.
14	982·2	992·4	74·2	66·9	74·5	*n*64·6	5·3	3·8	80	92	340	7	—	0	4 H	o J	0·4	62·0	b⊔-o✲-bc *a*: bc and b, *p and n*.
15	995·0	995·8	71·2	76·5	78·5	*n*64·6	4·5	7·9	84	100	—	0	210	2	10 J	10 F	6·2	62·1	b⊔-o≡0, *a*: o≡⋮0, d0, *p and n*.
16	995·1	990·8	80·0	78·5	82·0	77·4	10·0	8·1	100	90	210	11	210	8	10● F	6 J	8·7	73·7	o≡0●, *a*: o≡0 p●, o-c, *n*.
17	971·5	965·9	79·0	78·3	80·0	77·7	7·9	7·1	85	80	230	9	250	13	10 I	10● H	32·6	76·3	o to o≡0●, *a*: o to o ●▲, *p* o≡0●, *n*.
18	961·1	970·8	74·8	74·9	78·5	73·0	5·9	5·1	86	73	300	14	300	19	10✲ E	5q I	15·6	75·0	o≡0 ●✲, *a*: cq, op✲2≡0, *p*: o-bcq, *n*.
19	990·7	993·6	75·9	78·3	79·2	75·1	5·3	8·0	70	90	230	3	220	5	8 J	10 I	0·4	72·0	bq-cq, *a*: oq, *p*: o●0, *n*.
20	991·8	993·8	82·5	82·1	83·1	79·0	10·1	10·3	85	89	270	10	240	9	10 H	10 H	4·6	77·0	o≡0 ●0: all day.
21	992·6	983·1	80·6	81·0	81·3	79·9	9·1	9·2	87	86	230	11	230	17	10 I	10 I	3·1	79·6	o≡0 ●0, o, *a*: o⁄, *p*: o, oq, *n*.
22	981·8	984·9	75·6	75·8	80·3	75·1	6·1	6·1	84	83	270	11	280	10	10✲ I	7q I	11·6	75·0	o ●, c-b *a*: b-o ●✲ p, c, *p*: o q✱, cq, *n*.
23	989·1	982·3	76·6	82·2	82·3	75·6	6·4	9·9	82	86	250	7	260	13	9 I	10q H	4·8	73·0	o ●0≡0 ●✲ q, *a*: o ✲≡0 *p and n*.
24	986·7	990·3	74·0	73·3	82·3	72·5	6·1	5·8	93	93	50	5	—	1	10 H	10 G	16·8	74·0	o ●≡0 *a*: o ●✲≡0 *p*: o≡0, *n*.
25	987·6	984·1	76·5	80·8	81·6	73·7	7·5	9·5	95	90	—	1	230	7	10 F	7 H	14·4	72·5	o ≡⋮0, o ●≡0 *a and p*: o-c≡0, *n*.
26	979·4	980·2	79·0	78·3	81·0	76·6	7·9	7·5	85	84	60	11	320	8	10 I	4 J	6·3	77·5	o ≡0●, *a*: o, *p*: c-o ●0-bc *n*.
27	990·9	989·3	75·8	79·0	79·5	75·1	6·5	8·9	87	96	—	0	190	7	10●0 I	10 G	5·2	73·5	c,-o ●0, *a*: o ●0≡0, *p and n*.
28	984.2	980·7	81·9	83·0	*x*83·7	79·5	10·4	10·5	92	86	230	14	230	17	10 I	10q I	3·7	77·0	o ●0≡0, *a*: o⁄ ●0p, *p*: o ●0q, *n*.
29	980·1	971·8	81·3	80·3	82·6	80·2	9·7	9·6	89	94	220	13	200	15	10 I	10● H	3·5	80·5	o p ●0, *a*: o, *p*: o ●≡0, *n*.
30	969·5	965·9	77·2	75·4	80·9	74·1	6·9	6·3	84	87	240	8	—	1	7 I	5 I	16·0	76·0	o ●0≡0q, o, *a*: c, *p*: b, bc, *n*.
31	960·1	963·0	76·3	77·3	78·0	74·2	7·3	7·8	94	94	50	4	40	10	10● H	10 H		72·5	bc-o ●0≡0, *a and p*: o≡0 *n*.
Means	979·7	978·9	77·2	77·6	80·3	74·5	7·5	7·8	89	89	—7·2		—7·8		9·2	7·3	312·7	74·2	Monthly Totals or Means.
Normal 1911-1920	982·4	982·2	74·7	75·1	77·3	72·5	6·4	6·4	89	87	—6·1		—6·1		—	—	148·5	—	Normals.

Temperatures at or below the normal freezing point of water are printed in small type. *x* denotes the maximum, and *n* the minimum, value in the column.

5. GEOPHYSICS:—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force.						Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{18}.		Air-Earth Current. × 10^{16}.	Potential Gradient, Volts per metre. Factor 2·23.			
					Horizontal Comp't.		Declination.		Inclination.				+	−					
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			About 15 h.		About 15 h.	3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m.	v/m.	v/m.	v/m.
1	80·7	80·2	255	253	..	..	..	..	..	..	1	1	..	..	..	260	475	−25	110
2	81·3	80·4	258	..	..	..	..	..	..	..	0	1	..	..	..	95	110	*z*−	165
3	81·1	80·6	261	..	..	..	..	..	..	..	0	0	0·32	0·33	0·30	165	420	380	120
4	81·1	80·7	265	..	..	..	..	..	..	..	1	1	0·55	0·31	0·35	55	190	245	40
5	81·5	80·7	267	..	..	..	..	..	..	..	0	0	0·29	0·25	0·45	135	270	435	505
6	80·9	80·9	269	..	10 48	18393	12 31	14 28·1	14 25	66 57·3	0	0	0·31	0·29	0·50	220	110	340	270
7	80·9	80·9	272	..	..	..	..	..	..	..	1	2	..	..	..	340	435	−325	665
8	79·9	81·1	275	..	..	..	..	..	..	..	0	1	..	..	..	−55	665	490	230
9	80·0	81·2	278	..	..	..	..	..	..	..	1	0	..	..	..	25	80	165	175
10	81·0	81·1	282	..	..	..	..	..	..	..	1	1	..	..	..	80	190	110	150
11	80·7	81·2	286	..	..	..	..	..	..	..	0	2	0·50	0·08	0·75	120	365	355	−175
12	79·9	81·1	290	..	..	..	..	..	..	..	1	1	0·16	0·11	0·40	165	530	285	220
13	79·6	81·2	292	..	10 46	18393	12 27	14 28·1	14 25	66 57·8	0	2	..	*0·35	0·25	135	355	420	−110
14	79·0	81·1	294	..	..	..	..	..	..	..	0	0	0·23	0·23	0·35	150	640	395	435
15	77·4	81·1	296	..	..	..	..	..	..	..	1	0	..	..	..	420	490	775	600
16	76·3	81·1	297	..	..	..	..	..	..	..	1	0	..	..	..	735	1060	270	135
17	77·0	80·8	298	299	..	..	..	..	..	..	2	1	..	..	..	70	220	175	95
18	78·9	80·6	295	..	..	..	..	..	..	..	1	1	..	..	..	70	40	175	175
19	78·0	80·4	291	..	..	..	..	..	..	..	0	0	0·43	0·50	0·30	110	355	260	355
20	77·9	80·4	288	..	10 52	18404	14 37	14 26·9	14 28	66 57·4	1	0	0·31	0·04	0·25	260	175	260	460
21	78·9	80·3	287	..	..	..	..	..	..	..	1	0	0·37	0·22	0·55	135	325	230	270
22	79·5	80·3	285	..	..	..	..	..	..	..	0	0	..	..	..	80	205	190	340
23	79·0	80·4	283	..	..	..	..	..	..	..	0	0	..	..	..	220	285	230	300
24	79·2	80·4	281	..	..	..	..	..	..	..	1	0	0·34	0·16	0·50	95	220	220	325
25	79·9	80·4	280	..	..	..	..	..	..	..	1	1	0·49	0·23	0·30	220	300	285	355
26	80·0	80·4	279	..	..	..	..	..	..	..	1	0	0·45	0·18	0·25	120	380	230	190
27	79·9	80·5	278	..	11 4	18399	14 27	14 24·8	14 30	66 56·3	0	1	0·41	0·32	0·40	135	560	450	410
28	79·5	80·6	277	..	..	..	..	..	..	..	0	0	0·31	0·23	0.55	165	220	190	260
29	80·3	80·7	277	..	..	..	..	..	..	..	0	0	..	..	..	150	260	220	315
30	80·8	80·6	277	..	..	..	..	..	..	..	0	1	..	..	..	110	−55	80	−245
31	80·6	80·7	275	..	..	..	..	..	..	..	1	2	0·43	0·27	0·35	−70	−15	460	775
M.	79·7	80·7	280	—	—	—	—	—	—	—	0·55	0·61	0·37	0·23	0·40	161	325	266	258
No. of days used	31	31	31	—	—	—	—	—	—	—	31	31	16	16	17	30	30	30	30

* Not used in computation of mean.

6. GEOPHYSICS:—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force.																Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre. Factor 6·15.			
	North Component.					West Component.				Vertical Component.												
	Maximum. 15000 γ +.		Minimum. 15000 γ +.		Range.	Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.	Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.				3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ				v/m	v/m	v/m	v/m
1	21 36	1046	947	14 54	*x*99	8 20	828	761	12 26	67	19 28	1086	1044	0 1	42	1	0 *a*		105	250	250	565
2	23 11	1021	982	13 18	39	10 3	815	781	23 9	34	16 50	1069	1056	2 35	13	0	0 *a*		330	215	145	480
3	19 48	1008	980	10 12	28	12 34	829	787	2 22	42	15 20	1062	1053	0 1	9	0	2 *b*		215	625	180	115
4	5 49	1013	961	14 46	52	{14 2 / 14 28}	826	774	2 44	52	18 35	1076	1045	2 32	31	1	2 *b*		−70	−520	130	325
5	5 57	1010	945	13 56	65	13 10	826	781	18 41	45	14 21	1068	1043	4 18	25	0	1 *a*		160	395	180	35
6	6 35	1010	981	13 43	29	12 54	823	781	21 38	42	14 10	1052	1041	6 35	11	0	2 *c*		20	−1215	140	75
7	20 53	1020	985	12 50	35	13 27	822	765	20 52	57	20 32	1054	1044	7 13	10	0	1 *b*		235	405	365	190
8	6 32	1009	975	11 30	34	12 55	818	792	0 10	*n*26	15 52	1051	1045	1 40	*n*6	0	2 *c*		335	195	915	−810
9	20 17	*x*1047	965	16 0	82	12 14	840	730	20 12	110	17 48	1065	1038	8 34	27	1	2 *b*		50	70	105	−140
10	21 51	1039	940	21 18	*x*99	13 26	*x*847	*n*716	21 32	*x*131	18 40	1062	1039	6 55	23	2	2 *c*		35	−255	290	140
11	24 0	1027	981	0 3	46	13 22	815	776	24 0	39	23 10	1056	1046	9 52	10	0	2 *c*		140	130	260	370
12	0 7	1033	971	13 52	62	15 8	818	770	1 48	48	12 0	1059	1045	3 39	14	0	2 *a*		60	420	340	−220
13	** **	**	**	** **	**	** **	**	**	** **	**	** **	**	**	** **	**	0	1 *a*		115	130	185	440
14	** **	**	**	** **	**	** **	**	**	** **	**	** **	**	**	** **	**	0	1 *b*		320	250	480	295
15	22 33	1024	961	13 28	63	13 12	843	743	22 30	100	21 45	1071	1056	4 10	15	1	0 *a*		220	185	295	205
16	19 38	1016	978	22 15	38	13 13	818	737	22 35	81	22 45	1076	1055	11 48	21	1	0 *a*		290	335	150	305
17	7 48	1019	*n*926	18 25	93	12 23	840	742	18 46	98	19 10	*x*1127	1054	24 0	*x*73	1	2 *c*		0	−10	0	−5
18	* *	*	*	* *	*	* *	*	*	* *	*	* *	*	*	* *	*	0	*		*	*	225	120
19	* *	*	*	* *	*	* *	*	*	* *	*	10 25	1061	1054	8 44	7	0	1 *a*		100	110	75	150
20	* *	*	*	* *	*	* *	*	727	22 30	*	20 55	1077	1050	9 15	27	1	1 *a*		35	60	75	155
21	⊕ ⊕	⊕	⊕	⊕ ⊕	⊕	13 0	822	780	20 1	42	20 25	1065	1038	6 9	27	0	2 *a*		75	80	100	−70
22	5 8	1009	985	10 10	*n*24	14 0	811	780	19 24	31	0 1	1055	1046	8 40	9	0	2 *c*		−550	155	140	145
23	2 24	1017	984	9 54	33	2 8	810	777	3 45	33	0 1	1051	1040	5 1	11	0	2 *c*		90	95	−585	35
24	6 4	1026	965	15 53	61	12 36	833	778	21 20	55	16 30	1068	*n*1028	6 2	40	1	2 *c*		65	135	−1100	115
25	7 42	1006	978	22 30	28	13 22	812	765	22 11	47	22 35	1057	1038	8 55	19	0	2 *b*		5	5	75	360
26	23 7	1010	962	14 15	48	12 35	835	785	1 10	50	17 35	1056	1034	0 48	22	0	2 *b*		20	55	95	160
27	6 15	1015	987	16 5	28	12 42	810	781	22 18	29	14 45	1052	1039	0 55	13	0	2 *b*		−840	5	155	0
28	6 30	1014	977	11 6	37	11 53	824	780	20 4	44	16 33	1053	1036	9 10	17	0	1 *a*		180	100	50	40
29	{2 22 / 15 40}	1006	977	16 50	29	2 30	826	786	{4 50 / 19 42}	40	18 51	1052	1032	2 50	20	0	1 *b*		35	25	185	20
30	23 36	1025	979	20 20	46	12 46	817	764	22 25	53	20 30	1051	1029	23 54	22	0	1 *b*		−45	185	230	215
31	7 10	1007	933	17 45	74	14 41	829	756	17 54	73	18 20	1087	1029	0 1	58	1	2 *c*		265	*z*−	−180	−315
M.	—	1019	968	—	51	—	825	768	—	57	—	1065	1043	—	22	0·35	1·43		60	93	44	127
No. of days used	—	25	25	—	25	—	26	26	—	26	—	28	28	—	28	31	30		29	29	29	29

** Clock stopped. * Light failed. ⊕ Sheet fogged.

x denotes the maximum and *n* the minimum value in the column. Potential gradient is reckoned as positive if the potential increases upwards. For indeterminate potential gradient the following notation is used:—*z*+ Indeterminate, positive value; *z*− Indeterminate, negative value; *z* ± Indeterminate in magnitude and sign.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	4·3	..	3·7	..	7·4	..	1·3	..	4·2	..	0·7	..	4·5	..	0·8	..	14	0 40
2	0·9	..	..	5·1	..	4·5	0·8	..	..	3·0	3·5	..	..	4·5	5·3	..	12	23 35
3	..	1·5	4·0	..	4·2	..	2·4	..	8·4	..	..	1·5	12·1	..	..	..	20	17 5
4	10·3	..	3·8	..	11·0	..	4·0	..	5·3	..	4·5	..	..	6·6	..	..	19	1 5
5	..	4·3	..	..	0·7	..	3·8	..	5·7	..	4·8	..	8·5	..	4·9	..	17	23 50
6	8·8	..	3·2	..	10·3	..	1·8	..	2·4	..	4·2	..	..	..	9·5	..	? 19	8 15
7	..	..	2·0	..	..	..	2·6	..	1·6	..	4·3	..	..	2·3	6·2	..	16	18 45
8	..	1·6	9·1	..	2·4	..	4·2	..	11·7	..	4·3	..	6·0	..	7·0	..	23	15 10
9	5·8	..	6·8	..	5·5	..	6·5	..	6·1	..	5·1	..	9·1	..	5·2	..	19	21 20
10	9·6	..	5·5	..	10·8	..	6·2	..	5·7	..	10·0	..	..	4·5	12·2	..	25	11 15
11	..	..	14·4	..	1·8	..	10·0	..	2·4	..	4·2	..	1·4	..	7·8	..	21	2 55
12	3·1	..	5·4	..	6·8	..	..	2·5	3·7	..	1·3	..	..	9·2	..	..	14	13 40
13	..	9·4	..	1·6	..	10·3	..	8·6	..	9·0	..	7·6	..	3·3	..	2·8	21	7 5
14	..	2·3	..	1·3	..	1·6	9·1	..	..	2·0	5·5	..	..	Ca	lm	..	15	7 15
15	·3	..	2·8	..	6·6	..	..	..	7·9	..	..	..	8·9	..	..	..	15	19 30
16	8·2	..	..	..	5·9	..	..	..	2·3	..	6·2	..	4·3	..	3·7	..	14	1 20
17	6·9	..	8·3	..	7·6	..	9·0	..	2·2	..	12·6	..	3·4	..	9·1	..	23	4 20
18	6·0	..	16·3	..	..	9·6	16·7	..	..	7·2	19·7	..	..	13·9	16·5	..	33	19 40
19	..	14·3	12·0	..	..	7·4	8·8	..	..	1·4	8·1	..	1·5	..	4·0	..	27	0 30
20	2·8	..	4·8	..	1·8	..	4·9	..	3·9	..	4·5	..	3·7	..	6·5	..	16	5 50
21	2·6	..	4·5	..	6·3	..	5·3	..	8·8	..	7·4	..	9·3	..	7·8	..	26	22 20
22	9·6	..	8·0	..	..	4·1	11·3	..	..	2·2	12·6	..	..	..	10 5	..	23	0 40
23	..	..	12·1	..	1·4	..	7·8	..	5·7	..	4·8	..	4·7	..	5·5	..	18	1 30
24	1·3	..	7·1	..	2·0	..	5·5	..	3·7	..	6·5	..	2·1	..	5·8	..	14	4 15
25	5·8	..	2·1	..	6·2	..	2·3	..	4·5	..	3·9	..	4·3	..	5·1	..	13	20 50
26	3·5	..	9·5	..	..	..	11·1	..	2·5	..	6·8	..	..	..	9·8	..	18	19 10
27	..	2·3	1·3	..	..	1·4	0·8	..	4·0	..	1·5	..	5·5	..	2·0	..	11	23 25
28	3·9	..	4·5	..	3·8	..	3·1	..	7·8	..	6·6	..	6·0	..	7·0	..	17	21 15
29	7·0	..	6·0	..	6·8	..	5·8	..	9·1	..	3·4	..	10·7	..	3·9	..	22	20 40
30	1·3	..	7·1	..	2·6	..	4·5	..	6·1	..	..	1·1	9·5	..	..	3·5	19	0 20
31	2·5	..	2·1	..	1·0	..	..	1·2	..	1·4	8·1	..	..	..	7·9	..	12	18 20
S+N & W+E	143·2		174·4		151·8		161·9		151·5		175·3		159·8		170·3			
S−N & W−E	71·8		158·4		74·0		137·3		99·9		154·9		71·2		157·7			

SCOTLAND N.:—DEERNESS.

Cup Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	4·7	..	8·2	..	4·7	..	4·0	..	5·3	..	1·9	..	5·1	..	2·9	..	11·8	1
2	2·3	..	1·9	..	1·5	..	1·3	..	2·3	..	0·4	..	..	Ca	lm	..	5·6	2
3	1·0	..	5·5	..	3·7	..	2·1	..	6·9	..	..	..	15·0	..	..	5·5	17·7	23
4	13·1	..	..	..	1·2	..	6·8	..	3·5	..	3·0	..	5·8	..	2·1	..	15·1	1, 2
5	5·4	..	3·1	..	10·0	..	1·8	..	10·6	..	1·9	..	8·8	..	5·1	..	14·1	17
6	3·7	..	1·3	..	6·5	..	3·7	..	1·9	..	3·4	..	4·1	..	7·1	..	12·5	24
7	2·3	..	13·2	..	7·0	..	2·6	..	10·6	..	1·9	..	12·5	..	4·6	..	14·1	2
8	1·7	..	4·6	..	5·3	..	6·3	..	8·8	..	3·2	..	7·4	..	1·3	..	11·5	17, 19
9	0·7	..	4·2	..	1·0	..	1·2	..	4·6	..	12·5	..	..	..	9·8	..	13·4	15
10	6·0	..	10·5	..	5·5	..	9·6	..	2·4	..	4·2	..	..	1·4	7·8	..	12·1	3
11	..	5·2	9·1	..	..	8·6	10·3	..	..	9·1	5·2	..	..	..	9·1	..	13·4	9
12	..	6·9	..	..	..	5·5	..	2·0	..	3·5	..	3·0	..	4·0	..	4·7	9·8	1
13	..	2·0	..	1·7	..	Ca	lm	..	..	Ca	lm	..	5·7	..	3·3	..	6·6	20, 21
14	1·0	..	1·2	..	..	8·4	1·5	..	..	3·1	1·1	..	1·5	..	2·6	..	16·7	4
15	9·8	..	..	..	8·8	..	1·5	..	9·1	..	1·6	..	9·4	..	1·6	..	10·8	24
16	11·3	..	2·0	..	3·2	..	8·8	..	4·0	..	4·7	..	8·6	..	3·1	..	12·8	24
17	16·2	..	2·8	..	6·2	..	7·3	..	4·0	..	11·0	..	2·3	..	13·2	..	16·4	3, 4
18	..	..	15·7	..	..	..	18·7	..	..	3·0	17·4	..	..	9·7	11·6	..	19·0	12
19	..	10·6	12·6	..	..	9·0	7·6	..	..	2·1	5·8	..	4·6	..	8·0	..	18·7	1
20	2·5	..	14·2	..	..	2·5	14·2	..	..	2·0	11·6	..	..	1·3	7·4	..	16·4	1
21	4·8	..	2·8	..	8·2	..	14·2	..	7·2	..	12·5	..	..	2·8	7·7	..	17·4	13
22	..	..	11·1	..	..	1·9	10·9	..	..	2·8	15·9	..	..	2·9	16·7	..	18·7	23
23	..	5·1	13·8	..	..	2·8	15·9	..	..	8·6	3·1	..	..	8·4	1·5	..	16·1	9
24	..	8·2	4·7	..	..	5·1	..	0·9	..	2·1	..	3·7	4·7	..	..	5·5	11·5	1
25	10·8	..	..	6·2	12·2	..	..	4·5	4·0	..	4·7	..	3·4	..	1·9	..	14·8	5, 6
26	6·2	..	2·3	..	2·4	..	4·2	..	..	8·8	..	1·5	..	8·3	..	3·0	10·2	18
27	..	4·2	..	0·7	..	Ca	lm	..	4·6	..	..	1·7	8·5	..	..	..	9·5	18, 19
28	3·0	..	2·5	..	5·5	..	9·6	..	3·7	..	4·3	..	2·6	..	14·6	..	15·4	24
29	..	..	9·2	..	3·7	..	4·3	..	3·3	..	..	..	2·3	..	..	2·8	11·8	1
30	7·1	..	1·3	..	5·2	..	7·3	..	11·0	..	13·0	..	..	..	8·5	..	18·4	16
31	..	2·3	..	..	..	7·1	..	8·5	..	6·2	..	7·3	..	8·0	..	4·6	11·8	20
S+N & W+E	158·1		166·4		152·7		191·6		159·1		161·5		168·2		170·1			
S−N & W−E	69·1		149·2		50·9		159·8		56·5		127·1		56·4		114·7			

ENGLAND, S.W.:—SCILLY.

Cup Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	5·5	..	2·0	..	3·6	..	2·1	..	..	Ca	lm	..	12·7	..	2·2	..	12·9	21
2	1·7	..	9·8	..	3·0	..	8·2	..	..	6·4	17·6	..	..	3·9	10·5	..	20·9	14
3	0·7	..	3·7	..	5·3	..	0·9	..	9·3	..	3·4	..	7·6	..	4·4	..	11.3	24
4	7·4	..	6·2	..	8·3	..	4·8	..	6·2	..	7·4	..	..	7·5	13·0	..	16·7	20
5	..	2·3	6·3	..	..	..	6·7	..	2·0	..	5·5	..	4·4	..	5·1	..	10·0	1
6	8·7	..	5·0	..	10·5	..	6·0	..	5·0	..	8·7	..	..	..	2·5	..	12·1	9, 13
7	..	Ca	lm	..	..	3·1	5·5	..	1·4	..	8·2	..	..	9·8	5·6	..	12·1	20
8	..	4·7	2·7	..	2·9	..	5·0	..	8·6	..	3·1	..	..	..	12·1	..	13·3	22, 23
9	..	..	12·5	..	..	..	12·9	..	1·6	..	9·1	..	3·9	..	10·5	..	13·3	11
10	6·5	..	7·7	..	10·2	..	8·5	..	2·6	..	14·8	..	..	10·2	12·1	..	22·9	18
11	..	3·1	8·6	..	1·4	..	7·8	..	6·2	..	7·4	..	1·8	..	5·1	..	10·4	17, 18
12	5·1	..	4·4	..	2·4	..	13·6	..	No	Re	co	rd	No	Re	co	rd	—	—
13	No	Re	co	rd	No	Re	co	rd	No	Re	co	rd	No	Re	co	rd	—	—
14	No	Re	co	rd	No	Re	co	rd	No	Re	co	rd	1·0	..	5·7	..	—	—
15	1·4	..	2·	..	3·3	..	1·9	..	3·8	..	..	..	4·7	..	..	2·7	5·8	20
16	3·3	..	..	..	2·2	..	1·2	..	2·1	..	3·6	..	4·4	..	5·1	..	7·9	24
17	..	1·6	9·1	..	2·5	..	14·4	..	2·7	..	15·2	..	..	..	13·8	..	17·1	17
18	3·1	..	17·6	..	..	..	20·9	..	..	10·0	17·3	..	..	10·4	18·0	..	21·7	14
19	..	9·1	10·8	..	..	6·4	5·4	..	..	5·7	4·8	..	..	3·9	6·8	..	15·8	1
20	..	1·5	8·7	..	..	2·7	7·4	..	..	..	5·8	..	..	..	6·3	..	9·2	4, 5
21	1·2	..	7·0	..	2·6	..	7·0	..	4·1	..	7·2	..	5·7	..	6·7	..	9·6	24
22	4·0	..	10·9	..	2·2	..	12·7	..	..	..	11·3	..	..	2·9	5·0	..	13·3	6
23	..	3·1	5·5	..	..	..	3·3	..	..	..	7·1	..	..	..	8·3	..	10·4	18
24	1·4	..	7·8	..	..	1·7	9·5	..	..	..	8·3	..	1·8	..	5·1	..	10·0	1, 8
25	2·2	..	5·9	..	3·8	..	4·4	..	6·1	..	3·5	..	4·3	..	1·6	..	7·1	8, 13 to 15
26	3·5	..	4·1	..	..	4·8	4·1	..	..	1·5	8·7	..	..	2·5	14·4	..	14·6	21, 22
27	..	4·7	12·9	..	..	..	10·4	..	..	5·7	6·7	..	..	2·4	6·7	..	13·8	3
28	..	0·9	4·9	..	2·2	..	5·9	..	2·2	..	5·9	..	3·2	..	3·8	..	6·7	1,12,13,19
29	6·7	..	2·4	..	6·1	..	3·5	..	7·4	..	2·7	..	8·6	..	3·1	..	10·0	20
30	..	0·9	4·9	..	2·5	..	4·3	..	12·5	..	..	..	2·3	..	6·3	..	12·5	15
31	..	1·4	8·2	..	3·1	..	5·5	..	..	0·3	..	1·7	..	1·7	4·7	..	10·0	1
S+N & W+E	95·7		192·1		96·8		203·8		113·4		195·0		121·6		207·2			
S−N & W−E	29·1		192·1		59·4		203·8		54·2		191·6		11·2		201·8			

ENGLAND, E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	0·7	..	3·7	..	3·1	..	3·7	..	2·0	..	0·3	..	..	Ca	lm	..	9	12 10
2	4·0	..	4·7	..	6·8	..	5·8	..	2·0	..	5·5	..	..	4·2	4·9	..	14	9 15
3	..	3·3	3·9	..	..	1·7	3·0	..	..	0·4	2·1	..	3·9	..	2·2	..	13	0 25
4	9·2	..	5·3	..	5·7	..	4·8	..	4·4	..	7·7	..	4·4	..	5·2	..	15	4 35
5	3·4	..	2·9	..	..	1·2	3·3	..	..	1·6	2·8	..	2·1	..	2·5	..	9	0 40
6	3·8	..	2·2	..	6·7	..	2·4	..	6·5	..	5·5	..	5·8	..	4·9	..	14	13 20
7	1·5	..	1·3	..	..	Ca	lm	..	8·7	..	1·5	..	..	2·2	3·8	..	12	17 15
8	0·8	..	1·5	..	..	0·5	3·0	..	1·0	..	1·7	..	7·4	..	4·3	..	16	23 30
9	6·2	..	7·3	..	2·1	..	5·8	..	1·1	..	6·4	..	2·4	..	6·6	..	17	1 15
10	3·2	..	5·6	..	5·2	..	6·1	..	8·5	..	10·1	..	2·7	..	7·5	..	23	16 50
11	..	..	6·3	..	1·3	..	7·3	..	2·8	..	4·9	..	5·4	..	1·9	..	16	11 35
12	0·5	..	3·0	..	1·9	..	1·6	..	9·5	..	..	..	4·6	..	5·4	..	16	16 35
13	3·7	..	3·1	..	1·2	..	1·0	..	..	3·7	..	1·3	..	10·0	..	11·9	24	19 30
14	..	7·6	..	9·0	..	5·8	..	2·1	..	1·2	2·2	..	..	..	2·0	..	18	0 5
15	..	1·0	2·8	..	..	1·3	3·6	..	..	Ca	lm	..	2·3	..	0·9	..	6	5 15
16	2·8	..	2·4	..	4·3	..	2·5	..	6·1	..	2·2	..	5·1	..	4·3	..	11	22 10
17	5·7	..	4·8	..	7·7	..	6·5	..	4·5	..	7·8	..	2·2	..	5·9	..	17	12 5
18	3·5	..	6·1	..	1·9	..	10·8	..	..	5·5	9·6	..	..	1·6	9·4	..	23	15 45
19	..	7·9	9·4	..	..	5·2	6·1	..	..	4·9	8·5	..	..	2·0	3·5	..	19	2 55
20	..	..	4·8	..	..	1·0	5·5	..	..	..	4·4	..	0·7	..	3·9	..	11	13 10
21	0·6	..	3·4	..	1·0	..	2·8	..	2·3	..	6·4	..	4·0	..	6·9	..	14	16 45
22	4·9	..	8·6	..	4·7	..	8·2	..	..	4·8	5·7	..	..	..	5·0	..	19	1 40
23	..	1·0	5·9	..	..	..	5·0	..	..	..	5·8	..	1·0	..	5·8	..	15	23 50
24	..	1·4	8·1	..	..	2·2	6·1	..	..	2·2	..	6·1	..	..	..	6·5	16	5 0
25	7·3	..	..	4·2	7·6	..	..	..	1·5	..	2·6	..	..	..	3·5	..	11	6 25
26	..	..	4·6	..	2·2	..	6·1	..	..	2·1	5·8	..	..	0·9	5·4	..	12	11 45
27	..	3·8	3·2	..	..	5·0	..	..	..	2·2	..	1·2	2·5	..	2·1	..	8	9 15
28	7·1	..	2·6	..	2·0	..	3·5	..	..	..	5·9	..	..	..	7·0	..	13	20 30
29	..	..	6·3	..	2·0	..	3·6	..	5·1	..	6·0	..	5·6	..	4·8	..	13	15 45
30	6·4	..	5·4	..	6·5	..	5·5	..	7·8	..	4·5	..	7·4	..	4·2	..	14	21 30
31	7·4	..	1·3	..	10·0	..	..	..	7·0	..	2·6	..	2·8	..	2·3	..	14	12 35
S+N & W+E	108·7		143·7		107·8		125·7		109·4		137·1		93·2		144·5			
S−N & W−E	56·7		117·3		60·0		121·5		52·2		119·9		51·4		107·7			

8. SEISMOLOGICAL DIARY.

The notation used is explained in the Introduction.

EARTHQUAKES—ESKDALEMUIR.

Day.	Phase	Time. G.M.T.	Period.	Amplitudes. A_N.	A_E.	A_Z.	Δ.	Remarks.
		h m s	s	μ	μ	μ	km.	
2	e	7 28 39	..	..	..	..	..	
	e	7 33 48	..	..	..	..	..	
	L	7 45 39	..	..	..	..	..	
	L	7 55 39	22	..	..	..	..	
	F	8 25	..	..	..	..	..	
6	l.	13 8½ to	..	..	..	..	..	Earlier phases obscured by large wind effects.
		13 21	..	..	...	..	..	
6		23 49 to	..	..	..	..	..	Slight disturbance with irregularly formed long waves of low amplitude.
		24 0	..	..	..	..	..	
7		1 54 to	..	..	..	..	..	Prolonged slight disturbance.
		3 6	..	..	..	..	..	
7	eL	4 8	..	..	..	..	..	
	L	4 26	20	..	5	..	..	
	F	5	..	..	..	..	..	
7	e	10 21 47	..	..	..	..	..	
	L	10 26	..	..	..	..	..	
	F	10 41	..	..	..	..	..	
9	e	13 17 11	..	..	..	..	..	Earlier phases obscured by microseisms.
	L	13 33 19	..	..	..	..	..	
	F	13 57 19	..	..	..	..	..	
19		15	..	..	..	..	..	Moderate disturbance, but impossible to read owing to very large microseismic effects.

MICROSEISMS OF N. COMPONENT—ESKDALEMUIR.

Day.	0 h.		6 h.		12 h.		18 h.	
	A_N.	T.	A_N.	T.	A_N.	T.	A_N.	T.
	μ	s	μ	s	μ	s	μ	s
1	2·5	6	3·1	6	2·6	6·5	**2·2**	6
2	1·8	6·5	1·7	5·5	..	..	..	..
3	0·9	6	..	..	1·1	5	**1·2**	**5·5**
4	..	..	1·7	6	..	..	..	..
5	..	..	..	..	..	..	2·3	6
6	2·0	6	2·0	6	..	..	1.9	6
7	1·6	6	1·6	6	1·9	6	1·7	6
8	2·1	6·5	1·8	6·5	1·8	7	..	..
9	2·1	5	2·2	**5·5**	1·9	5	**2·7**	**5**
10	..	..	..	..	..	..	..	..
11	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	2·3	**5·5**
13	1·9	6	2·3	6	1·7	6	2·3	6
14	1·6	6	1·8	**6**	1·4	6	1·2	**5·5**
15	1·4	6·5	1·3	6	1·4	6·5	0·9	6
16	1·2	5·5	1·6	7	1·5	7	**2·2**	**7·5**
17	..	..	..	..	5·7	7	..	..
18	..	..	..	..	5·9	7	..	..
19	..	..	..	..	4·5	6	4·0	**6·5**
20	4·2	6	4·0	6·5	4·2	6	2·6	6
21	2·0	6	2·3	6	2·7	6	3·1	6
22	4·0	6	4·7	6	5·8	5·5	6·0	6
23	5·1	6	3·8	5	3·9	6	3·0	**5**
24	..	..	3·0	6·5	3·4	6	3·4	6
25	2·8	5·5	3·3	6	2·6	7	3·1	6
26	3·0	6	4·1	5·5	3·7	**5·5**	2·7	6
27	3·4	5	2·1	6	2·8	5	1·8	**4·5**
28	1.6	5	1·7	5·5	..	..	..	..
29	..	..	..	..	3·5	6	..	..
30	..	..	6·5	4·5	5·5	**5**	5·6	**5·5**
31	3·6	5·5	2·8	6	3·0	**6**	**3·0**	6·5

Means for Month $\begin{cases} A_N = 2·8\mu. \\ T = 5·9s. \end{cases}$

Normals for Month, 1911–20 $\begin{cases} A_N = 2·5\mu \\ T = 6·0s. \end{cases}$

EARTHQUAKES.—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of Commencement.	Times, G.M.T. of Max. Phase.	Remarks.
	h m	h m	
2	..	7 58	Small.
6	..	13 24	Very small.
6	..	23 53	Very small.
7	..	2 59	Very small.
7	..	4 30	Small.
7	..	10 24	Small.
9	13 18	13 49	Small waves to $14^h\ 17^m$.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians. per Second.	Components.		
				W.-E.	S.-N.	
1 13	Ci.:Ci.-Cu.	255	6·3	+ 6·1	+ 1·6	Ci. to Ci.-Cu. of "speckle-cloud" type.
	Fr.-St.	225	21·0	+14·8	+14·8	Low cumuliform stratus.
4 13	Ci.	240	4·5	+ 3·9	+ 2·3	Coarse Ci, probably really "false Ci."
5 9	Ci.:Ci.-Cu.	260	5·0	+ 4·9	+ 0·9	Ci. to Ci.-Cu. in bands with radiant in NW.
6 13	Fr.-St.	242	18·0	+15·9	+ 8·4	Heavy masses of St.-cumuliformis.
6 15	Ci.:Ci.-Cu.	224	5·3	+ 3·7	+ 3·8	Bands of Ci. threads to floccular Ci.-Cu.
9 13	St.-Cu.	268	7·2	+ 7·2	+ 0·3	Finely-banded St.-Cu.
11 13	St.-Cuf.	305	12·0	+ 9·8	− 6·9	Low stratus in cumuliform masses.
13 13	St.-Cuf.	52	5·0	− 3·9	− 3·1	Small masses of St.-cumuliformis.
14 13	St.-Cu.	328	7·4	+ 3·9	− 6·3	St.-Cu. formed from tops of Cu.-Nb.
15 12	Ci.-Cu.	318	1·9	+ 1·4	− 1·3	Ci. to Ci.-Cu., radiant NNW., fused A.-Cu. below from about 225°.
17 13	St.-Cu.	272	5·4	+ 5·4	− 0·2	St.-Cu., turbulent in places.
21 13	Ci.:Ci.-Cu.	265	4·1	+ 4·1	+ 0·4	Ci. to Ci.-Cu. of "speckle cloud" type.
	A.-Cu.	267	6·8	+ 6·8	+ 0·4	A.-Cu. in lenticular sheets.
22 12	A.-Cu.	271	5·4	+ 5·4	− 0·1	Some St.-Cu. also, but at lower level.
25 13	St.-Cu.	255	3·1	+ 3·0	+ 0·8	Dense layer of A.-St. above.
29 13	Fr.-Nb.	245	8·3	+ 7·5	+ 3·5	Nb. breaking and opening up.

10. AURORA.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
9	a.	●	..	..	..	
10	p.	..	2, 0	1, 0	Baltasound Deerness Aberdeen Eskdalemuir	 Faint glow, moderately bright streamers at intervals, 20h.—23h. Very faint glow to North at night.
17	p.	..	1, 0	2, 1	Aberdeen	Arch rather faint with moderately bright greenish-yellow streamers, 18h.—21h. Maximum intensity of streamers 19h.
23	p.	○	..	..	..	
30	p.	..	0, 1	0, 1	Deerness	

Note.—The two magnetic "characters" entered in each case refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

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Eleventh YEAR.—No. 2. FEBRUARY, 1921.] Units based on the C.G.S. System. [*Price* 1*s.* 6*d.*

1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	11·30 h. to 12·30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Å Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Å Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p_0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	1·7	19	282	27	22	12 05	22	0·8	9	..	..	..	0·5	6	..	..	..	..	6·5	72
2	0·4	4	124	12	19	13 30	10	0·2	2	..	..	..	5·8	67	12 18	Hazy	3·20	56	0·2	2
3	0·5	5	113	10	15	13 45	10	0·0	0	..	..	..	1·8	21	..	..	..	..	1·0	11
4	3·4	37	445	40	29	11 50	29	4·6	49	44	17	Clear	0·0	0	..	..	..	..	0·0	0
5	0·2	2	201	18	19	11 35	19	0·2	2	16	6	Thro'Cld	0·0	0	..	..	..	..	2·0	21
6	0·0	0	86	7	4	14 35	3	0·0	0	..	..	..	0·0	0	..	..	..	..	0·1	1
7	0·0	0	99	8	4	12 50	3	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
8	0·0	0	167	14	11	12 00	11	0·0	0	..	..	..	0·0	0	..	..	..	..	6·5	69
9	0·1	1	179	15	18	14 00	10	0·9	9	..	..	..	5·8	64	12 15	Hazy	3·20	77	7·3	77
10	2·3	24	377	30	35	12 45	29	2·6	27	..	..	..	7·0	76	12 21	Thro'Cld	3·31	69	7·2	75
11	0·0	0	212	17	15	13 40	14	0·1	1	..	..	..	1·1	12	..	..	..	..	x8·0	83
12	0·9	9	330	26	33	13 20	32	0·6	6	..	..	..	0·3	3	..	..	..	..	0·9	9
13	0·0	0	169	13	15	12 51	11	0·0	0	..	..	..	3·8	40	..	..	..	..	0·0	0
14	1·2	12	434	32	28	13 10	25	2·3	23	33	14	Thro'Cld	4·8	51	..	..	..	..	0·0	0
15	0·0	0	274	20	26	14 05	13	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
16	0·1	1	330	24	24	11 54	24	0·2	2	..	..	..	0·0	0	..	..	..	..	0·0	0
17	1·8	18	405	29	26	12 10	26	2·6	26	..	..	..	3·2	33	..	..	..	..	1·0	10
18	0·0	0	257	18	18	13 55	17	0·0	0	..	..	..	0·6	6	..	..	..	..	1·2	12
19	0·1	1	36	2	8	9 45	4	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
20	5·9	58	x567	39	30	13 05	29	5·8	57	·24	11	Hazy	0·0	0	..	..	..	..	0·0	0
21	6·5	63	Instrument Dismounted.					5·9	57	23	11	Hazy	8·0	80	12 22	Hazy	2·54	74	0·1	1
22	5·3	51	,,	,,	,,	,,	,,	6·4	62	53	25	Clear	x8·3	82	12 26	Hazy	2·40	69	0·0	0
23	1·8	17	,,	,,	,,	,,	,,	3·9	37	..	..	..	0·0	0	..	..	..	..	1·1	11
24	5·1	49	,,	,,	,,	,,	,,	4·9	47	44	21	Hazy	0·1	1	..	..	..	..	0·0	0
25	0·0	0	,,	,,	,,	,,	,,	0·0	0	..	..	..	5·9	57	..	..	..	..	5·7	54
26	x6·9	65	,,	,,	,,	,,	,,	x8·3	78	52	26	Clear	3·5	34	..	..	..	..	5·8	55
27	2·4	22	,,	,,	,,	,,	,,	3·1	29	34	17	Thro'Cld	0·0	0	..	..	..	..	0·0	0
28	0·0	0	,,	,,	,,	,,	,,	0·1	1	..	..	..	0·0	0	..	..	..	..	0·0	0
Means.	1·66	16	254†	20†	20†	—	17†	1·91	19	—	—	—	2·16	23	—	—	—	—	1·95	20
Normals.	1·35 (35 years)	14	325 (8 years)	24	—	—	—	2·13 (35 years)	22	—	—	—	1·71 (10 years)	18	—	—	—	—	2·48 (35 years)	25

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day.	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	REMARKS.	Magnetism. Horizontal Force. Declination West, and Inclination.
	mb.	21 b.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%	°	m/s.	°	m/s.	Tenths of Sky covered.		mm.	a 200+		
1	1003·5	998·6	78·3	79·4	81·4	77·9	7·4	6·8	83	71	—	1	105	7	5	3	0·1	75·6	Fine day.	
2	995·7	998·1	81·1	82·3	82·6	79·7	7·8	10·1	72	87	115	9	145	9	9	10	0·7	76·9	b early: o to c *a and p*: p *n*.	
3	1004·3	1001·1	80·7	83·4	83·5	80·4	8·7	10·8	83	86	—	1	135	9	8	10	14·9	77·4	● *a*: c *p*: ● *n*.	
4	999·5	1002·3	81·6	78·5	x84·2	78·5	9·9	8·2	89	91	250	7	40	3	10	10●	x29·7	79·3	● all day.	
5	1012·1	1016·9	79·1	79·5	80·4	78·8	8·2	7·5	87	77	35	5	100	4	9≡⁰	10≡⁰	3·9	77·6	● early: o to c, ∞ later.	
6	1018·4	1018·6	81·2	81·1	82·0	79·5	8·5	7·8	79	72	120	7	130	7	9≡⁰	2≡⁰	0·1	78·5	o, ∞ *a and p*: b *n*.	
7	1016·9	1015·0	81·4	81·4	81·7	81·1	8·2	8·5	75	78	145	9	145	7	10≡⁰	4≡⁰	—	78·7	o, ∞ *a and p*: c ∞ *n*.	
8	1018·0	1029·5	79·3	80·3	81·3	78·4	8·2	7·2	86	70	35	9	50	4	9	0	18·8	77·5	● *a*: c to b *p and n*.	
9	1036·9	1040·8	77·0	78·8	82·0	75·2	6·2	6·9	77	75	—	0	90	3	8	0	—	71·7	▬ early: Fine day.	
10	1042·2	1041·4	75·4	75·9	81·2	74·1	5·9	6·2	81	83	85	3	65	3	0	0	—	n69·5	▬ early: Very fine.	
11	1040·8	1039·8	75·4	78·6	79·8	n72·5	5·9	7·0	81	77	—	1	45	4	2	1	—	69·9	▬ early: Very fine.	17865γ
12	1039·1	1037·7	80·5	80·3	81·6	79·4	7·8	7·5	75	73	30	5	10	4	10	10	—	73·6	o *a*: c *p*: o *n*.	12 19° 10′·9
13	1034·6	1031·6	79·8	81·4	82·1	79·3	8·0	9·3	81	85	—	0	—	1	10	10	—	77·6	o. all day.	68° 3′·9
14	1031·5	1031·5	82·4	81·6	83·4	81·1	10·5	9·9	89	89	310	2	255	2	10	10	—	79·4	o *a*: o to c *p and n*.	
15	1028·4	1025·3	82·1	82·4	83·0	81·1	9·2	9·6	80	82	235	5	240	7	10	10	—	80·1	Dull day.	
16	1024·4	1023·8	81·6	81·5	83·3	80·9	9·5	10·2	85	92	—	0	—	0	10	10	—	80·7	o., ∞⁰ all day: Calm.	
17	1023·1	1022·5	79·8	80·8	82·5	79·8	8·8	8·4	89	80	20	2	—	0	9	9	—	78·2	o. to c.: Calm.	
18	1022·8	1022·9	81·4	80·3	82·9	80·1	8·2	7·8	75	76	100	3	85	2	10	10	—	79·1	o. *a.*: c. *p. and n.*	
19	1023·1	1022·5	81·5	81·0	82·2	80·7	8·0	8·2	72	77	115	3	120	3	10	10≡⁰	—	79·4	o. with ∞⁰ all day.	
20	1022·0	1019·9	80·1	79·2	81·0	78·4	7·7	6·8	76	72	105	4	115	4	10	10≡⁰	—	79·1	o., ∞⁰ all day.	
21	1013·5	1007·8	79·5	82·2	82·4	78·5	7·2	10·0	74	87	110	3	160	7	10≡⁰	10≡⁰	—	77·7	Dull ∞.	
22	1011·6	1016·2	82·2	79·7	83·4	77·7	10·6	8·4	92	86	185	2	340	2	10≡⁰	10	—	79·2	o., ∞ all day.	
23	1014·8	1015·8	79·6	80·7	82·3	76·4	8·7	9·0	89	86	175	5	185	3	9	10	0·1	73·6	o. to c. *a. and p.*: o. *n.*	
24	1017·1	1023·4	80·7	80·1	81·6	79·2	9·8	7·5	94	74	—	1	355	5	10●⁰	2	8·3	79·1	●⁰. *a. and p.*: Fine *n.*	
25	1031·8	1039·6	79·5	79·8	82·0	79·1	7·2	7·9	74	80	5	5	5	3	4	0	0·2	75·8	p⁰. *a.* then fine.	
26	1045·5	1046·4	77·2	79·5	82·7	76·2	7·5	8·3	91	86	—	0	—	0	7	7	—	73·9	b. early: Fair later.	17847γ 26 19° 9′·9
27	1044·1	1038·8	79·0	81·0	81·6	77·1	8·4	8·0	90	75	—	0	235	5	10	10	—	73·9	c. at first: o. later.	68° 1′·1
28	1033·1	1027·7	81·5	81·4	82·7	80·6	8·4	8·4	76	77	220	6	190	4	10	3	—	79·8	o. *a. and p.*: Fine *n.*	
Means.	1023·2	1023·4	80·0	80·4	82·2	78·6	8·2	8·3	82	80	—	3·5	—	4·0	8·5	6·8	76·8	76·9	Monthly Totals or Means	17856γ 19° 10′·4
Normals.	1011·4	1011·5	79·6 (45 years)	79·8	82·5 (45 years)	77·5	8·4 (30 years)	8·5	87	86	—	6·0 (35 years)	—	6·1	—	—	130·6 (45 years)	—	Normals	68° 2′·5

* By Campbell-Stokes Sunshine Recorder. †Mean for 20 days only. *x* denotes the maximum and *n* the minimum value in the column.

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3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a= 20m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind—Veer from North in degrees and Speed in metres per second.				Cloud Amount Weather and Visibility				Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	Remarks.
					Max.	Min.	Vapour Pressure.		Percentage												
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.		21 h.		9 h.		21 h.				
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%	°	m/s.	°	m/s					mm.	a 200+	
1	999·7	1003·5	73·0	77·0	79·7	72·1	5·9	7·2	96	89	—	0	190	2	10 ▂	A	0	C	—	67·6	▂. ≡ *a.* : Fine *p.* : ≡ *n.*
2	1004·5	1008·0	75·9	74·9	79·6	74·8	7·3	6·8	96	96	80	3	—	0	10 ▂	C	0 ☂	C	—	70·1	≡ till 13h.-45m. c. to fine. ≡ *n.*
3	1014·2	1018·3	71·0	72·1	75·6	*n* 70·9	5·3	5·6	100	99	—	0	—	1	10 ▂	A	10 ☂	X	—	68·5	≡² all day.
4	1018·5	1013·9	75·9	75·7	79·6	72·3	6·4	6·7	85	90	80	5	100	5	10 ▂	G	10	H	—	72·0	≡² till 2h. O'cast to fine.
5	1015·9	1019·9	76·0	77·8	78·9	75·2	6·5	6·5	86	76	95	6	70	4	9	G	10	H	—	72·8	Mostly dull.
6	1023·7	1025·1	76·7	75·3	77·9	75·2	6·1	5·6	77	78	40	6	50	6	10	H	10	H	0·1	75·9	Dull. Frequent ●⁰
7	1023·9	1024·2	75·2	75·7	75·9	74·7	5·9	6·5	82	87	25	3	—	1	10	F	10	G	—	74·0	Dull. Frequent ●⁰.
8	1026·7	1030·4	75·4	75·3	78·7	74·4	5·9	6·5	82	90	—	1	—	0	10	E	10	E	—	72·8	Dull. ≡⁰ or ∞.
9	1034·7	1038·0	76·1	77·5	80·0	75·0	6·3	6·8	83	81	—	1	355	3	10	F	2	I	—	68·1	▂. Dull till 14h., then fine.
10	1038·1	1037·3	75·8	76·6	80·4	74·1	6·3	6·2	85	79	355	6	15	5	8 ☂	F	8	H	—	71·5	▂. ≡⁰. Fine to cloudy.
11	1035·6	1033·7	76·6	77·5	79·0	75·9	6·1	6·9	78	80	5	5	20	2	9	G	10	H	—	73·2	≡⁰. Dull.
12	1032·7	1032·8	79·2	78·4	80·2	77·2	7·7	6·4	82	71	355	5	10	2	10	H	10	H	0·3	74·1	Showers *a.* Mostly dull.
13	1030·6	1025·7	77·7	79·7	80·4	77·0	7·3	7·9	85	81	—	1	260	3	10	F	10	H	—	75·3	Dull with ≡⁰.
14	1024·3	1027·9	80·5	77·9	83·1	75·9	8·6	7·5	83	87	265	3	335	2	8 ☂	H	0	G	—	76·3	Dull to fine. ≡⁰. *a and n.*
15	1027·3	1022·7	77·2	80·8	82·4	75·0	7·5	8·1	92	77	250	3	245	5	10 ☂	G	10	H	—	68·4	▂, ≡⁰. Mostly dull.
16	1021·6	1021·4	80·7	82·9	84·8	78·8	8·3	9·9	79	82	245	4	—	1	9	H	9	G	—	75·7	Fair to o'cast.
17	1020·8	1019·8	81·8	81·1	84·0	79·9	10·1	8·1	89	75	—	1	265	2	10 ☂	F	9	H	—	76·4	≡⁰, ☂. Dull to 13, then fine.
18	1024·1	1026·2	74·8	79·8	82·0	74·1	6·8	8·0	98	81	—	1	10	4	10 ▂	D	10	H	—	67·8	≡ 8h. 30m.-12h. Dull.
19	1027·7	1026·4	78·1	77·9	79·2	76·6	7·3	6·3	83	72	45	4	65	5	10 ▂	F	10	G	—	76·3	Dull. Gloomy at times.
20	1025·2	1024·3	77·6	77·0	82·1	76·3	7·4	7·0	87	87	60	4	65	4	8	F	0	F	—	72·4	Fine after 9h. 30m. ≡⁰ or ∞.
21	1023·1	1019·3	76·7	77·2	83·3	75·6	7·2	7·1	90	87	65	3	65	4	0 ☂	D	0	F	0·1	71·2	≡ 8h. 30m.-11h. Fine. ∞.
22	1019·2	1021·4	76·1	79·2	86·8	74·2	7·2	8·1	94	86	—	0	—	1	5 ☂	D	7	F	0·1	68·1	≡⁰, ▂ : ≡ 8h. 30m.-10h. 30m. Fine.
23	1022·1	1022·7	81·1	82·3	*x*87·9	79·4	8·1	7·5	75	64	—	1	150	2	9	F	8	E	—	70·8	≡⁰. Fine to dull *a.* : Fine *p.*
24	1023·7	1024·4	76·2	79·8	*x*87·9	75·3	7·1	8·2	92	83	—	0	—	1	1	D	2 ☂	G	—	69·1	▂. ≡. Mostly fine.
25	1025·2	1031·2	79·6	79·0	82·9	77·6	9·1	7·5	94	81	—	0	355	5	10 ●⁰	D	10 ●	H	*x*4	71·9	≡ 8h. 30m.-12h. 30m. Dull and wet.
26	1038·9	1042·9	76·2	76·9	82·0	73·5	6·3	6·4	83	79	360	4	—	1	0	G	0 ▂	H	—	72·4	Fine. ▂ *n.*
27	1043·6	1038·2	72·8	80·0	83·2	72·0	5·4	8·0	90	80	310	2	265	2	0	E	10	H	—	*n* 65·6	≡ 10h.-11h. Fine to o'cast. ∞.
28	1035·1	1031·7	77·3	80·2	81·5	75·5	7·3	8·0	88	79	245	2	235	2	10	G	8	I	—	71·8	≡⁰, ☂. Fair to dull.
Means	1025·0	1025·4	76·8	78·1	81·4	75·3	7·0	7·2	87	82		2·6		2·7	7·8		6·9		4·9	71·8	Monthly Totals or Means.
Normal	1014·7	1014·6	76·9	77·3	80·3	74·9	6·7	6·9	84	83		3·8		3·7	—		—		39·6	—	Normals.
	45 years.						30 years.				35 years.										

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

1	971·2	976·6	75·1	75·1	77·1	74·5	6·5	6·6	91	93	20	11	20	7	10 ●	I	9 ●⁰	I	*x*6·3	74·0	●⁰, ≡⁰ *a.* : o. to bc *p. and n.*
2	978·9	980·9	71·5	71·4	77·7	70·4	5·0	5·0	91	91	360	2	—	0	3	I	0	H	1·1	69·5	∼, bc., ∞. *a and p.* : b., ≡⁰ *n.*
3	984·1	987·1	70·2	73·1	76·1	69·1	4·1	5·2	82	85	—	1	—	0	8	J	0	H	—	67·0	b, ≡⁰, ▂ *a.* : ⊕ 12h. : c. *p.* : b., ≡⁰ *n.*
4	987·2	986·4	74·0	74·7	75·8	70·9	5·5	5·9	84	85	140	4	130	3	9	I	10	I	—	69·0	b, ≡⁰ early : c., ▂ *a.* : o. *p. and n.*
5	990·4	995·1	75·1	75·5	77·3	74·4	5·8	5·7	82	78	—	1	100	4	10	I	10	I	—	71·2	o. *a. and p.* : o., ≡⁰ *n.*
6	998·6	999·7	75·2	74·8	76·3	74·4	6·1	5·1	85	74	110	3	110	3	10	I	10	H	0·1	73·0	o. all day.
7	998·6	995·7	73·4	73·5	74·7	73·0	5·7	5·6	91	88	70	3	—	0	10	I	10	I	0·2	72·8	o., ✳ p. *a.* : o. *p. and n.*
8	995·6	1000·2	72·9	73·2	74·4	72·0	6·0	6·0	98	96	200	3	—	0	10	H	10	G	0·7	69·9	o. *a.* : o., ∞. *p.* : o., ≡⁰ ⁰ ✳*n.*
9	1007·2	1012·3	60·8	72·2	79·0	68·5	4·8	3·2	100	56	—	1	—	0	0 ▂	D	0	J	—	65·9	▂ early : b. ≡ *a.* : b., ∞. *p. and n.*
10	1014·6	1013·0	71·4	71·0	79·1	68·0	4·7	4·8	87	91	—	0	—	0	1 ▂	J	0	I	—	65·6	▂ early : Fine day.
11	1010·1	1007·6	68·7	73·1	79·6	*n* 66·1	4·4	5·6	100	91	—	0	—	0	8 ▂	I	0	I	—	*n* 64·5	b, ▂ at first : c. *a.* : b. to o. later.
12	1007·6	1004·5	75·4	76·3	79·6	72·7	6·7	7·0	93	90	—	1	—	0	9	J	10	I	—	69·0	▂, b. to o. *a.* : o. *p. and n.*
13	997·8	993·3	79·0	78·6	82·7	77·0	7·9	7·1	85	79	310	10	310	12	6	I	6	I	0·1	74·6	o early : cp⁰ ✗ *a* : op⁰ *p* : o to bc *n.*
14	995·2	996·3	78·4	79·6	81·6	77·1	6·8	8·3	76	85	350	8	230	3	8	J	9 ●⁰	I	—	75·0	bc. to c. *a. and p.* : p⁰. *n.*
15	990·6	985·0	78·7	81·3	81·8	78·3	8·3	9·4	91	86	220	8	280	14	10 ●⁰	H	10	I	2·1	76·5	●⁰, ≡⁰ *a.* : op⁰. *p. and n.*
16	988·3	991·3	81·8	79·5	82·8	79·4	10·2	8·2	90	85	290	10	270	7	9 ●⁰	I	9	I	1·8	80·0	●⁰ *a. and p.* : o., *n.*
17	988·4	991·8	79·8	73·9	82·0	70·8	7·0	5·6	71	86	280	7	—	1	7	I	0	J	—	77·5	o. *a.* : bcq. *p. and n.*
18	997·8	1000·5	73·6	75·9	77·7	68·4	5·6	5·8	88	77	—	1	—	1	5	J	10	J	—	66·0	bc., ▂ *a.* : o. *p. and n.*
19	1000·7	998·9	74·9	75·7	77·0	74·3	6·2	5·6	88	76	—	0	—	1	10	H	10	H	—	73·1	o., ≡⁰ *a.* : o. later.
20	998·8	997·2	73·2	68·5	75·0	67·7	4·9	4·4	79	100	—	1	—	1	10	H	0	G	—	72·0	o., ≡⁰ *a. and p.* : o. to b. ≡⁰. *n.*
21	994·7	991·2	71·6	72·8	*x*84·1	67·3	4·6	4·3	83	72	360	3	—	1	0 ▂	J	0	H	—	64·8	b., ≡⁰, ▂ early : Fine : ∞. *p. and n.*
22	989·8	990·6	73·1	72·8	82·9	68·7	4·9	5·4	81	90	—	1	—	0	0	I	6	E	—	66·2	b. ∞ *a.* : b., ∞. y. *p.* : b. to o., ≡⁰ *n.*
23	990·9	991·6	76·5	80·0	80·7	70·1	7·5	8·6	95	86	—	0	—	1	10	E	10	G	0·5	67·3	b, ▂ early : o., ≡⁰. *a and p.* : ●⁰. ≡⁰. *n.*
24	993·1	992·2	79·1	80·4	82·7	78·7	9·0	9·8	96	96	—	0	190	4	10 ●⁰	F	10	G	3·1	68·9	o. ≡⁰. with p⁰. all day.
25	996·4	1004·5	77·3	75·1	80·5	73·0	6·3	5·6	76	79	320	5	290	7	8	J	1	I	0·7	73·3	● ≡⁰. to c. *a.* : bcq. *p. and n.*
26	1012·0	1011·9	77·8	78·7	82·5	71·9	6·4	7·5	75	82	—	1	260	5	3	K	4	I	—	67·8	b. ▂ ; bc. *a.* : bcp. *p.* : bc. to o. *n.*
27	1008·3	1002·0	77·7	79·5	80·6	77·6	7·5	7·5	88	78	210	5	210	7	10 ●⁰	I	10	I		75·8	o. all day : p⁰. at times.
28	998·4	995·6	78·1	79·5	80·0	78·1	8·2	9·2	93	95	200	7	220	9	10 ●⁰	G	10 ●⁰	G	3·9	77·0	oq. early then ●⁰. ≡⁰.
Means	995·9	996·2	75·1	75·6	79·3	72·6	6·3	6·4	87	85		3·5		3·2	7·3		6·2		20·6	71·0	Monthly Totals or Means.
Normal 1911-1920	991·8	981·7	74·9	75·1	78·0	72·4	6·4	6·5	88	87		5·8		5·8	..		..		151·9	..	Normals.

Temperatures at or below the normal freezing point of water are printed in small type. *x* denotes the maximum, and *n* the minimum, value in the column.

5. GEOPHYSICS:—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force.						Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}.		Air-Earth Current. × 10^{16}.	Potential Gradient, Volts per metre. Factor 2·34.			
					Horizontal Comp't.		Declination.		Inclination.				+.	−.					
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			About 15 h.		About 15 h.	3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m.	v/m.	v/m.	v/m.
1	78·9	80·8	273	274	..	..	..	..	..	..	1	0	0·38	0·35	0·60	615	400	660	600
2	78·0	80·5	270	..	..	..	..	..	..	..	1	0	0·45	0·27	0·45	470	485	560	360
3	77·3	80·8	268	..	11 25	18394	..	..	14 28	66 58·8	0	0	..	..	0·20	685	845	685	1530
4	77·0	80·8	265	..	..	..	11 49	14 26·8	..	..	0	0	0·36	0·04	0·95	215	460	430	530
5	77·0	80·5	263	..	..	..	..	..	..	..	2	0	..	..	..	330	515	685	800
6	77·2	80·3	261	..	..	..	..	..	..	..	2	0	..	..	..	345	370	415	415
7	76·9	80·2	259	..	..	..	..	..	..	..	0	0	..	..	..	215	685	815	770
8	76·8	80·2	257	..	..	..	..	..	..	..	0	0	0·23	0·09	0·80	570	900	415	570
9	76·6	80·1	255	..	..	..	..	..	..	..	0	0	0·25	0·12	1·05	315	470	500	615
10	76·5	80·0	255	..	11 6	18390	14 43	14 27·9	14 38	66 56·3	0	0	0·59	0·22	0·85	470	460	670	670
11	76·7	80·0	254	..	..	..	..	..	..	..	1	0	0·47	0·25	0·65	285	645	730	685
12	76·9	79·9	253	..	..	..	..	..	..	..	0	1	..	..	..	−30	430	460	715
13	77·2	79·7	253	..	..	..	..	..	..	..	1	0	..	..	..	230	385	245	200
14	77·9	79·7	252	..	..	..	..	..	..	..	1	0	0·37	0·31	0·60	70	255	230	385
15	77·4	79·6	250	..	..	..	..	..	..	..	0	0	0·47	0·06	0·90	415	460	285	230
16	77·9	79·6	249	..	..	..	..	..	..	..	0	0	0·25	0·22	0·45	215	255	315	430
17	78·9	79·6	247	..	11 0	18395	14 42	14 26·8	14 31	66 55·5	1	0	0·56	0·35	0·75	270	430	255	430
18	78·6	79·8	245	..	..	..	..	..	..	..	0	0	0·18	0·29	0·40	185	245	400	600
19	78·4	79·8	243	..	..	..	..	..	..	..	1	0	..	..	..	230	500	660	560
20	78·0	79·9	241	..	..	..	..	..	..	..	0	0	..	..	..	330	460	700	600
21	77·4	79·9	239	..	..	..	..	..	..	..	1	0	0·58	0·41	0·45	530	600	970	700
22	77·0	79·9	238	..	..	..	..	..	..	..	0	0	0·47	0·38	1·00	445	585	270	570
23	77·6	79·7	236	..	..	..	..	..	..	..	0	0	0·43	0·08	1·00	360	560	300	645
24	78·0	79·8	235	..	10 52	18387	12 28	14 26·8	14 37	66 56·2	0	0	..	*0·40	1·10	460	330	185	470
25	78·4	79·8	235	..	..	..	..	..	..	..	0	1	..	..	..	130	300	685	330
26	78·4	79·9	234	233	..	..	..	..	..	..	1	0	..	..	..	215	515	415	860
27	77·5	79·8	234	233	..	..	..	..	..	..	0	0	..	..	..	430	470	170	370
28	77·8	79·8	234	..	..	..	..	..	..	..	1	0	0·32	0·14	0·35	285	500	255	385
M.	77·6	80·0	250	—	—	—	—	—	—	—	0·50	0·07	0·40	0·22	0·70	332	483	477	572
No of days used	28	28	28	—	—	—	—	—	—	—	28	28	16	16	18	28	28	28	28

* Not used in computation of mean.

6. GEOPHYSICS:—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force. North Component. Maximum. 15000 γ +.		Minimum. 15000 γ +.		Range.	West Component. Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.	Vertical Component. Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.	Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre. Factor 6·08.			
																		3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ			v/m	v/m	v/m	v/m
1	19 20	1032	959	18 6	73	12 34	818	738	19 0	80	18 54	1063	1038	10 23	25	1	2 *c*	−1540	70	35	−30
2	7 18	1015	950	15 5	65	13 52	827	746	18 15	81	16 0	1063	1029	7 20	34	1	1 *b*	−655	495	375	850
3	2 6	1003	978	1 29	25	13 21	808	774	1 4	34	0 24	1044	1025	2 50	19	0	0 *a*	365	245	310	435
4	22 29	1009	974	20 28	35	19 30	813	773	19 57	40	20 30	1052	1035	9 50	17	0	0 *a*	325	480	280	245
5	24 0	1024	*n*938	16 37	86	12 15	840	749	21 44	91	20 45	*x*1082	1019	24 0	*x*63	1	0 *a*	115	215	230	190
6	0 12	1047	959	1 0	88	3 10	821	*n*720	1 4	*x*101	17 22	1058	*n*998	0 37	60	1	0 *a*	160	295	185	165
7	1 8	1004	971	14 18	33	13 40	817	771	19 25	46	19 40	1057	1041	9 0	16	0	0 *a*	140	275	155	595
8	6 57	1003	973	13 33	30	12 43	821	790	9 30	31	17 20	1051	1033	11 6	18	0	0 *a*	500	230	545	195
9	21 28	1006	983	12 58	23	13 36	811	786	19 36	25	20 17	1050	1041	7 35	9	0	0 *a*	685	655	380	680
10	18 58	1005	980	16 10	25	24 0	820	774	22 50 22 58	46	23 10	1059	1041	12 10	18	1	0 *a*	370	325	125	185
11	0 16	1011	977	12 12 12 16 12 43	34	0 2	821	767	1 50	54	16 15	1059	1045	0 22	14	0	0 *a*	290	430	310	820
12	6 18	1002	980	12 18	*n*22	11 40	810	790	8 50	*n*20	15 10	1052	1044	11 30	*n* 8	0	0 *a*	585	255	260	340
13	21 20	*x*1065	961	22 2	*x*104	21 23	827	734	22 8	93	21 10	1070	1040	12 15	30	1	*	70	150	225	*
14	2 46	1020	967	21 51	53	2 30	829	741	3 58	88	21 54	1067	1036	3 21	31	1	*	*	180	220	105
15	0 13	1000	972	0 42	28	13 49	817	747	0 18 0 22	70	0 33	1057	1049	10 0	*n*8	0	1 *a*	65	110	80	80
16	21 35	1004	976	11 34	28	13 8	817	784	3 50	33	0 10	1054	1044	14 36	10	0	0 *a*	185	215	120	180
17	4 10	1022	975	11 20 11 38	47	13 0	817	745	4 40	72	21 38	1051	1034	4 11	17	1	0 *a*	145	160	245	370
18	8 41	1004	969	18 2	35	14 11	818	769	18 24	49	18 21	1060	1042	12 12	18	0	0 *a*	440	305	165	165
19	8 29	1014	945	13 16	69	12 59	831	758	2 29	73	16 0	1058	1030	2 15	28	1	0 *a*	135	290	270	305
20	23 0	1045	984	14 19	61	12 33	824	783	1 39	41	1 46	1049	1039	12 30	10	0	0 *a*	185	220	290	305
21	0 4 0 6	1049	965	12 29	84	12 56	828	747	0 33	81	15 45	1057	1024	6 55	33	1	0 *a*	255	290	395	860
22	21 31	1012	973	10 53	39	14 19	821	766	21 29 21 36	55	16 0	1053	1038	7 10	15	0	0 *a*	320	325	290	470
23	8 8 8 12	1003	976	11 18	27	13 3	811	780	9 33	31	16 20	1051	1041	12 0	10	0	1 *b*	395	185	240	360
24	23 56	1021	972	10 57	49	13 27	807	771	23 15	36	23 20	1052	1042	12 30	10	0	1 *b*	20	155	185	90
25	0 1	1018	967	10 25	51	13 23	832	763	0 14	69	20 10	1060	1041	12 20	19	0	1 *b*	150	165	180	225
26	7 48	1006	966	11 43	40	14 10 14 12	817	760	19 43	57	19 45	1064	1043	11 35	21	0	1 *a*	165	225	90	225
27	22 11	1012	967	14 24	45	13 20	828	774	9 50	54	18 32	1057	1034	12 23	23	0	1 *a*	65	5	90	195
28	23 20	1037	958	12 13	79	13 24	*x*841	769	21 36	72	18 15	1060	1032	3 23	28	1	1 *a*	60	65	165	195
M.	—	1018	968	—	49	—	821	763	—	58	—	1058	1036	—	22	0·39	0·38	151	257	231	331
No.of days used	—	28	28	—	28	—	28	28	—	28	—	28	28	—	28	28	26	26	26	26	26

* Cell wire disconnected.

x denotes the maximum and *n* the minimum value in the column. Potential gradient is reckoned as positive if the potential increases upwards. For indeterminate potential gradient the following notation is used:—*z*+ Indeterminate, positive value; *z*— Indeterminate, negative value; *z*± Indeterminate in magnitude and sign.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	..	3·4	..	1·9	..	9·1	..	1·6	..	7·4	..	2·7	..	1·2	..	3·4	14	7 30
2	..	0·8	..	4·5	0·9	..	..	2·4	2·4	..	..	6·5	0·8	..	..	2·2	10	15 50
3	2·8	..	..	3·3	3·9	..	..	4·5	5·3	..	..	1·9	4·5	..	..	2·6	14	13 0
4	5·4	..	..	3·1	6·5	..	..	5·5	4·0	..	..	4·7	1·1	..	..	6·1	15	9 35
5	..	3·1	..	8·6	..	..	..	12·1	..	..	..	8·2	..	..	..	7·2	16	8 35
6	..	..	..	3·0	..	..	..	1·6	..	Ca	lm	..	..	..	..	4·9	8	20 10
7	..	..	..	2·3	..	..	..	4·9	1·5	..	..	4·0	3·7	..	..	4·3	11	22 35
8	4·7	..	..	5·5	3·4	..	..	4·0	4·2	..	2·4	..	2·6	..	1·5	..	10	11 10
9	..	3·7	1·3	..	..	4·5	0·8	..	..	5·8	..	1·0	..	4·5	..	0·8	8	19 30
10	..	Ca	lm	..	..	Ca	lm	..	..	3·1	..	3·8	..	4·5	..	3·9	7	14 15
11	..	1·5	..	1·3	..	5·5	..	2·0	..	4·6	..	1·7	..	7·8	..	1·4	10	17 40
12	..	3·0	..	..	..	4·3	..	..	..	1·6	..	..	..	3·0	..	..	9	23 25
13	..	4·9	1·8	..	..	5·7	4·8	..	..	4·6	8·0	..	..	..	9·5	..	13	12 25
14	..	3·9	6·8	..	..	6·2	3·6	..	..	1·6	2·9	..	1·3	..	7·4	..	14	0 25
15	..	..	7·2	..	1·3	..	7·4	..	4·3	..	5·1	..	2·2	..	12·6	..	18	20 40
16	1·6	..	9·4	..	..	1·3	7·1	..	..	0·9	4·8	..	..	0·9	4·8	..	16	1 20
17	..	0·7	3·8	..	1·3	..	7·1	..	..	1·0	5·5	..	..	4·9	..	..	11	9 20
18	..	1·6	0·3	..	..	Ca	lm	..	..	2·0	0·3	..	..	1·1	..	6·5	9	20 5
19	0·9	..	..	2·4	1·0	..	..	2·8	..	Ca	lm	..	..	1·5	..	2·6	5	11 10
20	1·0	..	..	2·8	1·7	..	..	2·0	0·8	..	..	1·4	..	Ca	lm	..	6	3 15
21	..	Ca	lm	..	..	0·5	..	1·5	4·9	..	..	1·8	2·4	..	..	0·9	10	13 50
22	1·8	..	..	1·5	..	Ca	lm	..	3·6	..	..	..	2·0	..	..	..	9	12 30
23	4·9	..	..	..	5·2	..	..	..	4·9	..	..	..	3·6	..	..	..	10	17 15
24	3·0	..	..	..	2·6	..	..	..	3·3	..	..	..	3·8	..	0·7	..	9	18 35
25	2·3	..	0·4	..	..	7·7	2·8	..	..	5·4	3·1	..	..	7·1	4·1	..	13	5 0
26	..	6·2	3·6	..	..	4·6	1·7	..	..	3·1	1·1	..	..	4·3	1·6	..	12	0 55
27	..	2·3	4·0	..	..	1·2	6·8	..	3·7	..	6·5	..	1·5	..	8·4	..	13	23 5
28	2·5	..	6·8	..	3·6	..	6·2	..	5·7	..	4·8	..	5·1	..	4·3	..	14	19 55
S+N & W−E	66·0		85·6		82·0		93·2		89·7		82·2		75·4		101·7			
S−N & W−E	−4·2		5·2		−19·2		3·4		7·5		6·8		−6·2		8·1			

SCOTLAND N.:—DEERNESS.

Cup Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	..	7·1	..	4·1	..	6·8	..	3·9	..	7·4	..	2·7	..	3·8	..	3·1	9·2	1
2	..	5·7	..	4·8	..	3·9	..	6·8	..	1·6	..	4·3	4·5	..	..	2·6	8·9	6
3	9·8	..	..	3·6	11·6	..	..	6·7	11·0	..	..	4·0	13·2	..	..	4·8	14·8	23, 24
4	12 0	..	..	6·9	13·3	..	..	7·7	12·8	..	..	7·4	13·9	..	..	8·0	17·7	17
5	10·8	..	..	6·2	11·1	..	..	6·4	7·8	..	..	1·4	4·6	..	..	..	13·4	7
6	4·5	..	..	0·8	9·4	..	..	1·6	8·6	..	..	3·1	9·1	..	..	5·2	12·5	24
7	9·1	..	..	5·6	9·0	..	..	7·6	8·0	..	..	6·8	7·8	..	..	6·6	11·8	9
8	8·8	..	..	3·2	11·5	..	..	..	5·8	..	2·1	..	3·3	..	2·8	..	11·8	8
9	2·1	..	3·7	..	1·3	..	7·1	..	..	2·6	4·5	..	..	1·0	1·7	..	7·2	9, 13
10	..	..	2·3	..	2·1	..	3·7	..	2·8	..	4·8	..	3·7	..	6·5	..	9·5	24
11	12·5	..	..	..	..	2·2	12·3	..	..	4·1	7·1	..	..	4·5	0·8	..	12·8	4
12	..	0·4	2·3	..	..	0·9	4·8	..	..	..	7·5	..	..	1·7	9·7	..	12·5	23
13	1·8	..	10·0	..	..	1·9	10·9	..	..	4·1	11·3	..	..	6·0	10·5	..	16·1	6
14	..	8·4	10·0	..	..	4·8	5·7	..	0·6	..	3·2	..	1·9	..	10·9	..	13·1	1
15	6·0	..	10·5	..	5·4	..	14·7	..	2·7	..	15·2	..	..	4·6	12·5	..	18·0	12
16	..	1·8	10·3	..	..	2·3	6·2	..	..	1·2	3·4	..	2·6	..	4·5	..	11 1	4
17	2·3	..	12·9	..	..	..	15·7	..	..	3·8	10·3	..	..	9·4	5·4	..	17·7	7
18	..	7·4	2·7	..	..	4·0	..	1·5	..	Ca	lm	..	3·7	..	..	2·1	10·2	1
19	4·3	..	..	..	..	Ca	lm	..	2·3	..	0·4	..	2·4	..	0·9	..	4·3	3
20	3·1	..	1·8	..	3·1	..	1·1	..	3·1	..	1·1	..	4·2	..	0·7	..	4·6	8, 12, 13, 24
21	4·0	..	..	2·3	6·1	..	1·1	..	9·7	..	..	1·7	9·8	..	..	3·6	11·8	20
22	11·0	..	..	4·0	10·7	..	..	3·9	11·3	..	..	4·1	4·8	..	..	0·9	14·1	6
23	5·5	..	..	1·0	7·8	..	..	1·4	9·7	..	..	1·7	6·1	..	1·1	..	10·5	17
24	4·6	..	1·7	..	2·8	..	1·0	..	..	Ca	lm	..	..	3·6	..	..	5·6	1
25	..	4·0	4·7	..	1·9	..	5·3	..	..	..	9·8	..	..	1·1	6·5	..	10·8	12
26	..	1·1	6·5	..	2·6	..	7·0	..	1·7	..	9·7	..	4·6	..	12·5	..	13·4	21, 24
27	6·9	..	12·0	..	..	..	16·4	..	2·3	..	12·9	..	7·1	..	8·5	..	16·4	9
28	5·3	..	6·3	..	1·4	..	8·1	..	..	..	9·2	..	3·6	..	6·2	..	12·8	7
S+N & W+E	160·3		139·8		137·9		168·6		125·0		149·7		146·6		138·6			
S−N & W−E	88·5		55·6		84·3		73·6		75·4		75·3		75·2		64·8			

ENGLAND, S.W.:—SCILLY.

Cup Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	..	9·8	5·6	..	..	8·3	4·8	..	..	2·2	1·2	..	..	1·6	..	1·9	12·9	5
2	5·4	..	..	6·4	6·2	..	..	10·8	6·0	..	..	10·5	8·0	..	..	6·7	12·5	8, 9
3	8·3	..	..	4·8	4·7	..	..	1·7	3·9	..	..	1·4	8·2	..	..	3·0	12·1	2
4	10·2	..	..	8·5	10·9	..	..	9·1	10·9	..	..	9·1	5·8	..	..	16·0	17·1	21
5	..	..	..	10·8	..	2·0	..	11·5	..	..	..	12·5	..	..	..	12·5	13·3	12, 23
6	1·5	..	..	8·7	..	..	..	7·1	1·4	..	..	7·8	2·3	..	..	6·3	11·3	2
7	..	..	..	5·8	..	..	..	8·3	5·2	..	..	9·0	6·8	..	..	3·9	10·4	15, 16
8	10·1	..	..	3·7	11·8	..	..	10·0	9·6	..	..	8·0	4·6	..	..	8·0	16·3	12
9	1·4	..	..	8·2	2·2	..	..	5·9	..	1·4	..	2·5	..	1·6	..	4·3	8·8	1
10	..	..	..	4·6	..	2·2	..	5·9	..	3·5	..	6·1	..	3·4	..	9·3	10·0	21
11	..	3·0	..	8·2	..	2·4	..	6·7	..	4·4	..	5·1	..	3·2	..	3·8	8·8	2, 3
12	..	..	..	5·0	..	1·0	..	2·7	..	2·3	..	4·0	..	3·8	..	4·4	5·8	13, 18, 21
13	0·9	..	..	2·3	..	Ca	lm	..	..	4·0	..	2·3	..	4·7	..	2·7	5·8	13, 17, 18
14	..	2·5	..	0·4	De	fec	tiv	e	..	3·3	..	..	..	1·7	..	..	5·8	11
15	..	1·5	0·8	..	De	fec	tiv	e	..	2·0	5·5	..	..	..	6·7	..	7·9	23
16	..	1·7	4·7	..	..	2·5	2·1	..	..	1·7	0·3	..	..	2·4	..	2·9	6·3	1, 2
17	..	1·0	..	2·7	..	1·1	..	3·1	..	1·8	..	5·1	..	1·1	..	3·1	5·4	15, 16
18	..	..	..	4·2	0·6	..	..	3·2	..	..	..	7·1	1·3	..	..	7·4	9·6	24
19	2·8	..	..	7·8	1·3	..	..	7·4	1·7	..	..	9·5	1·9	..	..	10·6	10·8	21
20	1·2	..	..	6·6	..	..	..	5·8	1·2	..	..	7·0	..	..	..	5·4	8·3	1, 2
21	5·4	..	..	4·6	4·4	..	..	5·1	5·7	..	..	6·7	4·4	..	..	5·1	8·8	10, 14, 15
22	4·1	..	..	3·5	1·8	..	..	1·0	1·6	..	1·3	..	1·9	..	..	2·2	5·8	1, 2
23	De	fec	tiv	e	De	fec	tiv	e	3·3	..	..	..	1·9	..	..	3·3	7·5	24
24	5·0	..	..	2·9	3·9	..	..	1·4	2·9	..	1·6	..	1·3	..	1·1	..	7·5	1
25	..	..	2·9	..	..	9·2	..	..	..	9·2	..	..	..	7·8	..	2·8	11·3	13, 14
26	..	7·8	..	1·4	..	8·2	..	3·0	..	7·2	..	4·1	..	5·5	..	3·1	9·6	12
27	..	0·6	..	3·2	..	0·4	..	2·1	..	2·0	..	0·7	..	Ca	lm	..	5·0	1
28	..	Ca	lm	..	..	Ca	lm	..	2·9	..	..	..	2·2	..	1·2	..	4·2	24
S+N & W+E	84·2		128·3		85·1		118·7		101·3		128·4		87·4		137·7			
S−N & W−E	28·4		−100·3		10·5		−104·9		11·3		−108·6		13·8		−119·7			

ENGLAND, E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	2·3	..	2·8	..	..	Ca	lm	..	2·8	..	..	1·0	..	Ca	lm	..	5	2 10
2	..	Ca	lm	..	..	..	..	2·5	..	1·5	..	4·2	..	1·7	..	1·4	8	12 50
3	..	1·6	0·9	..	..	0·5	3·0	..	..	1·9	2·3	..	..	1·4	2·4	..	6	14 25
4	..	Ca	lm	..	..	Ca	lm	..	4·8	..	..	5·7	7·6	..	..	4·4	13	19 15
5	5·2	..	..	1·9	5·9	..	..	7·0	5·1	..	..	6·0	..	..	..	10·0	14	20 45
6	..	..	..	8·0	..	1·5	..	8·5	..	..	..	9·5	1·6	..	..	8·9	15	21 45
7	..	..	..	7·6	..	1·0	..	5·9	..	2·0	..	3·5	0·5	..	..	2·8	11	2 15
8	..	1·9	0·7	..	..	0·3	2·0	..	..	Ca	lm	..	..	Ca	lm	..	4	1 20
9	..	2·3	0·9	..	..	2·0	1·7	..	..	3·8	..	1·4	..	5·5	..	2·0	9	24 0
10	..	5·5	..	2·0	..	6·6	..	7·8	..	4·0	..	6·9	..	6·0	..	7·1	17	8 25
11	..	3·9	..	3·3	..	5·7	..	3·3	..	3·9	..	2·2	..	3·4	0·6	..	11	8 15
12	..	5·2	..	..	..	6·1	..	3·5	..	5·2	..	1·9	..	3·9	..	2·2	14	9 5
13	..	Ca	lm	..	..	0·9	2·3	..	..	0·4	2·5	..	..	0·6	3·5	..	9	23 40
14	..	2·6	3·1	..	..	2·7	2·2	..	..	8·0	1·4	..	..	1·0	2·7	..	14	13 55
15	..	..	4·6	..	..	..	5·0	..	..	2·2	6·0	..	..	3·9	6·8	..	14	22 40
16	..	3·8	6·6	..	..	2·6	4·5	..	..	2·9	3·4	..	..	2·2	0·8	..	13	0 5
17	..	1·6	2·8	..	..	1·5	2·7	..	..	1·3	3·5	..	..	1·6	0·6	..	10	11 40
18	..	3·1	1·8	..	..	4·0	..	..	..	5·2	..	1·9	..	1·8	..	5·1	9	19 50
19	..	0·8	..	2·1	..	..	..	3·9	..	1·5	..	2·6	0·9	..	..	4·9	7	16 45
20	0·7	..	..	4·2	1·3	..	..	7·1	1·9	..	..	5·4	4·4	..	..	7·6	11	21 25
21	3·9	..	..	4·6	2·4	..	..	6·5	4·7	..	..	1·7	7·0	..	..	2·6	10	1 45
22	4·9	..	0·9	..	6·4	..	..	..	5·5	..	2·0	..	1·9	..	1·6	..	8	13 35
23	..	Ca	lm	..	1·5	..	..	0·3	3·2	..	0·6	..	2·6	..	0·5	..	5	1 0
24	3·4	..	0·6	..	3·5	..	..	0·6	3·8	..	0·7	..	2·3	..	1·9	..	6	16 15
25	2·1	..	1·2	..	..	Ca	lm	..	..	2·5	2·1	..	..	7·0	..	2·6	12	20 55
26	..	4·5	..	..	..	4·4	..	3·8	..	4·9	..	2·8	..	1·3	1·5	..	9	11 0
27	..	0·7	3·9	..	..	..	3·7	..	..	1·9	5·3	..	..	..	3·0	..	12	15 20
28	..	..	3·2	..	..	0·8	4·3	..	..	2·2	6·0	..	1·3	..	3·5	..	14	13 15
S+N & W+E	60·0		67·7		61·6		92·1		87·1		92·5		71·4		91·0			
S−N & W−E	−15·0		0·3		−19·6		−29·3		−23·5		−20·9		−11·2		−32·2			

8. SEISMOLOGICAL DIARY.

The notation used is explained in the Introduction.

EARTHQUAKES—ESKDALEMUIR.

Day	Phase	Time. G.M.T.	Period.	Amplitudes. A_N.	A_E.	A_Z.	Δ.	Remarks.
		h m s	s	μ	μ	μ	km.	
4	P	8 34 22	..	..	..	..	8,600	
	S	8 44 23	..	..	..	..	..	
	M_N	9 10 39	30	21	..	..	..	
	F	11	..	..	..	..	..	
6	P	4 48 51	..	..	..	..	..	No appreciable S. Note steady difference in phase of long waves in N—S, E—W directions.
	L	5 6	..	..	..	..	..	
	L	5 11	22	..	..	..	..	
	M_N	5 20	17	5	..	..	..	
	F	5 50	..	..	..	..	..	
10	L	20 58	..	..	..	..	..	
	F	21 26	..	..	..	..	..	
11	P	0 18 14	..	..	..	..	..	Preliminary phases very feebly marked and somewhat doubtful.
	S	0 26 38	..	..	..	..	..	
	L	0 37 29	..	..	..	..	..	
	M_N	0 56	23	8	..	..	..	
	F	1 25	..	..	..	..	..	
14		4 0	..	..	..	..	..	Moderate disturbance, almost entirely masked by large wind effects.
19	e	14 52 14	..	..	..	..	..	
	e	14 54 5	..	..	..	..	..	
	e	15 1 26	..	..	..	..	..	
	L	15 16	..	..	..	..	..	
	M_N	15 32	28	9	..	..	..	
	F	17 5	..	..	..	..	..	
19	e	18 35 0	..	..	..	..	..	
	i	18 44 43	..	..	..	..	..	
	L	19 11	..	..	..	..	..	
	L	19 16	26	..	..	..	..	
	F	20 55	..	..	..	..	..	
21	L	2 36	22	..	..	..	..	
	F	2 54	..	..	..	..	..	
21		12 15 to 12 25	..	..	..	..	..	Faint disturbance.
21	eL	16 28	..	..	..	..	..	
	L	16 35	20	..	..	..	..	
	F	17 5	..	..	..	..	..	
27	P	18 43 10	..	..	..	..	9,400	
	i	18 46 16	..	..	..	..	..	
	S	18 53 40	..	..	..	..	..	
	SR	18 58 9	..	..	..	..	..	
	L	19 7	..	..	..	..	..	
	F	21 30	..	..	..	..	..	

MICROSEISMS OF N. COMPONENT—ESKDALEMUIR.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s	μ	s	μ	s	μ	s
1	2·1	6·5	1·7	5·5	..	..	1·2	6
2	1·2	5	1·5	5	0·9	6	1·0	5
3	1·2	6	1·6	5·5	2·1	5·5	2·0	6
4	1·6	6	1·6	6	2·7	5·5	2·7	5·5
5	2·1	5	1·9	5·5	2·0	5·5	1·8	5
6	1·8	5	..	..	0·9	6	0·9	6
7	1·2	6·5	1·4	7·5	2·0	6	1·6	6
8	1·9	6·5	1·4	6	1·7	5·5	1·7	6
9	1·2	6	1·3	6·5	1·6	5·5	1·5	6
10	..	..	..	..	0·8	7	1·0	7
11	1·4	6·5	1·4	7	1·3	7	1·4	6·5
12	1·1	6	1·2	6·5	1·0	6	0·9	6
13	1·3	6·5	1·2	5·5	..	..	..	..
14	..	..	..	..	..	..	..	..
15	1·0	4·5	1·8	5	..	..	..	..
16	1·6	5	1·9	4·5	2·0	4	1·2	6
17	1·7	5·5	1·7	4·5	1·6	6·5	2·4	6
18	1·8	5·5	1·5	5	1·1	5	0·8	5·5
19	0·8	4·5	0·6	7	0·6	7·5	0·7	7
20	0·6	7	0·7	6·5	0·7	6	0·7	6·5
21	0·6	8	0·6	7	0·8	6·5	0·8	7
22	1·4	6	1·2	6	1·0	6	1·5	6
23	3·2	6	..	..	..	..	..	..
24	1·5	6·5	..	..	1·9	8	..	..
25	..	..	..	..	2·4	8	2·7	7·5
26	2·7	7·5	2·4	6·5	1·6	6·5	1·6	6
27	1·4	6·5	1·6	6·5	1·6	7	2·2	7
28	2·1	6·5	2·4	6	2·3	6	1·8	6

Means for Month $\begin{cases} A_N = 1·5. & \mu. \\ T = 6·1. & s. \end{cases}$

Normals for Month, 1911–20: $\begin{cases} A_N = 2·5. & \mu. \\ T = 6·0. & s. \end{cases}$

EARTHQUAKES.—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of Commencement.	Times, G.M.T. of Max. Phase.	Remarks.
	h m	h m	
4	8 41	9 13	Amplitude on trace 1·4 mm.
6	..	5 22	Very small.
11	..	0 59	Succession of very small waves.
19	..	15 51	Very small.
19	18 44	19 35	Succession of very small waves to 20h. 47m.
21	..	2 41	Very small.
21	..	16 38	Very small.
27	18 38	19 59	Amplitude on trace 1·2 mm. Small waves to 21 h. 21m.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians. per Second.	Components.		
				W.-E.	S.-N.	
2 13	St.-Cu.	135	3·6	− 2·5	+ 2·5	
3 13	St.-Cuf.	173	12·5	− 1·5	+12·4	Low stratus-cumuliformis, resembling St.-Cu. in appearance.
3 16	St.-Cuf.	170	14·0	− 2·4	+13·8	
4 13	St.-Cuf.	168	10·0	− 2·1	+ 9·8	Cloud very low.
5 13	Ci.	169	0·5	− 0·1	+ 0·5	Ci., diffuse, changing to Ci.-St.
	Fr.-Nb.	165	21·0	− 4·0	+20·3	
12 13	St.-Cu.	331	6·9	+ 3·3	− 6·0	Layer of thin St.-Cu.
14 13	Nb.-Cuf.	325	11·0	+ 6·3	− 9·0	Small low Cu.-Nb.
16 15	St.-Cu.	295	21·0	+19·0	− 8·9	Thin low St.-Cu.; height 700m.
17 13	St.-Cu.	291	15·0	+14·0	− 5·3	Low heavy St.-Cu.
18 15	St.-Cu.	336	3·8	+ 1·5	− 3·5	Cloud possibly stratus-cumuliformis.
19 12	A.-Cu.	287	2·0	+ 1·9	− 0·6	Diffuse thin A.-Cu. to thin St.-Cu.
23 13	St.-Cu.	201	9·0	+ 3·2	+ 8·4	Very low heavy St.-Cu.
26 13	St.-Cu.	231	3·9	+ 3·0	+ 2·5	Fused sheet of normal St.-Cu.

10. AURORA.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
5	p.	..	1, 1	2, 2	Deerness Gordon Castle Fort William	
6	a.	..	1, 1	2, 2	Wick	1h.
8	a.	●	..	..	..	
13	p.	..	1, 1	1, 1	Deerness	

Note.—The two " magnetic characters " entered in each case refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

DAILY VALUES.—*Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology.*

Eleventh YEAR.—NO. 3. MARCH, 1921.] Units based on the C.G.S. System. [*Price* 1s. 6d.

1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Calendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	11.30 h. to 12.30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Å Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p^0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h m.			mw/cm².	hr.	%
1	2·3	21		Instru	ment D	ismounte	d.	2·3	21	..	..	..	0·2	2	..	..	..	..	0·3	3
2	4·8	44	,,	,,	,,	,,	,,	5·2	48	74	38	Clear	6·3	59	12 25	Hazy	2·10	73	5·4	50
3	4·0	37	,,	,,	,,	,,	,,	4·8	44	..	..	..	0·0	0	..	..	..	..	0·0	0
4	0·1	1	,,	,,	,,	,,	,,	0·0	0	..	..	..	5·0	46	..	..	..	..	1·9	17
5	1·0	9	,,	,,	,,	,,	,,	0·4	4	..	..	..	0·0	0	..	..	..	..	0·0	0
6	3·6	32	,,	,,	,,	,,	,,	4·7	42	..	..	..	5·0	45	..	..	..	..	2·0	18
7	4·4	39	,,	,,	,,	,,	,,	5·5	49	63	35	Clear	7·8	70	..	..	..	..	4·4	39
8	0·1	1	,,	,,	,,	,,	,,	0·4	4	..	..	..	1·6	14	..	..	..	..	2·8	25
9	0·8	7	,,	,,	,,	,,	,,	0·8	7	..	..	..	0·0	0	..	..	..	..	0·1	1
10	8·5	75	,,	,,	,,	,,	,,	9·6	84	75	42	Clear	2·7	24	..	..	..	..	0·9	8
11	0·7	6	,,	,,	,,	,,	,,	0·1	1	..	..	..	4·5	39	..	..	..	..	x8·4	73
12	0·0	0	,,	,,	,,	,,	,,	0·0	0	..	..	..	2·6	23	..	..	..	..	1·6	14
13	1·7	15	,,	,,	,,	,,	,,	1·1	9	..	..	..	0·0	0	..	..	..	..	5·6	48
14	6·1	52	,,	,,	,,	,,	,,	6·3	54	74	43	Thro' Ci.	0·1	1	..	..	..	..	4·3	37
15	8·2	69	,,	,,	,,	,,	,,	7·5	64	75	44	Clear	0·3	3	..	..	..	..	1·3	11
16	0·2	2	,,	,,	,,	,,	,,	0·1	1	..	..	..	1·5	13	..	..	..	..	6·4	54
17	4·5	38	,,	,,	,,	,,	,,	4·8	40	64	39	Thro' Ci.	4·9	42	..	..	..	..	2·3	19
18	0·0	0	,,	,,	,,	,,	,,	x9·7	81	..	..	..	2·9	24	..	..	..	..	6·2	52
19	5·9	49	,,	,,	,,	,,	,,	5·3	44	..	..	..	3·2	27	..	..	..	..	0·1	1
20	2·3	19	,,	,,	,,	,,	,,	4·8	40	..	..	..	8·0	66	..	..	..	..	0·0	0
21	1·8	15	,,	,,	,,	,,	,,	2·8	23	..	..	..	0·0	0	..	..	..	..	0·9	7
22	4·2	34	,,	,,	,,	,,	,,	3·6	29	..	..	..	4·6	38	..	..	..	..	6·0	49
23	1·6	13	,,	,,	,,	,,	,,	2·4	20	..	..	..	0·0	0	..	..	..	..	0·0	0
24	8·9	72	,,	,,	,,	,,	,,	9·5	77	75	48	Clear	0·0	0	..	..	..	..	0·0	0
25	x10·2	82	,,	,,	,,	,,	,,	7·6	61	..	..	..	0·0	0	..	..	..	..	3·3	27
26	0·6	5	,,	,,	,,	,,	,,	0·7	6	..	..	..	3·5	28	..	..	..	..	6·3	50
27	—	—	,,	,,	,,	,,	,,	8·7	70	..	..	..	7·0	56	..	..	..	..	3·9	31
28	0·0	0	,,	,,	,,	,,	,,	0·0	0	..	..	..	0·0	0	..	..	..	..	1·1	9
29	5·1	40	,,	,,	,,	,,	,,	6·0	47	..	..	..	x7·3	57	..	..	..	..	5·7	45
30	5·3	42	,,	,,	,,	,,	,,	5·0	39	..	..	..	4·4	34	..	..	..	..	1·3	10
31	4·5	35	,,	,,	,,	,,	,,	4·1	32	..	..	..	0·0	0	..	..	..	..	1·1	9
Means	†3·38	†28	—	—	—	—	—	3·99	34	—	—	—	2·69	23	—	—	—	—	2·70	23
Normals	2·39	20	591	27	—	—	—	3·39	29	—	—	—	3·06	26	—	—	—	—	3·97	34
	←—35 years—→		←—8 years—→					←—35 years—→					←—10 years—→						←—35 years—→	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. Dry Bulb. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. Tenths of Sky covered. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%	°	m/s.	°	m/s.			mm.	a 200+		
1	1021·0	1022·0	82·3	79·9	84·0	78·4	9·3	6·8	80	68	190	5	295	7	9	9	0·6	78·2	o. to c. *a.*: op. *p.*	
2	1026·0	1027·8	79·4	79·0	81·0	77·2	6·3	7·5	66	81	320	7	235	2	2	4	0·3	74·6	Fair *a.*: Fair to Fine day.	
3	1020·9	1014·0	80·8	82·5	82·6	78·5	9·5	10·9	90	92	225	7	240	13	10●	10●	10·4	76·3	p. early: ●^{0} all day.	
4	1012·2	1009·9	82·9	81·9	84·4	81·5	10·6	9·9	88	88	235	7	195	4	9	6	0·7	81·5	o. *a.*: c. *p.*: p^0 *n.*	
5	1004·7	1003·1	81·9	80·5	82·4	80·1	10·4	8·4	92	81	175	6	340	10	10	8	10·4	79·8	p^0. early: ●^{0} all day.	
6	1011·5	1019·4	80·0	77·1	80·6	74·9	6·8	5·8	68	71	5	6	35	6	5	6	0·2	77·8	bc. *a.*: Fair later.	
7	1023·1	1018·5	73·4	81·3	81·3	n71·5	5·1	10·1	81	93	—	0	205	7	1	10●	3·1	n68·3	b. ⌙ at first: Fair day: ● *n.*	8 17869 γ 19° 6′·7 68° 2′·3
8	1018·1	1013·3	79·9	82·0	83·0	78·7	8·1	9·4	81	82	215	4	175	6	8	10	0·1	75·8	Fair early, then o.	
9	1006·9	999·9	83·1	82·3	83·8	81·6	11·1	10·2	90	88	180	7	175	10	10	8	3·4	80·4	d. *a.*: o. with p. *p. and n.*	
10	988·7	996·5	81·9	77·6	83·4	75·7	9·8	7·1	87	84	170	8	245	4	9	7▲^{0}	12·7	79·1	● *a.*: o. to c. *p.*: ▲^{0} *n.*	
11	1002·8	1003·4	79·0	79·8	82·1	76·2	7·2	7·4	78	75	220	4	180	6	6	2	1·3	71·9	bc., p. *a. and p.*: b. *n.*	
12	992·6	994·1	80·0	80·7	84·1	79·5	9·0	8·3	90	79	175	13	190	6	10●	2	x30·6	76·3	●^{2} *a.*: cp. later.	
13	992·9	996·6	80·1	79·0	82·9	78·6	8·1	7·9	80	85	190	5	200	3	10	7	3·7	76·6	bc. to c. *a.*: p. *p. and n.*	
14	1000·1	1010·7	78·1	78·4	81·1	76·9	7·5	6·7	85	75	270	3	195	4	10	5	2·9	73·7	p. at first: c. to bc., p. during day.	
15	1004·7	1008·4	83·7	83·4	85·0	80·3	11·6	11·4	91	91	190	9	180	5	10●^{0}	10●	16·6	75·4	o. to c. *a. and p.*: p. to ● *n.*	15 17839 γ 6804′·9
16	1007·5	1018·2	82·3	79·6	84·4	78·4	8·6	7·8	74	80	215	9	195	6	10	8	4·9	79·1	● early: p. *a.*: bc *p.*: p., ⊏ *n.*	
17	1014·1	1010·7	81·0	78·6	83·6	76·4	9·1	6·9	85	76	175	7	275	11	7	10	11·2	76·3	p^2*a.*: ⍂ day.	
18	1019·6	1023·3	79·6	80·1	81·8	78·0	7·2	7·8	74	77	260	11	270	9	6	5	2·8	75·8	Fair with p. all day.	
19	1021·2	1024·6	82·0	81·9	83·9	80·0	10·2	8·1	89	71	190	5	290	11	10	10	5·7	77·6	p. *a.*: ● *p.*: o. *n.*	
20	1025·1	1024·7	82·6	82·9	83·3	81·8	9·6	11·5	81	96	280	10	280	3	9	10●^{0}	0·4	79·8	o., ∞.^{0} *a. and p.*: d^0. ≡^{0} *n.*	
21	1021·9	1015·9	83·3	83·7	x85·3	82·7	11·9	11·3	96	88	235	8	185	6	10≡^{0}	10	0·1	82·3	o. to ≡ *a.*: o. to c. *p.*: o. *n.*	
22	1017·9	1015·9	81·0	81·5	83·9	80·3	8·8	9·3	83	84	315	2	165	7	9	9	2·0	79·1	d^0. early: p. *a.*: ⊕, o. to c. *p.*: b. *n.*	23 17834 γ 19° 5′·9 68° 2′·4
23	1013·6	1017·4	83·7	83·6	84·2	82·5	11·3	11·5	88	91	180	9	175	7	10	10	1·7	76·5	d. *a.*: o., ●^{0} *p. and n.*	
24	1019·7	1023·2	83·5	83·3	83·6	82·5	11·1	12·0	88	97	175	9	200	2	10	10●^{0}	8·5	82·6	●^{0} *a.*: ● *p. and n.*	
25	1025·4	1027·1	81·3	80·5	82·5	79·8	9·0	7·6	83	73	20	4	340	4	10●^{0}	8	6·0	79·8	● *a.*: o. to c. later.	
26	1024·8	1025·0	80·6	80·3	82·0	77·7	8·0	7·5	77	73	260	8	305	9	6	7	1·9	73·6	p. *a.*: c. with ▲^{0} p. *p. and n.*	
27	1024·9	1019·9	80·5	81·3	82·5	79·3	8·3	8·7	80	80	290	10	240	6	8	10●^{0}	3·5	77·3	p^0. early: c. *a. and p.*: ● *n.*	
28	1004·2	995·5	83·2	77·5	83·5	76·1	10·7	7·1	87	84	220	11	245	9	10	4	5·4	79·3	p. to ●^{0} *a.*: c. *p.*: ⍂ *n.*	
29	992·7	1008·8	78·9	81·0	82·0	73·6	5·7	7·1	61	67	290	5	350	9	7	3	12·0	73·0	✲ early: c., ▲ p. *a. and p.*: b. *n.*	
30	1013·6	1021·2	81·5	82·6	84·3	79·9	9·3	9·5	84	80	260	4	310	5	10	10	0·2	78·2	c. to o. *a. and p.*: od. *n.*	
31	1027·7	1029·4	82·6	82·8	84·7	81·8	10·4	10·4	88	86	280	3	—	1	8	8	—	80·4	o. to c. *a. and p.*: bc. *n.*	17847 γ 19° 6′·3 68° 3′·2
Means	1012·9	1014·1	81·1	80·9	83·1	78·7	9·0	8·8	83	82	— 6·6		— 6·3		8·4	7·6	163·3	77·3	Monthly Totals or Means.	
Normals	1011·4	1011·7	80·0	80·1	83·2	77·5	8·5	8·5	85	85	— 5·6		— 5·7		—	—	111·7 (45 years)	—	Normals.	
	←—45 years—→						←—30 years—→				←—35 years—→									

* By Campbell-Stokes Sunshine Recorder. *x* denotes the maximum and *n* the minimum value in the column. † Mean for 30 days only. Ball displaced on 27th.

Temperatures at or below the normal freezing point of water are printed in small type.

(6083) Wt.109/812/773 400 7/22 Harrow G.69/7

3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20 m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind—Veer from North in degrees and Speed in metres per second.				Cloud Amount Weather and Visibility.		Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	Remarks.
					Max.	Min.	Vapour Pressure.		Percentage.										
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.		21 h.		9 h.	21 h.			
	mb.	mb.	*a* 200+	*a* 200+	*a* 200+	*a* 200+	millibar.		%	%	°	m/s.	°	m/s.			mm.	*a* 200+	
1	1028·5	1022·8	77·7	78·6	84·0	74·7	7·8	7·8	91	86	235	2	200	4	9 ☽	F	o	I	—	69·1	≡⁰ ▬ early: o. to b.
2	1020·5	1026·2	78·4	76·9	82·0	74·2	8·4	5·7	94	70	—	1	290	3	10	F	o	J	1·5	68·1	● early: Dull to fine.
3	1027·3	1018·2	75·2	80·0	82·1	*n*71·5	4·8	8·4	67	84	285	2	200	8	2 ▬	F	10 ●⁰	J	0·1	*n*65·3	▬: b. to c. *a.*: o. *p.*
4	1011·8	1013·6	81·7	82·6	84·9	80·5	10·4	9·5	93	80	220	5	230	4	10	H	4	I	0·9	78·2	● early: Dull.
5	1013·2	1007·5	82·4	80·5	84·4	78·9	9·8	8·4	84	81	205	4	190	3	10	H	10	H	—	79·1	Fine till 8h. then o.
6	1003·8	1008·8	77·5	77·8	84·6	73·4	7·9	6·6	94	77	—	1	5	6	3 ☽	F	10	I	*x*6·7	68·3	≡ ▬: b. till 14h. then o.: ● *n.*
7	1020·9	1023·0	76·1	73·9	79·5	73·5	6·0	5·6	79	86	355	6	—	1	10	H	o ▬	F	—	72·9	Mostly c. to bc.: ▬ *n.*
8	1021·1	1018·0	76·8	81·0	82·7	72·5	6·5	9·4	81	88	245	3	215	5	10 ☽	G	7	I	0·5	66·1	≡⁰ ▬: Mostly o.: ●⁰ *p.*
9	1016·7	1014·7	81·5	80·3	84·1	77·6	9·1	8·3	82	81	210	6	190	5	7	I	8	I	—	74·4	Dull to cloudy.
10	1008·3	1004·1	80·4	79·7	85·9	74·8	7·0	7·5	68	76	160	6	180	4	0 ☽	H	o	I	—	70·1	▬. Fine day.
11	1007·5	1009·4	83·8	81·0	87·3	80·4	9·4	8·9	73	84	180	5	180	2	10	H	5	I	—	75·1	Dull to fair.
12	1009·0	1008·8	80·8	82·0	84·6	78·7	9·4	10·4	89	91	—	1	185	3	10 ●⁰	E	10	H	2·8	74·3	≡ ☽: Dull to fair: ● *n.*
13	1007·3	1006·1	83·4	82·3	85·8	81·4	10·2	9·8	81	84	170	6	185	6	10	H	7	J	3·3	79·3	● early: o. to c. *a. and p.*: ● *n*
14	1013·1	1016·7	82·4	81·0	85·6	78·8	9·0	8·7	77	82	180	9	175	4	6	K	7	K	1·1	76·1	p. early: b. to c.: ⁄ (gusts).
15	1024·8	1027·0	80·8	83·5	85·3	75·2	8·1	9·0	77	71	190	5	180	6	1 ☽	J	10	I	—	69·3	▬: Fine to cloudy.
16	1026·1	1025·9	83·0	84·3	86·4	81·9	9·9	10·9	81	82	180	6	200	8	10	I	10	K	—	80·3	Dull: ⁄ (gusts).
17	1027·3	1019·1	82·9	83·6	87·0	79·9	10·0	11·2	83	88	195	3	180	7	3 ☽	I	10 ●⁰	J	1·6	74·3	● early: o. to bc.: ● *p.*
18	1019·7	1023·8	79·3	79·5	84·1	77·9	6·6	7·2	69	74	250	6	235	4	1	K	o	K	1·4	76·1	● early: Mostly bc. to b.
19	1023·3	1017·8	80·2	81·3	84·6	76·5	7·2	9·6	71	88	240	5	205	6	3	K	10 ●⁰	I	2·0	73·4	☽: b. to bc.: ● *n.*
20	1015·9	1018·4	80·4	79·9	83·9	77·5	7·0	7·5	68	75	260	5	310	6	9	H	1	J	1·5	73·4	● early: Mainly fair: ● *p.*
21	1023·1	1021·9	79·3	82·8	86·2	75·2	7·8	10·5	82	87	315	2	205	4	10 ☽	G	10	H	—	70·6	▬ ≡⁰: b. to o.: ⊕ 9h.
22	1021·1	1022·8	83·7	82·8	87·4	81·0	10·1	9·8	79	81	210	6	205	5	9	I	4	I	—	78·6	☽: b. to o.: ∪ 21h.
23	1024·1	1025·3	83·0	82·4	86·2	80·5	8·9	9·4	73	80	220	6	210	5	10	L	8	J	—	74·9	☽: Fine to o.
24	1027·7	1027·8	83·0	82·3	*x*90·1	78·9	9·6	7·5	79	64	230	4	205	3	2 ☽	H	o	I	—	75·4	☽: Very Fine.
25	1027·4	1023·3	75·9	82·6	88·9	74·2	7·0	8·2	91	69	205	2	—	1	10	D	o ☽	H	—	68·1	≡ 9h.: Fine after 10h.
26	1019·8	1018·0	79·7	78·6	82·9	75·3	8·0	5·9	82	66	265	3	290	3	6 ☽	H	o	K	—	69·7	≡⁰ ▬: Dull to fair.
27	1017·9	1017·6	79·5	80·5	84·1	75·3	6·5	7·2	67	69	265	7	275	4	1	J	2	K	—	71·2	▬: b. *a.*: b. to c. *p.*
28	1012·2	998·9	81·2	83·2	85·0	77·8	8·5	10·1	79	82	210	7	200	11	10 ☽	J	10*q*	K	6·7	74·5	o. *a.*: ● *p. and n.*: ⁄ (gusts) pq. 23h.
29	994·4	995·6	80·1	78·4	84·5	76·9	7·6	7·4	75	83	210	7	190	3	3	K	10 ●	K	3·3	75·5	● early: ⊤ ▲ *p.* then b. to c.
30	1007·3	1018·2	79·1	80·2	84·4	75·5	7·1	7·7	75	76	295	4	260	3	3	I	o	J	0·4	69·5	● early: ▬, b. to o.
31	1024·0	1025·7	83·4	82·2	88·1	78·1	9·8	10·3	78	89	240	3	—	1	10	H	? o ☽	G	—	73·2	Overcast to Fine.
Means	1017·6	1016·9	80·4	80·8	85·1	77·0	8·2	8·5	79	80		−4·4		−4·4	6·7		5·3		33·8	73·0	Monthly Totals or Means.
Normal	1012·8	1012·8	78·2	78·5	82·4	75·4	7·3	7·4	81	81		−4·3		−3·6	—		—		40·9	—	Normals.
			45 years.				30 years.				35 years.								

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h =0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

																			Remarks.
1	990·0	984·4	78·7	76·7	80·1	75·0	7·1	6·9	77	87	210	11	260	8	10	I	10 ●⁰	I	5·1	77·2	●⁰ ≡⁰ to o. *a. and p.*: op. *n.*
2	985·9	993·3	73·8	72·1	76·9	71·2	5·1	4·4	80	77	250	8	280	2	8	I	o ▬	J	3·4	71·1	⊠ 1 cm.: b. to o. ✻ p. *a. and p.*: bc. to b. *n.*
3	988·0	972·4	76·0	79·8	80·7	69·0	7·1	9·3	94	94	210	9	230	14	10	I	10 ●	H	20·7	66·0	▬ early: ● ≡⁰ after 7½ h.: ⁄ 17-19h.
4	972·5	980·8	78·2	75·7	80·5	75·3	6·6	6·2	74	84	270	13	—	0	7	J	10	J	1·1	75·9	cp. *a.*: cq. *p.*: o. *n.*
5	979·5	972·0	73·7	78·9	80·0	73·5	6·2	8·9	96	97	—	1	200	8	10 ✻	I	10 ●⁰	F	6·4	72·9	✻ or ✱ till 9h. then ≡⁝⁰ to d. ≡⁰.
6	976·0	988·7	75·2	69·8	79·1	68·5	5·7	4·0	79	83	30	8	360	6	7	L	o	I	1·6	72·8	●⁰ ≡⁰ till 2h.: c. ▯ *a.*: c., ✻⁰ p. *p.*: b. *n.*
7	994·0	987·8	71·3	73·7	74·7	*n*66·7	4·9	6·2	91	96	—	0	190	5	3	K	10 ✻	G	2·5	*n*63·1	b. ▯ *a.*: ⊕ 12h.: o. *p.*: ✱ ≡⁰ after 20h.
8	986·6	981·6	74·7	77·7	78·7	73·8	6·8	7·5	98	88	—	0	210	10	10	I	10	I	1·5	72·1	d. ≡² early: o. to c. *a. and p.*: ●⁰ *n.*
9	977·1	976·0	79·0	79·3	80·2	78·4	8·6	9·1	92	96	220	11	200	13	10 ●	I	10	H	7·8	76·0	d. ≡⁰ to ● *a.*: o. *p.*: ≡⁝⁰ to ●⁰ ≡⁰ *n.*
10	972·6	965·6	78·8	81·0	81·2	78·3	8·0	7·1	87	67	180	10	160	11	10	I	7	J	5·8	77·0	●⁰ ≡⁰ at first: b. 13h.: o., p⁰q. *p.*: cq. to ●⁰ *n.*
11	975·8	978·4	77·0	76·5	80·3	73·5	6·9	7·3	85	93	190	6	190	4	5	J	9	I	2·4	72·0	bc. *a.*: o., ▲ p. 17h. *p.*: c. to o. *n.*
12	976·5	973·2	77·1	77·4	79·5	75·0	6·6	7·6	81	91	170	7	180	7	10	I	10 ●	I	1·7	73·8	c. to o. all day: ● after 20½ h.
13	972·1	970·0	78·9	78·7	81·0	76·5	8·6	8·3	93	91	160	5	200	3	10 ●⁰	I	10 ●	H	21·0	76·3	●⁰ ≡⁰ *a.*: o. *p.*: ● *n.*
14	976·0	976·6	76·4	75·7	79·6	75·0	7·3	7·1	94	95	180	9	200	11	10 ●⁰	I	10 ●⁰	H	11·1	74·0	Dull, ● most of day.
15	984·4	985·0	77·8	81·0	81·2	75·0	6·6	10·3	77	97	170	11	190	15	10	J	10 ●	G	3·7	73·3	o. ≡⁰ early: c. *a.*: ⁄ 16h., ● ≡⁰ *p. and n.*
16	979·0	988·3	81·6	77·2	82·0	76·2	10·4	6·7	94	81	180	21	210	9	10 ●	H	1	I	30·9	80·6	⁄ 6h.-10h: ● ≡⁰ till 11h.: c. to ●⁰ *p.*: b. *n.*
17	991·6	982·3	78·6	79·0	81·6	74·6	7·9	8·4	87	90	180	9	170	5	10	J	10 ●	I	0·6	72·5	b. 1h.: op.⁰ *a.*: ⁀ 12h.: o. to c. *p.*: o. to ●⁰ *n.*
18	980·0	984·4	74·7	76·4	79·0	73·8	5·7	7·0	83	90	210	8	210	11	10	I	9	J	8·5	72·7	o., ▲ ✱ ≡⁰ till 5h.: c. to o. with ✻ or ▲ p.
19	987·4	981·3	77·2	77·8	79·8	75·0	6·3	6·8	77	80	220	6	290	11	6	J	7	I	11·4	72·6	● ≡⁰ early: bc. *a.*: ● ≡⁰ 13 to 19h.: c. *n.*
20	981·6	989·9	78·0	76·8	83·8	75·3	6·9	6·0	79	75	310	11	290	5	7	K	1	J	2·1	73·6	op. at first: bc. *a. and p.*: b. *n.*
21	988·9	985·4	79·5	81·6	82·5	75·8	9·5	9·8	98	88	220	5	220	9	10 ●⁰	D	10	I	0·6	72·6	o. early: ≡⁝ to d. ≡ *a.*: o. *p. and n.*
22	985·1	990·6	78·4	73·3	82·4	72·3	7·1	5·3	79	85	300	6	—	0	7	I	4	K	9·9	77·5	● early: bc. to o. *a.*: bcy. *p.*: bc. *n.*
23	984·6	986·1	79·7	81·0	81·5	71·5	9·6	10·1	98	95	190	14	200	11	10	H	10 ●⁰	G	8·4	70·0	▬ 1h.: d. ≡⁰ 7-8h.: o. *a.*: ●≡⁰⁄ till 21h.
24	988·6	993·1	80·3	80·7	81·5	79·9	9·6	10·0	94	96	190	13	200	5	10	H	10 ●⁰	F	6·6	79·3	o. ≡⁰ with ●⁰ at times *a. and p.*: ● ≡⁰ *n.*
25	996·3	995·6	78·5	75·2	80·2	74·9	6·3	6·8	70	95	—	1	—	0	10	I	6	I	5·7	76·3	o., occasional ● *a. and p.*: c. to bc. *n.*
26	990·0	983·1	76·3	73·3	79·8	72·9	6·7	5·8	87	93	240	5	270	8	10	I	1	I	4·5	71·7	p⁰ early: ≡⁰ 7h.: o., ▲ p. *a.*: o., ✻ p *p*: b. *n.*
27	981·4	984·2	75·4	74·5	79·6	72·9	5·5	6·0	76	88	300	11	200	2	2	I	10	I	2·0	71·5	✻ p. at first: Fine *a. and p.*: o. *n.*, ● after
28	969·5	958·6	78·6	76·9	81·4	74·8	8·6	6·6	95	82	230	11	260	10	10 ●	H	7	I	*x*34·7	72·0	Persistent ● ≡⁰ till 20h. then c. to ●⁰. [22h.
29	958·6	967·3	75·0	75·9	78·4	72·0	5·1	5·8	72	77	240	7	350	6	3	I	5	I	2·1	72·0	▲⁰ p. 6.h: bc. to cy. *a. and p.*: ● ≡⁰ to c. *n.*
30	979·5	981·4	77·5	80·5	81·1	73·7	5·6	9·2	67	89	280	2	270	7	7	K	10 ●⁰	H	1·3	70·3	b. early: ⊕ 8½h.: oy. *a.*: d⁰ *p.*: d. ≡⁰ to ≡⁝⁰
31	992·7	996·3	80·9	81·3	*x*83·6	79·6	8·9	9·6	84	88	270	6	270	3	9	I	10	J	—	78·0	o. ≡⁰ early: o. all day.
Means	982·0	981·7	77·3	77·3	80·4	74·2	7·2	7·4	85	88		−7·9		−7·1	8·4		7·6		225·1	73·4	Monthly Totals or Means.
Normal 1911-1920.	980·1	980·2	75·6	75·0	78·8	72·2	6·3	6·3	84	86		−6·5		−5·4	—		—		116·1	—	Normals.

Temperatures at or below the normal freezing point of water are printed in small type. *x* denotes the maximum, and *n* the minimum, value in the column.

5. GEOPHYSICS :—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force.						Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}.		Air-Earth Current. × 10^{16}.	Potential Gradient, Volts per metre. Factor 2·22.			
					Horizontal Comp't.		Declination.		Inclination.				+.	−.					
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			About 15 h.		About 15 h.	3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m	v/m	v/m	v/m
1	77·8	79·8	233	234	..	..	..	..	..	..	1	0	0·51	0·36	0·95	425	435	355	465
2	77·7	79·7	233	..	..	..	..	..	..	..	1	1	0·88	1·03	1·10	275	330	275	410
3	77·4	79·9	231	..	11 29	18397	15 0	14 26·2	14 17	66 56·5	1	0	0·62	0·56	0·80	435	750	300	330
4	78·0	79·8	230	..	..	..	..	..	..	..	0	1	0·49	..	0·80	55	135	205	300
5	79·0	79·7	227	..	..	..	..	..	..	..	0	0	..	..	..	220	435	315	425
6	79·0	79·9	225	..	..	..	..	..	..	..	0	2	..	..	..	230	480	245	190
7	78·8	79·9	223	..	..	..	..	..	..	..	0	0	0·62	0·50	1·10	190	370	285	600
8	77·9	79·9	222	..	..	..	..	..	..	..	0	1	0·27	0·35	0·50	505	435	275	380
9	78·6	79·9	221	..	..	..	..	..	..	..	1	0	0·55	0·50	0·65	330	370	275	370
10	78·6	80·0	221	..	11 5	18388	14 50	14 26·3	14 32	66 57·0	1	0	0·54	0·27	1·35	245	380	300	560
11	79·2	79·9	220	..	10 45	18391	..	..	..	..	0	0	0·29	0·29	1·05	150	220	380	505
12	79·7	79·9	220	..	..	..	..	..	..	..	0	1	..	..	..	315	380	220	340
13	80·1	80·0	220	..	..	..	..	..	..	..	0	1	..	..	..	165	245	190	−95
14	80·5	80·2	220	..	..	..	..	..	..	..	1	1	..	..	..	z ±	205	95	330
15	80·3	80·2	220	..	..	..	..	..	..	..	1	0	0·99	0·86	0·50	245	450	230	340
16	80·8	80·2	219	..	..	..	..	..	..	..	1	0	..	..	..	110	175	230	275
17	81·1	80·4	218	..	10 58	18380	14 39	14 25·8	..	..	0	1	0·35	0·38	1·10	190	450	205	165
18	81·8	80·4	217	..	..	..	..	..	..	..	0	1	0·76	0·43	0·80	135	275	205	490
19	80·7	80·6	216	..	..	..	..	..	..	..	0	1	..	..	..	220	260	165	190
20	80·7	80·7	215	..	..	..	..	..	..	..	0	1	..	..	..	165	205	z−	230
21	79·9	80·8	213	..	..	..	..	..	..	..	2	0	0·23	0·45	0·80	220	615	220	175
22	81·0	80·8	212	..	..	..	..	..	14 41	66 57·9	2	0	0·79	0·43	0·65	205	260	230	285
23	81·5	81·0	211	..	..	..	..	..	..	..	0	0	0·29	0·49	0·65	95	205	205	340
24	81·1	81·0	211	210	11 25	18376	14 36	14 30·2	14 37	66 57·0	1	0	0·77	0·64	0·55	275	300	245	520
25	81·0	81·1	212	210	..	..	..	..	..	..	2	0	..	..	..	340	380	245	330
26	81·0	81·2	216	..	..	..	..	..	..	..	1	1	..	..	..	150	315	205	480
27	80·3	81·2	218	..	..	..	..	..	..	..	2	0	..	..	..	135	190	165	275
28	80·4	81·2	220	..	..	..	..	..	..	..	0	1	..	..	..	135	175	150	135
29	80·6	81·2	221	..	..	..	..	..	16 18	66 57·4	2	2	..	..	..	125	340	z ±	z ±
30	80·2	81·2	218	..	..	..	14 27	14 28·8	15 32	66 58·0	1	1	..	0·16	0·35	315	340	260	395
31	80·2	81·2	216	..	11 8	18380	15 49	14 24·8	14 37	66 57·4	0	0	0·59	0·41	1·25	175	230	220	370
M.	79·8	80·4	220	—	—	—	—	—	—	—	0·68	0·55	0·56	0·48	0·83	232	342	243	341
No. of days used	31	31	31	—	—	—	—	—	—	—	31	31	17	17	18	28	28	28	28

6. GEOPHYSICS :—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force.																Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre. Factor 6·13.			
	North Component.					West Component.					Vertical Component.											
	Maximum 15000 γ +.		Minimum. 15000 γ +.		Range.	Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.	Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.				3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ				v/m	v/m	v/m	v/m
1	21 40	1014	948	13 21	66	12 25	837	724	20 44	113	20 47	1072	1032	11 2	40	1	2 *b*		60	225	285	15
2	24 0	1021	946	14 19	75	3 46	828	770	22 44	58	15 12	1054	1033	4 5, 11 58	21	1	2 *c*		110	z ±	255	425
3	23 8	1030	974	15 11	56	14 30	821	776	1 29	45	18 40	1054	1034	12 29	20	1	2 *c*		170	95	z−	−370
4	6 4	1003	965	15 5	38	13 40	829	778	8 41, 8 54	51	19 55	1048	1032	13 41	16	0	†		†	†	265	295
5	5 45	1006	973	11 55	33	13 5	826	769	22 51	57	22 28	1049	1036	13 30	*n*13	0	2 *c*		110	‡	−145	75
6	23 5	1020	966	12 5	54	13 42	823	779	8 55	44	17 0	1048	1030	12 36	18	0	2 *b*		55	110	185	255
7	20 54	1021	973	12 18	48	13 12, 13 22	819	766	21 33	53	20 45	1050	1034	12 5	16	0	2 *b*		260	250	330	80
8	0 20, 0 26	1008	980	12 49	*n*28	13 30	819	774	9 18	45	3 30	1043	1029	12 56	14	0	2 *b*		170	315	110	−290
9	23 18	1034	962	20 16	72	15 18	833	704	23 32	129	20 30	1063	1026	12 25	37	1	2 *c*		−65	−395	105	190
10	0 35, 2 48	1019	961	2 11	58	2 22	856	722	0 1	134	19 50	1052	988	2 48	64	2	2 *c*		−45	170	290	135
11	23 38	1014	966	11 41	48	14 39	822	773	9 32	49	8 21	1046	1031	12 2	15	0	1 *b*		150	215	290	615
12	22 5	1010	964	11 6	46	14 46	842	770	9 22	72	18 33	1051	1028	12 33	23	1	2 *b*		185	585	345	−645
13	19 6, 20 42	1010	966	12 20	44	14 19, 15 16	822	774	9 40	48	16 40	1040	1023	12 0	17	0	2 *c*		45	−1015	335	z−
14	22 15	1039	961	11 36	78	14 15	833	710	22 25	123	21 5	1055	1028	10 30, 10 48, 12 53	27	1	2 *c*		45	−540	z ±	70
15	5 30	1021	925	9 55	96	14 57	855	756	20 30	99	19 31	*x*1117	1020	6 9	*x*97	1	*		140	150	*	*
16	4 4	1018	949	11 45	69	3 50	823	759	2 55	64	0 1, 17 56	1052	985	4 9	67	1	*		*	*	180	190
17	23 0	1012	960	10 51	52	12 56	812	773	9 42	39	7 40	1048	1035	12 50	*n*13	0	1 *b*		140	250	320	z ±
18	23 38	1006	966	12 34	40	14 36	822	775	9 16	47	20 35	1045	1027	13 8	18	0	2 *c*		110	75	z−	−35
19	4 51	1004	970	11 15	34	12 56, 13 12	812	769	3 21	43	16 35	1042	1029	4 52	*n*13	0	2 *c*		−1190	160	−1445	125
20	19 25	1008	974	11 32	34	13 30, 13 54, 14 25	812	777	9 0	*n*35	21 50	1039	1025	11 55	14	0	†		125	†	†	†
21	16 26	1058	935	17 58	123	16 25	*x*912	768	8 48	144	18 5	1107	1026	11 5, 12 15	81	2	†		†	†	220	70
22	14 50	1039	915	11 50	124	14 49	860	742	0 42	118	21 30, 21 46	1059	993	5 55	66	2	2 *b*		−280	170	180	265
23	6 50, 7 1, 7 9	1001	955	12 45	46	14 45	814	765	8 44	49	8 55	1047	1034	13 20	*n*13	0	2 *b*		165	70	−175	125
24	20 10	1010	951	12 10	59	14 1	842	706	20 52	136	20 48	1060	1027	12 0, 12 20	33	1	1 *a*		40	65	65	40
25	21 35	1083	*n*912	12 18	171	13 39	835	*n*697	22 53	138	21 5	1052	*n* 975	22 33	77	2	2 *b*		35	90	105	580
26	22 34	1063	925	14 23	138	12 42	831	738	22 59, 23 1	93	16 20	1061	1003	23 50	58	1	2 *c*		630	225	z−	z−
27	20 39	*x*1137	918	20 59	*x*219	12 48	827	713	20 33	114	18 42	1083	1003	0 1	80	2	1 *b*		415	175	170	225
28	24 0	1019	948	11 53	71	15 20	826	758	9 47	68	17 0	1053	1023	12 20	30	1	2 *c*		−230	−1370	−2215	85
29	20 34	1085	915	10 27	170	2 16	860	702	20 28	*x*158	18 14	1070	992	2 32	78	2	1 *b*		z +	175	200	330
30	23 33	1029	951	12 16	78	14 25	828	767	7 53	61	17 0, 17 34	1050	1010	0 54	40	1	1 *a*		280	205	115	75
31	0 22	1010	960	12 2	50	13 16	823	769	9 0	54	17 42	1045	1026	0 50	19	0	1 *a*		75	105	150	100
M.	—	1027	953	—	75	—	832	752	—	80	—	1057	1020	—	37	0·77	1·73		5	67	−65	116
No. of days used	—	31	31	—	31	—	31	31	—	31	—	31	31	—	31	31	26		17	17	17	17

x denotes the maximum and *n* the minimum value in the column. Potential gradient is reckoned as positive if the potential increases upwards. For indeterminate potential gradient the following notation is used:—*z*+ Indeterminate, positive value; *z*− Indeterminate, negative value; *z* ± Indeterminate in magnitude and sign. † Pipe choked. * Light failed. ‡ Clock stopped.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	4·5	..	3·9	..	5·5	..	6·5	..	7·5	..	6·4	..	3·5	..	9·5	..	17	15 30
2	..	3·5	9·5	..	..	2·0	11·3	..	..	1·7	9·7	..	..	2·8	7·7	..	17	7 0
3	1·9	..	5·3	..	6·2	..	7·3	..	8·5	..	7·1	..	7·5	..	6·4	..	20	15 50
4	4·7	..	8·2	..	4·4	..	7·7	..	3·2	..	8·8	..	4·0	..	4·7	..	17	0 25
5	3·1	..	3·8	..	5·1	..	4·3	..	6·5	..	3·7	..	5·1	..	2·9	..	14	12 55
6	3·7	..	2·1	..	..	11·9	2·1	..	..	11·3	..	2·0	..	8·5	..	7·1	20	15 35
7	..	2·3	..	2·8	..	1·7	..	2·0	4·6	..	1·7	..	6·5	..	5·5	..	16	21 10
8	3·9	..	6·8	..	..	..	4·6	..	4·7	..	4·0	..	5·7	..	3·3	..	14	0 45
9	8·0	..	4·6	..	10·7	..	3·9	..	8·3	..	3·0	..	10·3	..	3·8	..	20	8 50
10	8·4	..	1·5	..	10·6	..	..	1·9	12·5	..	..	..	11·9	..	4·4	..	24	18 35
11	2·3	..	4·0	..	4·2	..	0·7	..	5·5	..	2·0	..	4·3	..	1·6	..	10	15 15
12	5·8	..	1·0	..	8·4	..	..	1·5	10·9	..	1·9	..	10·2	..	..	..	21	18 15
13	8·8	..	..	1·5	9·8	..	..	3·6	5·4	..	3·1	..	5·5	..	2·0	..	22	7 25
14	5·1	..	0·9	..	6·5	..	..	1·1	9·5	..	..	..	4·7	..	4·0	..	20	13 10
15	4·8	..	2·8	..	11·9	..	..	2·1	10·3	..	1·8	..	6·8	..	1·2	..	22	13 45
16	12·8	..	..	..	12·6	..	2·2	..	8·8	..	3·2	..	4·5	..	3·9	..	24	6 5
17	4·5	..	3·9	..	6·5	..	1·1	..	8·1	..	1·4	..	10·0	..	..	1·8	20	21 40
18	3·5	..	9·5	..	4·1	..	7·1	..	3·1	..	8·6	..	3·0	..	8·3	..	18	5 40
19	5·2	..	9·1	..	..	1·7	9·7	..	5·7	..	4·8	..	..	4·3	11·7	..	19	18 10
20	..	2·1	11·9	..	..	4·7	12·9	..	..	4·6	8·0	..	..	2·4	4·2	..	20	0 25
21	2·8	..	2·3	..	2·8	..	4·8	..	5·1	..	4·3	..	7·1	..	4·1	..	15	19 5
22	6·1	..	5·1	..	..	4·2	7·4	..	..	Calm		..	0·8	..	2·2	..	17	5 40
23	5·5	..	1·0	..	10·7	..	3·9	..	10·1	..	3·7	..	9·6	..	5·5	..	20	11 35
24	10·1	..	3·7	..	9·4	..	5·4	..	9·8	..	3·6	..	8·5	..	4·9	..	19	3 5
25	6·2	..	3·6	..	5·7	..	3·3	..	..	6·2	..	..	..	2·6	0·5	..	13	0 55
26	..	2·6	1·5	..	..	1·3	7·1	..	4·1	..	7·1	..	..	2·7	15·5	..	23	19 10
27	..	..	12·8	..	..	..	13·1	..	..	..	10·2	..	..	..	7·9	..	21	5 15
28	6·0	..	7·0	..	7·0	..	6·0	..	10·2	..	5·9	..	2·8	..	7·7	..	22	16 0
29	3·4	..	4·0	..	..	4·0	2·3	..	5·7	..	3·3	..	..	10·5	6·0	..	22	18 45
30	..	11·9	2·1	..	..	4·5	3·9	..	5·3	..	4·5	..	3·3	..	5·7	..	20	0 10
31	..	1·4	7·8	..	..	..	6·9	..	2·1	..	3·7	..	2·1	..	2·5	..	15	1 15
S+N & W+E	154·9		144·0		178·1		157·7		199·3		127·5		171·5		156·5			
S−N & W−E	107·3		135·4		106·1		133·3		151·7		123·5		103·9		138·7			

SCOTLAND N.:—DEERNESS.

Cup. Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	4·8	..	2·8	..	8·0	..	2·9	..	4·7	..	8·2	..	4·7	..	8·2	..	10·5	24
2	8·8	..	7·4	..	..	8·6	10·3	..	..	9·0	7·6	..	..	2·1	3·7	..	15·7	12, 13
3	5·5	..	4·7	..	11·3	..	4·1	..	12·3	..	2·2	..	6·4	..	11·1	..	16·7	24
4	5·4	..	14·7	..	..	2·8	15·9	..	..	7·8	9·3	..	..	8·8	3·2	..	18·0	8
5	..	2·9	1·6	..	..	0·4	..	2·3	3·3	..	..	5·7	..	..	..	3·0	6·9	17
6	..	14·1	..	5·2	..	13·9	..	2·4	..	9·1	1·6	..	..	7·2	..	..	15·1	3
7	..	1·0	1·2	..	1·0	..	2·8	..	9·2	..	..	..	11·7	..	4·3	..	12·5	15
8	..	..	4·3	..	3·4	..	4·0	..	9·4	..	1·6	..	13·2	..	2·3	..	13·8	20
9	4·5	..	3·9	..	3·0	..	0·5	..	3·1	..	3·8	..	3·4	..	1·2	..	7·2	1
10	8·8	..	1·5	..	8·0	..	2·9	..	9·1	..	..	3·4	9·4	..	..	1·6	12·1	22, 23
11	12·5	..	4·6	..	13·6	..	2·4	..	8·3	..	6·9	..	6·8	..	3·9	..	15·4	2
12	8·1	..	1·4	..	14·1	..	..	5·2	12·8	..	..	7·4	14·2	..	..	2·5	16·4	20
13	13·2	..	..	2·3	11·9	..	..	4·4	9·4	..	..	5·4	6·2	..	..	..	13·4	3
14	2·0	..	..	1·1	8·9	..	..	..	8·1	..	..	1·4	3·2	..	0·6	..	9·8	13
15	1·9	..	0·7	..	12·9	..	..	2·3	14·7	..	..	5·4	7·0	..	2·6	..	17·0	13
16	9·7	..	..	1·7	9·7	..	..	11·6	9·5	..	11·3	..	4·5	..	2·6	..	19·7	13
17	6·5	..	3·7	..	8·2	..	4·7	..	6·5	..	..	2·4	10·5	..	..	6·0	13·8	23
18	11·3	..	..	6·5	9·1	..	3·4	..	7·8	..	6·6	..	6·5	..	5·5	..	14·4	1, 14
19	4·4	..	11·9	..	..	..	15·4	..	2·8	..	7·7	..	4·7	..	8·2	..	15·7	10
20	..	4·4	11·9	..	..	5·7	3·3	..	..	6·0	3·4	..	..	0·4	2·3	..	13·8	2
21	6·0	..	3·4	..	4·5	..	3·9	..	7·8	..	9·3	..	2·3	..	6·2	..	10·5	13
22	3·6	..	9·8	..	4·0	..	11·0	..	3·8	..	10·3	..	4·5	..	3·9	..	12·8	14
23	8·3	..	3·0	..	10·7	..	..	3·9	9·3	..	7·8	..	4·4	..	7·7	..	14·8	11
24	3·8	..	0·7	..	9·1	..	5·2	..	2·8	..	15·9	..	5·2	..	9·1	..	20·0	13
25	2·8	..	3·3	..	3·3	..	5·7	..	2·7	..	7·4	..	2·3	..	4·0	..	10·2	13
26	4·7	..	4·0	..	9·1	..	5·2	..	5·8	..	6·8	..	1·8	..	4·9	..	10·5	9, 16, 18
27	..	3·7	6·5	..	..	1·5	8·8	..	..	9·4	5·4	..	..	1·9	2·3	..	14·1	12
28	4·8	..	2·8	..	3·5	..	3·0	..	5·7	..	..	3·3	2·3	..	..	6·2	10·8	23
29	5·8	..	6·8	..	5·1	..	2·9	..	..	Calm		..	..	7·5	..	..	9·5	19
30	..	2·3	2·8	..	4·3	..	5·1	..	7·8	..	6·6	..	..	..	15·1	..	15·1	17, 21
31	..	..	11·1	..	1·9	..	10·6	..	2·4	..	13·6	..	..	..	8·9	..	16·4	12
S+N & W+E	175·7		147·3		211·5		166·1		220·4		187·7		163·1		141·1			
S−N & W−E	118·9		113·7		145·7		101·9		137·8		118·9		107·3		102·5			

ENGLAND S.W.:—SCILLY.

Cup. Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	2·7	..	1·0	..	2·9	..	2·4	..	2·3	..	4·0	..	1·8	..	5·1	..	7·1	24
2	..	6·7	5·7	..	..	6·1	3·5	..	..	5·5	3·1	..	..	2·5	2·1	..	8·8	3
3	..	0·6	3·2	..	1·1	..	6·2	..	1·7	..	9·5	..	..	..	12·1	..	13·8	23
4	..	..	11·7	..	..	..	9·6	..	..	..	7·9	..	1·7	..	4·7	..	13·3	1
5	2·3	..	4·0	..	1·0	..	5·7	..	6·3	..	2·3	..	4·4	..	3·8	..	8·3	23
6	..	1·7	9·5	..	..	6·1	5·1	..	..	10·4	..	..	..	10·4	..	..	11·7	19
7	..	5·1	..	4·4	..	..	..	4·6	2·1	..	..	..	1·6	..	1·9	..	9·2	1
8	1·2	..	6·6	..	2·8	..	7·8	..	3·0	..	8·2	..	..	..	5·8	..	9·6	14
9	4·1	..	7·2	..	7·0	..	2·6	..	8·2	..	3·0	..	7·0	..	1·2	..	9·6	24
10	11·9	..	..	2·1	11·1	..	..	2·0	12·0	..	..	4·4	..	0·8	4·5	..	14·6	7
11	..	0·3	1·7	..	..	Calm		..	..	1·6	2·9	..	..	0·6	1·6	..	9·6	6
12	3·1	..	1·1	..	9·5	..	1·7	..	9·8	..	5·6	..	12·1	..	..	..	12·9	17, 19
13	10·8	..	..	..	6·3	..	2·3	..	2·3	..	6·3	..	7·3	..	8·7	..	12·5	6
14	5·4	..	6·4	..	8·3	..	6·9	..	..	..	9·6	..	..	..	7·9	..	17·9	14
15	7·2	..	4·1	..	11·5	..	2·0	..	11·1	..	2·0	..	11·5	..	2·0	..	13·3	13
16	11·1	..	2·0	..	12·3	..	2·2	..	6·7	..	5·7	..	3·8	..	3·2	..	15·0	7
17	5·1	..	1·8	..	3·9	..	1·4	..	9·2	..	..	..	..	..	16·7	..	18·3	23
18	..	5·0	13·6	..	..	2·1	11·9	..	..	3·3	8·9	..	..	1·7	9·8	..	17·1	1
19	..	..	9·2	..	..	1·4	8·2	..	3·3	..	8·9	..	..	7·1	12·3	..	14·2	21
20	..	7·5	13·0	..	..	7·3	12·6	..	..	7·3	12·6	..	..	6·0	7·0	..	15·0	3
21	..	2·0	5·5	..	..	2·9	5·0	..	..	0·7	3·7	..	2·7	..	1·0	..	8·3	5
22	3·1	..	5·5	..	3·2	..	3·8	..	3·5	..	6·1	..	2·9	..	1·6	..	7·5	14
23	5·5	..	3·1	..	6·3	..	..	..	7·4	..	2·7	..	4·3	..	1·6	..	7·9	2, 15
24	3·9	..	1·4	..	4·3	..	1·6	..	3·6	..	1·3	..	..	Calm		..	5·8	6
25	1·1	..	1·3	..	0·6	..	1·6	..	..	1·2	2·2	..	..	1·4	2·5	..	2·9	19, 20, 21
26	1·9	..	3·3	..	..	8·2	3·0	..	..	5·4	6·4	..	..	8·0	9·6	..	12·5	21
27	..	6·4	5·4	..	..	9·0	7·5	..	..	5·2	9·0	..	..	3·4	9·3	..	12·1	19
28	1·4	..	8·2	..	2·1	..	11·9	..	5·1	..	14·0	..	..	4·1	11·3	..	17·1	22
29	..	..	14·6	..	..	10·2	17·7	..	..	9·3	7·8	..	..	12·3	7·1	..	20·4	9
30	..	13·1	2·3	..	..	6·2	1·1	..	..	0·8	4·5	..	..	0·7	3·7	..	13·3	3
31	..	1·4	3·9	..	..	2·5	1·4	..	..	3·5	3·0	..	..	2·7	1·0	..	5·4	20
S+N & W+E	131·6		162·8		156·2		153·3		151·8		165·6		122·8		159·1			
S−N & W−E	32·0		149·8		32·2		140·1		43·4		156·8		−0·6		159·1			

ENGLAND E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	0·5	..	3·0	..	1·1	..	3·1	..	4·5	..	5·3	..	3·8	..	3·2	..	11	13 10
2	1·4	..	3·9	..	..	..	2·5	..	..	5·2	6·1	..	..	1·5	4·2	..	14	15 35
3	..	1·5	4·2	..	..	..	3·9	..	2·9	..	7·9	..	5·3	..	9·2	..	17	23 25
4	3·6	..	9·9	..	..	..	7·9	..	..	..	7·5	..	..	..	4·6	..	17	0 45
5	1·9	..	3·3	..	2·7	..	4·8	..	2·6	..	4·5	..	2·8	..	4·9	..	9	14 5
6	2·5	..	2·1	..	1·2	..	3·4	..	..	2·5	4·3	..	..	11·0	..	6·3	20	22 20
7	..	7·8	..	6·6	..	8·9	..	5·1	..	5·5	..	3·1	..	0·5	3·0	..	19	5 15
8	3·0	..	3·6	..	2·3	..	4·0	..	3·0	..	5·3	..	2·2	..	3·9	..	10	12 20
9	1·8	..	3·2	..	4·0	..	4·7	..	2·6	..	7·0	..	5·8	..	3·3	..	15	14 45
10	4·8	..	2·7	..	7·9	..	1·4	..	7·1	..	..	4·1	3·9	..	..	2·2	15	12 5
11	3·9	..	..	1·4	3·9	..	..	1·4	9·5	..	..	..	4·3	..	2·5	..	12	12 40
12	1·9	..	1·6	..	2·6	..	1·5	..	9·6	..	..	..	6·2	..	3·6	..	13	16 40
13	6·4	..	1·1	..	10·2	..	3·8	..	9·4	..	1·6	..	7·0	..	2·6	..	15	14 5
14	7·0	..	4·0	..	7·0	..	5·9	..	12·7	..	4·7	..	6·5	..	1·1	..	19	15 5
15	3·7	..	2·1	..	1·8	..	3·1	..	10·8	..	1·9	..	7·7	..	6·5	..	15	14 0
16	8·3	..	4·8	..	8·9	..	7·5	..	10·4	..	6·0	..	7·4	..	6·2	..	19	16 25
17	4·4	..	3·7	..	..	Calm		..	9·2	..	..	..	8·1	..	4·7	..	13	15 50
18	7·8	..	4·5	..	..	1·4	7·7	..	..	2·4	6·6	..	1·6	..	4·3	..	19	13 10
19	2·5	..	4·3	..	1·9	..	5·4	..	..	..	5·4	..	3·0	..	5·2	..	12	9 55
20	..	6·1	5·1	..	..	5·6	6·6	..	..	7·9	1·4	..	..	9·8	1·7	..	18	13 55
21	..	2·8	2·3	..	..	Calm		..	2·6	..	4·6	..	3·7	..	4·3	..	11	0 5
22	1·7	..	4·7	..	3·6	..	6·3	..	3·1	..	5·5	..	4·1	..	4·8	..	13	13 10
23	3·0	..	5·3	..	3·8	..	6·6	..	3·2	..	8·7	..	3·9	..	4·5	..	16	15 10
24	3·0	..	5·3	..	1·3	..	7·4	..	..	..	6·6	..	1·7	..	2·9	..	13	9 10
25	..	1·4	3·9	..	..	0·4	2·1	..	2·7	..	..	2·2	..	..	..	1·6	7	2 15
26	..	Calm		..	0·3	..	1·6	..	..	5·3	1·9	..	..	..	3·0	..	10	12 55
27	..	2·7	4·8	..	..	4·0	6·9	..	..	8·0	6·7	..	..	2·5	4·3	..	19	10 55
28	..	0·7	3·9	..	1·3	..	7·1	..	4·3	..	11·7	..	6·3	..	10·9	..	19	22 45
29	2·8	..	7·7	..	4·0	..	6·9	..	12·1	..	2·1	..	5·2	..	4·4	..	19	0 40
30	1·2	..	3·2	..	..	2·9	1·6	..	..	4·2	2·4	..	0·7	..	3·7	..	10	13 40
31	..	3·0	5·2	..	..	4·6	3·9	..	1·9	..	..	0·7	0·4	..	2·5	..	11	3 50
S+N & W+E	103·1		121·4		97·6		134·1		165·2		135·8		126·9		130·1			
S−N & W−E	51·1		105·4		42·0		121·1		83·2		15·6		76·3		109·9			

8. SEISMOLOGICAL DIARY.

The notation used is explained in the Introduction.

EARTHQUAKES—ESKDALEMUIR.

Day.	Phase	Time G.M.T.	Period.	Amplitudes. A_N.	Amplitudes. A_E.	Amplitudes. A_Z.	Δ.	Remarks.
		h. m. s.	s.	μ	μ	μ	km.	
3	..	..	..	..	..	..	..	Time marker out of action during two small disturbances.
5	..	7 to 8	..	..	..	..	..	Moderate disturbance. Preliminary phases ill defined. L probably at 7h. 5m.
6	L	8 1	..	..	..	..	..	
	M_N	8 5 50	22	13	..	..	..	
	F	8 47	..	..	..	..	..	
12	L_N	11 3 30	21	..	..	..	..	
	L_E	11 6 30	22	..	..	..	..	
19	L	9	..	..	..	..	..	L phase began during changing of sheets, probably at 9h. 2m.
	M	9 11 30	18	10	..	..	..	
21	..	4 30 to 5	..	..	..	..	..	Faint disturbance.
24	..	15 to 17	..	..	..	..	..	Moderate disturbance. Record too confused with wind effects and large microseisms to allow of reliable readings.
30	L	11 6	..	..	..	..	..	
	M_E	11 10	24	..	10	..	..	
	M_N	11 11	24	17	..	..	..	
30	L	15 15	..	..	..	..	..	Preliminary phases indistinct. Long waves of irregular type. Groups of regular sinusoidal waves at 16h. 45m.
	F	17	..	..	..	..	..	

MICROSEISMS OF N. COMPONENT—ESKDALEMUIR.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s.	μ	s.	μ	s.	μ	s.
1	2·3	6	3·0	6·5	2·8	8	2·7	7·5
2	2·6	8	3·5	7	..	..	..	..
3	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..	..
5	2·5	6	2·2	6·5	2·0	6·5	1·4	6·5
6	1·3	7	1·5	6	..	..	..	..
7	1·1	5·5	0·9	6	1·2	5	1·5	5
8	1·1	6	0·9	6	1·1	6·5	2·0	6
9	2·1	6·5	2·2	7	2·1	7·5	1·9	6
10	1·6	7	2·0	7	0·9	6	1·2	7·5
11	..	..	0·9	6·5	0·9	6	0·9	6
12	0·8	5·5	1·1	5·5	1·0	5	1·4	6
13	1·6	6	1·7	6	1·4	7·5	1·8	7·5
14	..	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..	..
16	..	..	..	..	..	..	4·7	6
17	..	..	..	..	2·7	7	..	..
18	..	..	..	..	2·5	6	2·2	7
19	2·7	6	3·1	6	1·8	6·5	2·3	6
20	2·1	6·5	1·4	7	..	..	3·3	7
21	2·0	7·5	1·5	7·5	1·4	7	1·4	7
22	1·5	7	1·8	6·5	2·0	7	..	..
23	1·7	6	2·2	7	..	..	2·4	6·5
24	..	..	3·1	7	3·0	6·5	2·3	6·5
25	..	..	..	..	..	..	..	..
26	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..
28	..	..	..	..	1·2	5·5	1·5	4·5
29	..	..	..	..	..	..	..	..
30	2·5	6	1·6	6	1·7	5·5	1·2	6
31	..	..	..	..	2·5	6	1·7	6

Means for Month $\begin{cases} A_N. = 1·9\ \mu. \\ T = 6·4\ s. \end{cases}$

Normals for Month, 1911–20: $\begin{cases} A_N. = 2·6\ \mu. \\ T = 6·2\ s. \end{cases}$

EARTHQUAKES—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of Commencement.	Times, G.M.T. of Maximum Amplitude.	Remarks.
	h. m.	h. m.	
3	..	3 56	
5	..	7 29	Small.
6	..	8 14	
12	..	11 27	Small.
19	..	9 12	Small.
24	..	11 4	Small.
24	15 13	15 35	Small waves to 16h. 00m.
28	8 1	8 50	Amplitude on trace 2·4 mm. Small waves to 9h. 50m.
29	..	23 11	Small.
30	..	11 03	Very small.
30	..	15 18	Small waves to 16h. 25m.

9. Nephoscope Observations.

Aberdeen.

Day and Hour. G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.–E.	S.–N.	
1 13	Cu.	322	19·0	+11·7	−15·0	Low Fr.-Cu.
2 13	Cu.-Nb.	292	18·0	+16·7	− 6·5	Degraded Cu.-Nb. mass.
3 13	Fr.-St.	218	25·0	+15·4	+19·7	Complete St.-Cu. layer above.
4 13	Fr.-Cu.	298	15·0	+13·5	− 7·0	
4 15	Ci.-Cu.	271	6·6	+ 6·6	− 0·1	Banded speckle cloud ⌀., above it is Ci.-St. with ⊕.
9 15	Ci.-Cu.	249	5·0	+ 4·7	+ 1·8	Sheets of fused lenticular Ci.-Cu.
10 13	St.-Cuf.	204	17·0	+ 6·9	+15·5	Low cloud resembling St.-Cu. in appearance.
11 12	Ci.-Cu.	200	6·8	+ 2·3	+ 6·4	Ci. to thin floccular Ci.-Cu., radiant point strongly marked in S.S.W.
14 13	St.-Cu.	220	5·0	+ 3·2	+ 3·8	Thin St.-Cu.
14 13	Cu.	193	17·0	+ 3·8	+16·5	Low broken Cu., or stratus-cumuliformis.
16 13	A.-Cu.	255	8·3	+ 8·0	+ 2·1	Small detached A.-Cu., moving very fast.
17 13	Cu.	238	8·3	+ 7·0	+ 4·4	Heavy general mass of Cu.
19 13	A.-St.	275	3·6	+ 3·6	− 0·3	False Ci., becoming thin A.-St. and A.-Cu.
22 13	Fr.-Cu.	270	7·6	+ 7·6	0·0	Cu. dispersing as Fr.-Cu.
23 13	Cu.	230	20·0	+15·3	+12·7	Low Cu. or St.-Cuf.
24 13	St.-Cuf.	255	21·0	+20·3	+ 5·4	Low broken cumuliformis cloud.
26 12	Cu.	248	10·4	+ 9·6	+ 3·9	Cu. and Fr.-Cu.
31 13	St.-Cu.	269	5·3	+ 5·3	+ 0·1	Fused A.-Cu. to St.-Cu. in lenticular sheets.
31 13	Fr.-St.	272	9·8	+ 9·7	− 0·3	

10. Aurora.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
1	p.	..	1, 1	1, 1	Gordon Castle Aberdeen Fort William Paisley	Rather faint glow, 20h.–21h.
9	p.	●	..	..	..	
11	p.	..	0, 1	0, 0	Deerness	
15	p.	..	1, 1	1, 1	Deerness	23h.
16	a.	..	1, 0	1, 0	Deerness	3h.
23	p.	○	..	..	..	
29	p.	..	2, 1	2, 1	Aberdeen	Faint glow, 23h.

Note.—The two "magnetic characters" entered in each case refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

DAILY VALUES.—*Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology.*

Eleventh YEAR.—NO. 4. APRIL, 1921.] Units based on the C.G.S. System. [*Price* 1*s.* 6*d.*

1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	Maximum. 11.30 h. to 12.30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p^0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	6·5	50		Instru	ment D	ismounte	d.	7·4	57	27	18	Hazy	6·2	48	..	..	..	..	0·0	0
2	4·8	37	..	..	..	..	..	3·6	28	..	..	..	0·4	3	..	..	..	..	5·6	43
3	4·3	33	936	34	50	12 40	..	7·8	60	..	..	..	2·4	18	..	..	..	..	3·4	26
4	8·3	63	1494	54	71	11 50	71	9·3	71	68	47	Clear	1·7	13	..	..	..	..	4·9	38
5	4·5	34	1108	40	65	12 20	65	6·6	50	59	41	Thro' Ci.	0·1	1	..	..	..	..	1·0	8
6	0·3	2	463	16	41	14 00	30	0·4	3	..	..	..	0·5	4	..	..	..	..	8·0	61
7	Defec	tive	1487	52	72	11 05	72	9·9	74	..	..	..	8·4	63	12 30	Slgt.haze	1·50	72	10·7	80
8	..	..	1582	55	70	11 00	69	11·0	83	..	..	..	11·9	88	7 53	Nil	3·19	70	11·3	84
9	..	..	918	32	83	11 45	83	4·6	34	..	..	..	8·2	60	..	..	..	..	10·5	78
10	8·9	66	1338	46	62	11 55	62	7·8	58	..	..	..	8·4	62	..	..	..	..	7·2	53
11	3·0	22	1141	39	71	11 45	71	3·2	24	..	..	..	6·8	50	..	..	..	..	11·4	84
12	11·2	82	1530	51	64	12 20	64	11·3	83	40	30	Hazy	9·6	70	12 14	Thin Ci. and haze	1·45	72	11·6	85
13	9·2	68	1553	51	62	12 45	61	9·2	68	64	47	Clear	0·1	1	..	..	..	..	2·6	19
14	8·9	65	1501	49	74	10 45	73	8·4	61	78	58	Clear	8·2	59	..	..	..	..	6·8	49
15	7·8	57	1395	45	*x*86	10 55	78	8·4	61	..	..	..	7·5	54	..	..	..	..	9·1	66
16	10·4	75	*x*1664	54	85	11 59	85	10·5	76	78	58	Clear	6·4	45	..	..	..	..	1·6	12
17	0·0	0	240	8	16	16 05	10	0·0	0	..	..	..	1·3	9	..	..	..	..	3·5	25
18	6·5	46	1264	40	77	13 00	73	6·2	44	..	..	..	7·5	53	..	..	..	..	9·1	65
19	5·6	40	1399	44	79	13 50	77	8·2	59	..	..	..	8·4	59	..	..	..	..	12·8	91
20	5·2	37	1103	34	62	11 30	62	5·8	41	44	34	Thro'Cld	4·7	33	..	..	..	..	2·2	16
21	8·4	60	1483	46	82	11 32	82	9·8	69	..	..	..	0·7	5	..	..	..	..	9·3	65
22	3·0	21	1200	37	78	9 30	33	2·6	18	..	..	..	8·3	57	..	..	..	..	0·1	1
23	3·0	21	771	23	75	13 10	28	3·5	24	..	..	..	8·8	60	..	..	..	..	9·5	66
24	0·8	6	500	15	46	15 10	9	0·1	1	..	..	..	13·8	94	..	..	..	..	4·5	31
25	0·7	5	500	15	58	13 18	41	1·1	8	..	..	..	0·0	0	..	..	..	..	0·0	0
26	4·2	29	931	28	75	12 20	75	4·7	32	..	..	..	7·1	48	..	..	..	..	5·5	42
27	2·6	18	1056	31	68	12 55	61	2·8	19	..	..	..	0·8	5	..	..	..	..	9·1	62
28	9·3	64	1645	48	70	12 35	70	7·1	49	..	..	..	4·1	27	..	..	..	..	2·5	17
29	*x*13·4	92	2111	61	80	11 30	80	*x*13·6	93	..	..	..	12·0	80	..	..	..	..	7·7	52
30	10·7	73	1551	45	73	11 40	73	10·5	71	66	53	Clear	*x*14·0	93	..	..	..	..	*x*13·4	91
Means	†5·98	†43	*1209	*39	*68	—	*59	6·51	47	—	—	—	5·94	42	—	—	—	—	6·50	47
Normals	4·30	31	986	31	—	—	—	5·23	38	—	—	—	4·44	31	—	—	—	—	5·33	39
	←35 years→		←8 years→					←35 years→					←10 years→						←35 years→	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. Dry Bulb. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.	0 h. to 24 h.	9 h.	21 h.	9 h.	21 h.	9 h.		21 h.		9 h.	21 h.				
	mb.	mb.	*a* 200+	*a* 200+	*a* 200+	*a* 200+	millibar.		%	%	°	m/s.	°	m/s.	Tenths of Sky covered.		mm.	*a* 200+		
1	1028·9	1025·0	82·0	82·4	84·1	81·6	9·9	9·6	87	82	—	1	165	3	10	10	—	80·3	Dull all day.	
2	1023·7	1022·1	82·5	81·8	85·4	80·3	10·6	10·2	89	90	—	1	250	2	8	9	—	76·1	o. early; Fine to fair day.	
3	1017·6	1021·2	82·9	81·3	84·3	80·7	9·4	7·8	78	71	240	7	325	6	9	8	0·1	77·6	o. to c. *a. and p.*; Fair *n.*	
4	1026·0	1027·5	80·9	82·3	84·0	79·7	8·3	8·4	78	72	320	5	270	4	5	10	0·3	75·8	Mainly fair; p. *a.*	
5	1027·8	1029·0	83·6	83·3	85·3	81·8	11·0	11·2	87	90	245	5	—	0	10	9	—	81·0	o. *a. and p.*; o. to c. *n.*	
6	1029·0	1028·6	83·5	81·4	86·2	78·5	11·0	9·3	87	85	—	1	190	2	10	2	—	80·8	o. at first; bc. to b. later.	
7	1026·7	1026·5	84·9	82·9	87·3	77·9	8·6	9·3	62	77	105	4	115	7	1	1	—	84·1	☽ early; Fine day; ◊ *a.*; y. *p.*	
8	1029·5	1031·1	81·4	80·9	86·4	77·7	8·4	9·0	77	85	90	3	—	1	0≡⁰	0	—	76·5	Very fine day; ∞⁰ and y.	
9	1027·8	1023·2	82·6	80·4	85·1	77·3	7·5	7·5	63	73	10	2	60	5	0≡⁰	0	—	72·2	Very fine; ∞ and y.	
10	1022·0	1021·6	81·7	84·5	85·7	79·1	9·0	9·6	81	71	30	9	80	5	8≡⁰	7≡⁰	—	77·6	Fair day; ∞.	
11	1021·8	1021·9	82·2	85·1	88·1	81·1	8·9	10·8	77	77	60	8	—	0	1≡⁰	0≡⁰	—	79·5	Very fine day; ∞.	17859 γ
12	1021·4	1022·0	85·0	83·3	90·0	80·3	8·6	10·4	62	84	—	1	155	2	0≡⁰	0≡⁰	—	75·0	Fine day; ∞ and y. 12	19° 8′·4
13	1020·9	1015·4	82·9	82·7	85·5	78·0	9·9	10·7	82	89	320	3	310	7	8	10●⁰	1·0	75·5	Fine ☽ early; ⊕ *a.*; o. *p.*; p. *n.*	68° 2′·7
14	1016·2	1017·2	79·4	78·8	81·7	77·6	7·3	6·7	76	73	15	6	340	6	8	8	2·1	77·3	p. at first; Fair to fine day.	
15	1015·4	1016·6	77·5	78·0	80·0	75·6	6·8	5·3	81	61	340	3	350	7	10	7	3·4	72·2	p². early; Fair day with y.	
16	1012·1	999·5	79·0	80·9	83·5	76·1	7·6	8·3	82	78	155	3	285	12	10	10	2·5	72·7	p⁰. *a.*; o. to c. with p. later.	
17	997·8	1007·8	81·6	80·9	83·3	78·0	7·8	8·1	70	76	305	15	350	8	8	9	5·3	76·0	p. *a.*; Fair p.⁰ *p. and n.*	
18	1018·6	1023·4	80·7	80·0	82·4	78·4	6·5	6·4	62	64	10	10	5	4	5	2	0·1	78·7	bc. to c. *a. and p.*; b. *n.*	
19	1024·5	1023·7	80·1	79·1	83·3	*n*74·5	7·6	7·7	75	82	—	1	—	1	2	1	—	73·2	Very fine with ◊.	
20	1019·1	1013·0	82·8	81·7	84·6	76·8	9·3	10·0	77	89	175	6	170	7	9	10	0·9	—	Fair, | *a. and p.*; p.*n.*	
21	1015·3	1022·0	81·9	80·7	82·7	77·9	7·9	7·6	69	72	340	11	335	3	8	3	4·9	79·5	● at first; b., ◊y. later.	
22	1018·8	1013·5	81·6	83·6	84·1	76·4	8·9	12·1	81	95	190	6	245	7	10●	9	*x*7·8	*n*72·1	o. ◊ early; ● day; o. *n.*	
23	1019·3	1026·9	82·4	80·3	83·4	77·6	8·3	7·9	71	77	285	8	—	0	7	2	0·9	78·9	p. *a.*; Fine *p. and n.*	
24	1027·7	1025·5	82·1	82·4	85·0	77·0	8·5	9·6	74	82	155	5	170	4	10	10	—	73·0	b., ☽ *a.*; Fair *p.*; o. *n.*	
25	1021·5	1018·2	83·2	82·8	85·0	81·8	10·3	11·0	84	91	165	6	145	6	10	10●⁰≡⁰	0·4	—	o. *a. and p.*; d. *n.*	
26	1016·9	1016·9	82·8	83·0	85·5	82·7	10·6	8·3	88	68	160	7	115	7	10●⁰	7	0·2	82·0	od. *a.*; Fair *p. and n.*	17837 γ
27	1013·4	1014·7	86·0	86·3	88·2	82·5	9·5	9·7	64	64	120	8	120	6	8≡⁰	3≡⁰	—	80·2	Fair all day; ∞⁰. y. *p.* 27	19° 5′·7
28	1017·5	1022·0	85·3	83·2	87·6	82·1	11·2	11·2	79	91	95	2	175	3	10≡⁰	2≡⁰	0·3	80·3	o. ∞ to d. *a. and p.*; b. ∞ *n.*	68° 3′·4
29	1025·2	1027·5	82·7	84·4	87·8	80·7	11·6	11·9	97	89	65	2	—	1	8≡	0≡⁰	0·5	79·7	o., ≡ *a.*; ⊼ *p.*; Fine ∞ *n.*	
30	1028·6	1029·1	89·0	85·4	*x*92·1	80·3	11·0	10·3	61	72	80	2	—	0	0≡⁰	6≡⁰	—	—	☽ early; Fine day with ∞, y.	
Means	1021·0	1021·1	82·5	82·1	85·3	79·0	9·1	9·2	77	79	—	5·0	—	4·2	6·8	5·5	30·7	77·3†	Monthly Totals or Means.	17848 γ
Normals	1011·6	1011·8	82·1	81·6	85·0	79·1	9·5	9·4	82	84	—	5·4	—	4·9	—	—	96·9	—	Normals.	19° 7′·0
	←45 years→						←30 years→				←35 years→						45 years			68° 3′·0

x denotes the maximum and *n* the minimum value in the column. * Mean for 28 days only. † Mean for 27 days only. Temperatures at or below the normal freezing point of water are printed in small type.

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3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20 m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind—Veer from North in degrees and Speed in metres per second.		Cloud Amount Weather and Visibility.		Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	Remarks.
					Max.	Min.	Vapour Pressure.		Percentage.								
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.			
	mb.	mb.	*a* 200+	*a* 200+	*a* 200+	*a* 200+	millibar.		%	%	° m/s.	° m/s.			mm.	*a* 200+	
1	1027·8	1026·7	81·9	83·5	90·1	77·0	9·8	10·1	87	80	— 1	80 2	2☌ B	0 H	—	80·8	≡, ☌: Fine ∞².
2	1024·9	1020·5	80·8	84·0	90·1	76·6	10·1	10·2	96	78	— 1	— 1	10☌☌ A	0☌ G	—	81·3	≡☌☌: ≡ *a*: b *p*: ≡⁰ *n*.
3	1016·8	1014·7	81·0	85·0	92·0	76·6	9·9	10·6	93	76	— 1	280 3	0☌☌ B	0 I	—	73·1	≡, ☌☌ Fine.
4	1021·2	1024·8	81·7	79·6	85·2	76·7	7·1	7·0	63	72	330 3	— 1	9 H	0☌ K	—	72·0	☌, ⊕ *a*: Fair to fine.
5	1025·2	1024·7	81·0	84·3	86·9	74·7	7·4	10·9	69	82	280 3	310 3	5☌ G	5 H	—	68·2	≡⁰ ⌶, ⊕ and parhelia: b to o.
6	1027·1	1028·8	84·1	80·5	87·1	78·6	10·1	8·4	77	81	325 3	55 4	10 H	0 I	—	80·7	o to c *a and p*: b *n*.
7	1030·1	1030·0	81·0	80·0	84·9	77·6	7·1	6·1	67	61	40 8	50 6	7 H	0 K	—	71·8	Fine after 9h.
8	1029·8	1027·5	79·9	80·0	85·7	76·0	6·5	7·2	65	72	30 5	20 6	0☍ H	3 J	—	71·7	≡⁰, ☌: Solar Eclipse: Fine: ∞ *a*.
9	1021·5	1018·7	79·1	79·7	83·0	78·0	7·8	8·5	83	87	35 7	— 1	9 H	10 H	1·4	76·3	q8h.: c to o: ▲ 12h. 10m.
10	1017·0	1020·2	85·1	85·0	91·6	79·7	10·0	9·6	71	69	35 5	75 4	2 H	0 J	—	75·7	≡⁰ 9h.: Fine *a*: b to c *p*.
11	1022·1	1020·4	82·1	81·0	85·6	80·0	9·9	9·2	86	86	15 4	10 4	10 H	10 I	—	79·7	Dull to fine.
12	1020·8	1020·2	84·1	83·5	91·4	79·3	8·8	9·0	67	71	15 5	— 1	0 H	0 H	—	77·9	≡⁰, ☌☌: Fine with ∞.
13	1017·5	1009·1	86·0	83·7	93·4	77·5	9·7	8·9	65	70	185 3	240 5	0 G	9 K	0·9	71·1	≡⁰, ☌☌: Fine till 15h.: ● *n*.
14	1003·7	1005·6	79·6	77·9	82·7	75·7	6·1	5·5	63	63	305 7	310 3	3 I	4 L	6·8	77·9	● early: Fine to cloudy: ✻⁰p 13h. 50m.
15	1005·0	1005·9	76·5	75·0	78·2	73·1	5·2	5·9	66	84	305 4	295 3	6 H	10 H	0·9	70·1	⌶, b to c with frequent ✻⁰ p.
16	1008·2	1006·1	76·6	77·2	80·8	73·3	5·0	6·3	64	77	315 5	225 3	1 H	9 K	0·1	70·3	⌶, Fine *a*: b to o *p*: ✻⁰, ⊞ *n*.
17	991·1	996·8	77·5	77·1	78·0	75·7	7·5	7·2	89	88	130 5	30 5	10●⁰ I	10q K	4·4	73·1	● *a and p*: Dull *n*.
18	1008·2	1015·2	80·4	79·3	82·2	76·1	6·5	6·3	63	66	10 5	20 3	5 H	3 H	0·1	74·0	b to o: ● 12h. 30m.: ⊤ 17h. 30m.; ⊞ *n*.
19	1019·7	1023·0	79·7	78·0	83·6	73·1	6·5	6·6	66	76	5 4	10 2	7 G	0 H	—	68·3	⌶, ≡: b to c: ⊤ 17h. 30m.
20	1023·0	1018·5	78·9	80·2	84·9	*n*73·0	7·0	8·3	75	82	— 1	240 2	0 F	10 H	—	*n* 67·6	⌶, ≡⁰: b to o with ∞.
21	1017·1	1017·6	81·5	82·9	86·6	76·0	7·8	7·9	70	65	240 2	280 2	1 G	10 K	—	70·5	≡⁰, ☌: Fine day.
22	1019·7	1019·5	83·7	82·4	87·2	79·7	8·8	9·7	69	83	240 2	195 3	8 H	5 K	—	74·3	c to o: ●⁰ 13h. and 14h. 20m.: ⊎ *n*.
23	1015·7	1017·4	82·3	80·9	87·5	78·9	10·7	7·4	92	69	180 6	330 3	10●⁰ K	2 L	*x*11·5	77·9	●*a*: Dull to fine: ☈ ●² ▲p 17h.
24	1020·8	1022·6	80·9	81·1	83·8	78·6	8·1	8·8	76	82	345 7	345 3	10 K	2 I	—	75·4	Dull day: ●⁰ *a*.
25	1021·1	1022·0	80·0	82·6	86·0	79·0	9·4	9·6	94	81	— 1	— 1	10 G	10 G	0·8	78·3	● early: o *a*: bc to c *p and n*.
26	1023·0	1021·7	80·7	83·3	86·9	75·8	9·4	10·7	90	86	360 2	30 2	5 E	2 G	—	71·4	≡, ☌☌: o to bc.
27	1020·1	1019·0	83·2	86·4	91·5	80·9	10·9	11·2	88	73	30 2	70 2	10 F	0 H	—	76·3	≡⁰, ☌☌: Dull to fine.
28	1020·6	1022·1	88·0	86·4	*x*94·2	80·6	12·0	9·6	71	63	70 2	70 3	0 G	1 K	—	75·2	≡⁰, ☌☌: Fine to cloudy.
29	1026·4	1027·6	87·4	85·7	91·3	82·0	8·9	8·1	55	55	65 8	45 3	1 H	0 L	—	79·4	Very fine with ∞⁰.
30	1026·8	1024·7	84·4	83·8	92·9	79·9	10·2	9·1	76	71	360 4	10 4	1 H	0 L	—	75·0	Fine to cloudy: ⊤ 14h.: ●⁰ 13h. 30m.
Means	1019·1	1019·1	81·6	81·7	86·8	77·3	8·5	8·5	75	75	3.8	2·9	5·1	3·8	26·9	74·5	Monthly Totals or Means.
Normal	1013·1	1013·0	81·4	80·9	85·8	77·3	8·2	8·2	75	77	4·3	3·3	—	—	40·8	—	Normals.
	45 years.						30 years.				35 years.				45 years		

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

																	Remarks.
1	999·3	997·6	82·2	80·6	87·9	79·5	10·7	10·0	93	96	220 3	— 0	10 I	10 F	—	79·9	≡⁰ early: o *a*: bc *p*: b to o, valley ≡ *n*.
2	993·6	992·1	79·5	80·3	82·7	79·3	9·5	9·4	98	92	210 7	210 3	*10* D	10 I	0·3	76·6	≡: *a*: c to o *p*: o *n*.
3	985·0	984·3	79·2	77·1	80·3	75·6	7·0	6·6	74	81	250 11	280 6	7 J	1 K	0·6	76·7	o ≡⁰ early: c to o *a*: op *p*: b after 19h.
4	991·4	993·7	76·8	76·6	81·1	*72·5*	6·8	5·9	85	75	240 4	220 4	10●⁰ I	1 J	0·3	70·4	b 1h.: ●⁰ 7h.: o *a*: o to c *p*: Fine *n*.
5	991·2	996·5	80·6	80·5	84·6	76·9	9·8	7·8	94	75	240 4	— 1	10 H	1 J	2·4	74·6	● ≡⁰ 4h.-7h.: o *a and p*: u 18h. to bc *n*.
6	1000·2	1002·5	82·9	82·0	85·4	77·0	8·1	9·5	67	83	— 1	— 1	10 K	8 I	—	75·0	bc early: oy *a and p*: o, ∞ to c *n*.
7	1004·9	1005·9	83·3	76·5	85·7	72·9	8·7	5·6	70	71	40 2	— 1	7 K	0 I	—	74·0	o, ≡⁰ at first: o to b ∞ *a*: y *p*: b ∞ *n*.
8	1007·3	1007·9	75·0	76·9	84·8	70·0	5·5	6·7	78	83	30 2	30 6	0 J	0 I	—	67·0	⌶ early: Cloudless day: y ∞ *p*: ∞ *n*.
9	1003·8	1002·3	81·2	78·3	82·8	74·1	6·9	7·8	64	87	40 13	60 9	6 J	10 I	—	70·8	bc *a*: c to op⁰ *p*: c to o *n*.
10	999·6	1000·0	80·7	78·8	85·7	77·5	8·5	8·0	81	87	60 11	30 5	9 I	10 I	—	77·1	o at first: c *a*: c to bc *p*: c to o *n*.
11	1000·0	996·9	77·7	77·4	84·9	72·5	7·8	7·0	91	84	30 5	— 1	10 I	0 H	—	76·2	o till 9h.: c *a*: by ∞ *p*: cloudless *n*.
12	994·8	990·5	81·1	81·2	88·3	69·4	8·0	9·0	74	84	— 0	270 4	0 I	5 I	—	66·0	⌶ ≡⁰ early: bc to c, ∞, y *a and p*: bc to o *n*.
13	982·5	975·6	80·7	78·2	81·5	75·7	8·9	7·1	85	81	260 9	290 4	10 H	9● K	7·9	—	o at first: ● ≡⁰ *a and p*: o, ⊞⁰ glow *n*.
14	974·0	978·1	76·3	71·8	80·4	68·5	4·3	3·6	55	65	330 13	*360* 7	6 K	0 K	1·3	70·1	⊞⁰ 1h.: bc *a*: o, ✻▲²p, q 16h. *p*: ▲⁰p to b *n*.
15	976·1	980·1	74·1	69·9	79·0	67·4	4·7	3·7	71	70	340 11	360 3	6 K	0 ⌶ K	0·5	65·5	⌶ early: bc *a*: c to o, *p*: ✻² p 19h., b *n*.
16	978·2	968·6	75·2	75·4	78·0	*n*65·3	4·7	6·3	65	87	270 4	180 9	7 K	10● I	5·3	*n*62·2	b, ⌶ early: bc to o *a*: o, ▲⁰ to ● p *p*: ✻ ≡⁰ *n*.
17	964·8	977·4	74·3	75·2	79·0	72·9	5·8	6·3	87	88	100 3	— 1	10 I	7 I	5·2	72·9	✻ ≡⁰till 7h.: ⊠ 5 cms: o *a and p*: c *n*.
18	984·5	990·3	74·1	74·8	80·8	72·0	5·9	5·9	89	86	30 3	20 4	10 I	8 J	3·1	69·3	bc 1h.: ✻ ≡⁰6-8h.: o to c *a*: c, Δq, ✻pq *p and n*.
19	993·3	993·7	78·5	75·0	82·0	70·5	5·6	5·7	62	81	320 2	— 0	6 K	5 J	—	66·7	b ⌶ early: oy *a and p*: o to bc *n*.
20	992·5	988·7	79·6	75·5	81·8	68·6	7·0	6·1	72	84	180 3	210 2	2 K	0 K	—	65·7	b ⌶ 1h.: ⊕, b to o *a*: o *p*: o to b, ⊞ *n*.
21	985·8	988·0	79·8	76·8	81·6	73·6	8·0	5·6	81	71	210 5	320 2	7 K	0 K	1·8	69·0	od 7h.: cp⁰ *a*: ●⁰ *p*: b *n*.
22	990·4	984·6	79·5	77·2	82·0	68·9	6·7	7·5	69	92	160 3	180 9	3 K	10● H	7·6	65·0	b ⌶ at first: bcy *a*: o *p*: ● ≡⁰ after 18h.
23	981·7	992·7	80·7	76·0	83·0	74·4	8·3	5·9	79	79	270 7	320 6	10 J	0 I	*x*9·3	76·2	● ≡⁰ till 7h.: op *a*: cp *p*: b *n*.
24	998·9	999·0	81·7	76·2	85·3	73·8	6·3	5·7	56	75	30 2	360 4	1 K	0 J	—	68·4	Very fine all day: y *p*.
25	994·5	995·2	79·1	79·8	82·5	72·6	8·5	8·1	90	82	20 4	60 2	10●⁰ I	10 I	1·7	68·6	b 1h.: od *a*: o to c *p and n*.
26	996·1	997·0	81·4	79·2	87·0	76·2	8·5	8·0	78	85	— 0	30 2	10 I	8 I	—	71·6	≡⁝⁰ early: o ≡⁰ *a*: c, ∞ *p and n*.
27	995·4	996·7	81·0	81·0	90·0	78·6	10·3	8·3	97	78	40 5	50 7	10● H	4 J	1·2	74·2	●⁰ ≡⁰ *a*: o to c *p and n*.
28	998·4	1001·0	82·1	80·7	91·6	77·9	10·0	8·2	87	78	360 4	360 4	9 I	6 J	—	74·9	bc 1h.: o ≡⁰ to c *a*: oy *p*: bc *n*.
29	1004·6	1005·8	83·2	79·6	89·8	76·5	8·8	6·9	71	71	50 7	10 3	0 J	0 J	—	72·9	☈ early: very fine all day: y *p*.
30	1004·4	1001·9	88·9	79·3	*x*93·0	78·1	7·9	6·4	44	67	40 6	360 2	0 K	0 K	—	73·0	Cloudless day: y *a and p*.
Means	992·2	992·8	79·7	77·6	84·1	73·6	7·6	7·0	77	81	5·2	3·7	6·9	4·5	48·5	‡71·4	Monthly Totals or Means.
Normal 1911-1920.	984·4	984·9	79·0	77·2	82·6	73·8	7·5	7·1	79	84	7·8	6·0	—	—	99·7	—	Normals.

Temperatures at or below the normal freezing point of water are printed in small type. *x* denotes the maximum, and *n* the minimum, value in the column. ‡29 days only.

5. GEOPHYSICS :—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force. Horizontal Comp't.		Declination.		Inclination.		Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}.		Air-Earth Current. × 10^{16}.	Potential Gradient, Volts per metre. Factor 2·31.			
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			+.	−.		3 h.	9 h.	15 h.	21 h.
													About 15 h.		About 15 h.				
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m	v/m	v/m	v/m
1	80·8	81·2	214	215	15 8	18401	..	..	..	..	0	0	0·23	0·34	0·75	295	525	495	625
2	81·3	81·2	213	..	..	..	..	..	..	..	0	0	..	..	..	170	325	425	465
3	81·2	81·2	211	..	..	..	..	..	..	..	1	0	..	..	..	225	355	115	125
4	82·3	81·2	210	..	..	..	..	..	..	..	0	0	0·68	0·45	0·65	140	240	155	225
5	81·6	81·3	208	..	..	..	..	..	..	..	0	0	0·43	0·31	0·50	355	340	170	240
6	82·4	81·4	207	..	..	..	..	..	..	..	0	0	0·65	0·35	..	155	355	295	425
7	82·1	81·5	206	..	10 51	18386	14 23	14 27·2	14 43	66 56·8	0	0	0·78	0·50	1·45	185	—	440	680
8	81·2	81·6	206	..	..	..	..	..	..	..	0	0	1·33	1·35	0·80	355	635	285	510
9	81·1	81·7	206	..	..	..	..	..	..	..	1	1	..	..	..	255	395	440	255
10	81·1	81·7	206	..	..	..	..	..	..	..	1	1	..	..	..	285	425	225	410
11	82·0	81·7	206	..	..	..	..	..	..	..	1	0	0·38	0·31	1·45	115	240	270	310
12	82·4	81·7	206	..	..	..	..	..	..	..	1	0	0·72	0·43	..	270	625	—	285
13	82·5	81·8	206	..	..	..	..	..	..	..	2	0	0·70	0·31	1·00	225	225	170	225
14	83·2	81·9	206	..	10 58	18367	..	..	14 26	67 0·3	1	2	0·68	0·52	0·50	−295	210	225	185
15	81·9	82·0	206	..	..	..	14 37	14 31·6	..	..	1	2	..	..	..	—	255	z ±	z ±
16	80·9	82·1	205	..	..	..	..	..	..	..	0	1	..	..	..	325	255	85	370
17	80·8	82·1	205	..	..	..	..	..	..	..	0	2	..	..	..	85	−565	−495	185
18	80·1	82·1	204	..	..	..	..	..	..	..	2	1	0·84	0·74	..	170	455	z +	790
19	80·1	82·0	203	..	..	..	..	..	..	..	1	1	0·79	0·45	1·20	295	310	210	340
20	80·2	81·9	202	..	..	..	..	..	..	..	1	0	0·25	0·27	0·30	285	225	115	240
21	80·6	81·8	201	..	11 1	18354	14 35	14 26·1	14 32	67 0·6	2	0	0·86	0·59	0·90	125	210	140	255
22	81·7	81·7	201	..	..	..	11 1	14 23·6	..	..	1	1	0·80	0·81	0·95	155	295	170	225
23	82·0	81·8	200	..	..	..	..	..	..	..	0	1	..	..	..	155	55	85	225
24	81·7	81·9	201	..	..	..	..	..	..	..	0	1	..	..	..	185	0	140	225
25	81·5	81·9	201	..	..	..	..	..	..	..	0	1	0·45	0·25	0·30	70	170	440	425
26	81·6	81·9	201	..	..	..	..	..	..	..	0	0	0·27	0·23	0·65	295	565	425	380
27	82·4	81·9	201	..	..	..	..	..	..	..	0	0	0·43	0·21	1·10	295	440	465	480
28	83·0	82·0	201	..	10 50	18376	..	..	14 36	66 57·3	1	0	0·45	0·36	1·00	310	565	340	440
29	83·7	82·1	200	..	..	..	..	..	..	..	2	0	1·06	0·96	1·10	185	495	310	495
30	83·9	82·2	199	199	..	..	10 45	14 23·3	..	..	0	1	..	..	..	185	255	170	255
M.	81·7	81·7	205	—	—	—	—	—	—	—	0·06	0·53	0·64	0·49	0·86	201	291	226	329
No. of days used	30	30	—	—	—	—	—	—	—	—	30	30	20	20	17	26	26	26	26

6. GEOPHYSICS :—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force. North Component. Maximum 15000 γ +.		Minimum. 15000 γ +.		Range.	West Component. Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.	Vertical Component. Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.	Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre. Factor 6·33.			
																		3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ			v/m	v/m	v/m	v/m
1	21 31	1008	965	11 28	*n*43	13 37	816	767	9 8	49	18 20	1042	1028	13 0	*n*14	0	0*a*	245	155	255	395
2	0 24	1020	956	11 5	64	13 43	827	764	8 47	63	7 20 / 7 48	1044	1023	12 49	21	0	0*a*	315	210	130	185
3	22 2	1033	951	15 48	82	14 3	842	732	22 47	110	21 50	1046	1008	12 39	38	1	2*b*	120	100	55	125
4	7 3	1010	964	13 8	46	13 46	813	766	8 36	*n*47	17 42	1042	1023	12 52	19	0	0*a*	140	125	120	470
5	21 0	1029	968	11 42	61	13 32	823	766	9 53	57	8 0	1046	1025	12 53	21	0	0*a*	65	150	185	†
6	17 51	1020	956	12 4	64	13 50	819	765	2 7	54	18 10	1049	1028	12 55	21	0	0*a*	†	105	135	155
7	19 39	1015	970	11 46	45	13 8	817	758	9 14	59	1 9	1044	1028	13 8	16	0	0*a*	220	180	335	530
8	6 13	1022	942	12 31	80	14 50	840	757	8 47	83	18 18	1058	1025	11 49	33	0	0*a*	725	385	250	405
9	18 57	1045	947	12 16 / 12 20	98	15 50	844	752	18 45	92	18 52	1087	1027	12 6	60	1	1*a*	180	140	110	5
10	0 6 / 1 10	1036	952	11 18	84	13 24	828	732	24 0	96	19 23	1067	1003	1 25	64	1	1*a*	50	65	150	110
11	3 16 / 3 33	1025	956	11 53	69	16 21	824	732	0 1	92	19 10	1050	1022	3 23	28	0	0*a*	225	140	290	365
12	15 50	1045	960	13 56	85	15 49	855	763	8 19	92	18 0	1054	1026	2 50	28	1	0*a*	340	350	205	450
13	4 36	1041	*n*868	5 25	173	4 19	847	733	8 3	114	16 18	1072	?1030	?9 55	?42	2	2*b*	185	45	−260	65
14	18 5	1053	943	12 50	110	13 48	832	732	21 50	100	19 45	1077	1036	23 35	41	1	1*b*	140	185	z ±	265
15	18 35	1016	943	11 41	73	14 35	844	722	0 36	122	19 21	1076	1012	1 30	64	1	1*b*	245	220	155	230
16	‡	1031	945	13 30	86	13 49	838	737	21 39	101	18 43	1092	1018	5 18	74	1	1*c*	290	125	80	75
17	19 37	1027	944	11 55	83	14 2 / 14 35	812	748	3 28	64	20 0	1060	1010	2 8	50	1	1*b*	525	200	75	245
18	19 22	1077	954	12 8	123	14 39	882	753	8 11	129	20 8	1061	1038	14 39	23	2	2*c*	260	105	−10	−85
19	1 18	1071	978	12 14	93	0 1	833	732	7 42	101	18 0	1074	1033	2 4	41	2	0*a*	200	260	115	235
20	15 39	1053	968	11 10	85	5 30	833	747	19 0	86	17 55	1103	1045	6 8	58	1	0*a*	170	230	155	260
21	18 35	*x*1115	909	5 12	206	5 35	882	744	18 30	138	14 18	1102	*n*994	5 48	108	1	2*b*	140	125	10	425
22	21 50	1047	939	10 45	108	1 23	855	*n*694	21 35	161	21 28	1087	1011	2 47	76	2	2*b*	145	185	160	−1385
23	22 15	1038	929	13 41	109	13 21	835	745	6 53	90	16 34	1077	1019	1 20	58	1	2*c*	−485	−75	145	115
24	19 25	1025	951	13 0	74	14 18	820	754	7 31	66	17 50	1080	1053	11 30	27	1	0*a*	225	125	140	145
25	23 0	1029	959	11 1	70	13 32	818	753	8 40	65	17 26	1079	1063	2 50	16	0	2*b*	70	z ±	195	90
26	0 8	1029	956	11 55	73	13 50	812	761	8 41	51	20 50	1078	1050	1 40	28	0	0*a*	145	175	170	405
27	18 4	1025	957	11 24	68	14 5	812	756	7 49 / 8 30	56	21 50	1071	1049	13 23	22	0	1*b*	210	290	170	365
28	19 31	1059	965	10 35 / 10 43	94	19 31	817	766	6 42	51	22 26	1072	1052	12 20	20	2	0*a*	365	120	145	240
29	17 13	1113	887	9 50	*x*226	15 48	*x*914	711	17 8	*x*203	*	>1250	1056	8 40	>194	2	0*a*	265	160	185	270
30	18 20	1026	956	12 21	70	12 52	808	753	6 45	55	18 42	1086	1061	11 48	25	0	0*a*	85	110	110	335
M.	—	1039	948	—	92	—	835	747	—	88	—	1068	1029	—	39	0·80	0·70	213	163	133	192
No. of days used	—	30	30	—	30	—	30	30	—	30	—	28	28	—	28	30	30	26	26	26	26

> denotes the maximum and *n* the minimum value in the column. Potential gradient is reckoned as positive if the potential increases upwards. For indeterminate potential gradient the following notation is used:—*z*+ Indeterminate, positive value; *z*− Indeterminate, negative value; *z* ± Indeterminate in magnitude and sign.
† Jet choked. ‡ At 4hrs. 33m., 4hrs. 47m., 4hrs. 57m. 13th.—Burner choked 1h–9h. *Between 15h. 50m. and 16h. 11m., and between 16h. 58m. and 17h. 8m.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	..	..	2·0	..	..	Calm		..	..	1·8	1·5	..	..	Calm		..	7	0 50
2	..	Calm		..	1·7	..	2·0	..	..	Calm		..	1·3	..	1·5	..	7	11 45
3	2·8	..	2·3	..	0·4	..	2·3	..	5·4	..	3·1	..	..	..	5·9	..	15	21 45
4	..	4·8	5·7	..	..	3·6	6·2	..	..	0·8	4·5	..	3·0	..	3·5	..	12	2 15
5	2·5	..	6·8	..	2·6	..	7·0	..	..	1·3	7·1	..	..	1·2	3·4	..	14	9 25
6	..	Calm		..	..	1·5	1·3	..	..	1·8	1·5	..	..	Calm		..	4	14 10
7	..	Calm		..	..	..	..	4·9	..	1·3	..	7·4	0·9	..	..	4·8	13	14 55
8	0·9	..	..	4·8	1·1	..	..	6·1	..	3·9	..	6·8	..	5·1	..	6·1	12	18 10
9	..	2·6	..	7·0	..	5·4	..	9·4	..	8·4	..	10·0	..	7·4	..	8·8	26	15 40
10	..	4·3	..	3·7	..	6·2	..	10·8	..	5·5	..	9·6	..	3·4	..	9·1	21	8 0
11	..	2·6	..	7·0	..	5·4	..	9·4	..	4·7	..	4·0	..	1·7	..	1·0	16	5 0
12	..	2·6	..	4·5	..	2·4	..	4·2	..	4·8	..	0·9	..	Calm		..	12	6 20
13	4·0	..	3·4	..	..	..	9·2	..	2·3	..	6·2	..	..	1·8	10·3	..	15	19 35
14	..	9·1	10·8	..	..	11·2	13·3	..	..	9·0	7·6	..	..	12·8	7·4	..	26	17 10
15	..	10·0	8·4	..	..	10·0	8·4	..	..	10·2	5·9	..	..	11·3	2·0	..	21	9 5
16	..	8·0	4·6	..	..	6·2	7·3	..	4·8	..	5·7	..	10·9	..	1·9	..	21	22 5
17	..	3·0	8·3	..	..	3·9	6·8	..	..	7·8	..	1·4	..	3·9	..	4·5	13	1 50
18	..	1·6	..	2·9	..	6·2	3·6	..	..	5·5	..	2·0	..	7·2	..	..	16	19 40
19	..	8·0	..	2·9	..	4·0	..	3·4	..	2·4	0·9	..	..	Calm		..	11	0 20
20	..	Calm		..	4·8	..	0·9	..	5·7	..	4·8	..	4·3	..	3·7	..	13	15 55
21	4·2	..	2·4	..	6·2	..	2·3	..	6·0	..	3·4	..	..	7·4	..	1·3	14	19 0
22	..	4·9	..	..	..	Calm		..	7·1	..	4·1	..	9·7	..	1·7	..	18	20 25
23	3·4	..	6·0	..	..	..	10·2	..	..	2·1	5·8	..	..	5·8	..	1·0	16	13 50
24	..	6·5	2·4	..	..	3·9	..	..	..	3·9	..	..	..	2·0	1·1	..	11	0 10
25	..	1·7	1·0	..	..	2·3	..	..	..	2·2	..	0·8	..	Calm		..	5	6 50
26	..	Calm		..	1·5	..	..	0·5	..	3·8	0·7	..	..	1·9	..	5·3	7	20 10
27	..	..	..	5·9	..	..	..	2·0	..	1·5	..	4·0	..	0·9	..	4·8	9	21 20
28	..	..	..	2·3	..	..	..	4·9	..	1·9	..	5·3	1·9	..	..	0·7	13	18 15
29	..	..	..	10·8	..	..	..	9·2	..	4·7	..	5·5	..	3·7	..	6·5	14	1 30
30	..	2·5	..	6·8	..	4·5	..	2·6	..	3·3	2·8	..	..	4·2	..	0·7	9	2 5
S+N & W+E	90·0		122·7		95·0		148·2		123·9		123·3		113·7		97·0			
S−N & W−E	−54·4		5·5		−58·4		13·4		−61·3		7·9		−49·7		−12·2			

SCOTLAND N.:—DEERNESS.

Cup. Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	4·5	..	12·2	..	2·1	..	11·9	..	2·8	..	7·7	..	2·0	..	1·7	..	13·8	4
2	6·1	..	1·1	..	7·0	..	6·0	..	4·3	..	11·7	..	4·5	..	2·6	..	13·4	12
3	6·5	..	2·4	..	10·3	..	1·8	..	4·9	..	8·5	..	5·1	..	8·8	..	11·1	24
4	1·8	..	10·0	..	..	4·4	11·9	..	3·8	..	10·3	..	5·5	..	4·7	..	12·8	9
5	1·9	..	10·6	..	..	5·3	4·5	..	..	1·6	..	2·9	0·6	..	..	3·5	12·5	4
6	3·2	..	..	0·6	2·3	..	1·9	..	2·8	..	1·0	..	3·0	..	..	..	5·9	1
7	2·0	..	..	..	3·3	..	..	..	3·7	..	..	1·3	4·3	..	..	1·6	6·2	23
8	6·8	..	..	2·5	4·9	..	..	1·8	6·0	..	..	3·4	2·8	..	..	2·3	7·2	3, 5
9	1·2	..	..	1·0	0·6	..	..	3·5	2·1	..	..	5·8	3·1	..	..	3·8	7·2	16
10	3·9	..	..	4·5	1·9	..	..	2·3	2·3	..	..	2·8	..	Calm		..	6·9	2
11	3·0	..	..	..	3·4	..	1·9	..	..	3·4	4·0	..	0·6	..	3·2	..	6·6	23
12	3·6	..	6·2	..	1·7	..	9·7	..	2·2	..	12·3	..	2·3	..	12·9	..	14·4	14, 18
13	..	2·1	11·9	..	..	7·1	8·5	..	..	1·4	7·8	..	..	5·5	15·1	..	18·7	23
14	..	21·0	7·6	..	..	17·2	6·3	..	..	16·3	6·0	..	..	10·2	5·9	..	22·3	2
15	..	13·9	2·4	..	..	12·8	7·4	..	..	11·7	4·3	..	..	8·8	5·1	..	14·8	6
16	..	5·3	6·3	..	..	2·6	1·5	..	..	2·3	1·9	..	2·4	..	..	4·2	8·2	2, 3
17	1·3	..	..	7·1	..	2·4	..	6·5	..	5·7	..	3·3	..	2·9	1·6	..	7·5	6, 7
18	..	3·0	2·5	..	..	8·2	..	4·7	..	4·9	..	..	..	2 0	..	..	10·8	8
19	..	2 8	2·3	..	..	4·0	3·4	..	..	2·9	5·1	..	..	0·7	3·8	..	6·9	17, 18
20	..	..	3·0	..	1·9	..	3·4	..	4·9	..	..	..	3·0	..	..	0·5	6·6	17
21	3·0	..	..	0·5	3·4	..	1·9	..	..	6·5	5·5	..	..	2·1	3·7	..	8·5	15
22	..	Calm		..	2·5	..	3·0	..	10 3	..	..	3·8	10·9	..	1·9	..	11·5	22
23	7·4	..	1·3	..	3·1	..	1·1	..	..	1·6	9·4	..	..	0·5	3·0	..	9·5	15
24	..	..	2·0	..	..	Calm		..	1·8	..	..	3·1	1·6	..	..	2·9	4·6	16, 22
25	0·8	..	..	1·4	..	2·0	..	5·5	4·8	..	..	5·7	4·5	..	..	3·9	7·9	16
26	1·9	..	..	2·3	3·7	..	..	2·1	6·0	..	..	3·4	4·8	..	..	2·8	7·9	16
27	2·3	..	..	2·8	2·7	..	..	7·4	4·1	..	..	7·1	0·9	..	..	5·1	8·9	11, 14
28	..	..	..	4·9	..	..	..	4·9	1·3	..	..	3·7	1·0	..	..	1·7	6·6	13
29	1·8	..	..	3·1	3·3	..	..	2·8	1·1	..	..	3·1	1·0	..	..	1·7	4·6	10, 11
30	1·0	..	..	1·7	..	3·0	..	0·5	..	0·5	..	3·0	..	Calm		..	3·0	9, 15
31																		
S+N & W+E	112·1		114·2		127·1		128·1		128·0		147·9		96·6		108·0			
S−N & W−E	15·9		49·4		−10·9		44·1		10·4		43·1		31·2		40·0			

ENGLAND S.W.:—SCILLY.

Cup. Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	..	Calm		..	..	0·4	..	2·5	0·4	..	..	2·5	..	Calm		..	2·9	6, 7, 8
2	..	Calm		..	..	3·8	..	..	..	4·0	..	2·3	..	2·5	..	1·4	5·4	17
3	..	3·9	1·4	..	..	2·5	1·4	..	..	6·5	3·7	..	..	5·7	4·8	..	9·2	20
4	..	6·7	..	..	..	5·0	..	..	..	5·0	..	..	..	3·9	1·4	..	7·1	7
5	..	3·2	2·7	..	..	3·3	1·9	..	..	2·3	4·0	..	..	3·2	2·7	..	6·3	17
6	..	2·9	1·6	..	..	3·3	..	1·9	..	1·9	..	3·3	..	1·4	..	2·5	4·2	11, 12, 17
7	..	0·6	..	3·2	2·4	..	..	6·7	1·7	..	..	9·8	..	..	..	8·3	12·9	14
8	1·6	..	..	9·1	..	0·9	..	4·9	..	2·3	..	6·3	..	5·1	..	6·1	12·5	1
9	..	1·3	..	7·4	..	2·7	..	7·4	..	5·7	..	4·8	1·3	..	..	7·4	9·2	1, 2
10	..	..	..	5·0	..	3·8	..	4·4	..	2·3	..	4·0	..	0·7	..	4·1	7·5	1, 11
11	..	2·7	..	4·7	..	..	..	10·8	..	1·6	..	4·3	..	2·9	..	5·0	12·9	8
12	..	..	..	5·8	2·6	..	..	7·0	1·6	..	..	1·9	..	2·2	..	1·2	7·9	6, 8
13	..	2·9	1·6	..	..	2·9	5·0	..	..	..	9·2	..	..	..	10·4	..	12·5	24
14	..	..	12·5	..	..	9·6	..	..	..	7·9	..	..	..	7·9	..	..	12·9	1
15	..	7·9	..	..	..	6·9	8·3	..	..	11·5	2·0	..	..	7·1	..	..	12·1	13, 16
16	..	9·2	..	..	..	5·1	4·4	..	..	..	6·3	..	6·0	..	10·5	..	14·2	23, 24
17	..	7·9	13·7	..	..	5·1	14·0	..	..	12·6	7·3	..	..	8·0	6·7	..	17·9	13
18	..	10·4	..	..	..	5·5	..	2·0	..	6·3	..	2·3	..	6·7	..	..	12·1	5
19	..	5·7	..	1·0	..	5·7	..	1·0	..	4·9	..	0·9	..	2·9	..	..	7·5	1, 5, 6
20	..	Calm		..	..	1·7	..	..	1·4	..	3·9	..	1·6	..	2·9	..	4·6	16
21	3·9	..	1·4	..	4·7	..	2·7	..	..	..	5·8	..	..	4·7	1·7	..	7·5	18
22	..	2·2	..	1·2	..	1·5	..	0·8	..	..	6·3	..	4·4	..	7·6	..	7·9	16
23	..	1·7	9·8	..	..	6·5	7·7	..	..	9·6	8·0	..	..	8·6	4·6	..	12·9	14
24	..	6·3	..	..	..	4·5	..	0·8	..	4·6	..	..	..	3·6	1·3	..	7·1	1
25	..	3·2	0·6	..	..	2·7	..	1·0	..	1·6	1·9	..	..	Calm		..	3·8	2
26	Dense fog				3·8	..	..	3·2	4·1	..	..	4·8	3·5	..	..	6·1	7·5	24
27	3·1	..	..	8·6	3·9	..	..	6·8	4·8	..	..	8·3	5·4	..	..	4·6	11·3	18
28	4·8	..	..	5·7	Dense fog				..	0·9	2·3	..	..	4·3	..	2·5	7·9	1
29	..	2·5	..	1·4	..	..	..	2·9	..	..	..	7·9	..	..	..	7·5	10·4	17
30	..	..	..	6·3	..	2·2	..	5·9	..	2·0	..	5·5	..	..	..	7·1	7·1	14, 21
S+N & W+E	94·6		104·7		103·0		115·4		107·5		129·6		103·0		118·4			
S−N & W−E	−67·8		−14·1		−68·2		−24·6		−79·5		−8·2		−58·6		−9·2			

ENGLAND E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15 9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	..	1·5	2·6	..	..	1·2	..	1·0	..	1·4	..	1·2	..	Calm		..	5	1 10
2	..	Calm		..	..	Calm		..	4·9	..	..	0·9	..	Calm		..	6	14 30
3	..	Calm		..	..	Calm		..	5·4	..	0·9	..	..	6·4	1·1	..	11	21 25
4	..	3·8	2·2	..	..	9·0	..	..	..	7·0	..	1·2	..	1·8	..	1·5	14	8 25
5	..	1·1	2·9	..	..	0·8	4·6	..	..	6·1	3·5	..	..	3·3	..	..	14	10 15
6	..	5·2	..	1·9	..	4·8	..	5·7	..	4·8	..	2·7	..	4·6	..	5·4	14	22 20
7	..	3·2	..	8·8	..	1·8	..	10·3	..	3·8	..	10·2	..	1·9	..	10·8	15	17 40
8	..	1·6	..	9·3	..	5·0	..	8·7	..	8·0	..	9·6	..	2·0	..	11·3	17	15 55
9	..	3·5	..	9·5	6·7	..	..	11·7	..	1·7	..	9·8	..	..	..	10·9	24	8 45
10	5·3	..	..	9·3	1·5	..	..	8·7	..	2·8	..	4·9	..	4·3	..	1·6	14	0 5
11	..	4·2	..	..	..	7·4	..	..	..	6·7	..	3·8	..	5·5	..	3·2	11	9 0
12	..	2·0	..	3·5	..	4·2	..	2·4	..	2·2	..	2·7	..	Calm		..	10	0 5
13	..	..	4·2	..	..	2·9	5·1	..	..	2·9	7·9	..	..	3·9	4·6	..	14	15 0
14	..	2·4	4·2	..	..	9·2	5·3	..	..	9·8	3·6	..	..	3·4	5·9	..	24	15 50
15	..	3·1	5·5	..	..	6·1	3·5	..	..	5·1	0·9	..	..	0·7	3·9	..	16	24 0
16	..	8·1	..	1·4	..	6·9	2·5	..	..	6·2	..	..	1·9	..	2·3	..	19	5 40
17	3·8	..	3·2	..	13·0	..	2·3	..	8·7	..	..	3·2	3·9	..	..	10·7	20	21 10
18	1·8	..	..	10·3	..	4·2	..	7·4	..	6·5	..	5·5	..	5·2	..	4·4	19	5 0
19	..	2·6	3·1	..	..	6·5	..	3·7	..	6·6	..	3·8	..	1·2	1·0	..	14	9 0
20	..	2·6	3·1	..	..	1·8	1·5	..	..	..	..	2·0	..	Calm		..	6	3 45
21	..	0·4	2·2	..	..	2·0	..	..	4·8	..	0·9	..	1·8	..	1·5	..	6	15 25
22	..	1·7	3·0	..	..	Calm		..	5·3	..	..	..	3·2	..	3·8	..	8	23 55
23	3·3	..	3·9	..	4·1	..	7·1	..	5·4	..	6·4	..	..	9·8	1·7	..	14	18 50
24	..	8·4	..	4·8	..	10·2	..	3·8	..	10·5	..	..	..	8·5	..	..	16	14 20
25	..	4·3	..	1·6	..	3·6	..	1·7	..	2·7	..	2·2	..	Calm		..	9	0 50
26	..	2·3	0·9	..	..	6·2	..	..	..	6·5	..	..	..	2·3	..	0·9	10	12 30
27	..	3·4	..	..	..	0·9	..	5·1	..	2·1	..	5·6	..	3·0	..	3·5	9	13 25
28	..	..	..	7·0	..	1·2	..	3·4	..	4·0	..	4·7	..	2·9	..	7·9	13	22 55
29	..	..	..	9·0	..	2·3	..	6·2	..	5·4	..	4·6	..	7·2	..	2·6	13	1 5
30	..	4·9	..	0·9	..	6·0	..	2·2	..	6·5	..	2·4	..	6·1	..	..	13	13 30
S+N & W+E	84·5		118·3		128·9		113·9		153·8		105·1		94·8		100·5			
S−N & W−E	−56·1		−36·3		−78·3		−50·1		−84·8		−56·9		−73·2		−48·9			

8. Seismological Diary.

The notation used is explained in the Introduction.

Earthquakes—Eskdalemuir.

Day.	Phase	Time G.M.T.	Period.	Amplitudes. A_N.	Amplitudes. A_E.	Amplitudes. A_Z.	Δ.	Remarks.
		h. m. s.	s.	μ	μ	μ	km.	
1	i_E	4 31 36	..	..	..	..	..	
	i_N	4 32 16	..	..	..	..	..	
	L	4 45 42	..	..	..	..	..	
	M_N	4 59 39	26	31	..	..	..	
	M_N	5 4 33	25	41	..	..	..	
	F	6 15	..	..	..	..	..	
1	e_N	12 22 13	..	..	..	..	..	Comparatively slight activity between two times given for L_N. Some evidence of two overlapping disturbances.
	i_N	12 23 30	..	..	..	..	..	
	i_N	12 29 23	..	..	..	..	..	
	L_N	12 40	..	..	..	..	..	
	L_N	13 1	..	..	..	..	..	
	F	14 30	..	..	..	..	..	
1		17 31 to 17 35	30	..	..	..	..	Isolated group of long waves.
2	P	9 49 46	..	..	..	..	9450	
	S	10 0 20	..	..	..	..	..	
	M_N	10 31 17	25	30	..	..	..	
	F	11 35	..	..	..	..	..	
10	P(?)	13 51 0	..	..	..	..	..	Time markers for horizontal components out of action. P. taken from record of vertical component.
17		23 1 to 23 22	..	..	..	..	..	Faint disturbance.
19		0 57 to 1 30	..	..	..	..	..	Faint disturbance. Group of long waves on E-W component, 1h. 1m. to 1h. 4m.
20		16 16 to 16 37	..	..	..	..	..	Faint disturbance. i at 16h. 16m. 0s.
20		19 0 to 19 25	..	..	..	..	..	Faint disturbance.
22	e	6 46 37	..	..	..	..	..	Almost continuous Lmotion during latter part of this disturbance. Period notably small, 17–18secs.
	e	7 6 27	..	..	..	..	..	
	L	7 43 27	..	..	..	..	..	
	F	9	..	..	..	..	..	
22	L	16 11	..	..	..	..	..	
	F	16 24	..	..	..	..	..	
25		17 57 to 18 50	..	..	..	..	..	No distinguishable preliminary phases. L at 18h. 40m.
27	L	10 14	..	..	..	..	..	

Microseisms of N. Component—Eskdalemuir.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s.	μ	s.	μ	s.	μ	s.
1	1·6	6	..	..	0·9	5	0·8	5
2	0·9	5	0·8	5	0·8	5	1·3	4·5
3	1·2	5·5	1·7	6	2·2	6·5	2·2	6·5
4	2·3	6·5	2·9	8	2·2	7	2·4	6·5
5	1·9	6	1·4	6	1·2	5·5	1·6	6
6	1·6	6	1·8	4·5	1·8	5·5	1·1	5·5
7	1·6	6	1·7	5·5	1·7	5·5	1·1	5·5
8	1·3	5·5	0·9	5	0·9	5	0·8	5
9	0·6	6	0·8	5	0·9	4·5	0·9	4·5
10	0·6	4	0·5	4·5	..	..	..	..
11	0·2	4	0·2	4	0·1	4	0·1	4·5
12	0·1	4	0·1	4·5	0·2	4	0·3	4
13	0·3	4	0·2	4	1·0	4	1·0	4·5
14	0·9	5	..	..	..	..	1·6	6·5
15	1·6	5·5	1·6	6·5	..	..	1·6	6
16	1·7	5	0·8	6·5	1·1	5	1·6	6
17	2·1	6	1·7	6	1·6	6	1·8	6
18	1·5	4·5	0·8	6	0·9	5	1·0	4·5
19	0·7	5·5	0·5	5·5	0·6	4	..	..
20	0·6	4·5	0·6	4·5	0·5	5	1·0	4·5
21	0·8	5·5	0·8	5·5	0·9	4·5	0·9	5
22	0·8	5·5	0·9	6	0·8	5	0·8	5
23	0·9	5·5	1·1	5	1·0	5	2·2	5·5
24	2·9	7·5	2·0	7	1·5	6	0·9	6
25	1·0	5·5	0·8	5·5	0·8	5·5	0·9	5
26	0·8	5	0·8	5	0·6	4·5	0·3	4
27	0·4	5	0·6	5	0·6	4·5	0·6	4·5
28	0·2	4·5	0·2	4	0·2	5	0·1	4·5
29	0·1	4·5	0·0	0	0·0	0	0·0	0
30	0·0	0	0·1	5	0·2	4·5	0·2	4·5

Means for month $\begin{cases} A_N. = 1·0\ \mu. \\ T = 5·1\ s. \end{cases}$

Normals, 1911–20 : $\begin{cases} A_N. = 1·2\ \mu. \\ T = 5·3\ s. \end{cases}$

Earthquakes—Richmond (Kew Observatory).

Day.	Times, G.M.T., of Commencement.	Times, G.M.T., of Maximum Amplitude.	Remarks.
	h m	h m	
1	..	5 11	Small. Small waves to 5h. 30m.
1	..	13 23	Very small.
2	10 3	10 40	Amplitude on trace = 1·3mm. Movement partly masked by change of sheet.
10	..	14 18	Small.
20	..	15 23	Very small.
22	8 5	8 28	Small.
22	..	16 15	Small.

9. Nephoscope Observations.

Aberdeen.

Day and Hour. G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.–E.	S.–N.	
1 13	Fr.-Cu.	277	6·9	+ 6·9	− 0·8	Fracto.-Cu, dispersing at coast-line.
2 13	Cu.	282	5·4	+ 5·3	− 1·1	Cu, developing into St.-Cu.
4 13	St.-Cu.	278	6·9	+ 6·8	− 1·0	Cu, flattened out into St.-Cu.
5 13	Fr.-Cu.	285	10·0	+ 9·7	− 2·6	Cu. in broken shreds.
6 13	Cu.	268	3·0	+ 3·0	+ 0·1	Cu, degrading and fusing into sheet.
7 13	St.-Cu.	180	4·8	0·0	+ 4·8	Thin St.-Cu., dispersing.
13 13	False Ci.	269	4·2	+ 4·2	0·0	These observations refer to the same cloud group. The False-cirrus was associated with the upper part of a Cu.-Nb. and was becoming A-Cu. The second observation gives the motion of the base of the Cu-Nb.
13 13	Cu.-Nb.	314	12·5	+ 9·0	− 8·7	
14 13	Cu.-Nb.	353	17·0	+ 2·1	−16·8	Basal part measured.
16 13	Cu.	307	5·2	+ 4·2	− 3·1	Typical Cu.
19 13	Cu.-Nb.	303	16·0	+13·4	− 8·7	Base of cloud measured.
20 13	Cu.	265	3·5	+ 3·5	+ 0·3	Velocity approximate; direction average only; cloud eddying and dispersing.
21 13	St.-Cu.	275	5·4	+ 5·4	− 0·5	Flat, fused thin St.-Cu.
22 13	St.-Cu.	246	5·7	+ 5·2	+ 2·3	Flat but heavy St.-Cu.
23 13	Cu.-Nb.	285	7·0	+ 6·8	− 1·8	Degraded Cu.-Nb, base measured.
26 13	St.-Cu.	175	7·1	− 0·6	+ 7·1	Detached Stratus-cumuliformis.
27 13	A.-Cu.	125	3·1	− 2·5	+ 1·8	Small flat A.-Cu., flaked type.
28 13	A.-Cu.	135	4·1	− 2·9	+ 2·9	A.-Cu. *castellatus*. Heavy low type, fine "thunder-heads" in places.

10. Aurora.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
4	a.	..	1, 0	1, 0	Wick	
8	a.	●	..	..	..	
13	p.	..	2, 1	2, 1	Eskdalemuir	21h.
14	a.	..	2, 1	2, 1	Eskdalemuir	1h.
15	p.	..	1, 1	1, 0	Wick	
22	a.	○	..	..	..	
30	a.	..	2, 0	2, 0	Deerness	0h.

Note.—The two magnetic "characters" entered in each case refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

DAILY VALUES.—*Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology.*

Eleventh YEAR.—No. 5. MAY, 1921.] Units based on the C.G.S. System. [*Price* 1*s.* 6*d.*

1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Bright Sunshine.* Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	11·30 h. to 12·30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p_0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	6·9	47	997	29	73	12 50	69	6·6	45	..	..	..	13·7	91	..	..	..	..	*x*12·6	85
2	10·0	68	1731	49	80	11 50	80	8·6	58	63	50	Clear	4·2	28	..	..	..	..	9·4	63
3	2·1	14	868	25	75	14 25	52	2·5	17	..	..	..	8·4	55	..	..	..	..	8·9	60
4	0·1	1	475	13	62	11 50	62	0·0	0	..	..	..	5·0	33	..	..	..	..	11·7	78
5	7·6	51	1631	46	72	12 40	69	9·6	64	..	..	..	5·8	38	..	..	..	..	0·2	1
6	0·3	2	443	12	32	17 00	18	0·2	1	..	..	..	0·0	0	..	..	..	..	0·7	5
7	1·4	9	963	27	86	13 27	67	1·9	13	..	..	..	6·0	38	..	..	..	..	8·2	54
8	5·2	34	1115	31	90	11 30	90	6·7	44	..	..	..	3·5	22	..	..	..	..	3·0	20
9	10·9	72	1876	51	92	12 30	92	10·9	72	75	62	Clear	2·9	18	..	..	..	..	9·5	62
10	9·3	61	1668	45	86	10 45	82	10·8	71	..	..	..	9·3	59	..	..	..	..	0·0	0
11	3·9	25	1155	31	61	12 03	61	3·3	22	..	..	..	5·8	37	..	..	..	..	0·6	4
12	0·2	1	936	25	63	12 15	63	0·4	3	..	..	..	0·0	0	..	..	..	..	10·2	66
13	4·7	31	1196	32	76	11 00	75	6·2	40	54	45	Clear	5·5	34	..	..	..	..	0·2	1
14	10·9	70	2152	57	80	12 50	79	10·4	67	..	..	..	0·0	0	..	..	..	..	4·5	29
15	0·0	0	540	14	25	9 20	23	0·0	0	..	..	..	11·9	74	..	..	..	..	11·3	72
16	13·6	87	2314	61	88	11 10	87	12·9	83	65	55	Clear	8·0	50	..	..	..	..	1·2	8
17	5·4	35	2011	53	92	12 40	90	8·7	56	71	60	Clear	7·8	48	..	..	..	..	8·7	55
18	2·2	14	1700	44	80	11 20	54	8·9	57	45	38	Thro' Ci.	10·2	63	..	..	..	..	1·3	8
19	0·5	3	2170	51	84	11 40	84	11·5	73	..	..	..	0·1	1	..	..	..	..	0·1	1
20	5·0	32	2018	52	94	11 35	94	10·4	66	75	64	Clear	6·1	37	..	..	..	..	6·2	39
21	14·1	89	1699	44	79	12 20	79	13·8	87	67	57	Hazy	0·8	5	..	..	..	..	0·3	2
22	*x*14·4	91	*x*2382	61	85	10 45	82	13·9	88	60	51	Clear	4·8	29	..	..	..	..	0·0	0
23	*x*14·4	91	2089	53	88	11 55	88	*x*14·1	89	..	..	..	*x*14·3	87	..	..	..	..	10·4	65
24	10·0	63	2052	52	78	11 50	78	10·0	63	64	55	Hazy	13·8	83	..	..	..	..	4·9	31
25	4·4	28	1361	35	79	13 00	78	4·0	25	28	24	Thro' Ci.	13·7	82	..	..	..	..	1·2	7
26	3·1	19	1306	33	85	11 25	83	3·7	23	..	..	..	6·4	38	..	..	..	..	8·2	51
27	7·0	43	1654	42	95	10 40	93	6·8	42	..	..	..	7·7	46	..	..	..	..	8·7	54
28	9·4	58	1734	44	96	10 22	94	9·6	60	..	..	..	4·4	26	..	..	..	..	9·5	59
29	9·5	59	1754	44	*x*99	12 10	99	9·3	58	..	..	..	4·1	24	..	..	..	..	0·1	1
30	4·2	26	1345	34	84	13 06	77	4·5	28	..	..	..	0·6	4	..	..	..	..	3·7	23
31	8·9	55	1939	48	95	12 22	95	8·5	52	..	..	..	6·1	36	..	..	..	..	8·4	52
Means.	6·44	41	1483	40	79	..	75	7·38	47	..	..	..	6·16	38	..	..	..	..	5·29	34
Normals.	5·61	36	1487	39	..	..	..	6·48	42	..	..	..	5·30	33	..	..	..	..	6·55	42
	◄—35 years—►		◄—8 years—►					◄—35 years—►					◄—10 years—►						◄—35 years—►	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day.	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	mb.	*a* 200+	*a* 200+	*a* 200+	*a* 200+	millibar.		%	%					Tenths of Sky covered		mm.	*a* 200+		
1	1028·1	1026·2	87·3	84·8	89·9	79·9	13·1	11·7	81	85	..	0	325	2	2 ≡⁰	6 ≡⁰	—	76·5	Fine, ☾ and ∞, *a*. Fine and ∞ day.	
2	1022·7	1019·6	85·0	82·8	85·3	81·5	11·3	9·8	81	81	340	7	355	5	5 ≡⁰	2	—	75·7	Fine, ☾ and ∞, *a*. Fair and ∞ day.	
3	1015·6	1007·5	82·1	80·1	84·3	78·0	7·5	8·0	65	79	40	2	..	1	4	2	—	..	Fine *n*. Fine dry day.	
4	1005·1	1008·8	82·0	80·4	83·4	76·7	8·0	6·9	70	67	10	11	35	2	5	5	1·7	73·6	Fine *n*. p. *a*. Fine, dry and (). day.	
5	1004·4	998·7	82·2	84·6	84·7	*n*75·9	8·1	12·9	70	95	140	6	200	4	10)	10	8·2	*n*73·5	(). *a*. ● day. o. and d⁰. *p*.	
6	998·0	991·9	85·3	83·7	86·3	83·5	12·6	11·1	89	87	180	4	210	6	10	8	6·4	82·8	d⁰. *a*. p. to ● day; p. *p*.	
7	992·3	992·1	85·0	82·6	86·6	81·8	11·5	10·3	83	87	205	5	215	3	8	7	2·3	80·1	p. *a*. Fair day. Fair and p. *p*.	
8	990·9	998·7	83·3	82·4	85·5	81·8	11·4	9·8	92	84	235	8	265	7	10	7	6·4	79·2	p. *a*.; o. to c. and p. day.	
9	1005·4	1010·6	84·2	81·3	85·4	79·3	9·3	8·9	71	82	260	6	..	1	9	3	0·7	79·1	p.⁰ *a*. Fair day. Fine *p*.	9 {17840′ 19° 7′·1 68° 3′·0
10	1006·3	1002·2	83·8	84·5	85·4	79·3	10·7	12·0	83	89	150	10	125	8	10 ●⁰	10 ●⁰	7·2	75·3	● to ●⁰ and ≡⁰ day; d.⁰ *p*.	
11	1006·2	1016·2	84·3	84·0	85·7	83·5	13·2	12·5	99	96	240	3	335	7	10 ≡	10	1·5	83·5	●⁰ *a*.; o. and ≡ ⋮; o. to c. *p*.	
12	1019·9	1020·4	83·2	82·9	86·2	82·3	10·3	11·0	84	91	330	4	..	0	8	3	..	81·9	o. *a*. Fine day.	
13	1019·7	1016·9	84·1	84·3	87·2	83·9	12·5	11·4	95	86	310	3	180	3	10	10	1·6	79·2	●⁰ *a*. Dull day.	
14	1015·9	1019·6	85·0	82·4	86·6	82·3	10·7	9·8	77	84	280	4	255	4	9	6	2·4	83·4	● *n*. c. *a*. Fair *p*.	
15	1024·9	1025·6	83·2	82·7	86·4	81·5	9·2	9·9	75	83	280	4	245	2	8	5	0·1	..	Fair *a*. and day.	
16	1020·5	1019·3	84·7	83·0	87·1	81·5	11·8	8·4	86	69	180	5	285	6	10	7	1·4	79·3	Fair *n*. Dull *a*. p. *p*.	
17	1018·5	1019·3	83·2	82·9	86·0	81·1	9·2	8·9	75	74	275	4	265	3	9	7	0·9	78·2	p.⁰ *n*. and *a*. Fair day.	
18	1019·2	1015·6	84·2	84·3	87·3	79·8	10·1	12·6	77	95	205	5	230	5	10	10 ●⁰	1·0	77·2	o. *a*.; o. to c. day. ●⁰ *p*.	
19	1011·9	1016·2	84·9	83·8	86·5	82·6	13·3	9·7	96	75	205	5	285	6	10 ●⁰	10	1·8	81·2	●⁰ *a*. Dull day. o. to c. *p*.	
20	1020·9	1024·1	84·7	84·3	87·5	83·3	9·3	11·1	68	84	285	2	185	3	10	10	—	82·2	o. *n*. and *a*. Fair to fine day.	20. 19° 6′·1
21	1024·1	1024·2	86·0	84·8	88·3	84·0	13·4	13·0	90	95	170	6	175	3	10	10 ●⁰	1·0	83·1	o. *n*. and day; ●⁰ *p*.	
22	1025·5	1025·1	85·2	86·5	87·6	83·5	12·0	12·8	85	83	30	5	..	0	10	10	0·5	82·8	p. *n*.; o. day.	
23	1024·4	1024·2	88·6	85·7	*x*90·5	83·2	14·2	13·1	81	90	..	1	..	1	9	3	—	84·4	o. *n*. and *a*. Fine day.	23. 19° 3′·5
24	1023·8	1021·1	85·3	85·0	88·0	82·1	13·4	12·5	94	90	..	1	..	0	10	10	—	78·6	Fine ☾ *n*. ≡⁰ *a*. Fair day.; p. *p*.	
25	1016·9	1015·1	86·9	83·3	89·1	82·4	12·4	9·6	79	77	210	3	345	8	10	8	1·8	79·7	o. *n*.; c. to o. *a*.; ●⁰ to d. *p*.	
26	1014·8	1013·9	84·0	83·0	86·0	81·4	9·1	9·3	70	76	290	4	315	6	7	7	1·0	79·1	Fair day; p. *p*.	26 {19° 4′·1 68° 3′·5
27	1013·4	1013·7	82·7	81·1	84·0	80·4	8·0	8·3	67	77	310	8	345	4	9	7	3·8	76·9	p. *n*. and day. Fair *p*.	
28	1011·7	1011·6	81·6	81·6	84·7	79·6	8·4	7·8	75	70	340	5	320	5	8	5	0·7	76·9	p. *n*. and *a*. Fair day.	28 17839′
29	1004·5	997·8	82·5	84·2	85·7	78·9	9·8	10·7	83	81	175	7	250	7	10 ●	10	*x*12·9	76·3	● *a*. Dull *p*.	
30	995·9	996·5	84·9	83·0	85·2	82·4	10·9	10·6	79	87	220	6	240	13	10	7	9·5	81·3	●⁰ to ● *a*.; p^2. *p*.	
31	1009·5	1020·4	83·0	82·0	84·8	81·2	9·9	8·6	81	75	320	9	340	7	10	4	3·3	80·0	p. *n*. and *a*. Fine and dry *p*.	
Means.	1013·3	1013·3	84·3	83·3	86·4	81·2	10·8	10·4	81	83	..	4·9	..	4·2	8·7	7·1	78·1	79·4†	Monthly Totals or Means	17840′ 19° 5′·2 68° 3′·2
Normals	1013·9	1014·3	84·8	83·8	87·5	81·0	11·0	10·9	79	84	..	5·0	..	4·3	..	..	79·3	..	Normals	
	◄—45 years—►						◄—30 years—►				◄—35 years—►						45 years			

* By Campbell-Stokes Sunshine Recorder. †Mean of 29 days. *x* denotes the maximum and *n* the minimum value in the column.

(7026) Wt.134/6890/P27 500 9/22 Harrow G.69/7

3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind—Veer from North in degrees and Speed in metres per second.				Cloud Amount Weather and Visibility				Rain 0 h. to 24 h.	Min. Temp. on Grass.	Remarks.
					Max.	Min.	Vapour Pressure.		Percentage												
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.		21 h.		9 h.		21 h.			18 h. to 9 h.	
			a	a	a	a															
	mb.	mb.	200+	200+	200+	200+	millibar.		%	%	° m/s.		° m/s						mm.	a 200+	
1	1025·0	1021·1	81·3	84·5	89·6	79·7	7·8	8·5	71	63	20	4	360	2	10	H	0	L	—	79·1	O'cast *a.*; fine later.
2	1015·7	1010·7	86·0	83·0	92·2	77·5	9·2	10·5	62	86	350	2	305	2	0	I	1	I	0·8	71·1	☂. Cloudy to fine. ☇ 18h. 15m.
3	1011·3	1008·7	79·9	77·8	82·3	76·5	6·3	6·8	63	79	360	5	..	0	5	J	1	I	0·2	77·9	●⁰ early. Dull to cloudy.
4	1002·2	1003·0	78·0	78·6	82·1	76·4	7·6	7·8	88	86	145	2	360	4	10●⁰	H	6	J	*x*4·3	71·3	● early. Dull to o'cast. ●⁰ *p.*
5	1010·6	1011·9	80·7	80·0	86·5	*n*75·1	7·1	6·7	68	67	360	2	180	3	5	H	2	K	—	*n*69·9	⌊. Fine *a.*; fine to cloudy *p.* ⊕ 18h.
6	1008·4	1005·0	83·7	85·1	87·2	76·9	11·1	12·2	87	87	180	6	195	4	10●⁰	H	9	J	0·7	71·5	Dull and showery.
7	1001·4	998·4	87·9	85·0	90·1	83·9	12·9	12·1	77	87	190	6	185	4	9	K	9●⁰	K	1·6	82·5	Dull to cloudy. Showers.
8	995·9	1004·5	86·7	83·4	88·9	81·0	12·2	10·2	78	81	185	7	190	5	6	K	0	L	3·6	81·9	O'cast to fine. Showers.
9	1009·9	1013·6	84·5	83·3	89·5	80·8	10·7	9·3	79	75	175	5	210	2	5☂	K	1	L	2·3	76·1	☂. ▲⁰ p. 9h. 45 m. Fine to cloudy.
10	1016·4	1016·6	85·6	84·5	91·3	80·7	10·1	9·6	70	71	210	2	..	1	6	L	2	L	—	75·9	☂. Fine. ◊ p.
11	1014·0	1014·4	89·2	87·2	92·1	79·7	10·5	13·8	58	86	155	4	..	1	7	K	10●⁰	I	0·8	73·1	☂. Fine to o'cast. Showers *p.*
12	1015·9	1016·7	87·4	86·0	92·3	84·1	14·0	14·0	86	94	..	0	..	1	10●	F	8☂	H	0·5	81·8	Mostly dull. ☇. 14h. 45m. ⊕ 18h.
13	1018·8	1019·1	86·8	89·1	95·1	82·4	14·1	15·1	90	83	..	1	220	2	1	G	4	I	—	79·9	☂ ≡. Fine to o'cast.
14	1019·4	1017·9	89·7	87·5	95·4	83·2	12·9	12·0	68	73	220	2	220	3	3∞	H	2	L	—	79·9	☂. Fine to cloudy.
15	1019·6	1022·6	85·1	86·4	88·1	82·6	12·2	10·7	87	70	340	3	35	2	10●⁰	G	5	J	2·4	81·5	● early. Dull.
16	1022·9	1018·1	86·9	84·6	92·2	79·0	8·5	8·0	54	59	60	3	105	2	2☂	H	4	L	—	72·9	☂. Fine.
17	1015·7	1015·6	86·6	86·0	90·0	78·5	8·8	10·3	57	69	340	2	..	1	1	K	8	L	—	73·1	Fine *a.* Fine to o'cast *p.*
18	1018·8	1017·7	86·0	87·6	91·1	80·4	8·2	11·4	55	69	20	4	265	2	0∞	H	6	J	—	73·7	Fine to o'cast.
19	1017·2	1014·9	89·0	86·8	93·1	80·8	9·2	11·0	51	70	190	3	200	4	0	K	2	K	—	75·6	Fine.
20	1017·0	1023·2	88·0	86·6	91·2	83·7	12·0	9·5	71	61	265	3	345	2	6	K	2	K	—	81·0	O'cast early. Fine after 8h.
21	1026·7	1024·4	88·2	86·6	94·1	80·0	9·6	8·7	56	56	70	2	95	4	1∞	H	1	L	—	73·1	☂. Fine. ∞ *a.*
22	1023·5	1022·8	89·4	87·8	94·0	79·2	11·3	9·2	61	55	80	3	45	7	3∞	H	1	L	—	73·3	☂. Fine.
23	1022·0	1021·8	88·0	88·2	94·5	80·6	11·7	9·6	69	56	30	5	40	5	2∞	I	1	K	—	78·1	∞⁰ early. Fine.
24	1021·5	1018·9	85·5	91·4	*x*96·9	81·9	11·7	12·0	81	57	20	4	55	3	8	I	0	J	—	80·0	Fine after 9h. ∞⁰ *p.*
25	1015·5	1010·5	90·0	90·5	96·7	83·9	13·1	15·1	68	76	20	3	100	2	10	H	10●	I	1·7	81·0	Fine to o'cast. ● *n.*
26	1007·5	1007·4	92·0	88·0	95·9	84·5	14·8	13·0	68	77	..	1	340	3	5∞	H	10●⁰	K	0·7	86·0	Dull to cloudy. T 14h.-15h. ● *p.*
27	1008·1	1007·5	85·9	83·7	89·9	81·8	8·9	9·2	60	72	310	3	310	2	6	L	10	K	2·1	80·6	● early. Fine to o'cast. ◊ *p.*
28	1006·6	1007·7	84·1	83·0	87·2	79·0	7·9	8·0	60	66	265	3	275	2	7	L	2	K	1·0	75·2	Fine to dull. Showers. ▲ 13h. 50m.
29	1009·3	1009·5	84·1	84·6	89·2	77·9	7·8	9·2	59	68	250	5	190	5	6	L	10	L	1·9	73·5	Fine to o'cast. ● *n.*
30	1003·8	1004·4	86·2	87·0	91·9	82·4	13·3	13·8	88	87	180	7	185	7	10●⁰	J	10	J	0·4	81·1	● *a.* Dull to fine.
31	1010·9	1016·8	88·0	86·0	91·8	84·8	9·3	11·6	55	78	220	8	190	2	3	L	10	K	—	82·2	Fine to dull. Light showers *p.*
Means	1013·9	1013·7	86·1	85·5	91·0	80·6	10·5	10·6	69	73	3·6		2·7		5·4		4·7		25·0	77·2	Monthly Totals or Means.
Normal	1015·0	1015·0	85·0	84·2	89·3	80·1	10·1	10·3	71	75	4·2		2·9		..		..		43·8 (45 yrs.)	..	Normals.
			45 years.				30 years.				35 years.										

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

1	1000·1	993·1	89·1	83·8	*x*92·7	74·7	7·7	6·9	42	54	30	3	310	7	0	K	1	K	—	70·3	b. to by. *a.*: by. to bcy. to by. *p.*: b. *n.*
2	987·1	989·2	83·6	74·2	85·5	71·6	8·6	5·5	68	82	310	7	30	4	9	J	3	J	1·1	69·3	b. ☂ early to o ●q, *a.*: o ●⁰c. *p.*: c. to b. *n.*
3	985·8	978·5	77·7	75·0	81·9	68·9	4·7	5·1	55	73	10	3	..	1	7	L	9	K	—	65·5	b. ⌊early, ⊕ at 7h., cy. *a.*: cy. to o⊕ *p.*: o. to c. *n.*
4	975·1	979·5	79·4	71·7	80·7	70·2	6·4	4·5	67	81	60	5	360	2	8	J	1	K	0·1	68·0	b. to c. T▲⁰ *a.*: o ●⁰o. *p.*: o() to b. *n.*
5	981·9	980·1	78·7	77·6	82·4	*n*67·5	5·7	6·2	62	74	..	1	..	0	8	K	10	I	0·9	*n*64·4	b. ⌊ to c. *a.*: c. to o⊕ *p.*: o ● *n.*
6	973·6	970·2	78·5	81·4	82·4	77·5	8·5	10·6	95	97	150	5	200	5	10●⁰	H	10	D	12·2	75·8	o. ●≡⁰ *a.*: o. ●⁰≡⁰ *p.*: o.≡⋮ ●⁰ *n.*
7	966·7	967·1	82·9	80·2	85·3	79·7	9·7	9·3	80	92	210	9	..	1	10	J	10	J	8·3	80·9	o. ● to o. *a.*: o. to c. *p.*: bc. to o. *n.*
8	966·0	967·9	83·2	81·7	85·0	80·6	8·8	9·2	71	82	200	6	200	8	9	K	10	I	4·3	76·5	o. ●⁰ to c. *a.*: o. *p.*: bc. to op. *n.*
9	974·5	980·9	81·8	80·8	84·3	80·0	9·5	9·4	84	89	200	9	200	3	10	J	9	K	1·5	80·0	o. ●o. *a.*: o. ●⁰ to o. *p.*: o. ●⁰ to o. *n.*
10	984·1	986·4	83·5	77·7	85·2	74·8	8·5	7·2	67	84	220	5	..	0	8	K	8	L	—	78·3	Fine early, c., o. to c. *a.*: bcy. *p.*: by. to c. *n.*
11	986·8	988·9	85·3	83·1	89·6	74·9	8·7	10·7	61	87	150	4	..	1	7	J	10●⁰	I	0·4	71·5	Cloudless 1h., b. to o. *a.*: cy. *p.*: o. ●⁰ *n.*
12	989·5	990·3	83·3	84·9	87·7	81·7	11·5	12·6	93	91	50	3	..	0	10	I	10	I	3·0	81·0	o. ● to ●⁰ ≡⁰ *a.*: o. ≡⁰ *p. and n.*
13	990·4	990·5	86·8	83·5	89·9	82·9	12·3	11·6	79	92	210	7	..	1	8	I	10	I	—	80·3	o. ≡⋮ to o. *a.*: o. ●⁰ *p.*: o. *n.*
14	986·1	987·8	83·0	80·9	84·2	78·7	11·3	8·9	93	84	200	11	..	0	10	I	10	I	4·7	80·4	o. to o. ●⁰ ≡⁰ *a.*: o. ●⁰ ≡⁰ *p.*: o. *n.*
15	992·0	994·9	82·3	79·2	86·6	75·6	7·8	8·1	67	86	250	5	210	3	8	J	1	K	—	71·4	o.☂⁰ to c. *a.*: bcy. to b. *p. and n.*
16	992·6	987·0	82·4	81·5	85·0	77·6	8·3	9·7	71	88	210	8	180	5	7	J	10	I	5·6	73·0	o. to c. *a.*: c. *p.*: o. ●⁰ *n.*
17	986·4	987·9	81·2	78·5	84·7	75·1	7·5	7·9	69	87	220	5	220	4	8	J	3	K	2·8	72·0	☔⁰ 1h. o. to c. *a.*: o. to o. ●⁰ *p.*: o. ●⁰ to b. *n.*
18	989·6	987·7	82·5	80·0	85·0	72·6	7·6	8·0	64	80	230	6	210	4	8	J	7	J	—	..	Cloudless 1h. b. to cy. *a.*: bcy. to c. *p.*: c. *n.*
19	983·1	979·5	81·7	81·1	84·4	79·0	10·5	8·8	94	82	210	7	280	6	10●⁰	I	8	I	7·5	77·2	o. to o. ●⁰ *a.*: o. to o. ●⁰ *p.*: o. ●⁰≡⁰ to c. *n.*
20	985·6	994·3	82·2	80·5	87·5	75·6	8·9	6·8	77	65	270	5	310	4	10	K	0	K	0·7	76·9	c. to o. *a.*: c. to bcy. *p.*: bcy. to bq. *n.*
21	996·6	995·9	84·4	82·9	87·2	72·5	10·2	8·9	76	74	210	6	200	3	10	K	8	K	—	69·5	Cloudless 1h., o. ≡⋮⁰ 6h. 30m. o. *a.*: o. *p. and n.*
22	997·7	1000·0	85·6	81·6	90·7	76·5	10·0	8·6	69	77	330	2	..	1	10	L	6	L	—	79·2	o. *a.*: bcy. *p. and n.*
23	1000·2	997·0	86·2	81·4	89·8	76·2	8·4	8·7	56	80	..	1	..	1	0	K	0	K	—	73·5	bc. to by. *a.*: by. *p.*: b. *n.*
24	995·9	992·6	87·3	85·1	91·9	75·6	11·6	10·8	72	77	200	4	220	2	3	J	1	K	—	72·2	b.☂ early, b. to bc. *a.*: bcy. to by. *p.*: b. *n.*
25	988·0	983·1	88·0	83·8	92·2	76·0	11·5	10·6	68	82	210	6	..	0	5	J	3	K	—	73·0	b.☂ early to c. ∞ *a.*: c. to by. *p.*: b. *n.*
26	981·4	980·7	82·2	78·4	86·9	74·5	8·3	7·2	72	81	310	4	270	2	9	J	3	K	0·9	76·1	o. to o. ●⁰ to cy. *a.*: cy. to bc. *p.*: b. *and* bc. *n.*
27	980·0	979·2	82·6	79·2	85·6	70·0	7·7	7·5	65	80	270	2	..	1	7	K	7	L	—	67·9	b.⌊⌊ to c. early to c. *a.*: c. *p. and n.*
28	976·5	975·9	80·8	78·9	84·5	70·1	7·5	7·8	71	84	210	2	270	3	8	K	10●⁰	J	3·9	67·8	b.⌊ to c. *a.*: o.o.▲to o. ●⁰ *p.*: o. ●⁰ to c. *n.*
29	976·0	974·3	80·6	79·0	82·8	75·2	7·8	7·1	75	76	230	3	170	4	8	L	9●⁰	K	3·9	71·2	☇at 0h. 45m. to op. ●⁰ *a.*: op. *n.*: o.to o. ●⁰ ≡⁰ *n*
30	967·1	960·9	83·2	83·3	83·6	78·4	9·2	11·3	75	91	220	9	180	13	10	J	10●	I	*x*16·4	77·5	o. ●≡⁰ early, o. to o. ●² *a.*: o., ●, ●² *p.*: o. ●²
31	971·4	985·4	83·5	81·6	85·8	79·3	9·3	8·9	74	80	220	9	260	3	8	K	10	K	8·5	78·7	o. ●⁰ to c. *a.*: o. ●⁰ *p.*: c. *and* b. to o. *n.* [≡⁰ *n*
Means	984·1	984·1	83·0	80·4	86·2	75·6	8·8	8·5	72	82	5·2		3·0		7·8		6·7		86·7	74·0†	Monthly Totals or Means.
Normal 1911-1920	987·4	987·5	83·0	80·8	86·7	76·9	9·5	9·1	77	85	5·6		3·7		..		..		92·1	..	Normals.

Temperatures at or below the normal freezing point of water are printed in small type. *x* denotes the maximum, and *n* the minimum, value in the column.
† Mean for 30 days.

5. GEOPHYSICS:—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h. 0·3 m.	Earth Temperature at 9 h. 1·2 m.	Height above M.S.L. of Surface of Underground Water. Daily Mean.	Height above M.S.L. of Surface of Underground Water. Extremes.	Terrestrial Magnetic Force. Horizontal Comp't. Mean Time.	Horizontal Comp't.	Declination. Mean Time.	Declination. West.	Inclination. Mean Time.	Inclination. North.	Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}. +. About 15 h.	Charge per cc. × 10^{16}. −. About 15 h.	Air-Earth Current. × 10^{16}. About 15 h.	Potential Gradient, Volts per metre. Factor 2·25. 3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m.	v/m.	v/m.	v/m.
1	84·2	82·2	199	199	..	..	..	..	..	..	0	0	..	..	..	95	205	180	345
2	84·0	82·4	198	..	..	..	..	..	..	..	0	1	0·33	0·38	0·75	205	275	110	180
3	84·4	82·5	197	..	..	..	..	..	..	..	1	1	0·86	0·47	0·90	55	290	180	110
4	83·3	82·6	195	..	..	..	..	..	..	..	1	2	..	..	0·55	70	−565	440	235
5	82·7	82·8	194	..	10 57	18386	14 31	14 25·5	14 37	66 58·7	0	1	0·43	0·18	0·55	180	345	110	205
6	83·0	82·8	193	..	..	..	..	..	..	..	0	0	..	..	..	110	150	150	275
7	83·8	82·9	193	..	..	..	..	..	..	..	0	0	..	..	..	70	180	150	260
8	84·4	83·0	192	..	..	..	..	..	..	..	0	1	..	..	..	165	205	z—	275
9	84·1	83·0	192	..	..	..	..	..	..	..	1	1	0·74	1·39	1·15	140	770	195	400
10	84·6	83·0	192	..	..	..	..	..	..	..	1	1	0·81	0·51	0·90	260	305	140	305
11	84·9	83·2	193	..	11 1	18385	14 31	14 25·4	..	..	0	1	..	..	..	205	235	125	195
12	85·2	83·2	195	..	..	..	..	..	14 35	67 0·1	2	1	..	..	..	85	−55	z±	140
13	85·6	83·2	195	..	..	..	..	..	..	..	2	0	..	..	..	220	260	125	140
14	86·9	83·4	196	..	..	..	..	..	..	..	2	0	..	..	..	110	180	70	220
15	87·1	83·4	195	..	..	..	..	..	..	..	2	1	..	..	..	95	110	95	125
16	86·1	83·8	194	..	..	..	..	..	..	..	2	0	..	..	..	260	205	70	125
17	86·6	84·0	193	..	..	..	..	..	..	..	2	0	0·99	0·62	..	95	205	..	110
18	86·9	84·1	192	..	..	..	..	..	..	..	1	0	0·41	0·32	0·55	110	385	125	110
19	87·0	84·2	192	..	11 9	18355	14 30	14 24·1	14 45	67 2·0	2	0	0·77	0·59	0·50	55	125	70	195
20	87·4	84·2	191	..	..	..	..	..	..	..	2	0	1·15	0·85	0·85	140	110	110	140
21	87·5	84·4	191	..	..	..	..	..	..	..	2	0	..	..	..	110	290	195	250
22	87·7	84·6	190	..	..	..	..	..	..	..	1	0	..	..	..	195	220	140	205
23	87·7	84·7	191	..	..	..	..	..	..	..	1	0	0·72	0·39	0·70	95	220	150	235
24	87·6	84·8	192	..	..	..	..	..	..	..	0	0	0·70	0·59	0·70	85	180	220	220
25	88·3	85·0	192	..	..	..	..	..	..	..	0	1	0·47	0·27	0·90	165	330	370	z±
26	88·9	85·1	192	..	11 6	18365	14 40	14 27·1	14 36	66 57·7	0	1	1·25	0·40	..	205	205	z±	110
27	88·7	85·1	191	..	..	..	..	..	..	..	0	1	..	..	..	15	205	110	110
28	87·0	85·2	191	..	..	..	..	..	..	..	1	1	..	..	..	180	195	110	165
29	86·9	85·2	190	..	..	..	..	..	..	..	1	1	..	..	..	95	165	110	195
30	86·8	85·2	189	..	..	..	..	..	..	..	0	0	1·06	1·05	0·55	55	110	125	..
31	87·2	85·3	189	188	..	..	..	..	..	..	0	0	..	..	..	40	150	110	180
M.	86·0	83·8	193	..	..	..	..	..	..	..	0·87	0·52	0·76	0·57	0·75	128	208	143	205
No of days used	31	31	31	..	..	..	..	..	..	..	31	31	14	14	13	25	25	25	25

6. GEOPHYSICS:—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force. North Component. Maximum. 15000 γ +. h m	γ	Minimum. 15000 γ +. γ	h m	Range. γ	West Component. Maximum. 4000 γ +. h m	γ	Minimum. 4000 γ +. γ	h m	Range. γ	Vertical Component. Maximum. 44000 γ +. h m	γ	Minimum. 44000 γ +. γ	h m	Range. γ	Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre. Factor 6·15. 3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ			v/m	v/m	v/m	v/m
1	16 53	1023	956	13 41	67	12 41	819	766	§	53	17 10	1077	1054	§	23	0	0 *a*	105	115	135	150
2	19 30	1022	968	10 30	54	§	814	761	7 33	53	19 15	1080	1060	13 15	20	0	1 *b*	225	180	0	140
3	17 22	1049	945	23 47	104	12 39	825	728	23 12	97	20 20	1093	1046	11 35	47	1	†	210	130	†	†
4	5 35	1037	946	9 13	91	5 10	831	706	2 10	125	§	1085	1015	5 23	70	1	†	†	†	110	200
5	19 44	1016	970	10 5	*n*46	§	813	755	7 45	58	7 0	1077	1053	11 31	24	0	1 *b*	135	145	155	150
6	20 38	1027	972	10 32	55	12 52	825	759	§	66	17 57	1079	1053	11 50	26	0	2 *c*	20	155	295	255
7	23 48	1028	977	11 24	51	12 50	814	760	7 18	54	3 55	1075	1061	12 11	14	0	2 *b*	−330	95	185	325
8	24 0	1037	959	13 5	78	§	826	753	8 40	73	17 4	1090	1057	11 25	33	1	1 *b*	130	120	105	125
9	17 40	1059	958	11 45	101	13 7	850	752	7 44	98	18 37	1109	1049	0 44	60	1	1 *b*	145	130	220	†
10	20 30	1036	935	11 2	101	13 30	842	756	8 20	86	17 31	1086	1050	12 49	36	1	†	†	150	145	220
11	19 9	1040	963	11 53	77	17 0	820	752	8 20	68	20 9	1083	1062	11 41	21	0	2 *b*	150	230	105	−475
12	7 11	1052	856	8 51	196	16 14	826	611	8 50	215	16 30	1119	1046	10 40	73	2	2 *b*	−70	185	80	365
13	‡	>1157	586	23 41	>571	19 39	*x*953	402	21 44	551	22 38	1214	<686	‡	>528	2	0 *a*	270	245	105	305
14	22 59	1200	754	22 25	446	23 37	949	542	24 0	407	19 8	1193	<686	‡	>507	2	2 *b*	270	110	215	230
15	23 34	1154	<504	‡	>650	13 40	888	<322	‡	>566	‡	*x*1234	<686	‡	>548	2	0 *a*	165	110	115	220
16	14 41	1108	620	9 45	488	13 56	912	<526	8 34	>386	13 52	1145	<749	‡	>396	2	1 *b*	235	75	70	z±
17	23 20	1025	812	0 36	213	23 20	824	682	3 49	142	17 30	1118	995	0 57	123	2	1 *b*	105	115	150	260
18	18 10	1035	905	11 31	130	13 24	798	729	0 35	69	19 55	1125	1084	4 5	41	1	0 *a*	130	170	75	200
19	23 12	*x*1223	723	23 42	500	23 27	871	521	23 6	350	20 35	1114	859	23 40	255	2	2 *b*	60	230	65	120
20	18 3	1117	760	3 18	357	16 45	943	665	0 13	278	19 25	1172	906	3 32	266	2	0 *a*	95	110	180	245
21	18 13	1100	906	7 47	194	14 40	839	720	1 49	119	18 5	1136	1015	3 2	121	1	*	160	245	*	*
22	21 4	1041	908	12 4	133	14 22	807	736	7 21	71	18 45	1117	1079	11 46	38	1	*	*	*	*	*
23	1 4	1029	940	11 5	89	1 15	811	733	7 7	78	16 37	1101	1046	1 54	55	1	*	*	*	*	*
24	18 9	1022	958	12 10	64	14 36	806	756	§	50	16 35	1098	1075	§	23	0	0 *a*	250	160	190	295
25	0 19	1013	966	12 34	47	14 48	808	748	8 47	60	18 37	1097	1082	10 10	*n*15	0	0 *a*	410	220	190	335
26	22 1	1023	954	11 24	69	14 58	825	747	§	78	5 20	1097	1072	11 30	25	0	0 *a*	80	170	130	220
27	18 40	1033	953	11 44	80	16 1	811	749	8 24	62	21 3	1104	1086	12 0	18	0	0 *a*	140	145	200	160
28	21 37	1053	956	12 33	97	13 34	809	753	7 51	56	20 18	1104	1077	§	27	1	2 *c*	200	145	z—	−405
29	18 35	1025	949	12 31	76	12 10	801	753	8 39	*n*48	18 39	1105	1073	3 30	32	1	2 *c*	75	75	190	155
30	19 28	1023	966	‡	57	14 50	805	752	8 25	53	17 53	1104	1083	10 28	21	0	2 *c*	75	175	115	−110
31	19 21	1021	960	12 35	61	13 3	817	757	§	60	16 40	1096	1067	11 50	29	0	2 *c*	−260	145	−35	170
M.	..	1052	910	..	142	..	834	710	..	123	..	1102	1045	..	57	0·87	1·00	101	155	134	175
No.of days used	..	29	29	..	29	..	29	29	..	29	..	27	27	..	27	31	26	22	22	22	22

§ Times of repeated extremes:—1st W.n. 7·50; 8·34; 8·40. V.n. 11·50; 12·0. 2nd W.x. 13·30; 13·38. 4th V.x. 17·5; 17·20. 5th W.x. 12·58; 13·2. 6th W.n. 7·50; 8·5. 8th W.x. 14·20; 14·28. 24th W.n. 6·25; 8·12. V.n. 11·11; 11·51. 26th W.n. 8·43; 8·59. 28th V.n. 6·34; 6·42. 31st W.n. 6·0; 6·14; 6·21; 7·12.

‡ Extremes occurring with trace off the sheet:—13th N.x. 19·20-19·46. V.n. 21·40-22·10. 14th V.n. 23·51-24·0. 15th N.n. 0·1-7·40; W.n. 2·0-6·50. V.x. 6·10-7·20. V.n. 0·1-6·0. 16th V.n. 5·30-8·10. 30th N.n. 11·58-12·5.

† Earthed. * Readings unreliable. *x* denotes the maximum, and *n* the minimum, value in the column.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	..	3·5	..	0·6	..	2·5	..	2·1	..	3·8	0·7	..	..	Calm		..	9	5 5
2	..	Calm		..	..	2·5	3·0	..	..	1·9	3·4	..	..	4·4	..	7·7	16	19 20
3	..	2·8	..	4·8	..	1·0	..	1·7	..	2·0	..	0·3	..	2·3	..	0·4	10	0 30
4	3·6	..	..	..	..	..	2·6	..	..	8·5	..	4·9	..	8·2	..	..	14	21 55
5	..	1·1	..	2·0	3·3	..	..	..	4·3	..	1·6	..	6·2	..	2·3	..	16	23 55
6	9·8	..	..	..	7·1	..	4·1	..	6·5	..	3·7	..	8·4	..	1·5	..	20	0 55
7	6·5	..	3·7	..	6·0	..	3·4	..	6·8	..	2·5	..	4·5	..	2·6	..	14	0 20
8	4·8	..	0·9	..	5·5	..	1·0	..	8·3	..	3·0	..	6·8	..	5·8	..	16	14 20
9	4·7	..	4·0	..	6·1	..	5·1	..	6·5	..	3·7	..	3·8	..	3·1	..	13	8 40
10	2·8	..	2·3	..	4·5	..	3·9	..	6·8	..	2·5	..	3·0	..	..	..	11	10 50
11	3·3	..	..	2·8	3·4	..	..	4·0	1·5	..	..	2·6	..	1·3	..	1·5	9	8 5
12	..	1·0	..	1·2	..	2·2	0·8	..	..	2·8	1·0	..	..	Calm		..	6	14 15
13	..	Calm		..	..	Calm		..	4·5	..	3·9	..	4·6	..	1·7	..	11	22 40
14	7·0	..	2·6	..	6·8	..	2·5	..	3·4	..	4·0	..	3·0	..	0·5	..	13	3 55
15	..	1·5	8·4	..	..	1·5	4·0	..	..	Calm		..	2·4	..	4·2	..	11	3 10
16	..	Calm		..	5·5	..	2·0	..	6·1	..	5·1	..	5·5	..	4·7	..	14	17 35
17	..	4·1	7·1	..	..	1·6	4·3	..	5·4	..	3·1	..	2·8	..	3·3	..	11	2 5
18	..	0·3	2·0	..	..	0·6	3·5	..	4·5	..	2·6	..	4·0	..	3·4	..	11	17 35
19	5·5	..	2·0	..	6·8	..	3·9	..	8·2	..	4·7	..	2·1	..	5·8	..	15	15 50
20	..	..	8·5	..	..	1·5	8·8	..	1·0	..	5·5	..	0·9	..	2·4	..	13	6 40
21	2·3	..	1·3	..	5·5	..	1·0	..	4·5	..	2·6	..	2·6	..	1·5	..	10	14 55
22	4·5	..	2·6	..	..	6·6	..	..	..	7·5	..	..	..	6·1	..	1·1	10	17 25
23	..	..	..	5·2	..	..	..	7·5	..	1·1	..	6·5	..	..	..	6·2	10	9 30
24	..	Calm		..	..	0·3	..	1·6	..	3·2	..	0·6	..	Calm		..	6	15 55
25	..	Calm		..	..	Calm		..	3·0	..	2·5	..	..	1·7	4·6	..	9	17 45
26	..	7·0	2·6	..	..	4·0	1·5	..	..	2·3	2·8	..	1·6	..	4·3	..	11	2 40
27	..	3·4	1·2	..	..	3·4	4·0	..	..	2·5	3·0	..	..	..	5·2	..	10	23 50
28	..	6·5	5·5	..	..	4·9	8·5	..	..	..	6·9	..	1·1	..	6·5	..	14	21 25
29	..	3·1	8·6	..	..	..	6·6	..	7·4	..	1·3	..	9·8	..	..	..	20	21 45
30	2·4	..	4·2	..	6·3	..	5·3	..	9·5	..	3·5	..	4·5	..	5·3	..	23	18 45
31	7·4	..	8·8	..	8·0	..	6·8	..	4·7	..	5·5	..	..	1·1	6·1	..	22	0 35
S+N & W+E	98·9		92·9		107·4		103·5		138·5		94·0		102·7		91·7			
S−N & W−E	30·3		59·7		42·2		69·7		67·3		64·2		52·5		57·9			

SCOTLAND N.:—DEERNESS.

Cup Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	..	2·3	0·4	..	..	2·8	2·3	..	..	3·4	6·0	..	..	4·6	8·0	..	9·2	21
2	..	10·0	..	1·8	..	11·3	2·0	..	..	10·3	3·8	..	..	6·1	5·1	..	13·4	6
3	..	5·5	4·7	..	3·7	..	1·3	..	..	7·1	1·3	..	..	5·1	0·9	..	11·8	12
4	..	6·5	1·1	..	..	8·5	..	..	..	7·8	..	1·4	..	4·5	5·3	..	11·8	14
5	..	5·5	..	2·0	..	5·6	..	..	..	3·4	..	1·2	0·5	..	..	3·0	9·2	8
6	..	..	..	3·3	4·1	..	..	7·1	4·2	..	..	7·4	4·2	..	..	7·4	9·5	12
7	2·8	..	..	4·8	2·1	..	..	3·7	..	1·6	4·3	..	..	Calm		..	6·6	1
8	0·5	..	..	2·6	1·0	..	..	2·8	3·0	..	..	2·5	2·3	..	..	1·3	4·9	12, 14
9	3·8	..	..	3·1	5·1	..	..	4·3	4·0	..	..	4·7	1·9	..	0·7	..	6·9	14
10	2·6	..	0·5	..	2·0	..	..	1·1	..	3·4	1·2	..	..	Calm		..	4·3	12, 14
11	..	Calm		..	..	..	..	3·6	3·8	..	..	3·1	2·8	..	..	2·3	4·9	15, 17
12	3·7	..	..	2·1	2·6	..	..	..	2·4	..	..	0·9	2·0	..	..	1·1	4·3	3
13	3·6	..	..	..	2·9	..	1·6	..	1·5	..	8·4	..	0·5	..	3·0	..	9·2	13
14	4·3	..	..	3·7	11·9	..	..	4·4	4·3	..	11·7	..	3·7	..	4·3	..	12·8	9
15	3·8	..	3·1	..	7·7	..	4·4	..	1·6	..	9·4	..	4·0	..	3·4	..	10·8	14
16	7·4	..	2·7	..	7·2	..	..	..	10·8	..	..	..	0·7	..	3·8	..	10·8	15
17	4·6	..	1·7	..	6·5	..	3·7	..	4·5	..	2·6	..	3·9	..	4·5	..	8·5	16
18	5·3	..	4·5	..	4·3	..	11·7	..	4·5	..	..	0·8	4·8	..	..	0·9	12·5	9
19	6·8	..	1·2	..	5·1	..	4·3	..	2·4	..	0·9	..	1·9	..	..	0·7	7·5	4
20	..	Calm		..	..	10·3	3·8	..	..	6·0	3·4	..	..	Calm		..	11·1	9
21	7·8	..	..	1·4	6·9	..	..	..	5·8	..	1·0	..	1·2	..	6·8	..	9·5	5
22	4·4	..	7·7	..	2·4	..	13·9	..	..	..	10·2	..	..	1·6	2·9	..	14·1	9
23	..	..	..	..	4·2	..	..	2·4	8·0	..	..	2·9	5·5	..	..	1·0	10·2	18
24	2·3	..	1·3	..	1·3	..	3·7	..	2·6	..	..	0·5	0·8	..	..	1·4	5·9	10
25	5·8	..	1·0	..	8·5	..	..	..	..	0·7	3·8	..	1·0	..	2·8	..	8·5	9
26	2·3	..	1·9	..	2·5	..	3·0	..	4·5	..	..	0·8	1·1	..	6·1	..	8·2	20
27	2·1	..	2·5	..	1·7	..	2·0	..	1·5	..	..	1·3	..	Calm		..	4·3	12
28	..	2·8	..	1·0	..	4·0	..	2·3	..	3·9	..	4·5	..	5·7	..	3·3	8·2	18
29	..	5·1	..	2·9	..	3·1	..	5·4	..	..	..	5·6	7·3	..	..	6·2	9·8	22
30	8·0	..	..	6·8	8·3	..	..	6·9	6·5	..	..	2·4	4·0	..	..	2·3	12·5	8
31	..	..	..	7·9	..	3·0	8·3	..	..	..	8·2	..	..	6·3	5·3	..	11·5	10
S+N & W+E	119·6		79·7		150·6		110·0		123·5		116·2		88·0		93·8			
S−N & W−E	44·2		−7·1		53·4		22·0		28·3		36·2		20·2		32·0			

ENGLAND, S.W.:—SCILLY.

Cup Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Tax.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	..	2·5	..	2·1	..	4·7	..	1·7	..	5·7	..	1·0	..	3·3	..	..	7·1	12
2	..	Calm		..	Defective				..	6·5	3·7	..	..	3·7	6·5	..	8·8	14
3	..	4·6	..	..	..	5·1	..	1·8	1·6	..	..	1·3	0·9	..	2·3	..	6·7	4, 6
4	..	Calm		..	..	4·4	3·8	..	..	10·4	..	..	..	5·8	..	..	11·3	14
5	..	1·7	..	0·3	1·2	..	..	2·2	7·1	..	..	..	9·6	..	..	..	9·6	21
6	7·2	..	4·1	..	4·4	..	5·1	..	7·9	..	..	..	8·2	..	1·4	..	9·2	1
7	4·1	..	3·5	..	2·4	..	2·9	..	4·3	..	2·5	..	2·9	..	..	..	6·3	2
8	..	3·3	5·8	..	..	..	7·9	..	1·4	..	7·8	..	2·3	..	6·3	..	9·2	12, 14
9	4·1	..	4·8	..	..	0·5	2·9	..	..	..	4·6	..	..	Calm		..	7·1	2
10	1·9	..	1·6	..	5·8	..	..	..	8·3	..	..	4·8	10·6	..	..	8·9	15·4	22
11	9·0	..	..	7·5	..	1·0	5·7	..	..	..	5·4	..	..	1·4	3·9	..	15·4	1
12	..	2·7	1·0	..	..	4·3	2·5	..	..	6·5	3·7	..	..	4·4	5·1	..	7·9	20
13	..	4·1	4·8	..	..	2·2	1·9	..	0·7	..	3·7	..	2·4	..	2·9	..	6·3	3
14	3·8	..	3·2	..	4·7	..	1·7	..	3·8	..	3·2	..	..	4·7	2·7	..	7·1	24
15	..	6·8	3·9	..	..	7·5	..	..	..	6·7	..	..	..	6·1	3·5	..	8·3	2,6,7,17
16	..	4·1	0·7	..	..	6·6	..	1·2	..	3·5	4·1	..	Defective				6·7	8, 9, 10
17	..	..	4·2	..	..	6·7	2·4	..	..	3·2	2·7	..	..	3·8	3·2	..	8·3	6
18	..	2·9	1·6	..	..	2·9	2·4	..	..	3·1	1·1	..	Defective				5·8	1
19	..	..	2·9	..	3·8	..	4·4	..	..	..	5·4	..	Defective				7·9	24
20	..	3·5	3·0	..	..	3·6	..	1·3	..	3·3	..	..	..	2·1	..	..	7·5	1
21	..	1·6	..	0·6	..	2·4	..	2·9	..	1·6	..	1·9	..	1·6	..	2·9	5·0	19
22	..	2·4	..	2·9	..	4·1	..	3·5	..	4·9	..	0·9	..	5·5	..	3·1	6·7	13
23	..	0·8	..	4·5	..	1·4	..	3·9	..	5·0	..	2·9	..	5·9	..	2·2	7·1	18
24	..	2·1	..	3·6	..	2·7	..	3·2	..	5·5	..	3·1	..	3·1	..	1·1	6·7	16
25	..	3·9	..	1·4	..	2·9	..	1·6	..	3·8	3·2	..	..	2·7	3·2	..	7·1	17
26	..	1·0	2·7	..	..	8·0	4·6	..	..	7·2	4·1	..	..	5·4	6·4	..	10·0	8
27	..	3·5	6·1	..	..	5·7	4·8	..	Defective				..	4·8	5·7	..	7·9	7, 24
28	..	..	8·8	..	..	6·8	3·9	..	..	3·2	3·8	..	..	3·9	6·8	..	9·2	2,4,6,24
29	..	3·9	6·8	..	1·8	..	5·1	..	6·8	..	3·9	..	9·0	..	5·2	..	11·3	18,20,22
30	..	..	7·1	..	1·7	..	4·7	..	9·8	..	5·6	..	Defective				14·2	17
31	3·9	..	10·5	..	Defective				..	1·8	5·1	..	..	3·6	1·3	..	12·5	1
S+N & W+E	89·4		110·0		109·3		90·0		133·6		89·5		117·7		84·6			
S−N & W−E	−21·4		64·2		−57·7		43·4		−30·2		57·7		−25·9		48·2			

ENGLAND, E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	..	5·9	..	1·0	..	7·0	..	1·2	..	7·0	..	2·5	..	5·6	..	..	13	13 5
2	..	1·9	1·1	..	..	Calm		..	..	No Record			..	3·9	..	2·2	7	21 0
3	..	9·7	..	8·1	..	7·8	..	4·5	..	5·8	..	2·1	..	0·3	2·0	..	18	1 0
4	..	0·3	1·8	..	2·2	..	1·2	..	2·7	..	..	0·5	..	3·3	..	5·7	10	21 25
5	..	2·8	1·0	..	..	2·0	..	..	0·9	..	..	2·3	7·4	..	..	..	12	23 45
6	8·9	..	5·1	..	9·8	..	3·6	..	8·7	..	7·3	..	4·9	..	5·8	..	18	13 20
7	4·1	..	3·5	..	6·8	..	5·8	..	10·4	..	3·8	..	6·9	..	5·8	..	17	13 35
8	4·3	..	2·5	..	7·1	..	1·3	..	9·3	..	7·8	..	4·5	..	2·6	..	20	12 35
9	3·6	..	4·2	..	4·0	..	6·9	..	9·2	..	5·3	..	3·2	..	3·8	..	14	16 00
10	1·5	..	4·0	..	1·3	..	3·5	..	7·7	..	3·8	..	3·2	..	1·2	..	12	13 10
11	4·1	..	3·5	..	4·3	..	..	3·7	3·9	..	..	0·7	4·0	..	..	4·7	9	19 10
12	6·0	..	..	..	7·2	..	..	4·1	..	Calm		..	1·4	..	..	0·8	10	4 15
13	..	Calm		..	..	Calm		..	3·5	..	..	..	3·6	..	2·1	..	8	17 55
14	3·5	..	3·0	..	4·9	..	2·8	..	7·8	..	4·5	..	1·9	..	3·3	..	11	15 5
15	..	3·3	1·9	..	..	7·5	..	2·7	..	7·1	..	4·1	..	3·1	..	2·6	11	14 55
16	..	2·7	0·5	..	..	1·2	..	3·3	..	..	..	3·3	1·6	..	..	2·8	6	16 45
17	..	Calm		..	..	2·6	..	..	..	5·1	..	4·4	..	2·2	..	1·2	9	14 40
18	..	3·0	0·5	..	..	4·5	..	5·3	..	3·2	..	5·6	2·6	..	..	1·5	11	8 25
19	1·2	..	3·3	..	6·3	..	2·3	..	9·1	..	3·4	..	4·8	..	5·7	..	14	16 30
20	0·6	..	3·3	..	..	3·8	..	..	3·2	..	..	2·7	0·5	..	3·0	..	9	10 35
21	..	1·9	3·3	..	..	1·2	..	3·2	3·5	..	..	1·3	2·2	..	..	3·9	7	23 00
22	2·2	..	..	2·7	1·8	..	..	2·1	..	2·2	..	6·1	..	4·6	..	8·0	12	20 45
23	..	..	..	10·6	1·9	..	..	11·0	..	..	..	10·3	..	3·2	..	8·7	16	8 55
24	..	3·8	..	6·7	..	4·6	..	5·6	..	3·4	..	5·9	..	3·7	..	6·5	12	2 30
25	..	3·5	..	3·0	..	3·5	..	4·1	..	2·7	..	3·2	..	1·7	..	1·4	8	10 5
26	..	Calm		..	..	Calm		..	..	Calm		..	..	5·6	..	3·2	10	23 50
27	..	3·8	..	..	..	3·9	..	2·2	1·3	..	..	2·3	0·5	..	..	1·5	9	0 05
28	..	..	1·7	..	..	2·6	3·1	..	1·5	..	1·8	..	0·7	..	3·7	..	11	16 10
29	..	0·5	2·7	..	..	..	5·6	..	..	2·1	5·6	..	3·9	..	4·6	..	13	12 20
30	9·4	..	5·4	..	10·4	..	6·0	..	8·1	..	6·8	..	8·5	..	7·1	..	19	18 55
31	4·1	..	7·1	..	3·1	..	8·6	..	2·5	..	6·9	..	1·3	..	3·6	..	15	10 15
S+N & W+E	96·6		91·5		123·3		103·7		131·9		114·3		104·8		109·0			
S−N & W−E	10·4		27·3		18·9		−2·3		54·7		−0·3		30·4		−0·4			

8. SEISMOLOGICAL DIARY.

The notation used is explained in the Introduction.

EARTHQUAKES—ESKDALEMUIR.

Day.	Phase	Time. G.M.T. h m s	Period.	Amplitudes. A_N.	A_E.	A_Z.	Δ.	Remarks.
		h m s	s	μ	μ	μ	km.	
1	iP_V	5 51 24	..	..	..	..	9210	Steep emergence of P.
	iP_E	5 51 24	..	..	..	..	..	
	S	6 1 45	..	..	..	..	..	
	L	6 18	..	..	..	..	..	
	M_N	6 21 46	25	10	..	..	..	
	M_E	6 22 8	26	..	11	..	..	
	M_N	6 27 21	16	19	..	..	..	
	F	7 45	..	..	..	..	..	
3	L	10 51	..	..	..	..	..	Waves of small magnitude.
	F	11 9	..	..	..	..	..	
4	L	5 31	..	..	..	..	..	Small waves.
	F	5 51	..	..	..	..	..	
10	e_{NE}	5 5 17	..	..	..	..	..	Slight disturbance.
	L	5 9	..	..	..	..	..	
	F	5 20	..	..	..	..	..	
12	e_N	4 1 26	..	..	..	..	..	Record suggestive of two disturbances. Noticeable group of very regular long waves on N-S component begins 5h. 30m.
	e_N	4 11 16	..	..	..	..	..	
	L_E	4 35	..	..	..	..	..	
	M_E	4 50 56	28	..	4	..	..	
	M_N	4 57 55	22	4	..	..	..	
	M_N	5 38 59	22	4	..	..	..	
	F	6 10	..	..	..	..	..	
13	..	13 37 to	..	..	..	..	..	Slight disturbance.
	..	14	..	..	..	..	..	
13	..	22 5 to	..	..	..	..	..	Group of waves of small amplitude.
	..	23	..	..	..	..	..	
14	e_V	11 36 33	..	..	..	..	..	Preliminary phases confused by wind effects.
	e_{NE}	11 36 38	..	..	..	..	..	
	e_N	11 42 48	..	..	..	..	..	
	i_E	11 42 50	..	..	..	..	..	
	e_N	11 45 58	..	..	..	..	..	
	i_E	11 45 58	..	..	..	..	..	
	L	12 9 28	..	..	..	..	..	
	M_N	12 17 34	26	11	..	..	..	
	M_E	12 17 59	25	..	9	..	..	
	M_N	12 24 2	20	10	..	..	..	
	F	12 50	..	..	..	..	..	
14	e_N	20 38 29	..	..	..	..	..	This disturbance appears to overlap the next.
	e_N	20 41 1	..	..	..	..	..	
	e_N	20 52 11	..	..	..	..	..	
	L	21 43	..	..	..	..	..	
	M_N	21 45 23	19	5	..	..	..	
	M_E	21 47 25	20	..	5	..	..	
	F	22 20	..	..	..	..	..	
14	?e_V	22 14	..	..	..	..	..	Time of preliminary phase very doubtful.
	L	22 48	..	..	..	..	..	
	F	23 20	..	..	..	..	..	
17–18	e_N	23 50 17	..	..	..	..	..	L waves on N-S component irregular.
	L	0 12 37	..	..	..	..	..	
	M_E	0 14 22	28	..	8	..	..	
	F	0 45	..	..	..	..	..	
20	O	0 43 17	..	..	..	..	5440	L phase indistinct; waves of very irregular type.
	iP	0 52 13	..	..	..	..	..	
	PR_1	0 54 14	..	..	..	..	..	
	iS_N	0 59 19	..	..	..	..	..	
	SR_1 ?	1 1 41	..	..	..	..	..	
	SR_2	1 4 9	..	..	..	..	..	
	L	1 6 49	..	..	..	..	..	
	F	2 0	..	..	..	..	..	
21	? e_N	8 56 13	..	..	..	..	..	
	? e	9 0 7	..	..	..	..	..	
	? iS_{NE}	9 6 31	..	..	..	..	..	
	L	9 28 35	..	..	..	..	..	
	M_N	9 43 21	20	28	..	..	..	
	M_E	9 43 17	20	..	19	..	..	
	F	10 40	..	..	..	..	..	
21	..	11 18 to	..	..	..	..	..	Slight disturbance.
	..	11 30	..	..	..	..	..	
21	P_N	22 37 33	..	..	..	..	8420	The L phase commencing at 0h. 30m. possibly part of disturbance of which the initial phases were masked by previous disturbance.
	S_{NE}	22 47 14	..	..	..	..	..	
	L	23 2	..	..	..	..	..	
	M_N	23 17 48	17	7	..	..	..	
	M_N	23 29 28	17	8	..	..	..	
	L	0 30	..	..	..	..	..	
	F	1 10	..	..	..	..	..	
23	e?	4 46	..	..	..	..	..	
	L	5 3	..	..	..	..	..	
	F	5 40	..	..	..	..	..	
28	e_{NE} (?P)	19 44 20	..	..	..	..	..	
	e_N (?S)	19 53 14	..	..	..	..	..	
	L	20 8	..	..	..	..	..	
	M_N	20 17 27	26	7	..	..	..	
	M_E	20 19 57	26	..	9	..	..	
	F	21 0	..	..	..	..	..	
28	e_{NE}	21 13 26	..	..	..	..	..	
	L	21 35	..	..	..	..	..	
	F	21 55	..	..	..	..	..	

MICROSEISMS OF N. COMPONENT—ESKDALEMUIR.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s	μ	s	μ	s	μ	s.
1	0·3	5·5	0·6	5·5	0·4	6	0·7	5·5
2	0·9	5	0·5	5	1·0	4·5	0·9	5
3	1·2	4	1·0	5	0·9	5	1·0	5
4	0·9	5·5	0·8	5	1·0	4·5	1·2	4·5
5	1·0	4	0·9	5	0·7	5·5	1·0	4·5
6	1·0	5	1·0	4	1·0	4·5	1·2	4·5
7	1·3	4·5	0·9	5·5	2·0	4·5	2·0	4·5
8	2·4	5	1·7	5·5	2·1	4·5	1·6	5
9	0·9	5·5	0·9	5	0·9	5	0·7	4·5
10	0·6	4	0·5	4·5	0·6	4	0·7	4·5
11	0·8	4	0·7	4	0·9	4	0·7	4
12	0·5	4·5	0·5	4	0·7	5	0·2	4·5
13	0·5	4·5	0·5	5	0·5	5	0·4	5·5
14	0·9	5	0·8	5·5	..	..	1·0	4·5
15	0·9	5	0·8	5	0·9	5	0·8	5·5
16	0·8	5·5	0·8	5	0·9	5	0·8	5·5
17	0·8	5	1·6	7·5	1·5	7	2·0	6·5
18	1·7	5·5	1·1	5·5	0·8	5·5	0·5	6
19	0·8	5	0·5	4·5	0·2	4	0·2	4
20	0·6	4·5	0·9	5	0·5	4·5	0·3	4
21	0·3	4·5	0·2	4	0·2	4·5	0·2	4·5
22	..	..	0·3	4	0·8	5	0·8	5·5
23	0·8	5·5	0·7	5·5	0·5	5	0·6	5·5
24	0·7	5·5	0·5	5	0·5	4·5	0·5	5
25	0·8	5·5	0·8	5·5	1·1	5	0·8	5·5
26	1·5	6	1·0	5·5	1·0	5	1·2	5·5
27	0·9	5	0·9	5	1·0	4·5	1·0	4·5
28	1·0	4·5	0·8	4·5	0·5	4·5	0·2	4·5
29	0·2	4·5	0·1	3·5	0·1	3·5	0·6	4
30	1·0	4	0·9	4·5	1·4	4	1·2	5
31	1·5	5	1·5	5	1·5	5	1·1	5

Means for Month $\begin{cases} A_N. = 0·9. & \mu. \\ T = 4·9. & s. \end{cases}$

Normals for Month, 1911–20: $\begin{cases} A_N. = 0·7. & \mu. \\ T = 4·7. & s. \end{cases}$

EARTHQUAKES.—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of Commencement. h m	Times, G.M.T. of Max. Amplitude. h m	Remarks.
1	6 2	6 29	Amplitude on trace 2·8 mm. Succession of small waves to 7h. 15h.
4	..	5 38	Very small.
12	..	6 6	Very small.
14	..	11 36	Very small.
14	..	21 57	Small.
14	..	22 58	Small.
18	..	0 20	Small.
20	0 49	1 15	Small.
21	9 28	9 46	Small.
21	22 53	23 35	Small.
23	..	5 19	Very small.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians. per Second.	Components.		
				W.-E.	S.-N.	
2 13	Nb.-Cuf.	350	12·5	+ 2·2	−12·3	Low Nb. masses becoming Cu.-Nb. later.
18	St.-Cu.	350	6·2	+ 1·1	− 6·1	St.-Cu. from apices of Cu.-Nb.
3 7	Cu.-Nb.	347	9·1	+ 2·0	− 8·9	Base measured.
13	Cu.	290	6·2	+ 5·7	− 2·1	Rather degraded Cu.
4 7	Ci.	290	2·0	+ 1·9	− 0·7	Ci. to Ci.-St.
18	False Ci.	350	5·0	+ 0·9	− 4·9	False Ci., apices of Cu.-Nb.
5 13	Cu.-Nb.	270	1·7	+ 1·7	0·0	Cu. becoming heavy Cu.-Nb. base measured.
7 13	Ci.-Cu.	212	2·8	+ 1·4	+ 2·4	Ci. to Ci.-Cu. speckle cloud.
	Cu.-Nb.	242	7·8	+ 6·7	+ 3·9	Base measured.
18	St.-Cu.	250	5·0	+ 4·7	+ 1·7	Cloud somewhat fused.
8 7	St.-Cu.	180	4·8	0·0	+ 4·8	
13	Ci.	185	2·6	+ 0·2	+ 2·6	Traces of Ci. rather diffuse.
9 7	St -Cu.	251	2·3	+ 2·1	+ 0·8	Some low St.-Cuf. below St.-Cu.
13	Cu.	225	6·2	+ 4·4	+ 4·4	
18	St.-Cu.	228	6·7	+ 5·2	+ 4·3	St.-Cu. heavy type.
10 7	St.-Cu.	198	3·5	+ 1·2	+ 3·2	Fine small normal type.
13	Fr.-Cu.	199	4·3	+ 1·5	+ 4·0	Fr.-Cu. of abnormal appearance.
18	St.-Cu.	266	0·8	+ 0·8	+ 0·1	Very slow. Fine typical St.-Cu.
12 13	St.-Cu.	200	5·2	+ 1·7	+ 4·8	Nb. sheet opening into low St.-Cu.
18	St.-Cu.	209	2·5	+ 1·2	+ 2·2	
13 13	A.-St.	248	3·8	+ 3·6	+ 1·3	A.-St. that keeps thinning into white Ci.-St. and then becoming floccular and uniform in turns, opening at times into bands.
15	A.-Cu.	250	4·5	+ 4·2	+ 1·5	Broken thin A.-Cu. flotillæ below the A.-St.; lenticular inclination.
18	A.-Cu.; St.-Cu.	248	4·5	+ 4·2	+ 1·5	A.-Cu. to St.-Cu. in lenticular sheets.
14 13	Fr.-St.	222	25·0	+19·3	+21·7	Fr.-St. in cumuliform masses.
18	A.-Cu.	209	6·9	+ 3·5	+ 5·9	
15 13	Cu.	266	3·0	+ 3·0	+ 0·2	
16 13	A.-Cu.	211	3·1	+ 1·6	+ 2·6	Detached scattered A.-Cu.
	St.-Cuf.	243	9·6	+ 8·7	+ 4·0	
18	A.-Cu.	212	3·6	+ 1·8	+ 3·1	Heavy bands typical double undulated A.-Cu.
17 13	Cu.	254	3·9	+ 3·7	+ 1·0	
18	Cu.	258	3·6	+ 3·6	+ 0·6	
18 13	Cu.	249	5·7	+ 5·4	+ 1·9	
18	St.-Cu.	234	3·4	+ 2·8	+ 1·9	Fused sheet St.-Cu. Some degraded Cu. below.
20 13	Cu.	303	6·2	+ 5·1	− 3·5	
18	St.-Cu.	279	4·2	+ 4·1	− 0·7	Rather heavy fused low St.-Cu.
21 7	St.-Cu.	267	5·7	+ 5·7	+ 0·3	Low St.-Cu.: Nb. film beneath.
13	St.-Cu.	264	3·1	+ 3·0	+ 0·2	Fused semi-lenticular St.-Cu.
18	St.-Cu.	240	5·0	+ 4·4	+ 2·5	Typical St.-Cu. in bands and detached masses.
22 7	Ci.	240	4·8	+ 4·3	+ 2·4	Clean cut band of Ci.
	A.-Cu.	246	5·0	+ 4·5	+ 2·1	Ci.-Cu. to small A.-Cu., slight shadows only.
13	Ci.	231	3·8	+ 2·9	+ 2·4	Diffuse and irregular cloud.
	Cu.	317	10·0	+ 6.8	− 7·3	
18	St.-Cu.	286	3·3	+ 3·1	− 0·8	Indefinite fused St.-Cu.
23 18	Fr.-St.	176	22·0	− 1·9	+21·9	Eddies of cloud wisps; very low.
24 7	Ci.	254	1·5	+ 1·4	+ 0·4	Faint hazy irregular Ci.
13	Cu.	257	5·7	+ 5·5	+ 1·4	Thin uniform Ci-St. above.
25 18	St.-Cu.	244	4·2	+ 3·8	+ 1·7	St.-Cu. newly formed.
26 13	Ci.	224	4·2	+ 2·9	+ 2·9	Very diffuse hazy Ci. in bands. Radiant point S.W.
	Cu.	210	7·6	+ 3·7	+ 6·5	Low Cu.
15	Ci.	198	5·0	+ 1·6	+ 4·7	Ci. cross-striated in lines of true Ci. to sheets of Ci.-St.
18	Cu.	285	3·8	+ 3·6	− 0·9	Heavy Cu. to Cu.-Nb. mass in NW.
27 12	Ci.	173	3·5	− 0·4	+ 3·5	Ci. in striated wave band, very slight, fine threads.
18	St.-Cu.	265	2·4	+ 2·4	+ 0·2	Sheet advancing from W.
28 7	Cu.	64	5·0	− 4·5	− 2·1	Low Cu.
13	A.-St.	167	1·2	− 0·3	+ 1·1	Dense floccular A.-St.
18	Cu.	98	2·0	− 2·0	+ 0·3	Low massive Cu. and Fr.-Cu.
29 7	Cu.-Nb.	78	6·3	− 6·1	− 1·3	Low cloud of nimbus-cumuliformis type.
13	Cu.	123	4·2	− 3·4	+ 2·4	More normal Cu. now.
18	Cu.-Nb.	170	6·2	− 1·2	+ 6·1	Heavier cloud now. Base measured.
30 13	St.-Cu.	239	5·2	+ 4·5	+ 2·5	
31 13	Ci.	180	0·5	0·0	+ 0·5	Velocity and direction approximate. Cloud evaporating.
	Cu.	263	7·4	+ 7·3	+ 0·6	
18	Cu.-Nb.	278	4·0	+ 3·9	− 0·4	Base measured.

10. AURORA.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
7	p.	●	..	..	..	
13	p.	..	2, 2	2, 2	Nottingham Norwich Yarmouth Long Ashton Okehampton	21h. 30m.—22h.
15	p.	..	2, 2	2, 2	Aberdeen	Streamer curtain, bright, 23h.—24h.
16	a.	..	2, 2	2, 2	Wick Renfrew Durham Blacksod Point Felixstowe	1h. 1h., brilliant. Fine display after 0h. 1h. 30m. 1h.
17	p.	..	2, 1	2, 1	Eskdalemuir	Glow.
19	p.	..	2, 2	2, 2	Aberdeen	Moderately bright, streamers and glow, 23h.—24h.
21	p.	O	..	..	..	

Note.—The two "magnetic characters" entered in each case refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

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Eleventh YEAR.—NO. 6. JUNE, 1921.] Units based on the C.G.S. System. [*Price* 1s. 6d. *Net.*

1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	Maximum. 11.30 h. to 12.30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	☼ Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	☼ Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p^0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	8·3	51	2007	50	89	11 50	89	11·2	69	..	..	..	1·6	9	..	..	..	..	3·7	23
2	13·0	80	2459	61	82	12 10	82	ϰ14·8	91	72	62	Clear	14·6	86	..	..	..	..	15·1	92
3	1·3	8	1058	26	58	9 00	42	2·9	18	..	..	..	15·4	91	12 12	Clear.	1·18	86	15·4	94
4	0·1	1	771	19	42	14 50	35	0·0	0	..	..	..	0·8	5	..	..	..	..	14·9	91
5	1·5	9	1472	36	94	12 15	94	0·8	5	..	..	..	5·9	35	..	..	..	..	2·8	17
6	9·7	59	1896	47	90	12 40	77	8·5	52	..	..	..	ϰ15·8	92	12 12	Thin Ci.	1·18	87	15·4	93
7	13·6	83	1839	45	84	10 20	80	14·0	85	70	61	Thro' Ci.	15·6	91	12 26	Clear.	1·18	91	12·8	78
8	6·9	42	..	..	..	..	..	6·2	38	..	..	..	0·6	3	..	..	..	..	5·3	32
9	4·6	28	1695	41	88	10 40	79	5·0	30	..	..	..	3·0	17	..	..	..	..	2·8	17
10	11·8	71	2156	53	90	13 00	88	11·9	72	74	65	Clear.	10·5	61	..	..	..	..	7·8	47
11	11·6	70	2089	51	ϰ98	10 10	97	9·8	59	..	..	..	9·9	57	..	..	..	..	12·9	78
12	5·1	31	1664	41	96	12 10	96	6·1	37	..	..	..	0·0	0	..	..	..	..	0·0	0
13	2·4	15	1133	27	78	11 10	77	2·3	14	..	..	..	3·4	20	..	..	..	..	1·2	7
14	1·3	8	1401	34	82	13 00	55	3·8	23	..	..	..	12·7	73	12 07	Haze.	1·17	76	10·4	63
15	12·3	75	2018	49	87	12 30	87	11·6	70	55	48	Hazy.	13·4	77	..	..	..	..	14·4	87
16	7·5	45	1602	39	94	11 50	94	7·3	44	46	41	Thro'Cld	10·0	58	..	..	..	..	14·9	90
17	13·6	82	2048	50	82	12 10	82	13·0	78	53	47	Thro' Ci.	4·5	26	..	..	..	..	14·5	87
18	5·4	33	2043	50	87	13 41	68	5·3	32	..	..	..	9·9	57	12 24	Clear.	1·16	91	9·7	58
19	2·2	13	1144	28	46	10 38	44	2·5	15	..	..	..	0·2	1	..	..	..	..	3·8	23
20	0·5	3	820	20	..	..	34	0·2	1	..	..	..	1·9	11	..	..	..	..	0·9	5
21	5·0	30	1526	37	95	12 20	95	4·2	25	64	56	Thro' Ci.	3·6	21	..	..	..	..	12·9	77
22	3·0	18	1187	29	53	12 08	53	3·8	23	..	..	..	0·1	1	..	..	..	..	2·2	13
23	12·0	72	2443	59	88	12 15	88	12·6	76	67	59	Clear.	1·0	6	..	..	..	..	9·3	56
24	12·7	77	2426	59	76	10 51	74	11·6	70	50	44	Hazy.	10·4	60	12 10	Clear.	1·17	88	0·5	3
25	12·8	77	2468	60	82	11 55	82	13·2	80	61	54	Hazy.	11·5	66	12 23	Ci haze.	1·18	68	7·1	42
26	3·1	19	933	23	68	14 55	29	2·3	14	..	..	..	2·5	14	..	..	..	..	10·7	64
27	0·7	4	782	19	45	15 50	41	0·4	2	..	..	..	12·2	70	..	..	..	..	0·2	1
28	ϰ15·0	91	ϰ2597	63	88	11 55	88	ϰ14·8	90	..	..	..	14·7	85	12 10	Ci haze.	1·17	84	6·0	36
29	12·9	78	2594	63	90	12 25	90	14·4	87	71	63	Clear.	11·4	66	..	..	..	..	ϰ15·9	96
30	8·2	50	1828	44	ϰ98	12 00	98	8·6	52	..	..	..	4·5	26	..	..	..	..	15·7	95
Means	7·27	44	1728†	42†	80‡	..	74†	7·44	45	..	..	..	7·39	43	..	..	..	..	8·64	52
Normals	5·80	36	1553	38	..	..	..	6·57	40	..	..	..	[illegible]	[illegible]	..	..	..	..	5·8[illegible]	34
	←35 years→		←8 years→					←35 years→					←10 years→						←35 years→	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_z=12·8 m. h_n=13·9 m.

Day.	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. Dry Bulb. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%					Tenths of Sky covered.		mm.	a 200+		
1	1027·3	1030·6	84·2	83·3	85·2	n79·0	8·9	10·1	68	81	350	3	—	0	8	9	—	n75·3	Fine, ☾ *n.*; o. to c. day.	
2	1030·8	1029·8	85·2	85·1	87·6	80·0	10·7	11·1	76	79	310	3	50	2	4	1	—	77·7	Fine, ☾ *n.*; Fine day.	
3	1028·4	1025·7	88·8	87·4	92·2	80·2	13·7	13·3	77	82	—	1	—	1	0	1 ≡⁰	—	76·9	Fine, ☾ *n.*; Very fine day.	
4	1023·2	1021·0	88·4	87·5	92·1	81·6	13·6	14·1	78	86	355	4	325	2	1 ≡⁰	5 ≡⁰	—	77·9	Fine, ☾ *n.*; Very fine ∞ day.	
5	1020·0	1019·5	89·4	89·9	92·4	85·7	13·3	14·5	72	76	25	4	—	1	8	8	—	81·8	Fine *n.*; Fair day.	
6	1020·4	1020·3	90·9	86·4	93·5	82·7	14·4	11·3	71	74	—	1	—	0	1 ≡⁰	0 ≡⁰	—	79·6	Fine *n.*; Very fine dry and ∞ day.	
7	1018·3	1016·1	89·5	86·0	91·6	80·6	13·8	13·2	74	89	—	1	280	2	0 ≡⁰	7	—	76·9	Fine, dry, and ∞, day.	7 19° 7′·5
8	1014·9	1021·0	86·2	84·3	88·1	83·2	14·5	9·6	96	72	270	6	10	5	10	5	ϰ0·8	82·4	●⁰ early; Fair day.	
9	1021·2	1019·8	85·8	84·7	87·7	80·2	11·2	10·9	76	80	220	5	360	5	10	8	—	75·8	Fair all day.	
10	1021·8	1019·1	85·1	85·6	87·9	82·4	10·4	13·0	74	90	330	3	255	6	6	10	—	78·3	Fair *a.*; Fine *p.*; o. *n.*	10 17830γ 19° 4′·4 68° 4′·2
11	1023·3	1026·7	85·5	84·0	87·3	81·2	10·8	10·0	75	77	320	7	—	0	7	7	—	83·0	Fair *a.*; Fine day.	
12	1024·3	1024·9	86·3	86·2	88·0	81·2	13·2	14·5	87	96	225	6	250	4	10	10 ●⁰ ≡⁰	0·7	77·0	o. *a.*; o. to ≡⁰; *p.* ●⁰ ≡⁰; *n.*	
13	1026·1	1028·6	86·1	85·8	88·6	85·4	14·4	13·8	96	94	300	4	310	2	10 ≡⁰	10	0·7	85·3	≡⁰ d. *n* and *a.*; c. to o. day.	
14	1029·0	1028·6	86·6	88·5	92·6	85·2	14·2	15·2	92	87	—	1	—	0	9	0	—	84·6	≡⁰ early; Very fine day. ☾ *p.*	
15	1028·8	1029·1	92·0	88·5	95·3	84·7	16·5	14·9	76	85	—	0	—	1	2	4	—	79·7	Fine warm day.	
16	1027·6	1027·8	92·0	88·7	94·1	83·5	17·6	15·9	81	90	—	1	—	0	3	4	—	80·2	Fine, ☽ early. Very fine day.	
17	1028·1	1026·8	91·3	87·7	92·6	84·4	17·7	13·9	85	84	—	1	15	2	1 ≡⁰	2	—	80·1	Fine, ☽ at first. Very fine, ∞ day.	
18	1026·1	1025·8	89·4	85·8	90·1	83·9	13·7	12·0	74	82	30	3	—	1	6	7	—	78·6	Fine *n.*; Fair day.	
19	1024·8	1024·8	86·8	86·3	88·4	82·9	12·5	12·9	80	85	340	6	340	8	10	5	—	76·7	o. to fair day.	
20	1025·1	1026·1	85·6	85·5	87·5	84·9	13·2	11·5	91	80	310	5	355	6	10	10	—	83·7	Fair *n.* o. *a.*; Fair day.	
21	1026·6	1026·4	87·5	86·0	90·3	83·9	10·8	12·0	66	81	10	5	310	2	6	2	—	81·3	Fair *a.*; Fair to fine day.	
22	1024·9	1023·8	87·3	87·5	90·0	83·1	13·4	14·0	83	85	--	1	—	1	10	9	—	77·4	o. to fair day.	22 68° 4′·9
23	1023·6	1022·6	89·8	86·8	91·1	85·0	13·8	12·8	73	82	235	2	190	3	7	6	—	85·2	Fair *a.*; Fine day.	24 17840γ 19° 5′·2
24	1019·9	1017·3	91·2	89·6	93·6	83·1	14·5	15·5	70	83	115	4	155	2	10	8	—	77·9	Fine dry day.	
25	1012·9	1012·5	91·5	89·5	ϰ96·0	83·6	14·4	16·0	68	86	—	0	—	1	6	7 ≡⁰	—	77·7	Fine, y, ∞⁰ day.	
26	1012·8	1015·4	90·5	88·4	92·1	87·8	16·7	15·4	84	89	305	2	—	1	7 ≡⁰	10 ≡⁰	0·2	85·2	Fine, ∞ day.	
27	1017·8	1021·0	89·0	89·6	92·2	85·4	15·0	15·0	83	81	—	0	90	5	10	9 ≡⁰	0·3	79·4	c. to o. d. *a.*; o. to c. ∞ *p.*	
28	1022·6	1023·1	90·2	88·9	95·0	86·2	13·8	14·5	71	81	80	7	—	1	8 ≡⁰	6 ≡⁰	—	86·3	Fine dry day with ∞⁰	17852γ
29	1022·6	1021·8	91·3	89·3	94·1	83·9	10·6	14·4	51	78	50	5	—	1	1 ≡⁰	3	—	78·3	Fine, ☽⁰, at first; Fine dry day.	29 19° 3′·6
30	1020·9	1021·4	93·4	88·7	94·2	83·4	15·9	14·5	67	82	230	2	—	1	0	1	—	79·1	Fine, ☽ early. Very fine day.	68° 3′·7
Means	1023·1	1023·2	88·6	87·1	91·0	83·3	13·6	13·3	77	83	—	3·1	—	2·1	6·0	5·8	2·7	80·0	Monthly Totals or Means.	17841γ 19° 5′·2
Normals	1014·5	1014·7	87·2	86·3	89·8	83·7	13·2	13·0	80	84	—	4·7	—	4·1	—	—	90·5	—	Normals.	68° 4′·3
	←45 years→						←30 years→				←35 years→						45 years			

* By Campbell-Stokes Sunshine Recorder. † Mean for 29 days. ‡ Mean for 28 days. ϰ denotes the maximum and *n* the minimum value in the column.

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3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20 m.

Day.	Air Pressure at Mean Sea Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind.		Cloud Amount, Weather and Visibility.		Rain 0 h. to 24 h.	Min. Temp. on Grass.	Remarks.
			Dry Bulb.		Max.	Min.	Vapour Pressure.		Percentage.		Veer from North and Force or Speed.						
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.		18 h. to 9 h.	
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	mb.	mb.	%	%	° m/s.	° m/s.			mm.	a 200+	
1	1022·4	1026·9	87·3	88·9	92·3	84·0	10·5	11·3	65	63	— 1	80 4	4 K	9 I	—	81·4	Fine to cloudy.
2	1027·9	1027·2	89·3	87·9	94·3	81·5	9·4	9·4	51	56	20 6	15 3	0 H	2 I	—	78·2	Fine.
3	1025·5	1022·4	89·0	84·7	92·7	82·5	11·7	10·9	65	80	5 5	15 4	9 H	10 G	x3·7	81·0	⊕ 7h.-9h.: Fine early. ● p.
4	1018·9	1017·8	87·2	85·8	89·0	84·2	12·7	12·0	79	82	20 5	20 5	10 I	10 J	—	83·6	Dull, ◍ d. 17h. 50m. and 18h. 25m.
5	1018·0	1018·7	85·8	85·0	92·2	82·8	11·3	10·8	77	78	15 6	15 6	10 I	3 K	—	83·1	Dull to cloudy.
6	1019·6	1018·9	85·8	88·2	95·0	81·7	11·2	10·2	76	60	30 5	35 5	10 I	2 L	—	80·3	O'cast to cloudy. ⊕ 13h.-15h.
7	1017·1	1014·3	91·5	89·1	94·9	84·6	10·1	10·5	48	58	55 8	75 3	5 I	1 J	—	82·4	Fine.
8	1010·1	1011·5	89·6	88·6	95·9	82·5	12·6	11·4	67	65	— 1	320 4	5 I	8p° J	—	76·3	∞° early. Fine to dull. ⊕ 12h.
9	1016·0	1012·4	87·5	86·9	93·0	83·9	11·5	10·0	70	64	315 4	265 5	8 K	2 K	—	81·6	Fine to o'cast. ⊕ 13h.
10	1013·7	1016·9	87·4	87·0	92·6	84·5	8·9	10·8	55	68	320 7	— 1	6 K	6 K	—	82·9	Fine. ⊕ 18h.
11	1016·4	1022·4	87·0	86·2	92·7	82·1	10·1	8·0	64	53	280 4	345 3	9 K	1 L	—	79·1	O'cast to fine.
12	1025·2	1021·4	87·1	88·2	92·2	79·7	9·0	12·2	56	71	265 4	260 4	8 K	9 K	—	73·4	Fine to o'cast. ⊕ 12h. ●° 12h. 15m.
13	1019·4	1023·3	89·1	87·4	91·7	85·0	12·5	9·9	69	61	280 4	325 3	10 K	4 K	—	85·3	O'cast to fine. ⊕ 13h and 18h. ☋ 21h.
14	1025·9	1025·2	87·6	89·0	93·3	82·1	11·5	14·6	70	81	325 2	— 1	5 J	2 G	—	76·7	O'cast to fine. ≡° n.
15	1025·9	1027·9	91·5	91·1	98·5	84·5	14·2	12·8	67	62	325 2	60 2	1 H	3 H	—	78·7	☌ early. Fine with ∞°.
16	1029·6	1028·5	91·0	89·6	97·5	85·6	12·7	12·0	62	64	65 2	90 2	9 H	8 H	—	81·1	O'cast till 10h. 30m., then fine. ∞°.
17	1027·0	1021·0	91·3	94·0	101·2	82·8	9·8	15·0	47	61	130 2	225 2	1 K	1 I	—	78·1	Mostly fine. u. 18h. ☤ 18h.
18	1023·6	1022·9	86·4	85·0	90·3	81·9	9·9	7·9	65	57	25 6	30 5	10 J	9 I	—	84·1	Dull to fine.
19	1019·0	1016·3	86·7	84·9	88·8	n78·4	8·6	10·6	55	77	270 3	300 4	10 J	10 K	—	n71·1	Dull after 8h. ●° 12h. 35m.-13h.
20	1016·4	1018·1	87·9	89·1	90·4	84·1	12·1	11·8	72	65	315 4	315 5	10 L	10 K	0·3	83·3	●° early. O'cast.
21	1019·6	1021·4	85·7	88·1	89·8	84·3	10·5	11·4	72	67	360 4	— 1	10 K	10 H	—	85·4	O'cast to fine. ◍° 20h. 15m.
22	1021·3	1022·1	88·5	87·5	92·4	84·0	9·6	12·0	55	73	310 5	— 0	10 K	2 H	—	85·3	O'cast to fine.
23	1022·1	1022·3	90·3	94·0	98·7	81·7	11·1	13·5	57	55	— 1	— 1	2 I	0 L	—	76·5	☌ and ∞ early. Fine.
24	1024·8	1022·3	93·2	93·6	101·3	87·1	14·1	15·6	60	65	— 1	— 1	0 H	2 I	—	82·3	Fine to cloudy. Warm. ⊕ 18h.
25	1018·4	1014·6	96·1	94·4	x102·4	86·9	14·3	15·4	51	61	125 3	115 4	2 I	8 H	—	—	Mostly fine. u. 21h. q. 21h. 20m.
26	1013·6	1015·4	92·0	89·5	95·8	86·4	15·0	16·0	69	86	235 4	360 4	9 K	7 J	1·1	84·7	Sheet ζ early and distant ☤ O'cast. ●18h.
27	1020·7	1025·0	87·1	86·1	90·6	84·4	12·5	10·2	78	68	30 5	80 5	10 I	5 K	—	85·3	O'cast to cloudy.
28	1026·1	1024·1	87·7	86·7	93·7	80·9	9·3	10·6	56	68	30 5	100 4	1 K	3 K	—	76·9	∞° early. Fine.
29	1021·1	1021·0	90·0	87·7	94·0	80·5	10·2	10·4	53	63	35 5	45 5	1 J	7 J	—	74·8	≡ early. Fine.
30	1021·6	1021·0	86·0	87·4	92·3	83·4	8·9	10·4	60	64	45 4	20 2	10 I	1 I	—	81·8	Fine after 10h. 15m. ⊕ 15h.
Means	1020·9	1020·8	88·8	88·4	94·0	83·3	11·2	11·6	63	67	3·9	3·2	6·5	5·2	5·1	80·5†	Monthly Totals or Means.
Normal	1015·3	1015·3	88·3	87·6	92·8	83·4	12·3	12·5	71	75	3·6	2·7	—	—	55·6	—	Normals.
	45 years.						30 years.				35 years.				45 years.		

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

																	Remarks.
1	995·7	1001·1	82·5	80·1	87·4	75·5	8·7	8·0	74	79	— 1	— 0	10 K	6 K	0·7	75·3	bc. to ●° a.: c. to o. p.: c. to bc. n.
2	1002·2	1002·4	85·5	84·4	92·0	n72·3	8·9	10·4	62	78	220 3	— 0	1 K	0 K	—	n68·9	b., early: by. to bcy. a. and p.: b. n.
3	1002·6	1000·8	91·4	85·0	95·0	78·7	12·8	10·7	61	77	— 1	20 3	0 K	2 J	—	75·0	b. ☍² early: by. a. and p.: b. n.
4	998·5	996·1	85·6	84·6	89·0	78·8	12·3	10·8	85	80	30 5	20 3	9 J	9 K	—	76·3	b. ☍² to o. a.: c. to o. p. and n.
5	995·9	997·8	86·7	80·1	88·0	77·4	12·2	6·0	78	60	50 7	20 4	8 K	0 K	—	80·3	c. to o. a. and p.: o. to b. n.
6	998·5	997·4	86·4	82·7	91·9	75·8	8·2	8·2	54	68	50 5	10 2	2 L	4 L	—	71·3	bcy. to by. all day.
7	994·0	987·1	89·3	85·9	93·9	74·6	8·1	10·6	44	72	— 1	— 0	1 K	4 K	—	71·7	b., by. a. and p.: by. to bc. n.
8	982·7	984·9	84·9	84·1	87·0	79·7	11·9	10·8	86	82	240 2	330 4	10● H	9 K	x6·7	77·4	c. to o. ☌, ●≡°, o. a.: ● p. to o. p. and n.
9	986·8	975·4	83·7	81·8	85·2	79·0	8·3	9·5	65	84	270 5	270 13	10 K	10 J	2·3	76·3	o., ⊕ 7-9h.: c. to o. a.: op. to ●° p. and n.
10	986·4	985·6	84·6	82·6	90·4	80·6	8·6	9·1	63	76	240 5	220 2	3 K	10 K	0·3	79·0	o., ☄, p⁰. early: bq. a.: bcy. to oy. p.: c. to ●° n.
11	984·5	993·3	83·6	79·2	86·8	78·0	9·7	7·4	76	79	280 7	270 2	8 K	3 K	2·9	78·7	●° ≡° to c. a.: cy. to b. p. and n.
12	991·7	987·7	80·6	83·2	85·0	77·6	8·2	10·3	79	84	220 7	260 6	10 J	10 I	3·3	73·3	bc. to op⁰. a.: ●° ≡° p.: o. n.
13	990·1	995·5	86·1	83·7	88·5	82·4	10·5	10·1	70	79	310 7	— 0	9 K	10 K	—	81·2	o. to bc. a.: o. p. and n.
14	995·3	998·2	88·5	86·9	92·8	80·4	13·1	12·1	75	77	250 7	— 1	2 K	3 L	—	76·2	o. to b. a.: b., ☾, p. and n.
15	1000·5	1001·4	91·6	87·3	94·3	84·5	13·2	13·6	62	84	10 3	— 1	4 L	8 J	—	81·3	bq. to o. a.: c. to bc. p. and n.
16	1001·7	1000·0	90·3	88·1	94·8	84·3	14·5	14·5	74	85	— 0	— 0	6 J	3 I	—	81·0	o. to bc. a. and p.: ⊕⁰ 17h.: bc. to b. n.
17	997·3	998·3	87·9	82·7	90·8	80·0	14·3	9·4	85	79	210 4	40 5	6 I	10 J	—	79·2	o. ≡: to bc. a.: c. to o. p.: oq., ☤, n.
18	999·9	995·3	82·7	80·3	87·6	76·8	7·5	8·2	62	80	50 4	300 3	6 K	6 J	—	75·1	o. to by. a.: by. to cy. ⊕p.: cy. to bc. n.
19	989·1	986·2	82·4	84·2	86·7	80·5	8·6	11·1	74	84	290 7	310 2	10 K	9 J	1·2	76·1	c. to ●⁰ a.: o., ●⁰ at times p. and n.
20	986·0	989·7	85·1	83·4	88·0	81·6	11·2	9·8	80	78	300 15	310 5	6 J	9 K	—	80·4	bc. to o. a.: o. p. and n.
21	993·2	991·3	82·9	83·6	86·0	77·2	6·6	10·6	54	84	20 3	300 10	7 K	10 I	0·8	73·2	bc., ⊕ 7-9h.: c. to oy. a.: o., ●⁰ ≡⁰ p. and n.
22	991·7	990·9	85·0	85·0	87·3	83·3	11·5	13·1	83	94	300 7	220 5	10 L	10 I	2·0	81·7	o. with occasional p⁰. ≡⁰.
23	991·0	994·6	85·8	85·9	91·0	85·3	13·3	12·7	91	86	250 5	270 5	10 ●⁰H	4 K	2·8	84·1	o., d⁰. ≡⁰ a.: o. p.: o. to bc. n.
24	996·7	994·8	89·5	89·5	94·1	85·3	13·6	16·0	73	86	220 4	— 1	6 K	10 K	—	83·1	b. to bc. a. and p.: ⊕ 18h.: o. n.
25	990·2	986·6	92·8	89·0	x97·5	84·4	15·1	14·2	66	79	230 5	— 0	9 I	4 J	—	83·7	o. to b. ∞ a.: b. to bc. ∞ p. and n.
26	987·8	992·5	84·9	80·2	87·1	76·0	11·2	8·1	81	80	50 9	30 4	9 J	4 K	—	79·1	bc. to o. ≡⁰ a. and p.: o. to bc. n.
27	996·4	998·7	85·2	80·1	88·8	75·6	9·0	7·8	64	77	80 2	— 0	8 K	3 L	—	72·0	b. to c. a.: c. to cy. p.: by. to b. ☾ n.
28	998·9	996·7	89·2	86·5	94·1	73·9	10·7	10·8	59	70	280 3	— 1	5 J	6 J	—	70·2	b. to bcy. a. and p.: bcy. to bc. n.
29	996·7	995·6	86·5	82·7	93·1	79·7	11·5	10·2	75	85	90 3	40 5	6 J	7 J	—	75·2	b. 1h.: o. 7h.: b. to bcy. a. and p.: bc. to c. n.
30	995·6	994·5	82·1	83·1	90·0	80·2	9·0	8·9	78	72	80 2	50 3	10 J	9 J	—	79·9	o. till 12h.: bc. to c. p.: c. to o. n.
Mean	993·9	993·7	86·1	83·9	90·1	79·3	10·7	10·4	71	79	4·6	2·9	6·7	6·4	23·0	77·2	Monthly Totals or Means.
Normal 1911-1920	987·1	987·2	85·3	83·2	88·8	79·1	10·7	10·4	75	83	5·5	3·9	—	—	75·1	—	Normals.

Temperatures at or below the normal freezing point of water are printed in small type. x denotes the maximum, and n the minimum, value in the column.
† Mean for 29 days.

5. GEOPHYSICS :—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force.						Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{10}.		Air-Earth Current. × 10^{16}.	Potential Gradient, Volts per metre.* Factor 2·29.			
					Horizontal Comp't.		Declination.		Inclination.				+.	−.					
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			About 15 h.		About 15 h.	3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m	v/m	v/m	v/m
1	87·6	85·3	187	..	..	..	..	..	..	..	0	0	0·80	0·74	0·85	85	240	140	295
2	88·0	85·3	186	..	10 56	18383	14 56	14 23·4	14 40	66 57·3	0	0	0·99	0·74	0·75	155	380	170	225
3	88·4	85·4	185	..	..	..	..	..	..	..	1	1	..	..	..	140	210	155	125
4	87·8	85·4	184	..	..	..	..	..	..	..	1	1	..	..	..	110	240	110	125
5	87·5	85·5	183	..	..	..	..	..	..	..	0	0	..	..	..	55	110	140	170
6	87·3	85·6	183	..	..	..	..	..	..	..	1	0	1·48	1·21	0·85	100	225	195	265
7	87·9	85·6	185	..	..	..	..	..	..	..	1	0	0·94	0·90	0·95	195	395	310	335
8	88·1	85·7	189	..	11 6	18361	14 23	14 27·9	..	..	2	0	0·55	0·38	0·40	170	140	100	100
9	88·5	85·7	192	..	..	..	..	..	14 33	66 59·0	1	0	0·72	0·54	1·00	140	140	125	155
10	88·5	85·8	194	..	..	..	..	..	..	..	1	0	..	0·36	0·35	70	85	110	100
11	88·2	85·9	195	..	..	..	..	..	..	..	0	0	..	..	..	140	170	85	140
12	88·0	86·0	196	196	..	..	..	..	..	..	0	0	..	..	..	110	140	55	155
13	88·6	86·0	195	196	..	..	..	..	..	..	0	0	0·59	..	0·35	40	110	100	70
14	88·3	86·1	193	..	..	..	..	..	..	..	1	0	..	0·59	0·55	70	170	70	85
15	88·8	86·1	192	..	..	..	..	..	14 47	66 56·8	0	0	0·67	..	0·90	70	255	140	335
16	89·8	86·1	190	..	10 48	18372	..	..	14 36	66 56·4	0	1	..	0·36	0·40	110	280	240	185
17	90·0	86·1	189	..	..	..	..	..	..	..	0	1	0·61	..	0·90	85	140	100	110
18	90·6	86·2	187	..	..	..	..	..	..	..	0	0	..	..	..	140	265	195	295
19	89·3	86·3	186	..	..	..	..	..	..	..	0	1	..	..	..	170	110	110	100
20	88·8	86·4	185	..	..	..	..	..	..	..	0	0	..	0·40	1·40	110	210	170	155
21	88·8	86·6	185	..	..	..	..	..	..	..	0	0	0·63	..	0·40	100	225	85	110
22	89·0	86·5	184	..	10 46	18356	14 13	14 24·3	13 59	66 58·6	1	1	..	0·34	0·70	110	125	110	100
23	88·9	86·6	184	..	..	..	..	..	..	..	1	1	..	..	..	185	195	110	155
24	90·8	86·5	184	..	..	..	..	..	..	..	0	0	..	0·29	0·25	170	325	140	85
25	91·5	86·7	184	..	..	..	..	..	..	..	0	1	..	..	..	240	170	125	210
26	92·2	86·9	183	..	..	..	..	..	..	..	1	1	..	..	..	140	110	125	40
27	90·9	87·0	183	..	..	..	14 20	14 24·3	..	..	0	0	0·68	..	0·70	15	170	225	325
28	89·6	87·1	182	..	..	..	..	..	..	..	0	0	..	0·38	0·75	295	350	295	265
29	89·9	87·2	182	..	..	..	..	..	..	..	1	0	0·88	..	1·45	265	350	225	295
30	90·0	87·2	181	181	10 46	18376	14 20	14 23·7	14 35	66 58·2	0	0	..	0·90	1·05	185	255	195	240
M.	89·0	86·2	187	..	..	..	..	..	..	..	0·43	0·30	0·80	0·58	0·75	133	210	149	178
No.of days used.	30	30	30	..	..	..	..	..	..	..	30	30	12	14	20	30	30	30	30

6. GEOPHYSICS :—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force.																Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre.* Factor 5·97.			
	North Component.						West Component.						Vertical Component.									
	Maximum 15000 γ +.		Minimum. 15000 γ +.		Range.		Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.		Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.					
	h m	γ	γ	h m	γ		h m	γ	γ	h m	γ		h m	γ	γ	h m	γ			3 h.	9 h.	15 h.	21 h.
1	20 23	1031	963	10 46	68		14 13	801	751	4 58	50		5 11	1091	1058	12 2	33		1 *a*	v/m 190	v/m 125	v/m 150	v/m 295
2	4 20	1036	956	12 11	80		12 47	811	761	6 50	50		18 31	1091	1062	10 43	29		0 *a*	295	295	200	375
3	20 20	1071	968	10 47	103		20 19	822	752	{6 52 / 7 9}	70		5 20	1089	1066	12 6	23		0 *a*	185	215	150	440
4	1 7	1055	952	14 51	103		13 46	832	731	1 29	101		18 10	1111	1065	1 12	46		0 *a*	795	125	130	170
5	17 37	1021	970	10 25	51		13 19	807	751	3 1	56		17 14	1094	1069	1 50	25		0 *a*	165	†	75	180
6	19 11	*x*1101	964	15 23	137		16 10	859	744	7 51	115		18 58	*x*1149	1052	11 43	*x*97		1 0 *a*	105	175	260	295
7	15 56	1058	954	14 10	104		15 56	846	753	8 41	93		16 32	1103	1063	6 25	40		1 0 *a*	145	145	215	330
8	20 7	1098	*n*911	23 15	*x*187		20 29	832	*n*706	23 20	126		18 50	1089	*n*998	23 11	91		2 2 *c*	165	—165	245	250
9	17 21	1069	956	13 41	113		17 19	838	739	8 15	99		18 58	1115	1038	3 9	77		1 1 *b*	295	155	—5	30
10	19 53	1045	954	11 25	91		1 23	848	726	2 43	122		18 58	1094	1004	2 18	90		1 †	†	†	180	115
11	17 53	1031	969	10 59	62		2 0	807	746	6 3	61		17 40	1093	1063	2 20	30		0 1 *b*	—195	110	180	235
12	18 31	1038	980	11 30	58		18 30	809	757	6 31	52		16 55	1097	1068	12 11	29		0 2 *b*	155	45	185	120
13	17 23	1056	982	10 42	74		17 21	828	745	8 13	83		18 12	1097	1066	14 34	31		0 0 *a*	125	110	135	35
14	1 0	1061	982	10 5	79		14 43	818	749	5 28	69		17 11	1108	1064	11 28	44		1 0 *a*	60	75	270	230
15	0 11	1031	974	9 57	57		14 40	813	749	1 24	64		19 30	1084	1064	11 55	20		0 0 *a*	130	140	150	155
16	19 30	1033	953	10 52	80		14 19	808	733	8 41	75		18 12	1082	1057	12 10	25		0 0 *a*	100	190	180	375
17	{5 44 / 5 52}	1032	975	13 59	57		12 39	824	748	8 10	76		17 52	1094	1049	5 51	45		1 1 *a*	490	175	100	35
18	21 35	1025	984	11 30	*n*41		13 58	814	753	8 44	61		17 18	1082	1064	11 45	18		0 0 *a*	105	105	115	410
19	20 52	1043	991	10 43	52		14 52	816	757	7 32	59		{1 18 / 5 35}	1079	1058	11 41	21		0 1 *a*	105	80	65	275
20	16 26	1050	985	14 13	65		14 49	834	744	8 48	90		19 24	1081	1056	12 20	25		1 0 *a*	125	125	45	95
21	21 32	1044	980	11 45	64		14 10	805	754	8 56	51		20 3	1085	1063	12 5	22		0 0 *a*	140	155	155	115
22	16 35	1041	960	11 23	81		16 36	809	733	8 32	76		17 51	1085	1052	4 26	33		1 1 *a*	110	95	45	250
23	17 4	1093	975	15 59	118		15 32	*x*871	740	8 49	*x*131		19 9	1096	1061	15 34	35		1 1 *a*	35	105	75	145
24	17 7	1035	975	13 14	60		13 19	809	748	7 0	61		17 52	1084	1065	12 28	19		0 0 *a*	115	145	145	175
25	{19 26 / 20 3}	1036	979	12 49	57		16 30	809	753	8 5	56		17 10	1078	1064	12 0	*n*14		0 0 *a*	80	115	155	540
26	17 39	1072	972	10 48	100		17 40	830	759	8 58	71		19 3	1103	1054	12 25	49		1 0 *a*	35	40	35	115
27	18 45	1044	979	11 45	65		15 9	814	744	7 30	70		19 20	1084	1057	11 30	27		0 0 *a*	85	115	125	180
28	4 48	1041	987	{12 41 / 12 44}	54		17 3	798	749	5 10	*n*49		19 0	1088	1054	11 3	34		0 0 *a*	160	260	165	215
29	{16 31 / 18 13}	1052	988	14 44	64		16 30	823	738	6 53	85		20 30	1087	1051	11 21	36		1 1 *a*	175	140	155	105
30	20 46	1040	977	11 28	63		14 48	812	754	5 27	58		17 45	1081	1062	{11 45 / 12 20}	19		0 1 *a*	35	—35	170	180
M.	—	1049	970	—	80		—	822	746	—	76		—	1093	1056	—	38		0·57	0·45	155	120	143	220
No.of days used.	—	30	30	—	30		—	30	30	—	30		—	30	30	—	30		30	29	28	28	28	28

The letters *x* and *n* denote the maximum and minimum value in the columns in which they occur. *The potential gradient is reckoned as positive if the potential increases upwards. z Indeterminate. † Instrument earthed.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	..	5·5	2·0	..	..	4·3	1·6	..	..	2·6	0·5	..	..	2·0	0·3	..	9	0 35
2	..	Calm		..	..	2·6	0·5	..	..	4·2	0·7	..	..	1·6	0·3	..	6	12 50
3	..	2·6	0·5	..	..	2·0	..	..	..	5·5	..	2·0	..	1·4	0·8	..	9	10 10
4	..	1·8	..	4·9	..	3·4	..	1·9	..	5·3	..	4·5	..	4·3	..	1·6	11	5 15
5	..	3·1	..	3·8	..	4·7	..	8·2	..	5·2	..	9·1	..	1·3	..	7·1	15	15 10
6	..	1·2	..	6·8	..	3·5	..	9·5	..	5·5	..	6·5	..	4·0	..	4·7	14	7 0
7	..	1·5	..	4·0	..	0·7	..	4·2	..	2·5	..	2·1	..	1·3	1·5	..	11	7 0
8	..	Calm		..	..	1·8	4·9	..	..	2·1	5·8	..	..	4·5	3·9	..	16	23 40
9	..	7·4	4·2	..	..	2·6	4·5	..	8·0	..	4·6	..	..	3·8	10·3	..	20	19 30
10	..	6·0	10·5	..	..	7·0	6·0	..	..	..	3·3	..	6·5	..	2·4	..	17	3 20
11	..	1·4	8·1	..	..	3·2	8·8	..	..	2·4	6·5	..	..	1·1	2·0	..	15	7 20
12	..	1·9	3·4	..	5·3	..	4·5	..	5·3	..	4·5	..	2·0	..	11·3	..	17	20 30
13	..	..	6·9	..	..	1·5	8·8	..	..	2·1	3·7	..	0·8	..	4·5	..	12	0 15
14	..	..	6·9	..	..	0·9	5·1	..	..	0·7	3·8	..	..	Calm		..	9	2 50
15	..	3·7	1·3	..	..	3·1	1·1	..	..	2·3	1·3	..	..	1·7	1·0	..	9	5 5
16	..	4·2	0·7	..	..	2·0	0·3	..	..	2·6	1·5	..	..	Calm		..	7	3 20
17	..	1·7	1·0	..	4·9	..	1·8	..	..	2·6	1·5	..	..	4·8	0·9	..	12	23 0
18	..	8·5	..	..	..	2·8	..	7·7	..	5·5	..	4·7	..	3·2	..	0·6	12	8 30
19	..	3·1	1·8	..	..	4·8	2·8	..	..	1·8	4·9	..	..	2·6	7·0	..	15	23 45
20	..	6·2	7·3	..	..	4·5	5·3	..	..	2·8	7·7	..	..	3·1	8·6	..	13	22 10
21	..	8·6	3·1	..	..	6·8	2·5	..	..	..	3·3	..	0·9	..	5·1	..	14	2 10
22	..	2·4	6·5	..	..	1·3	7·1	..	4·3	..	3·7	..	4·2	..	2·4	..	10	2 0
23	..	..	8·2	..	2·0	..	5·5	..	3·7	..	4·3	..	1·3	..	1·5	..	12	3 30
24	1·9	..	2·3	..	..	Calm		..	..	2·3	..	..	..	Calm		..	8	1 35
25	..	Calm		..	3·2	..	0·6	..	..	3·9	..	..	..	0·3	..	1·6	10	21 55
26	2·2	..	0·8	..	..	Calm		..	..	2·8	2·3	..	..	5·1	..	6·1	11	23 45
27	..	2·9	..	8·0	..	1·9	..	10·6	..	3·7	..	6·5	..	4·8	..	5·7	15	8 50
28	..	1·1	..	6·1	..	3·4	..	6·0	..	5·7	..	4·8	..	2·8	..	2·3	11	0 5
29	..	1·5	..	1·3	..	3·1	..	1·1	..	3·8	0·7	..	..	2·3	0·4	..	6	14 10
30	..	2·3	0·4	..	..	1·4	0·8	..	..	1·5	4·0	..	..	1·7	..	2·0	7	17 45
S+N & W+E		82·7		110·8		88·7		121·7		100·7		108·8		73·4		95·9		
S−N & W−E		−74·5		41·0		−57·9		23·3		−58·1		28·4		−42·0		32·5		

SCOTLAND N.:—DEERNESS.

Cup. Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	..	1·6	2·9	..	2·1	..	5·8	..	2·1	..	2·5	..	4·2	..	0·7	..	6·2	9
2	3·4	..	1·2	..	3·4	..	1·9	..	1·3	..	7·4	..	..	..	5·9	..	9·5	16
3	1·3	..	2·3	..	4·8	..	..	0·9	..	Calm		..	2·0	..	..	0·3	5 2	10
4	..	Calm		..	..	2·6	..	0·5	..	5·1	2·9	..	..	3·8	3·1	..	6·2	16, 17
5	..	3·5	3·0	..	..	3·4	..	4·0	..	0·3	..	2·0	..	Calm		..	5·6	7
6	1·5	..	0·5	..	2·6	..	0·5	..	1·6	..	..	..	..	Calm		..	4·3	12
7	..	Calm		..	4·9	..	..	1·8	3·7	..	..	2·1	..	Calm		..	5·9	10
8	..	0·8	1·4	..	..	1·1	3·1	..	..	1·0	..	1·2	..	5·7	3·3	..	9·8	18
9	..	..	2·6	..	3·4	..	4·0	..	7·7	..	..	2·8	3·0	..	..	..	9·8	17
10	..	8·4	1·5	..	..	5·9	10·2	..	..	1·7	9·7	..	1·1	..	3·1	..	11·8	9
11	4·7	..	4·0	..	..	6·2	10·8	..	..	4·1	11·3	..	..	2·8	7·7	..	12·5	9, 16, 18
12	..	1·6	4·3	..	..	..	5·2	..	3·0	..	..	0·5	3·1	..	..	3·8	7·2	23
13	..	1·8	..	4·9	..	3·3	..	..	1·5	..	..	0·5	3·1	..	1·8	..	6·6	1
14	4·6	..	1·7	..	2·2	..	12·3	..	..	..	12·5	..	2·2	..	12·3	..	13·1	8, 16, 17
15	..	3·4	6·0	..	..	3·3	5·7	..	..	4·8	2·8	..	..	1·0	1·2	..	9·2	1
16	0·7	..	1·9	..	2·3	..	6·2	..	1·7	..	9·7	..	..	1·9	5·3	..	11·5	18
17	..	..	7·2	..	..	..	9·2	..	..	12·3	2·2	..	..	9·8	3·6	..	14·1	12
18	..	6·8	1·2	..	..	4·0	2·3	..	..	2·0	5·5	..	..	2·4	6·5	..	8·5	1, 2
19	..	2·4	6·5	..	..	4·9	8·5	..	..	4·0	4·7	..	..	4·3	5·1	..	9·8	9
20	..	5·5	2·0	..	..	9·6	5·5	..	..	9·4	5·4	..	..	8·5	4·9	..	11·5	13
21	..	8·5	4·9	..	..	6·5	3·7	..	..	3·7	1·3	..	..	Calm		..	9·8	3
22	..	..	..	2·0	6·2	..	..	3·6	7·5	..	..	..	2·6	..	7·0	..	8·5	20
23	..	..	8·5	..	..	..	13·1	..	..	1·5	8·4	..	..	1·3	3·7	..	13·1	9
24	..	1·0	5·5	..	..	0·5	3·0	..	4·2	..	..	2·4	2·3	..	..	1·3	6·6	5, 6
25	..	Calm		..	4·8	..	0·9	..	..	1·0	5·8	..	..	1·9	5·3	..	7·5	14
26	..	5·8	..	1·0	..	5·9	..	..	..	5·1	4·3	..	..	5·8	2·1	..	7·5	16, 24
27	..	5·8	2·1	..	..	6·2	3·6	..	..	4·7	4·0	..	..	3·1	3·8	..	7·2	9
28	..	2·8	7·7	..	..	6·3	5·3	..	..	5·1	6·1	..	..	6·1	5·1	..	9·8	5
29	..	7·1	4·1	..	..	7·4	4·2	..	..	6·8	1·2	..	..	4·8	0·9	..	8·9	4
30	..	4·3	..	..	..	7·8	1·4	..	..	6·8	1·2	..	..	5·6	..	..	8·2	11
S+N & W+E		87·3		90·9		121·6		137·2		113·7		120·4		92·4		97·8		
S−N & W−E		−54·9		75·1		−48·2		115·6		−45·1		97·4		−45·2		−87·0		

ENGLAND S.W.:—SCILLY.

Cup. Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	..	4·1	..	0·7	..	3·8	..	3·2	..	7·8	..	1·4	..	7·0	..	2·6	8·3	19, 22
2	..	5·5	..	3·1	..	4·4	..	5·1	..	8·6	..	3·1	..	6·1	..	3·5	9·6	14, 17, 19, 20
3	..	1·8	..	5·1	..	1·6	..	4·3	..	3·0	..	3·5	..	3·9	..	1·4	6·3	1
4	..	1·3	..	1·6	0·3	..	..	1·7	..	4·3	..	1·6	..	2·1	..	2·5	5·0	14, 18
5	..	2·5	..	1·4	..	2·3	..	4·0	..	0·9	..	2·3	..	Calm		..	5·0	8, 12
6	..	..	..	3·3	..	..	..	5·0	..	1·4	..	2·5	..	4·3	..	1·6	5·8	7, 22
7	..	3·2	..	3·8	..	2·1	..	2·5	..	2·5	..	0·4	..	2·7	1·0	..	5·8	5
8	..	4·4	3·8	..	..	5·7	6·7	..	..	4·6	5·4	..	..	4·8	5·7	..	8·8	9
9	..	3·7	..	0·7	..	3·3	1·9	..	..	1·4	7·8	..	..	..	10·4	..	10·4	21
10		6·5	3·7	..	..	4·3	1·6	..	..	1·4	3·9	..	..	..	6·3	..	8·3	1
11	..	2·4	6·7	..	..	4·1	4·8	..	..	3·8	4·4	..	..	2·7	3·2	..	7·9	1, 5, 6, 7
12	..	..	2·1	..	..	..	5·0	..	..	..	5·8	..	..	..	5·0	..	7·9	23
13	..	3·1	8·6	..	..	3·1	5·5	..	..	4·1	4·8	..	..	1·4	2·5	..	9·2	3
14	..	1·8	1·0	..	..	2·5	..	0·4	..	2·9	..	..	..	2·3	..	0·9	3·3	13
15	..	2·3	..	0·9	..	3·2	..	2·7	..	2·7	..	3·2	..	2·7	..	1·0	4·6	18
16	..	2·2	..	1·9	2·0	..	..	5·5	2·3	..	..	6·3	..	..	..	5·0	8·3	16
17	..	..	..	3·8	..	..	..	5·0	..	2·9	..	..	..	2·5	..	..	5·0	8, 9
18	..	1·9	..	1·6	..	3·8	..	3·2	..	7·0	..	1·2	..	4·5	..	0·8	7·1	15
19	..	1·8	..	1·0	..	5·0	..	..	..	5·1	6·1	..	..	3·5	4·1	..	7·9	14, 15, 20
20	..	6·1	3·5	..	..	6·1	3·5	..	..	6·1	3·5	..	..	2·9	5·0	..	7·1	9, 10, 11
21	..	4·3	2·5	..	..	5·8	..	..	..	5·4	..	..	..	Calm		..	6·7	10
22	..	1·6	1·3	..	..	0·4	2·1	..	..	1·6	2·9	..	..	0·7	2·0	..	3·3	14, 15, 20
23	De	fec	tiv	e	De	fec	tiv	e	..	0·6	1·6	..	..	0·7	..	2·0	2·9	23
24	..	0·4	..	2·5	3·5	..	..	4·1	2·3	..	..	6·3	1·8	..	..	5·1	7·1	14, 22, 24
25	..	..	..	7·5	2.3	..	..	4·0	1·9	..	..	1.6	..	Calm		..	9·6	1
26	De	fec	tiv	e	1·6	..	4·3	..	..	..	..	2·9	..	..	Calm	..	5·8	4, 7
27	..	Ca	lm	..	0·7	..	..	3·7	..	..	..	7·9	..	..	..	10·8	12·1	19, 23
28	..	..	..	10·8	..	..	..	15·0	..	..	..	12·1	..	1·1	..	6·2	15·0	9
29	..	0·7	..	4·1	..	3·8	..	4·4	..	..	..	7·5	..	3·6	..	1·3	8·3	14
30	..	1·2	..	2·2	1·8	..	..	5·1	2·1	..	..	..	..	Calm		..	5·4	9, 10
S+N & W+E		62·8		89·2		77·5		114·3		86·7		110·0		61·3		89·9		
S−N & W−E		−62·8		−22·8		−53·1		−43·5		−69·5		−11·8		−57·7		0·5		

ENGLAND E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	..	..	1·5	..	..	2·5	..	2·1	..	6·3	..	3·6	..	5·4	..	3·1	11	15 45
2	..	6·6	..	2·4	..	7·8	..	4·5	..	8·0	..	4·6	..	7·3	..	4·2	13	18 15
3	..	6·5	..	5·5	..	8·6	..	7·2	..	8·3	..	7·0	..	9·1	..	5·2	15	8 35
4	..	5·7	..	4·8	..	8·2	..	4·7	..	7·1	..	4·1	..	7·5	..	2·7	13	8 50
5	..	7·9	..	1·4	..	8·7	..	5·0	..	9·2	..	5·3	..	10·1	..	5·8	16	22 50
6	..	8·8	..	7·4	..	3·6	..	9·9	..	5·1	..	8·9	..	2·0	..	11·6	16	19 5
7	3·1	..	..	8·6	1·3	..	..	7·4	1·2	..	..	6·9	..	..	..	7·9	16	0 5
8	1·1	..	..	2·9	0·4	..	..	2·5	..	3·3	..	2·8	..	5·5	..	..	11	21 25
9	..	5·3	1·9	..	..	8·8	..	..	..	2·6	..	3·1	1·0	..	2·6	..	14	9 10
10	..	9·1	5·2	..	..	12·2	2·1	..	..	12·5	..	..	..	Calm		..	24	10 40
11	..	0·6	3·2	..	..	8·6	..	..	..	7·7	..	..	..	2·2	..	..	14	9 20
12	..	4·5	2·6	..	..	5·4	1·9	..	..	2·5	0·4	..	..	1·0	1·7	..	10	11 20
13	..	2·8	3·4	..	..	8·0	..	..	..	8·6	..	3·1	..	7·0	..	2·6	14	13 40
14	..	3·2	1·2	..	..	2·5	0·4	..	7·1	..	1·3	..	0·8	..	4·7	..	10	17 5
15	..	3·2	..	0·6	..	1·1	..	3·0	1·4	..	..	0·8	..	Calm		..	8	17 15
16	..	2·2	..	..	..	2·0	..	3·5	1·1	..	..	2·9	1·7	..	..	2·1	9	5 30
17	0·9	..	2·4	..	5·7	..	4·8	..	6·4	..	2·3	..	..	3·0	..	..	12	14 20
18	..	8·0	..	6·8	..	6·6	..	5·6	..	6·1	..	3·5	..	4·6	..	..	14	4 30
19	..	1·6	1·9	..	..	2·9	5·1	..	..	5·0	..	0·9	..	1·5	0·5	..	10	12 40
20	..	1·2	2·2	..	..	4·6	0·8	..	..	..	..	2·0	..	2·7	0·5	..	13	23 40
21	..	5·7	..	1·0	..	9·8	..	..	..	9·4	..	1·6	..	1·0	1·2	..	16	14 50
22	..	Calm		..	..	4·4	0·8	..	..	4·0	..	..	2·6	..	3·1	..	9	11 15
23	..	1·9	3·3	..	..	2·8	3·3	..	..	2·2	..	3·9	..	Calm		..	7	15 5
24	..	1·2	1·0	..	..	3·7	..	3·1	..	..	..	1·8	..	Calm		..	6	8 15
25	2·1	..	..	1·2	4·2	..	0·7	..	5·7	..	..	3·3	2·5	..	..	..	8	15 0
26	3·8	..	1·4	..	..	2·9	1·7	..	3·8	..	..	..	..	5·8	1·0	..	11	18 5
27	..	8·7	..	5·0	..	5·4	..	4·6	..	5·4	..	4·6	..	5·4	..	3·1	14	2 50
28	..	2·6	..	4·5	..	2·3	..	2·8	..	2·1	..	3·6	..	Calm		..	9	2 25
29	..	3·0	..	..	..	5·8	..	3·3	..	6·1	..	3·5	..	5·1	..	0·9	12	13 35
30	..	4·0	..	1·5	..	3·1	..	2·6	..	4·3	..	3·7	..	2·5	..	..	10	7 45
S+N & W+E		115·3		84·8		153·9		93·4		152·5		89·5		97·3		64·5		
S−N & W−E		−93·3		−22·4		−130·7		−50·2		−99·1		−81·5		−80·1		−33·9		

8. Seismological Diary

The notation used is explained in the Introduction.

Earthquakes—Eskdalemuir.

Day.	Phase	Time G.M.T.	Period.	Amplitudes. A_N.	Amplitudes. A_E.	Amplitudes. A_Z.	Δ.	Remarks.
		h. m. s.	s.	μ	μ	μ	km.	
1	i_E	19 55 53	..	..	..	..	..	Long waves feebly developed.
	F	20 45	..	..	..	..	..	
2	e_N	7 32 14	..	..	..	..	..	
	L	7 55	..	..	..	..	..	
	F	8 40	..	..	..	..	..	
5	L	19 39	..	..	..	..	..	
	F	20 30	..	..	..	..	..	
16		10 3 to	..	..	..	..	..	Long waves of low amplitude: 19 secs. period.
		10 16	..	..	..	..	..	
22	P_z	11 35 19	..	..	..	..	?8580	
	e_S	11 45 8	..	..	..	..	..	
	L	12 4	..	..	..	..	..	
	F	13 15	..	..	..	..	..	
25	e_N	2 24 50	..	..	..	..	..	L phase indistinct.
	e_E	2 32 16	..	..	..	..	..	
	L	2 36	..	..	..	..	..	
	F	3	..	..	..	..	..	
25	L	12 0	..	..	..	..	..	Long waves of low amplitude and irregular form.
	F	12 30	..	..	..	..	..	
26	i	3 49 51	..	..	..	..	..	Long waves feebly developed, and of varying, though unusually short, period.
	L	3 54	..	..	..	..	..	
	F	4 10	..	..	..	..	..	
28	i_Z	14 18 41	..	..	..	..	..	
	i_Z	14 19 34	..	..	..	..	..	
	e_N	14 19 34	..	..	..	..	..	
	?PR	14 23 15	..	..	..	..	..	
	M_N	15 20 41	29	10	..	..	..	
	M_N	15 38 40	26	10	..	..	..	
	F	16 45	..	..	..	..	..	
29	e	11 48 43	..	..	..	..	..	
	L	11 53 30	..	..	..	..	..	
	M_N	11 59 3	17	6	..	..	..	
	F	12 20	..	..	..	..	..	
30	O	2 10 7	..	..	..	..	1910	
	P	2 14 9	..	..	..	..	..	
	S	2 17 24	..	..	..	..	..	
	L	2 18 30	..	..	..	..	..	
	M_N	2 20 18	14	14	..	..	..	
	F	3	..	..	..	..	..	

Microseisms of N. Component—Eskdalemuir.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s.	μ	s.	μ	s.	μ	s.
1	1·5	4·5	1·0	4·5	1·0	4·5	0·8	4·5
2	0·7	5	0·3	4·5	0·7	5	0·7	6
3	0·8	5·5	0·6	6	0·7	5·5	0·5	5
4	0·5	5	0·2	4·5	0·2	4	0·1	4
5	0·1	4·5	0·1	4·5	0·1	3·5	0·0	0
6	0·1	3·5	0·1	4	0·1	3·5	0·1	3
7	0·1	4	0·1	4·5	0·1	4	0·1	4·5
8	0·1	4·5	0·1	5	0·1	4·5	0·1	3
9	0·1	4·5	0·2	4	0·5	5	0·8	4·5
10	..	..	..	..	0·5	5	0·5	4·5
11	0·6	5	0·4	4·5	..	..	0·9	4·5
12	1·0	4·5	0·9	4·5	..	..	..	..
13	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..
15	0·6	4·5	0·6	4	0·7	4·5	0·8	5
16	0·8	5·5	0·8	5	0·5	5	0·2	4·5
17	0·1	4	0·0	0	..	..	..	..
18	..	..	0·7	6	0·5	5	0·7	4·5
19	0·3	4·5	0·3	5	0·3	4·5	0·3	4
20	0·2	4·5	0·4	3·5	..	..	..	..
21	0·6	4	0·5	5	0·9	4·5	0·4	4·5
22	0·6	4	0·6	4	0·8	4	..	..
23	..	..	..	..	..	..	..	..
24	..	..	..	..	0·6	4·5	0·3	4·5
25	0·4	5	0·3	4	..	..	0·1	4
26	0·0	0	0·0	0	0·0	0	0·0	0
27	0·1	4	0·0	0	0·1	4·5	0·1	4
28	..	..	0·0	0	0·3	4	0·1	4
29	0·3	4	0·1	3·5	..	..	0·0	0
30	..	..	0·0	0	0·0	0	0·0	0

Means for month $\begin{cases} A_N. = 0·3\ \mu. \\ T = 3·8\ s. \end{cases}$

Normals for month, 1911–20: $\begin{cases} A_N. = 0·5 \\ T = 4·5\ s. \end{cases}$

Earthquakes—Richmond (Kew Observatory).

Day.	Times, G.M.T., of Commencement.	Times, G.M.T., of Maximum Amplitude.	Remarks.
	h m	h m	
5	..	19 52	Very small.
16	..	9 58	Very small.
25	..	2 45	Very small.
26	..	3 56	Very small.
28	..	14 58	Small.
30	..	2 22	Small.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour. G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.–E.	S.–N.	
1 7	St.-Cu.	235	4·4	+ 3·6	+ 2·5	High St.-Cu.
1 7	Cu.	322	9·5	+ 6·0	− 7·4	Cu. forming rapidly.
12	St.-Cu.	267	3·8	+ 3·8	+ 0·2	Lower layer of St.-Cu. than that observed at 7h.
18	St.-Cu.	300	0·8	+ 0·7	− 0·4	High sheet of cloud, banded at 90° to direction.
2 7	St.-Cu.	294	1·0	+ 0·9	− 0·4	High type, small cloudlets.
13	Ci.	270	1·2	+ 1·2	0·0	Irregular patches of rather dense Ci.
18	A.-Cu.	280	3·4	+ 3·3	− 0·5	Small waves of alto-cloud.
4 12	A.-Cu.	335	5·7	+ 2·4	− 5·2	Sheets of flat fused A.-Cu.
18	Ci.	300	0·5	+ 0·4	− 0·2	Traces of high true Ci.
18	St.-Cu.	330	6·0	+ 3·0	− 5·2	Fused high St.-Cu., much internal change.
5 13	Fr.-St.	350	12·5	+ 2·2	−12·3	Broken St., becoming cumuliform.
7 7	Ci.	238	2·1	+ 1·8	+ 1·1	Slight true Ci.
8 13	Cu.-Nb.	295	0·5	+ 0·4	− 0·2	Cloud shows only a slow drift.
9 7	Ci.-Cu.	289	3·1	+ 2·9	− 1·0	False Ci. tufts becoming floccular flat Ci.-Cu.
13	Cu.	275	7·1	+ 7·0	− 0·6	
13	Fr.-St.	200	16·0	+ 5·4	+15·0	
10 13	Cu.	315	6·9	+ 4·8	− 4·8	Cu. rather flattened, a form transitional towards St.-Cu.
16	Ci.	287	4·5	+ 4·2	− 1·5	Ci. rapidly increasing to Ci.-St.
11 7	Cu.	295	8·0	+ 7·3	− 3·4	Heavy Cu. and Fr.-Cu. mass.
13	Cu.	300	11·0	+ 9·5	− 5·4	Cu. becoming Cu.-Nb., base measured.
18	Cu.-Nb.	298	6·2	+ 5·4	− 2·9	Upper part of cloud measured.
12 13	Cu.	235	5·0	+ 4·1	+ 2·8	Closed degraded Cu.
13 7	St.-Cuf.	331	17·0	+ 8·4	−14·6	Cumuliform masses of St.
13	Nb.-Cuf.	315	5·0	+ 3·6	− 3·6	Low small Cu.-Nb. masses.
18	A.-Cu.	345	4·4	+ 1·2	− 4·2	
14 7	Ci.-St.	286	1·6	+ 1·5	− 0·4	Patches of coarse Ci. to Ci.-St.
18	Cu.	285	4·2	+ 4·0	− 1·0	
15 13	Cu.	289	4·4	+ 4·1	− 1·4	Low Cu. developed from St. which became cumuliform.
18	Ci.	298	2·8	+ 2·4	− 1·4	Bands of Ci. showing waves of Ci.-Cu. in places. Radiant WNW.
16 7	Ci.	286	4·2	+ 4·0	− 1·0	Measurement approximate, cloud rather too distant.
13	Ci.	286	3·0	+ 2·8	− 0·7	Ci. to Ci.-Cu. "speckle-cloud" type. ⊕ visible in the Ci.
18	Fr.-Cu.	280	2·5	+ 2·5	− 0·4	
17 7	Cu.	284	8·3	+ 8·0	− 2·1	Closed sheet of low Cu.
18	Cu.	329	10·0	+ 5·0	− 8·6	Fr.-Cu., low altitude.
18 7	St.-Cu.	347	6·2	+ 1·5	− 5·9	Low, heavy St.-Cu.
13	Ci.	340	2·8	+ 1·0	− 2·6	Ci. in coarse plumes.
13	Fr.-Cu.	333	3·0	+ 1·4	− 2·6	
18	St.-Cu.	337	6·2	+ 2·6	− 5·6	Small St.-Cu. in detached sheets.
20 18	Cu.	314	12·5	+ 8·7	− 8·7	Cu., low altitude.
21 7	Cu.-Nb.	345	8·2	+ 2·2	− 7·8	Small low Cu.-Nb.
13	Cu.	310	8·2	+ 6·2	− 5·2	Dense A.-St. layer above.
23 9	Ci.-Cu.	288	4·5	+ 4·3	− 1·5	Sheets of waved to globular Ci.-Cu.: ◐ and strong irisation.
13	Cu.	274	4·4	+ 4·4	− 0·3	
18	Ci.	277	5·0	+ 4·9	− 0·5	Ci. to Ci.-Cu., "speckle-cloud."
18	Cu.	273	6·5	+ 6·5	− 0·4	
24 7	Ci.-St.	270	4·5	+ 4·5	0·0	Ci. to Ci.-St. in coarse patches.
13	A.-Cu.	264	4·2	+ 4·2	+ 0·3	Ci.-Cu. to A.-Cu., forming from uniform cloud sheet.
25 7	A.-St.	269	3·6	+ 3·6	0·0	Diffuse A.-St., opening into Ci.-Cu.
13	Ci.-St.	245	2·0	+ 1·8	+ 0·8	Ci. to floccular Ci.-St.: ⊕
26 7	Fr.-St.	1	7·3	0·0	− 7·3	Low broken stratus, becoming cumuliform later.
13	Cu.	10	6·2	− 1·2	− 6·0	
27 13	St.-Cu.	328	5·0	+ 2·6	− 4·3	Fused sheet of low St.-Cu.
18	Ci.	10	3·1	− 0·5	− 3·0	Fine true Ci., ⊕.
28 13	Cu.	309	12·5	+ 9·5	− 8·0	Low Cu.
29 7	St.-Cuf.	335	20·0	+ 8·4	−18·2	St. in cumuliform masses.
13	St.-Cuf.	314	16·0	+11·3	−11·3	St. in cumuliform masses.
30 18	Cu.	320	7·4	+ 4·7	− 5·7	Cu. in contact with sheet of St.-Cu. above it.

10. AURORA.

None Reported.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

DAILY VALUES.—*Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology.*

Eleventh YEAR.—No. 7. JULY, 1921.] Units based on the C.G.S. System. [*Price* 1*s.* 6*d. net.*

1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time. h.	m.	11·30 h. to 12·30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p_o}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h.	m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	7·3	44	1609	39	80	13	30	50	7·5	45	..	..	..	8·6	50	..	..	..	..	9·3	56
2	11·1	67	1912	47	88	11	30	88	10·7	65	79	70	Clear	7·2	42	..	..	..	..	11·8	71
3	6·3	38	1474	36	85	10	55	53	4·8	29	37	33	Hazy	8·2	47	..	..	..	..	*x*15·6	94
4	2·7	16	795	19	78	14	30	34	6·0	37	..	..	..	8·7	51	..	..	..	..	15·0	91
5	10·5	64	2025	50	84	11	30	84	10·5	64	68	60	Clear	10·0	58	..	..	..	..	11·9	72
6	9·2	56	1880	46	75	12	20	75	8·2	50	..	..	..	0·0	0	..	..	..	..	6·1	37
7	3·5	21	1151	28	80	11	15	57	3·4	21	..	..	..	11·7	68	..	..	..	..	1·0	6
8	8·1	49	1499	37	66	12	30	66	8·8	54	..	..	..	0·5	3	..	..	..	..	6·3	38
9	14·0	86	2156	53	78	11	30	78	14·1	86	59	51	Hazy	7·3	42	..	..	..	..	13·0	79
10	*x*14·2	87	2091	52	76	12	00	76	14·3	88	80	70	Clear	*x*14·5	85	..	..	..	..	15·1	92
11	*x*14·2	87	2308	58	78	12	17	78	*x*14·5	89	80	70	Clear	5·8	34	..	..	..	..	14·7	90
12	13·5	83	2122	54	76	12	45	75	13·9	86	..	..	..	3·4	20	..	..	..	..	14·6	89
13	12·9	80	2070	52	73	12	15	73	13·2	81	57	50	Hazy	11·8	70	..	..	..	..	4·5	28
14	6·3	39	1325	33	73	11	44	73	5·3	33	..	..	..	7·3	43	..	..	..	..	6·8	42
15	6·9	43	999	25	71	12	42	67	6·0	37	50	43	Hazy	3·6	21	..	..	..	..	2·2	13
16	8·4	52	1663	42	78	13	20	67	9·3	58	..	..	..	2·1	13	..	..	..	..	4·2	26
17	2·8	17	1467	37	74	14	20	56	2·2	14	..	..	..	7·6	45	..	..	..	..	6·0	37
18	11·6	72	2258	57	73	12	20	73	12·4	77	69	59	Clear	7·8	47	..	..	..	..	11·4	70
19	11·7	73	2036	52	86	11	32	86	11·2	70	..	..	..	0·1	1	..	..	..	..	0·0	0
20	8·9	56	1869	48	*x*89	12	50	85	10·4	65	77	66	Clear	8·4	51	..	..	..	..	6·8	42
21	10·2	64	*x*2312	60	84	11	20	82	11·4	72	80	69	Clear	0·0	0	..	..	..	..	2·9	18
22	5·1	32	1821	47	83	10	55	82	5·8	36	..	..	..	0·5	3	..	..	..	..	0·1	1
23	3·0	19	1196	31	86	11	10	85	3·7	23	..	..	..	1·5	9	..	..	..	..	1·1	7
24	11·5	73	2195	57	81	11	10	80	11·5	73	..	..	..	3·9	24	..	..	..	..	3·9	25
25	4·7	30	1218	32	73	10	05	58	4·1	26	..	..	..	0·0	0	..	..	..	..	6·9	44
26	3·3	21	1234	33	73	12	20	73	3·4	22	..	..	..	4·4	30	..	..	..	..	2·0	13
27	1·2	8	1079	28	79	11	45	79	1·8	12	..	..	..	2·2	14	..	..	..	..	0·1	1
28	10·4	67	1774	47	73	11	50	73	9·6	62	46	38	Hazy	0·0	0	..	..	..	..	0·0	0
29	0·8	5	536	14	88	11	30	88	0·9	6	..	..	..	0·1	1	..	..	..	..	5·6	36
30	12·0	77	1948	52	80	10	59	79	11·9	77	..	..	..	0·6	4	..	..	..	..	5·4	35
31	6·7	43	1321	36	72	10	45	55	5·7	37	..	..	..	2·9	18	..	..	..	..	1·2	8
Means.	8·16	51	1656	42	78	..		72	8·27	51	..	..	..	4·86	29	..	..	..	..	6·63	41
Normals.	5·84	37	1306	33	..	..		..	6·48	41	..	..	..	4·95	29	..	..	..	..	5·13	32
	←35 years→		←8 years→						←35 years→					←10 years→						←35 years→	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day.	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	mb.	*a* 200+	*a* 200+	*a* 200+	*a* 200+	millibar.		%	%	°	m/s.	°	m/s.	Tenths of Sky covered		mm.	*a* 200+		
1	1022·8	1024·0	87·4	85·5	89·1	83·8	11·9	11·1	73	77	340	6	340	5	8	6	—	77·4	Fine ⊅ *n.*; Fair to fine.	
2	1024·7	1025·5	88·0	86·9	90·1	83·1	11·8	12·3	70	78	345	4	..	1	7	3	—	77·9	Fair early; Very fine day.	
3	1025·1	1023·1	90·7	88·3	92·5	82·7	12·9	12·7	64	74	..	1	..	0	1	1	—	*n*75·8	⊅ at first; Very fine dry day.	
4	1021·8	1022·6	91·5	88·8	94·9	*n*81·4	14·4	14·9	68	84	..	1	195	3	0	2 ≡⁰	—	76·9	Very fine.	
5	1023·2	1023·0	92·5	90·3	95·0	84·1	16·2	16·2	72	83	155	4	175	2	3 ≡⁰	7 ≡⁰	—	79·2	Fine dry day with ∞.	5 19° 4′·7
6	1023·8	1024·0	91·8	90·8	95·0	88·6	16·1	18·0	75	89	165	2	260	2	10 ≡⁰	9 ≡⁰	—	82·9	0. to c. ∞.	
7	1024·0	1023·4	93·4	91·6	95·6	89·7	18·0	19·7	76	93	..	1	..	1	9	10 ●⁰	0·4	85·9	0. to c. *a and p.*; d. *n.*	
8	1023·0	1023·1	92·7	92·2	95·5	91·3	20·5	19·8	91	90	230	2	..	1	10	10	0·8	90·2	●⁰ ≡⁰ early; Fine day.	
9	1022·9	1022·3	95·0	92·0	97·2	87·9	18·6	17·6	71	81	175	4	180	3	5	0 ≡⁰	—	86·3	Very fine day with ∞.	
10	1020·7	1019·9	95·1	91·7	98·2	85·4	16·6	16·0	63	75	170	6	185	3	0 ≡⁰	0 ≡⁰	—	81·2	Very fine dry day; ∞.	
11	1019·7	1018·6	93·5	91·8	97·6	84·7	17·0	16·3	71	76	..	1	..	0	2 ≡⁰	1 ≡⁰	—	80·3	Very fine dry day; ∞.	11 1784Iv 19° 5′·9 68° 5′·1
12	1016·1	1014·1	98·1	94·9	*x*99·9	87·0	14·2	13·5	45	52	115	4	145	5	0 ≡⁰	3 ≡⁰	—	82·5	Very fine dry day; ∞.	
13	1010·4	1008·3	96·4	94·1	98·6	89·4	15·1	18·3	53	74	55	3	160	4	7 ≡⁰	8 ≡⁰	0·1	83·0	Fair day ∞; p⁰. at times.	
14	1008·6	1008·6	94·1	92·4	95·1	90·8	16·4	17·6	66	79	145	6	140	4	6	7	1·5	87·7	Fair day ∞; p⁰. at times.	
15	1005·4	999·1	91·8	91·2	93·5	89·7	17·0	17·6	79	85	130	8	140	9	8	10 ●	14·9	87·3	p. at first; c. to ●⁰. day.	
16	1002·8	1006·5	92·2	91·7	94·4	89·7	20·1	16·0	92	75	175	5	125	4	9	7	5·9	87·6	p. early; ● *a.*; c. to o. *p. and n.*	
17	1010·9	1016·6	92·9	91·9	95·4	88·6	16·8	19·1	73	88	115	2	..	1	8	3	0·2	86·9	Fine *a.*; Fair to fine, *p. and n.*	
18	1020·3	1021·7	92·0	91·8	95·8	86·3	19·8	18·3	91	85	..	1	305	2	6 ≡⁰	2	—	83·7	Fair to fine day.	
19	1021·8	1022·0	92·0	91·4	94·5	88·4	20·2	19·3	93	92	200	3	275	3	10 ≡⁰	10	0·3	85·6	o. with d⁰.	
20	1025·5	1029·6	90·8	89·6	92·2	88·8	14·3	13·1	71	70	345	8	5	4	7	9	0·7	88·7	Fair dry day.	
21	1028·7	1022·0	90·6	90·7	92·7	88·3	12·8	15·0	64	75	255	3	220	4	9	9	—	86·3	o. to c.	
22	1015·3	1008·8	91·9	91·8	93·9	90·6	19·7	20·2	91	94	235	9	230	11	10	10	2·7	87·6	●⁰ early; o. to d. day.	
23	1005·3	1010·1	91·6	87·6	93·2	87·1	20·6	11·5	97	70	225	9	345	6	10	7	2·1	90·2	●⁰ to d. *a.*; Fair later.	
24	1012·5	1002·1	90·7	91·0	91·6	84·8	13·9	19·0	69	93	210	3	215	8	5	7	15·4	80·8	Fair, *a.*; ●² *p.*	17844y
25	1000·7	1002·9	89·2	87·7	92·2	87·3	15·7	15·2	86	92	200	6	225	9	9	8 p.	3·5	86·8	p. *a.*; Fair, *p.*; p. *n.*	25 19° 4′·4 68° 0′·3
26	1010·0	1013·7	89·0	86·8	89·9	84·6	13·3	12·5	74	80	240	9	240	2	7	9	2·0	83·6	p. *a.*; c. to o.; *p. and n.*	
27	1012·4	1007·6	88·6	85·9	90·2	84·1	13·8	13·1	79	89	..	1	65	7	8	10 ●	4·6	81·3	o. to c. *a.*; ● *p.*	26 19° 4′·9
28	999·2	1001·9	86·2	86·8	87·2	85·4	13·3	12·6	88	81	35	8	245	13	10	10	*x*20·7	84·0	● *a.*; p. to ● *p.*	
29	1009·4	1009·3	87·4	88·1	90·7	85·9	11·6	15·5	71	91	320	5	160	8	9	10 ●	3·9	82·8	o. to c.; *a. and p.*; ● *n.*	
30	1003·2	1007·3	89·0	88·0	92·2	87·7	17·7	15·4	98	91	180	5	210	3	10 ●	3 ≡⁰	14·6	86·3	● to p. *a.*; Fair, *p. and n.*	
31	1006·1	1006·6	90·4	90·4	92·6	88·7	19·3	19·1	98	97	200	6	185	5	10 ●⁰≡⁰	10	10·7	84·4	≡⁰. with p. *a.*; o. to c. *p.*; ● *n.*	
Means.	1015·4	1015·1	91·5	90·1	93·8	87·0	16·1	16·0	76	82	..	4·4	..	4·3	6·9	6·5	105·0	83·9	Monthly Totals or Means	17843y 19° 5′·0 68° 2′·7
Normals	1014·0	1014·5	88·3	87·4	90·7	85·1	14·5	14·2	83	86	..	4·6	..	4·0	..	..	99·9	..	Normals	
	←45 years→						←30 years→				←35 years→						45years			

* By Campbell-Stokes Sunshine Recorder.

x denotes the maximum and *n* the minimum value in the column.

(7466) Wt 134/6890/P27 500 9/22 Harrow G 69/7

3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind—Veer from North in degrees and Speed in metres per second.				Cloud Amount Weather and Visibility				Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	Remarks.
					Max.	Min.	Vapour Pressure.		Percentage												
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.		21 h.		9 h.		21 h.				
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%	°	m/s.	°	m/s					mm.	a 200+	
1	1022·1	1021·0	88·9	89·8	94·8	*n*80·7	11·1	13·2	62	70	180	2	270	3	2	H	7	K	—	*n*75·2	≡⁰, ☾; Fine to cloudy.
2	1023·0	1021·8	89·1	91·1	96·5	82·3	10·7	12·8	59	62	355	2	90	3	1	J	2	I	—	76·3	☾☾, fine *a.*; Fine to cloudy *p.*
3	1021·9	1021·9	92·2	89·6	95·9	85·2	12·1	12·4	55	66	85	2	95	2	7	H	7	K	—	81·4	☾☾, ∞⁰. early; Fine to cloudy.
4	1023·0	1023·6	85·5	87·9	90·6	83·1	10·4	10·3	72	61	5	4	25	4	10	K	9	J	—	81·2	*o. a.*; Fine, *p.*
5	1025·6	1024·3	85·8	89·8	96·3	84·1	10·2	12·0	69	63	30	2	175	4	10	J	1	J	—	81·7	o. till 9h.; Fine later.
6	1024·2	1020·3	91·9	93·8	99·0	83·7	12·5	12·4	58	51	200	2	215	5	6	I	9	J	—	77·6	☾; Fine to o.; ∞⁰.
7	1021·7	1021·9	92·3	92·9	96·6	88·8	14·7	14·5	66	63	340	3	40	2	7	H	3	I	0·5	87·2	● early; o. to fine.
8	1023·1	1023·1	94·4	92·5	100·1	87·5	15·4	13·7	61	61	..	1	..	1	5	H	1	I	—	82·9	≡⁰, ☾; Fine to cloudy.
9	1024·8	1023·6	95·3	94·4	101·7	85·9	13·0	13·1	49	52	90	2	90	4	0	G	1	J	—	80·9	∞ early; Very fine and warm.
10	1023·3	1020·0	95·9	97·7	*x*104·8	85·9	13·8	14·5	50	47	..	1	220	2	0	H	0	H	—	80·1	≡, ☾; Very fine and hot; ∞⁰.
11	1018·7	1017·1	97·4	98·9	104·7	88·2	14·9	12·9	49	39	235	2	325	2	0	H	0	H	—	81·0	∞ early; Fine, hot.
12	1018·4	1016·3	95·7	94·8	102·8	89·7	14·7	14·5	54	56	345	2	75	4	0	G	1	H	—	86·5	Very fine and hot; ∞.
13	1016·2	1015·5	95·9	90·7	100·2	88·2	14·9	16·5	54	82	80	4	80	9	1	H	3	I	—	83·0	Very fine; warm; ∞.
14	1016·9	1016·9	93·8	89·8	97·0	88·8	12·4	13·6	51	72	95	5	90	6	6	J	6	H	*x*1·3	87·2	Mostly c. to o.; ●⁰. *p.*
15	1015·8	1012·8	94·5	91·5	98·0	88·5	13·2	14·0	52	66	85	6	75	6	3	K	8	H	—	86·9	Fine early; c. to o.; ●⁰. *p.*
16	1012·9	1014·4	94·0	94·0	100·9	88·6	17·0	16·7	69	68	..	1	225	2	1	H	4	K	—	84·9	≡ early; c. to fine; ∞⁰.
17	1015·5	1014·3	95·2	93·1	101·4	88·2	15·7	19·1	59	82	..	1	..	0	8	H	5	I	1·0	83·0	c. to o.; T and shower *p.*
18	1015·8	1016·3	95·9	96·9	102·0	89·4	13·0	14·7	47	50	65	2	..	1	3	H	4	H	—	86·2	∞ early; Fine; u. 21 h.
19	1018·4	1017·9	96·2	99·6	104·0	89·1	12·4	15·5	44	45	5	3	330	2	1	J	7	J	—	83·8	Mainly fine; Very warm.
20	1019·6	1022·7	98·5	93·7	102·1	89·3	17·8	13·1	55	54	265	3	340	5	5	K	4	I	—	..	Fair to fine; Warm.
21	1026·0	1022·3	90·5	91·3	96·3	86·2	9·9	12·1	50	58	335	4	..	0	1	K	2	K	—	79·9	Fine to cloudy.
22	1017·5	1011·8	92·0	93·9	98·4	86·8	13·1	16·6	60	68	230	6	230	*6*	7	K	7	K	—	80·8	Cloudy to o.; ●⁰. 20 h. 30 m.
23	1008·6	1007·4	94·9	93·5	99·8	92·5	18·0	18·4	69	77	225	*6*	220	7	10	L	10	I	—	91·4	☾ early; c. to o.; Warm.
24	1013·2	1013·2	91·0	93·1	99·8	89·2	11·2	13·7	55	59	320	2	210	3	7	L	9	L	—	88·9	Mainly fine; o. after 18 h.; ☾ *p.*
25	1011·6	1011·5	94·9	93·6	99·8	89·2	18·2	17·5	70	73	215	7	215	5	10	L	1	K	—	86·3	o. mainly; Fine after 16 h.; ☾ *p.*
26	1013·1	1016·2	89·9	91·6	97·5	87·3	17·2	13·6	90	64	255	4	..	1	10	●⁰ G	1	K	0·5	88·0	●⁰ d. 8–9 h. and 13 h.; o. to fine.
27	1016·7	1010·7	91·8	93·0	98·2	86·3	11·4	12·4	53	57	230	2	95	4	9	H	10	J	—	80·5	Overcast to cloudy.
28	1005·1	998·0	95·0	94·8	102·1	88·5	15·7	16·8	60	65	95	2	190	8	0	H	9	K	—	83·0	b. to o. ⁄ and (gust) 17 h.; ●⁰ 22 h.
29	994·2	1013·3	91·0	89·9	94·2	87·9	16·4	11·6	80	63	260	4	300	3	9	K	10	K	0·4	87·0	● early; o. to c.; ●⁰ *p.*
30	1017·6	1016·0	90·9	90·5	96·3	83·7	12·6	12·1	62	61	210	3	215	3	5	K	7	L	—	79·0	Fine day.
31	1015·2	1015·0	94·3	92·5	97·6	88·1	13·7	15·1	58	67	210	6	205	3	9	K	1	J	—	85·3	o. till 15 h.; Fine after.
Means	1017·4	1016·8	93·1	92·9	99·0	87·3	13·8	14·2	59	62	3·0		3·5		4·9		4·8		3·7	83·2†	Monthly Totals or Means.
Normal	1014·7	1014·5	90·1	89·5	94·7	85·4	13·7	14·1	71	76	3·4		2·4		..		..		60·1	..	Normals.
	45 years.						30 years.				35 years.								45 yrs.		

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer. h_a=15 m.

1	994·6	995·4	83·8	83·6	91·3	79·5	9·1	9·5	71	75	..	1	10	2	10	K	4	K	—	80·2	o. to cy. *a.*; cy. to by. *p.*; by to bc. *n.*
2	995·3	995·1	89·5	86·8	93·1	*n*76·0	12·7	12·8	68	82	140	2	..	0	1	J	6	K	—	73·5	b. to c., *a.*; o., *p.*; o. to bc., *n.*
3	996·6	997·3	84·2	83·2	92·0	80·8	10·9	9·9	83	80	60	3	40	2	10	J	2	J	—	80·0	o., *a.*; o. to bc., *p.*; bc. to b., *n.*
4	997·8	997·1	83·2	83·8	91·6	79·3	10·1	9·5	82	74	70	2	..	1	10	J	1	K	—	79·3	o. to b., *a.*; by. to b., *p. and n.*
5	996·8	995·3	88·7	89·0	94·0	76·9	13·8	12·6	72	70	230	3	..	1	8	I	10	J	—	*n*72·9	b. to bc.; ⊕8 h.; c. ∞ *a.*; bcy. ∞ to o., *p. and n.*
6	994·2	993·5	88·4	87·8	90·5	85·3	14·8	14·5	85	87	200	3	..	1	10	H	7	I	2·3	84·1	o. early; d⁰ ≡⁰ 7 h.; o. ≡⁰ *a.*; ● ≡⁰ *p.*; o. to c. *n.*
7	994·8	994·6	90·7	88·7	95·0	82·0	14·2	14·8	71	84	..	1	..	0	8	K	2	K	—	79·7	b. to c., *a.*; bc. to c., *p.*; bc. to b., *n.*
8	995·0	996·4	89·8	91·5	94·3	87·0	16·9	17·6	89	83	180	3	..	0	10	I	10	K	—	83·0	b. early; d⁰ ≡⁰ 7 h.; o. all day.
9	997·1	995·5	94·0	89·6	98·3	86·0	18·0	15·2	73	81	..	1	..	0	9	J	2	K	—	86·7	o., *a.*; o. to bcy., *p.*; bcy. to b., *n.*
10	994·5	991·5	94·5	90·2	*x*99·2	84·3	15·0	14·6	59	75	200	2	..	0	1	J	0	J	—	80·0	b. to bcy. ∞ *a.*; bcy. ∞ to b. ∞, *p. and n.*
11	990·6	992·4	88·9	84·4	93·0	79·8	14·1	9·9	79	74	260	2	..	1	10	I	4	K	—	80·2	bc. early; o. ≡ to o. ∞, ⊕ *a.*; cy., *p.*; bc., *n.*
12	992·5	991·0	84·3	85·9	93·0	77·3	11·5	11·2	87	76	..	0	360	2	9	K	7	L	—	74·1	bc. early; op⁰ 8½h.; o., *a.*; bcy. to c., *p. and n.*
13	991·3	990·3	88·0	85·0	94·8	79·6	12·5	11·0	74	79	..	1	20	4	10	J	0	I	—	75·0	b. to o., *a.*; bcy. to b. ∞ *p.*; b., *n.*
14	990·1	990·5	88·6	86·6	93·7	81·2	11·8	12·8	67	83	60	3	..	1	7	J	10	I	0·1	79·5	b. to bc.; ⊕ 7 h.; cy., *a.*; ●⁰ ≡⁰ *p.*; o. to op⁰ *n.*
15	989·8	987·9	87·3	88·2	95·4	84·0	14·2	13·5	88	79	40	4	30	2	8	I	10	I	1·5	83·2	● 3 h.–7 h.; o. to c., *a. and p.*; o., *n.*
16	986·6	987·3	86·4	87·9	93·5	84·0	13·1	15·6	86	93	50	2	20	2	10	J	10	● G	8·8	83·1	op⁰ to ● till 9 h.; o., *a. and p.*; ◹ *n.*
17	989·2	991·0	91·4	89·7	98·5	85·7	17·6	15·3	84	81	..	1	..	0	10	I	2	I	—	84·5	o., *a.*; o. to bc., *p.*; bc. to b., *n.*
18	992·2	992·1	95·7	92·7	98·5	85·0	16·1	16·4	59	72	..	1	..	0	4	J	10	J	—	81·9	b. to bc., *a.*; bcy. to o., *p.*; o., *n.*
19	991·9	990·4	90·9	89·6	92·9	88·5	15·2	18·4	75	98	270	2	210	3	10	J	10	E	0·1	87·7	o. 1 h.; d⁰ 7 h.; o., *a. and p.*; p⁰ 20h.; o. ≡⋮⁰ *n.*
20	990·5	997·0	90·4	84·5	92·0	81·8	14·6	8·9	74	66	290	8	270	3	8	J	6	K	0·2	86·4	●⁰ 6 h.; c. to bcy., *a. and p.*; bc., *n.*
21	996·2	989·9	86·1	86·1	88·5	82·0	11·5	13·2	77	88	250	6	210	6	10	J	8	J	0·4	79·6	bc. to o., *a.*; o., *p.*; op. to o., *n.*
22	979·7	974·6	88·9	84·3	90·0	83·7	13·8	11·1	77	84	250	11	270	7	9	J	10	●⁰ J	*x*23·8	84·3	● ≡⁰ till 6 h.; o., *a.*; ● ≡⁰, *p. and n.*
23	976·0	975·1	86·1	82·1	88·8	80·2	10·4	9·0	69	78	270	3	340	2	9	J	8	I	1·2	82·0	d⁰ 1 h.; c. to o., *a.*; ●⁰ 15 h.–18 h.; c., *n.*
24	980·6	982·4	85·0	85·8	89·0	79·0	9·5	13·0	68	89	240	8	210	5	6	J	10 p.	I	0·7	76·4	bc. to o., *a.*; o., *p.*; op⁰ *n.*; ● after 22h.
25	973·8	974·1	88·5	87·5	89·7	83·6	17·3	15·2	99	93	200	10	200	10	10	C	10	I	17·3	82·8	Persistent ● ≡⁰ till 9 h.; d. ≡⁰ to ≡⋮ *a. and p.*; o., *n.*
26	976·0	982·3	86·5	85·0	89·5	83·0	11·3	11·5	73	83	230	14	230	7	9	J	9 p.	J	4·6	84·0	o. to c. early; op⁰ *a.*; ● *p.*; o. to c.; p⁰ 20½h. *n.*
27	986·7	985·2	84·8	84·8	89·1	80·9	10·9	11·7	79	85	210	4	..	0	10	J	10	K	0·1	79·0	c. to o., *a.*; o., *p. and n.*
28	979·8	973·7	83·3	85·0	86·4	82·2	11·8	12·0	95	86	50	5	40	5	10	●⁰ H	10	I	13·9	81·9	● o h.–11 h.; then o., *a. and p.*; o. to ●⁰ *n.*
29	971·0	983·9	82·8	83·0	86·2	81·9	11·3	10·6	94	87	30	10	..	0	10	● I	10	J	12·0	82·6	● till 10½ h.; then o. all day.
30	985·3	980·1	86·5	86·9	88·1	77·6	12·6	15·3	82	97	160	6	200	11	10	J	10	●⁰ G	14·5	75·0	b. 1 h.; o., *a.*; ● ≡⁰ *p.*; ● ≡⁰ to ≡⋮ *n.*
31	981·4	980·6	88·0	88·1	91·4	85·4	12·3	17·0	73	100	220	6	200	6	7	J	10	C	2·9	84·7	≡⋮ to ● ≡⁰ early; o., *a. and p.*; d ≡⋮⁰ to ≡⋮ ²*n*
Means	988·6	988·5	87·9	86·7	92·3	82·0	13·2	13·0	78	83	4·2		2·7		8·5		7·0		104·4	80·9	Monthly Totals or Means.
Normal 1911-1920	986·5	986·7	86·5	84·8	90·1	81·0	12·1	11·9	78	86	4·6		3·2		..		..		90·0	..	Normals.

Temperatures at or below the normal freezing point of water are printed in small type. *x* denotes the maximum, and *n* the minimum, value in the column.
† Mean for 30 days.

5. GEOPHYSICS:—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force. Horizontal Comp't.		Declination.		Inclination.		Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}.		Air-Earth Current. × 10^{16}.	Potential Gradient, Volts per metre. Factor 2·26.			
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			+.	−.		3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			About 15 h.		About 15 h.				
													Coulomb.		Amp/cm².	v/m.	v/m.	v/m.	v/m.
1	89·9	87·2	181	181	..	..	..	..	..	..	0	0	0·41	0·41	0·45	180	195	70	225
2	90·0	87·2	180	..	..	..	..	..	..	..	0	0	..	..	..	100	125	85	140
3	91·0	87·3	179	..	..	..	..	..	..	..	0	0	..	..	..	70	180	85	110
4	90·3	87·2	*	..	..	..	..	..	..	..	1	1	1·17	1·40	1·05	40	180	195	225
5	90·0	87·4	*	..	..	..	..	..	..	..	0	1	1·01	0·59	0·60	110	225	155	140
6	91·0	87·5	*	..	..	..	14 30	14 28·3	..	..	1	0	0·31	0·34	0·25	85	140	55	100
7	91·6	87·6	*	..	11 8	18378	..	..	14 45	66 57·3	1	1	0·68	0·41	1·20	−15	195	125	295
8	91·7	87·7	*	..	..	..	..	..	..	..	1	0	0·59	0·29	0·60	40	225	110	55
9	92·0	87·7	177	..	..	..	..	..	..	..	1	0	..	..	..	55	350	180	195
10	92·8	87·8	177	..	..	..	..	..	..	..	0	0	..	..	..	140	235	100	100
11	93·5	88·0	177	..	..	..	..	..	..	..	0	0	1·17	..	0·60	100	165	100	70
12	94·2	88·1	177	..	..	..	..	..	..	..	1	0	..	0·67	0·75	125	305	140	365
13	94·3	88·2	176	..	..	..	..	..	..	..	0	0	0·74	..	1·00	110	280	445	280
14	94·0	88·4	176	..	11 1	18370	13 28	14 26·0	14 36	66 56·9	1	0	..	..	..	..	295	140	365
15	93·0	88·5	176	..	..	..	..	..	..	..	1	0	..	0·40	0·95	250	335	335	420
16	92·6	88·7	175	..	..	..	..	..	..	..	1	0	..	..	..	210	250	110	180
17	93·2	88·9	175	..	..	..	..	..	..	..	0	1	..	..	..	165	375	140	70
18	93·2	88·7	174	..	..	..	14 25	14 27·3	..	..	0	1	0·81	..	1·20	55	280	140	280
19	94·0	88·9	173	..	..	..	..	..	..	..	1	1	..	0·58	0·35	55	125	100	100
20	95·0	89·0	173	..	..	..	..	..	..	..	0	0	1·01	..	0·65	125	155	85	155
21	94·4	89·0	172	..	11 1	18372	14 27	14 25·4	14 41	66 56·7	0	0	..	0·34	0·35	70	165	110	85
22	94·0	89·1	172	..	..	..	..	..	..	..	0	0	0·85	..	0·60	110	140	100	110
23	94·3	89·2	171	..	..	..	..	..	..	..	1	0	..	..	..	55	70	70	155
24	94·4	89·2	171	..	..	..	..	..	..	..	0	0	..	..	..	85	140	110	165
25	94·7	89·4	170	..	..	..	..	..	..	..	0	0	..	1·24	0·70	155	110	110	180
26	93·9	89·4	170	..	..	..	..	..	..	..	1	0	1·04	..	1·35?	155	210	195?	225?
27	93·0	89·4	169	..	..	..	..	..	..	..	0	0	..	0·56	0·40?	195?	430?	85?	305?
28	93·3	89·6	169	..	10 53	18380	13 34	14 23·3	14 30	66 56·3	0	0	0·76	..	0·50?	210?	375?	250?	225?
29	93·5	89·5	168	..	..	..	..	..	..	..	1	0	..	..	..	180?	250?	165?	250?
30	92·2	89·6	168	..	..	..	..	..	..	..	0	0	..	..	..	225?	250?	250?	320?
31	92·9	89·7	167	167	..	..	..	..	..	..	0	0	..	..	..	210?	255?	180?	235?
M.	92·8	88·5	173	..	..	..	..	..	..	..	0·42	0·19	0·81	0·60	0·70	104	206	136	174
No. of days used	31	31	26	..	..	..	..	..	..	..	31	31	13	12	16	24	24	24	24

Note.—Unsatisfactory behaviour of the electrograph subsequent to the morning of the 26th introduced uncertainty into the values of the potential gradient and air-earth current which are queried. These values were omitted when calculating the monthly means.

6. GEOPHYSICS:—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force. North Component. Maximum. 15000 γ +.			Minimum. 15000 γ +.		Range.	West Component. Maximum. 4000 γ +.			Minimum. 4000 γ +.		Range.	Vertical Component. Maximum. 44000 γ +.			Minimum. 44000 γ +.		Range.	Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre. Factor ·5.97			
	h m	γ		γ	h m	γ	h m	γ		h m	γ		h m	γ		h m	γ				3 h.	9 h.	15 h.	21 h.
1	18 42	1043		967	11 54	76	15 24	834	748	7 18	86		19 20	1077	1056	13 10	21		0	1 *a*	v/m	v/m	v/m	v/m.
2	17 59	1044		988	11 19	56	13 50	802	743	8 50	59		16 8	1076	1048	12 25	28		0	0 *a*	60	105	115	175
3	21 12	1044		983	14 42	61	15 22	823	754	6 11	69		19 0	1083	1045	11 24	38		1	0 *a*	220	165	110	140
4	20 30	1069		979	13 14	90	15 59	818	728	7 43	90		18 28	1083	1050	2 40	33		1	0 *a*	75	120	135	195
5	18 5	1044		977	11 40	67	14 15	818	754	8 17	64		19 10	1074	1048	10 45	26		0	0 *a*	80	85	140	235
6	22 12	1069		986	10 32	83	14 6	837	747	8 32	90		20 34	1073	1058	11 45	*n*15		2	1 *a*	115	290	150	260
7	18 39	1061		947	13 10	114	15 3	*x*849	746	4 8	*x*103		17 34	*x*1108	1052	10 43	56		2	0 *a*	100	300	115	275
8	21 20	1078		*n*942	10 10	*x*136	12 59	824	738	21 11	86		17 30	1096	1058	12 20	38		1	0 *a*	145	150	125	450
9	18 58	*x*1110		977	12 59	133	15 0	823	732	18 48	91		18 50	1106	1026	5 13	80		2	0 *a*	225	85	90	225
10	22 0	1045		970	12 4	75	15 41	796	743	5 50	*n*53		18 50	1077	1054	11 55	23		0	0 *a*	70	110	110	185
11	19 34	1032		983	11 11	*n*49	17 5	801	743	8 44	58		18 16	1074	1053	11 55	21		0	0 *a*	150	195	140	250
12	17 43	1052		969	14 30	83	13 34, 13 37	820	748	8 41	72		18 6	1092	1054	12 0	38		1	1 *b*	205	85	205	330
13	19 19	1051		986	10 30	65	13 51	826	743	7 25	83		19 13	1102	1061	12 55, 13 10	41		1	0 *a*	125	−40	115	115
14	18 39	1043		983	11 0	60	16 26	807	742	8 10	65		17 20	1080	1050	4 0	30		1	1 *a*	95	145	180	155
15	18 17	1062		973	11 37	89	13 59	813	*n*721	6 0	92		18 15	1081	1018	2 3	63		1	1 *b*	85	180	75	150
16	21 21	1056		954	12 8	102	2 23	818	736	6 0	82		19 43	1090	*n*1005	2 43	*x*85		1	2 *b*	35	85	140	250
17	18 50	1039		979	10 23, 12 0	60	14 23	807	744	7 51	63		21 0	1081	1041	11 45	40		0	0 *a*	−145	z ±	150	−5
18	20 10	1033		972	11 13	61	14 44	816	738	8 0, 8 30	78		17 50	1083	1059	11 38	24		0	0 *a*	*	300	115	200
19	21 40	1081		972	11 40	109	13 30	817	748	5 3, 5 48	69		19 30	1078	1056	11 25	22		1	0 *a*	90	145	85	115
20	15 18	1034		977	9 11	57	14 12	826	740	7 50	86		16 32	1079	1058	12 40	21		1	0 *a*	20	140	80	35
21	19 52	1030		977	11 38, 11 50	53	13 5	812	744	6 2	68		16 45	1072	1055	11 45	17		0	*	70	70	115	100
22	22 9	1034		968	11 58	66	13 51	816	737	7 5	79		18 0	1080	1052	3 23	28		0	*	125	45	*	*
23	16 40	1047		967	13 2	80	12 29	811	737	2 10	74		17 11	1083	1040	1 30	43		1	*	*	*	*	*
24	2 38	1046		984	11 33	62	14 34	800	740	9 12	60		17 40	1070	1037	3 5	33		0	1 *a*	*	*	145	255
25	21 3	1046		976	10 55	70	16 33	809	747	8 39	62		20 48	1069	1049	12 20	20		0	2 *a*	255	125	115	120
26	21 3	1080		986	11 45	94	15 39	820	742	21 18	78		16 50	1080	1052	12 30	28		1	2 *c*	−20	285	10	120
27	19 11	1036		981	11 22	55	13 25	837	747	6 0, 6 11	90		18 31	1073	1049	11 5	24		0	1 *a*	150	125	z ±	15
28	22 6	1066		983	10 44	83	12 41	805	736	7 2	69		19 57	1074	1049	12 38, 13 27	25		1	2 *c*	180	125	125	140
29	22 11	1059		963	13 52	96	13 37	816	738	23 24	78		18 45	1084	1035	24 0	49		1	2 *c*	15	290	145	85
30	19 20	1053		967	9 21	86	14 13	810	731	8 10	79		19 12	1084	1031	0 25	53		1	2 *b*	110	−600	115	180
31	19 13	1031		982	9 57	*n*49	14 23	806	745	6 59	61		20 51	1075	1059	12 0	16		0	1 *a*	405	150	115	25
M.	..	1052		974	..	78	..	817	741	..	75		..	1082	1047	..	35		0·68	0·65	70	145	70	235
No. of days used	..	31		31	..	31	..	31	31	..	31		..	31	31	..	31		31	28	119	117	117	182
																					25	25	25	25

* Insulation faulty.

x denotes the maximum and *n* the minimum value in the column. Potential gradient is reckoned as positive if the potential increases upwards. For indeterminate potential gradient the following notation is used: *a*+ Indeterminate, positive value; *a*− Indeterminate, negative value; *z*± Indeterminate in magnitude and sign.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	..	1·7	..	2·0	..	2·9	1·6	..	..	2·0	1·1	..	..	1·4	0·8	..	8	5 50
2	..	Ca	lm	..	..	1·4	0·8	..	..	4·2	2·4	..	..	4·8	0·9	..	9	23 50
3	..	4·9	..	..	..	3·7	1·3	..	..	2·4	0·9	..	..	2·0	1·7	..	10	0 15
4	..	1·6	..	..	..	1·9	..	3·4	..	4·3	..	3·7	..	2·0	..	0·3	8	13 40
5	..	Ca	lm	..	3·8	..	0·7	..	3·0	..	3·5	..	1·4	..	0·8	..	8	23 35
6	3·1	..	1·1	..	5·1	..	2·9	..	3·0	..	3·5	..	..	Ca	lm	..	9	9 20
7	..	Ca	lm	..	..	0·8	2·2	..	..	0·5	1·5	..	0·5	..	2·6	..	6	13 45
8	3·2	..	0·6	..	3·4	..	1·2	..	..	0·9	2·4	..	..	Ca	lm	..	8	3 30
9	..	Ca	lm	..	..	0·8	1·4	..	..	1·5	0·5	..	3·4	..	1·9	..	7	22 25
10	2·6	..	1·5	..	3·4	..	1·9	..	2·3	..	2·8	..	3·4	..	1·9	..	10	23 20
11	3·1	..	1·8	..	1·9	..	3·4	..	..	Ca	lm	..	..	1·3	1·5	..	9	10 20
12	..	Ca	lm	..	..	Ca	lm	..	..	3·1	..	1·1	..	2·4	..	4·2	7	20 50
13	..	0·8	..	1·4	..	1·4	..	7·8	..	2·4	..	6·5	..	3·7	..	6·5	11	9 50
14	..	Ca	lm	..	..	Ca	lm	..	..	2·3	..	..	..	Ca	lm	..	7	10 00
15	..	Ca	lm	..	1·0	..	..	1·7	..	Ca	lm	..	..	Ca	lm	..	12	17 40
16	1·9	..	..	3·4	6·0	..	..	3·4	5·1	..	..	0·9	1·9	..	0·7	..	8	10 10
17	2·0	..	0·3	..	..	Ca	lm	..	..	2·4	0·9	..	..	Ca	lm	..	5	10 05
18	..	Ca	lm	..	..	1·5	0·5	..	..	2·5	3·0	..	..	2·3	1·9	..	8	21 45
19	..	1·5	1·8	..	..	Ca	lm	..	3·8	..	0·7	..	3·8	..	3·1	..	10	17 40
20	..	1·1	6·5	..	1·4	..	7·8	..	..	2·0	..	0·3	..	2·6	..	0·5	12	11 00
21	..	3·9	4·5	..	..	0·9	4·8	..	5·1	..	2·9	..	6·5	..	2·4	..	12	22 50
22	6·2	..	3·6	..	8·0	..	4·6	..	7·4	..	4·2	..	6·8	..	5·8	..	17	10 45
23	4·6	..	8·0	..	..	Ca	lm	..	8·2	..	4·7	..	..	8·0	2·9	..	17	15 25
24	..	2·5	6·8	..	4·5	..	5·3	..	6·8	..	3·9	..	3·5	..	0·6	..	14	13 25
25	8·8	..	3·2	..	10·3	..	1·8	..	7·0	..	2·6	..	8·0	..	4·6	..	20	11 25
26	5·7	..	4·9	..	7·8	..	6·6	..	8·0	..	4·6	..	2·8	..	3·3	..	17	13 30
27	1·6	..	2·9	..	2·3	..	1·3	..	2·9	..	1·6	..	..	1·2	..	6·8	10	23 45
28	..	0·8	..	4·5	2·8	..	..	2·3	..	6·0	..	3·4	..	..	..	9·2	18	19 05
29	..	5·4	3·1	..	..	10·8	9·1	..	..	5·1	6·1	..	0·8	..	2·2	..	20	6 50
30	3·8	..	..	0·7	8·8	..	..	1·5	10·2	..	..	..	8·0	..	2·9	..	19	15 40
31	4·5	..	3·9	..	5·1	..	2·9	..	7·9	..	..	..	7·0	..	2·6	..	10	19 50
S+N & W+E	75·3		66·5		101·7		82·2		122·3		69·7		89·5		72·6			
S−N & W−E	26·9		42·5		49·5		42·0		39·1		37·9		26·1		17·6			

SCOTLAND N.:—DEERNESS.

Cup Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	..	6·2	..	..	..	6·8	2·5	..	..	5·1	0·9	..	..	4·2	2·4	..	8·2	8
2	..	3·7	1·3	..	..	4·2	0·7	..	..	4·2	0·7	..	..	4·9	1·8	..	5·6	20
3	..	4·2	..	0·7	..	4·6	..	..	..	4·8	0·9	..	..	3·5	0·6	..	5·9	16
4	..	3·4	1·2	..	..	1·7	2·0	..	..	3·3	..	..	..	2·0	..	1·1	4·3	16
5	..	Ca	lm	..	2·0	..	..	1·7	2·8	..	..	2·3	2·3	..	..	1·3	4·3	19
6	2·4	..	..	0·9	2·0	..	..	1·7	2·0	..	0·3	..	..	0·5	1·5	..	3·6	16
7	..	..	2·6	..	..	Ca	lm	..	3·8	..	0·7	..	..	Ca	lm	..	4·3	14, 16
8	..	Ca	lm	..					No	Re	cor	d					7·9	8
9	2·0	..	0·3	..	1·7	..	1·0	..	1·7	..	1·0	..	3·1	..	3·8	..	5·9	20
10	..	0·3	1·6	..	2·3	..	..	..	2·3	..	..	0·4	..	Ca	lm	..	6·9	24
11	..	..	9·5	..	..	2·5	6·8	..	..	..	8·2	..	..	0·9	5·1	..	9·5	3, 16
12	..	1·9	3·4	..	..	2·0	1·7	..	..	Ca	lm	..	..	Ca	lm	..	5·9	1
13	..	Ca	lm	..	..	1·4	..	0·8	..	..	..	4·3	..	..	..	3·3	4·6	17
14	0·7	..	..	4·2	1·0	..	..	5·5	2·4	..	..	6·5	1·9	..	..	5·3	7·2	16
15	2·9	..	..	5·1	5·5	..	..	6·5	5·5	..	..	6·5	4·8	..	..	5·7	9·8	13
16	4·7	..	..	5·5	5·3	..	..	4·5	6·5	..	..	5·5	5·3	..	..	4·5	8·5	13
17	3·9	..	..	4·5	3·0	..	..	2·5	4·5	..	..	2·6	..	Ca	lm	..	6·6	1
18	1·9	..	..	0·7	..	Ca	lm	..	..	2·6	0·5	..	..	Ca	lm	..	4·9	13
19	..	2·0	0·3	..	..	1·7	..	1·0	1·9	..	..	3·4	4·0	..	..	2·3	5·9	18
20	2·0	..	..	0·3	..	3·7	10·1	..	..	..	10·8	..	..	..	7·2	..	12·8	12
21	..	..	9·5	..	3·4	..	6·0	..	1·8	..	10·0	..	2·3	..	4·0	..	12·5	13
22	9·1	..	..	1·6	5·2	..	9·1	..	4·0	..	11·0	..	4·3	..	11·7	..	14·4	18
23	..	1·7	9·7	..	1·9	..	10·6	..	..	..	8·9	..	0·9	..	4·8	..	12·1	1
24	2·5	..	6·8	..	3·7	..	10·1	..	..	..	12·8	..	..	..	7·9	..	14·4	12
25	..	Ca	lm	..	4·6	..	..	8·0	5·1	..	..	4·3	2·4	..	..	0·9	11·5	13
26	7·9	..	..	..	8·5	..	..	..	7·1	..	4·1	..	4·7	..	4·0	..	10·2	16
27	4·9	..	8·5	..	..	..	9·5	..	..	2·6	7·0	..	..	0·8	1·4	..	9·8	3
28	..	Ca	lm	..	2·6	..	..	0·5	1·1	..	..	3·1	1·1	..	..	3·1	3·9	24
29	..	2·1	..	5·8	..	4·5	..	3·9	..	9·4	..	1·6	..	5·1	0·9	..	9·5	15
30	..	1·9	0·7	..	0·9	..	..	4·8	10·0	..	..	5·7	10·5	..	..	6·0	13·4	18
31	4·6	..	1·7	..	8·1	..	0·4	..	2·8	..	7·7	..	..	..	2·0	..	8·2	9, 15
S+N & W+E	76·9		86·4		94·8		†111·9		97·3		†131·7		69·5		†92·6			
S−N & W−E	22·1		27·8		28·6		29·1		33·3		39·3		25·7		25·6			

† Thirty days.

ENGLAND, S.W.:—SCILLY.

Cup Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	0·9	..	2·3	..	0·7	..	4·1	..	..	0·8	4·5	..	Defective				4·6	15, 16
2	..	1·1	3·1	..	..	..	3·3	..	Defective				Defective				5·0	6
3	Defective				Defective				..	5·4	..	..	..	5·0	..	..	5·8	16, 19
4	..	3·3	..	..	..	2·9	..	0·5	..	..	..	5·4	..	..	..	2·5	5·4	14, 15
5	..	..	..	2·5	1·4	..	..	3·9	3·6	..	..	1·3	..	Ca	lm	..	4·6	11, 12
6	..	Ca	lm	..	1·2	..	..	2·2	..	0·7	2·0	..	..	2·0	0·7	..	2·9	10, 23, 24
7	..	2·1	2·5	..	..	1·3	1·6	..	..	2·9	..	0·5	..	2·5	..	..	4·2	18
8	..	Ca	lm	..	..	1·6	..	1·3	..	2·5	..	1·4	..	1·6	..	1·9	3·3	13, 14
9	..	..	..	2·9	1·9	..	..	3·3	..	..	..	3·3	..	..	..	3·3	3·8	9, 16
10	0·5	..	..	2·9	..	..	..	5·4	0·9	..	..	5·3	..	..	..	2·1	5·8	13
11	0·6	..	..	3·2	..	..	..	4·6	..	..	..	5·0	..	..	..	4·6	5·0	10, 15, 23
12	..	..	..	3·8	1·1	..	..	6·2	..	..	..	5·0	..	..	..	5·4	6·7	10
13	..	..	..	6·3	2·4	..	..	6·7	2·5	..	..	..	1·3	..	1·6	..	7·9	6, 11
14	2·7	..	1·0	..	3·6	..	..	2·1	5·5	..	..	3·1	3·9	..	..	1·4	6·7	14
15	5·1	..	..	1·8	6·7	..	..	5·7	7·7	..	..	6·5	5·0	..	..	2·9	10·0	10, 15, 16, 17
16	5·0	..	..	2·9	5·8	..	..	..	4·3	..	..	1·6	5·5	..	..	2·0	7·1	6
17	3·2	..	..	2·7	3·7	..	..	6·5	2·5	..	..	4·3	..	3·1	..	1·1	7·5	4, 5, 7, 8, 9
18	..	2·9	..	0·5	..	6·3	..	..	..	5·8	..	..	Defective				6·7	14
19	..	2·1	..	..	..	2·5	..	..	..	2·4	6·7	..	..	2·3	4·0	..	6·7	22
20	..	2·3	4·0	..	..	3·2	3·8	..	..	1·4	3·9	..	..	4·3	1·6	..	5·0	7, 9, 11
21	..	2·2	..	1·9	..	..	..	5·0	..	..	2·9	..	..	1·6	4·3	..	5·4	22
22	..	..	5·8	..	1·1	..	6·2	..	3·5	..	6·1	..	3·1	..	8·6	..	10·0	22
23	3·4	..	9·3	..	2·8	..	7·8	..	4·1	..	7·2	..	1·6	..	9·1	..	11·3	5
24	..	2·7	3·2	..	..	1·6	1·9	..	5·1	..	..	1·8	5·8	..	3·3	..	8·3	1
25	6·4	..	5·4	..	5·4	..	6·4	..	7·8	..	2·8	..	..	..	4·6	..	9·6	12
26	1·2	..	6·6	..	..	0·7	4·1	..	..	..	2·9	..	..	Ca	lm	..	6·7	1, 3
27	..	Ca	lm	..	2·3	..	..	6·3	4·7	..	..	1·7	3·6	..	..	1·3	8·3	10
28	5·1	..	..	4·4	8·3	..	..	9·9	9·9	..	..	8·3	..	7·7	13·3	..	20·9	24
29	..	7·2	19·8	..	..	7·1	12·3	..	..	1·6	9·1	..	2·7	..	3·2	..	22·1	2
30	5·0	..	..	..	8·8	..	..	..	7·9	..	..	..	7·5	..	..	..	9·2	14
31	4·1	..	3·5	..	5·7	..	1·0	..	5·1	..	4·4	..	4·1	..	0·7	..	7·1	11
S+N & W+E	†69·1		102·3		†90·1		122·1		†98·6		107·0		‡74·2		83·5			
S−N & W−E	17·3		30·7		35·7		−17·1		51·6		−2·0		14·0		26·5			

† 30 days. ‡ 28 days.

ENGLAND, E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	..	3·3	1·2	..	..	3·1	..	2·6	..	Ca	lm	..	..	Ca	lm	..	7	7 35
2	..	2·3	1·9	..	..	6·3	..	..	..	3·5	..	2·0	..	Ca	lm	..	10	10 30
3	..	Ca	lm	..	..	3·7	..	4·4	..	7·0	..	2·5	..	4·3	..	..	11	14 45
4	..	5·6	..	3·2	..	6·3	..	3·6	..	6·2	..	2·3	..	3·3	..	..	11	9 45
5	..	3·8	..	1·4	..	4·2	..	..	..	3·6	..	4·2	1·3	..	1·5	..	9	5 55
6	..	0·7	3·7	..	3·2	..	..	0·6	2·1	..	1·2	..	..	3·4	..	4·0	7	21 25
7	..	Ca	lm	..	..	2·3	..	1·9	..	3·4	..	2·9	..	Ca	lm	..	10	9 55
8	..	0·7	2·0	..	4·6	..	..	..	6·1	..	..	1·1	..	Ca	lm	..	8	12 15
9	..	Ca	lm	..	1·7	..	..	1·0	4·5	..	..	1·6	2·5	..	..	0·9	6	12 55
10	1·1	..	1·9	..	2·2	..	..	0·4	5·0	..	1·8	..	2·8	..	2·3	..	10	17 35
11	0·9	..	4·9	..	..	3·0	..	..	2·3	..	..	0·9	..	1·5	..	2·6	10	9 35
12	..	Ca	lm	..	..	Ca	lm	..	1·9	..	..	2·3	2·6	..	..	1·5	7	13 10
13	1·2	..	..	3·3	3·1	..	..	3·7	1·2	..	..	6·9	3·5	..	..	6·1	10	19 15
14	2·4	..	..	6·7	5·9	..	..	2·2	4·4	..	..	2·5	3·8	..	..	6·6	12	5 35
15	5·6	..	..	3·2	6·1	..	..	5·2	3·7	..	..	6·4	4·1	..	..	7·1	11	19 5
16	0·7	..	..	3·9	2·3	..	..	1·9	4·4	..	..	0·8	2·1	..	..	0·4	8	0 40
17	..	2·5	2·1	..	..	Ca	lm	..	..	..	..	1·6	..	Ca	lm	..	5	3 40
18	..	2·0	..	0·3	..	3·9	..	0·7	..	4·6	..	5·4	..	5·1	..	0·9	11	16 15
19	..	3·5	..	..	..	3·6	..	0·6	..	5·5	..	4·7	..	Ca	lm	..	13	12 50
20	..	1·3	2·3	..	..	2·9	3·4	..	3·0	..	..	1·7	..	5·0	..	1·8	15	18 40
21	..	3·2	..	..	..	5·3	..	..	..	3·5	..	6·1	1·7	..	3·0	..	16	12 25
22	2·2	..	6·1	..	..	1·4	7·7	..	..	4·8	5·7	..	..	3·2	5·6	..	15	21 45
23	..	3·2	5·6	..	..	4·0	6·9	..	..	3·8	6·6	..	..	1·3	7·4	..	16	22 35
24	..	4·6	5·4	..	..	5·5	..	..	7·0	..	..	..	8·0	..	2·9	..	13	3 10
25	5·5	..	6·5	..	1·4	..	7·9	..	..	..	8·5	..	1·0	..	5·7	..	15	14 50
26	0·9	..	4·9	..	..	3·4	6·0	..	..	1·7	4·7	..	..	Ca	lm	..	15	6 40
27	..	1·5	1·3	..	..	Ca	lm	..	4·8	..	..	2·7	6·4	..	..	2·3	9	24 10
28	4·6	..	..	5·4	5·0	..	..	2·9	6·7	..	..	2·4	2·7	..	7·5	..	15	19 40
29	5·5	..	9·5	..	5·7	..	10·0	..	..	1·9	5·2	..	..	4·4	..	0·8	22	7 30
30	..	2·0	1·1	..	3·4	..	0·6	..	9·5	..	5·5	..	3·2	..	5·6	..	16	15 35
31	1·0	..	5·9	..	..	..	7·0	..	7·3	..	6·2	..	2·2	..	3·9	..	12	12 15
S+N & W+E	71·8		93·7		103·5		81·2		123·4		106·4		79·4		80·4			
S−N & W−E	−8·6		38·9		−14·3		−17·8		24·4		−15·6		16·4		10·4			

8. SEISMOLOGICAL DIARY.

The notation used is explained in the Introduction.

EARTHQUAKES—ESKDALEMUIR.

Day.	Phase	Time. G.M.T.	Period.	Amplitudes. A_N.	Amplitudes. A_E.	Amplitudes. A_Z.	Δ.	Remarks.
		h m s	s	μ	μ	μ	km.	
3	e_N	15 16 12	..	..	..	..	..	
	L	15 39	..	..	..	..	..	
	M_N	15 49 44	20	4	..	..	..	
	F	16 15	..	..	..	..	..	
4	P_Z	14 31 17	..	..	..	..	?10,000	S very well marked, but L phase not well developed.
	PR	14 35 7	..	..	..	..	..	
	S	14 41 32	..	..	..	..	..	
	SR	14 48 35	..	..	..	..	..	
	L	15 2	..	..	..	..	..	
	M_E	15 10 37	23	..	6	..	..	
	F	15 45	..	..	..	..	..	
7	e_N	10 53 25	..	..	..	..	..	L phase of considerable regularity and of long duration.
	e_Z	10 53 25	..	..	..	..	..	
	e_N	11 3 19	..	..	..	..	..	
	e_N	11 8 50	..	..	..	..	..	
	L	11 26	..	..	..	..	..	
	M_E	11 39 9	19	..	6	..	..	
	F	13 30	..	..	..	..	..	
13	?e_Z	10 29 25	..	..	..	..	..	L phase commences with peculiar irregular movement on E-W component.
	e_N	10 40 19	..	..	..	..	..	
	e_N	10 46 5	..	..	..	..	..	
	?L	10 55						
	F	11 50	..	..	..	..	..	
13		15h to 16h	..	..	..	..	..	Faint disturbance.
15	e_N	18 25 14	..	..	..	..	..	L phase not well marked
	i_N	18 31 4	..	..	..	..	..	
	i_N	18 32 1	..	..	..	..	..	
	i_N	18 34 20	..	..	..	..	..	
	L	18 58	..	..	..	..	..	
	F	19 40	..	..	..	..	..	
18	e_N	17 26 56	..	..	..	..	..	
	L	17 46	..	..	..	..	..	
	M_N	17 51 9	25	9	..	..	..	
	M_E	17 52 26	21	..	9	..	..	
	F	18 30	..	..	..	..	..	
20	L	5 33 to 5 43	..	..	..	..	..	Faint.
21	L	1 4	..	..	..	..	..	Faint.
	F	1 35	..	..	..	..	..	
24	L	19 34	15	2	..	..	..	
	F	19 44	..	..	..	..	..	
24	L	19 59	..	..	..	..	..	
	F	20 22	..	..	..	..	..	
24	L	22 12	..	..	..	..	..	
	F	22 34	..	..	..	..	..	
25	L	2 25	..	..	..	..	..	Slight disturbance.
	M_N	2 37 39	18	3	..	..	..	
	F	2 50	..	..	..	..	..	
25	?P	19 40 20	..	..	..	..	?10,040	Record confused by microseisms.
	?S	19 51 20	..	..	..	..	..	
	L	20 10	..	..	..	..	..	
	M_N	20 15 10	23	10	..	..	..	
	F	20 45	..	..	..	..	..	
29	L	1 34	..	..	..	..	..	
	M_N	1 40 57	23	5	..	..	..	
	M_E	1 45 7	22	..	7	..	..	
	F	2 15	..	..	..	..	..	
31	?e_N	10 12 53	..	..	..	..	..	A number of Groups of irregular long waves. Earlier phases very doubtful.
	?e_N	10 31 23	..	..	..	..	..	
	L	10 59	..	..	..	..	..	
	F	12 10	..	..	..	..	..	

MICROSEISMS OF N. COMPONENT—ESKDALEMUIR.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s	μ	s	μ	s	μ	s.
1	0·0	0	0·0	0	0·0	0	0·0	0
2	0·0	0	0·0	0	0·0	0	0·0	0
3	0·0	0	0·0	0	0·0	0	0·0	0
4	0·0	0	0·0	0	0·0	0	0·0	0
5	0·0	0	0·1	5	0·1	4·5	0·0	0
6	0·1	4	0·0	0	0·0	0	0·0	0
7	0·0	0	0·0	0	..	..	0·0	0
8	0·0	0	0·0	0	0·0	0	0·0	0
9	0·0	0	0·2	4	0·3	4·5	0·3	4·5
10	0·3	4	0·2	4	0·2	5	0·1	5
11	0·1	5	0·0	0	0·0	0	0·0	0
12	0·0	0	0·0	0	0·0	0	0·0	0
13	0·0	0	0·0	0	0·0	0	0·0	0
14	0·0	0	0·0	0	0·0	0	0·0	0
15	0·1	4	0·1	4	0·2	4	0·1	4
16	0·3	4·5	0·1	4	0·1	3·5	0·1	3·5
17	0·1	4	0·0	0	0·1	4	0·0	0
18	0·0	0	0·0	0	0·0	0	..	..
19	0·0	0	0·0	0	0·1	4	0·2	4·5
20	0·1	4·5	0·1	4	..	..	0·5	4
21	0·9	4	0·9	5·5	1·0	5·5	0·9	5
22	0·7	6	0·9	4·5	0·9	4·5	0·9	4·5
23	0·9	4·5	0·9	4·5	0·9	4·5	0·6	4·5
24	0·9	4	0·6	4	0·7	4	0·9	4
25	1·0	4	0·9	4·5	1·1	4·5	1·1	5·5
26	1·6	5·5	1·7	5·5	1·1	4·5	1·1	5
27	1·1	4	1·0	4·5	0·9	4·5	0·9	4·5
28	0·9	4	0·9	4·5	0·9	5	0·9	4·5
29	0·8	5	0·7	4	1·0	4	0·6	3·5
30	1·1	4	0·9	4	1·1	4	1·0	4·5
31	1·0	4·5	1·0	4·5	1·1	4·5	1·0	4·5

Means for Month $\begin{cases} A_N. = 0·4\mu. \\ T = 2·6s. \end{cases}$

Normals for Month, 1911–20: $\begin{cases} A_N. = 0·3\mu. \\ T = 4·1s. \end{cases}$

EARTHQUAKES.—RICHMOND (KEW OBSERVATORY)

Day.	Times, G.M.T. of Commencement.	Times, G.M.T. of Max. Amplitude.	Remarks.
	h m	h m	
7	..	11 47	Small.
13	..	11 01	Small.
18	17 48	17 59	Small.
20	..	5 54	Very small.
25	20 03	20 23	Small.
29	..	1 52	Very small.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians. per Second.	Components.		
				W.-E.	S.-N.	
2 7	St.-Cuf.	335	12·5	+ 5·3	−11·3	
3 13	Ci.	332	2·1	+ 1·0	− 1·8	Irregular Ci. threads; partial ⊕.
	Cu.	345	12·5	+ 3·3	−12·1	Small flat Cu., formed from St.-Cuf.
4 13	Ci.	354	0·5	+ 0·1	− 0·5	Fine wisps of Ci. in bands.
5 13	Ci.-St.	270	1·4	+ 1·4	0·0	Hazy Ci.-St. to faint Ci.-Cu.
6 18	Nb.-Cuf.	290	5·0	+ 4·7	− 1·7	
7 11	Ci.	350	2·8	+ 0·7	− 2·7	Fine Ci. to Ci.-St. sheets dispersing.
13	Ci.-Cu.	348	3·0	+ 0·6	− 2·9	Ci.-Cu. sheets waved in places.
	St.-Cu.	324	3·2	+ 1·8	− 2·5	Lower layer of A.-Cu. to high St.-Cu.
18	A.-Cu.	341	2·1	+ 0·7	− 2·0	Fine flotillæ of A.-Cu.
8 13	Cu.	270	4·2	+ 4·2	0·0	
18	Cu.-Nb.	273	3·8	+ 3·8	− 0·1	Cu.-Nb. degrading after shower.
9 13	Cu.	270	5·0	+ 5·0	0·0	Massed Cu., heavy in places.
18	Cu.	259	3·6	+ 3·5	+ 0·6	Degraded Cu. sheet.
10 13	Fr.-Cu.	256	5·0	+ 4·8	+ 1·3	Broken Cu.
18	Fr.-Cu.	250	5·6	+ 5·3	+ 1·8	
11 13	Cu.	287	4·8	+ 4·6	− 1·4	Sheet of closed Cu., much eddy motion at "shore line."
18	St.-Cu.	275	4·5	+ 4·5	− 0·4	Sheet St.-Cu. with some Cu. below in contact.
12 13	Cu.	275	8·2	+ 8·2	− 0·7	
14 13	St.-Cu.	189	3·3	+ 0·5	+ 3·2	Fused low St.-Cu.
15 7	Fr.-St.	177	10·9	− 0·6	+10·9	
13	A.-St.	171	4·2	− 0·8	+ 4·1	
	St.-Cuf.	174	12·5	− 1·3	+12·4	
17 13	St.-Cu.	176	3·3	− 0·3	+ 3·2	High St.-Cu.
18	A.-Cu.	177	2·8	− 0·2	+ 2·8	Small A.-Cu.
18 13	Ci.-Cu.	360	2·1	0·0	− 2·1	Ci.-Cu. to A.-Cu., much variation in size of cloudlets.
18	St.-Cu.	280	2·1	+ 2·1	− 0·4	Fused St.-Cu., degraded in west.
19 13	St.-Cu.	210	6·0	+ 3·0	+ 5·2	Very diffuse sheets flat St.-Cu. (unusual type).
18	St.-Cu.	267	6·2	+ 6·2	+ 0·3	Fused layer breaking into flakes at edges.
20 7	Cu.	266	6·2	+ 6·2	+ 0·4	
13	Cu.	261	6·0	+ 5·9	+ 1·0	
18	St.-Cu.	265	4·9	+ 4·8	+ 0·4	Cu. changing into long rolls of St.-Cu.
21 13	St.-Cu.	284	5·2	+ 5·0	− 1·3	
18	St.-Cu.	274	7·0	+ 6·9	− 0·6	
22 13	Cu.	270	8·0	+ 8·0	0·0	
18	St.-Cu.	270	8·9	+ 8·9	0·0	
23 7	Cu.	296	10·1	+ 9·1	− 4·3	Fr.-Cu. bases, low heavy cloud.
13	Cu.	248	5·0	+ 4·6	+ 1·8	
24 13	Cu.	282	8·0	+ 7·8	− 1·5	
18	A.-Cu.	270	5·6	+ 5·6	0·0	
25 16	Ci.-Cu.	225	4·2	+ 2·9	+ 2·9	
18	Ci.-Cu.	220	4·5	+ 2·9	+ 3·4	
26 13	Cu.	230	12·5	+ 9·5	+ 8·0	Cu. becoming Cu.-Nb.
18	Cu.	253	8·9	+ 8·5	+ 2·5	
27 7	Ci.-St.	251	4·5	+ 4·3	+ 1·4	Ci.-St. sheet increasing.
13	Cu.	250	5·6	+ 5·3	+ 1·8	
	A.-Cu.	250	5·0	+ 4·7	+ 1·7	
18	A.-Cu.	250	6·0	+ 5·6	+ 2·0	
	St.-Cu.	—	—	—	—	Very uncertain in direction and nearly stationary.
31 9	Cu.	263	12·5	+12·4	+ 1·5	Cu. increasing rapidly in amount.
11.30	Ci.	260	2·9	+ 2·8	+ 0·4	
13	Cu.	245	10·0	+ 9·0	+ 4·2	
18	A.-Cu.	240	4·2	+ 3·6	+ 2·0	Ci. and Ci.-St. from about 260°.

10. AURORA.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
3	p.	..	1, 1	0, 1	Sheepstor	Sharp white streamers to zenith in N.E., 22 h.–23 h.
5	p.	●	..	..	..	
9	p.	..	2, 0	1, 0	Yarmouth	
20	a.	○	..	..	..	
25	p.	..	0, 1	0, 1	Tavistock	22 h. 30 m.

Note.—The two "magnetic characters" entered in each case refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

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1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	11.30 h. to 12.30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p^0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm²	hr.	%
1	0·0	0	651	18	60	15 25	42	0·0	0	..	..	..	0·6	4	..	..	..	..	0·0	0
2	9·7	63	1698	46	90	12 05	90	9·2	60	..	..	..	2·3	14	..	..	..	..	8·4	55
3	7·3	48	1413	39	x93	12 20	93	7·5	49	..	..	..	4·3	27	..	..	..	..	4·0	26
4	3·1	20	1178	32	73	10 45	47	1·8	12	..	..	..	1·3	8	..	..	..	..	0·4	3
5	0·4	3	761	21	60	10 40	39	0·3	2	..	..	..	1·2	8	..	..	..	..	0·1	1
6	x12·8	85	x1980	55	91	12 15	91	x12·7	84	..	..	..	7·6	49	..	..	..	..	4·2	28
7	5·2	34	1229	34	88	12 30	88	4·7	31	..	..	..	2·0	13	..	..	..	..	6·6	43
8	10·3	69	1462	41	90	11 20	83	10·2	68	89	73	Clear	4·6	30	..	..	..	..	3·6	24
9	9·8	65	1543	44	88	12 50	82	9·2	61	90	73	Clear	3·9	25	..	..	..	..	0·0	0
10	3·0	20	1223	35	75	12 00	75	3·8	26	78	63	Thro'Cld	1·0	6	..	..	..	..	7·8	52
11	6·3	43	981	28	74	12 50	71	6·4	43	..	..	..	0·7	5	..	..	..	..	0·1	1
12	3·3	22	1221	35	72	11 38	72	3·3	22	..	..	..	0·0	0	..	..	..	..	5·5	37
13	2·7	18	943	27	86	13 20	65	4·8	33	..	..	..	5·2	34	..	..	..	..	6·2	42
14	5·0	34	1189	35	72	10 10	42	4·4	30	..	..	..	5·7	38	..	..	..	..	2·2	15
15	1·8	12	1026	30	81	13 30	80	2·0	14	..	..	..	10·3	69	..	..	..	..	6·7	46
16	8·0	55	1598	47	84	12 35	78	7·7	53	82	65	Clear	0·0	0	..	..	..	..	1·9	13
17	1·5	10	916	27	80	13 50	30	1·9	13	..	..	..	2·1	14	..	..	..	..	3·0	21
18	12·0	83	1821	55	72	12 10	72	12·4	86	68	54	Hazy	6·5	44	..	..	..	..	10·8	74
19	11·1	77	1754	53	70	12 15	70	11·3	78	64	50	Hazy	x11·0	74	..	..	..	..	8·0	56
20	6·5	45	1304	40	79	11 28	76	6·1	43	..	..	..	9·1	62	..	..	..	..	2·6	18
21	0·0	0	—	—	—	—	—	0·0	0	..	..	..	0·0	0	..	..	..	..	4·8	34
22	2·2	15	1012	32	67	10 45	64	2·3	16	..	..	..	0·0	0	..	..	..	..	0·0	0
23	1·7	12	748	23	63	11 51	63	1·8	13	..	..	..	0·8	6	..	..	..	..	4·1	29
24	0·0	0	262	8	15	11 30	15	0·0	0	..	..	..	0·1	1	..	..	..	..	1·4	10
25	3·6	26	1089	35	75	11 10	72	3·9	28	..	..	..	7·2	50	..	..	..	..	4·1	29
26	6·9	50	1488	48	76	11 10	74	6·6	47	85	64	Clear	3·3	23	..	..	..	..	0·0	0
27	1·3	9	734	24	55	13 45	38	1·2	9	..	..	..	6·1	43	..	..	..	..	1·4	10
28	2·9	19	825	27	75	11 05	39	3·9	28	..	..	..	7·7	55	..	..	..	..	3·8	27
29	11·0	80	1173	39	70	11 50	70	10·6	77	83	62	Clear	0·0	0	..	..	..	..	x12·4	90
30	8·6	63	1135	38	77	12 30	77	9·5	69	..	..	..	x11·0	79	..	..	..	..	8·4	61
31	7·7	57	1445	49	69	12 01	69	7·3	54	67	49	Thro'Cld	5·5	40	..	..	..	..	0·0	0
Means	5·35	37	1193†	36†	74†	—	66†	5·38	37	—	—	—	3·91	26	—	—	—	—	3·95	27
Normals	5·48	38	1193	36	—	—	—	6·03	42	—	—	—	4·16	28	—	—	—	—	5·00	35
	←35 years→		←8 years→					←35 years→					←10 years→						←35 years→	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day.	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. Dry Bulb. 9 h.	21 h.	Max.	Min. (0 h. to 24 h.)	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h.		21 h.		Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%	°	m/s.	°	m/s.	Tenths of Sky covered.		mm.	a 200+		
1	1004·9	1002·4	90·3	88·6	91·5	87·1	17·8	16·2	91	92	180	5	225	3	10	8 p.	3·9	86·4	●⁰ early; o. *a. and p.*; p. *n.*	
2	1007·3	1008·0	87·1	84·1	89·4	82·4	11·4	11·3	71	86	290	9	225	5	7	10 p.	24·8	82·7	● at first; Fair *a.*; p. < *n.*	
3	1011·2	1014·8	86·1	86·8	89·0	82·2	13·3	11·7	89	75	245	11	260	8	8	9	1·9	79·7	p. *a.*; Fair day.	
4	1008·1	1010·5	89·9	89·3	91·2	85·3	18·7	17·8	98	97	225	8	175	5	10	10 ●	17·8	83·1	● early; o. to c. *a.*; ●⁰ *p. and n.*	
5	1005·1	1003·9	86·5	87·6	90·5	86·4	14·5	13·3	94	81	120	4	280	10	10 ●	7	13·6	85·3	● *a.*; Fair *p. and n.*	
6	1006·3	1012·1	88·2	87·5	91·0	86·6	15·2	14·4	89	88	235	9	255	5	10	3	2·2	84·8	p. *a.*; c. *p.*; b. *n.*	
7	1010·6	1015·4	86·2	87·0	89·9	86·0	14·3	13·0	95	82	295	4	275	7	10 ●⁰	7 p⁰.	4·2	82·4	● *a.* then fair to fine.	
8	1017·7	1018·1	87·9	87·2	89·9	85·6	13·9	13·5	83	84	265	6	265	5	9	7	0·4	83·7	p⁰. *a.*; Fair day.	8 { 17838γ, 19° 7′·5, 68° 2′·8
9	1012·9	1006·4	87·1	86·1	87·8	85·3	14·7	13·5	92	90	195	5	265	6	10	7	x27·4	83·0	●⁰ *a.*; ●² *p.*; p. *n.*	
10	1007·2	1007·9	86·6	85·3	87·6	84·2	11·3	11·0	73	78	325	7	335	10	6	9	7·8	81·1	p. *a.*: △ p. *p. and n.*	
11	1009·2	1012·5	87·5	86·1	87·5	85·4	13·6	12·9	83	86	355	9	335	7	8	10	4·6	82·4	p². *a.*; c. to o.p. *p. and n.*	
12	1010·3	1010·4	85·9	86·7	89·4	84·5	13·0	13·4	88	86	210	2	280	7	10 ●⁰	6	1·9	82·7	c. to ●⁰ *a.*: Fair *p.*	
13	1014·1	1017·8	87·2	86·9	89·4	85·6	12·9	13·7	80	87	290	6	275	4	8 p⁰.	8	0·9	84·0	p⁰. early; Fair day.	
14	1018·1	1018·9	88·0	87·4	90·4	85·7	14·5	14·5	86	89	—	0	—	0	10	7	—	84·1	c. to o. *a.*; Fair *p. and n.*	
15	1017·2	1012·8	88·0	87·9	90·3	87·0	15·9	14·6	94	87	265	3	175	4	8	10	0·5	83·7	Fair *a.*; Fine to o. later.	
16	1003·1	999·2	88·9	87·0	89·5	86·8	14·0	13·8	78	87	230	8	275	9	8	8	12·9	85·7	●² early; ● at times day.	
17	1005·7	1017·0	88·7	89·3	90·7	86·6	14·7	15·4	83	84	360	7	360	7	8	7 ≡⁰	1·1	84·7	p. early; Fair *a. and p.*; ∞ *n.*	
18	1021·0	1022·4	88·8	90·5	x93·4	87·8	15·5	16·9	87	85	30	7	—	1	5 ≡⁰	2 ≡⁰	—	85·4	Fine. ∞ all day.	
19	1020·4	1018·1	90·0	88·5	92·9	84·8	17·7	16·3	92	93	—	0	320	5	0 ≡⁰	10	—	81·1	⌓, ∞ *a.*; ≡ *p.*; o. *n.*	
20	1016·0	1018·8	87·8	86·9	90·1	86·3	14·7	10·8	88	69	355	6	10	9	10	8	—	84·7	c. to o. with p⁰q.	
21	1018·2	1015·0	86·5	85·1	87·0	84·9	11·5	12·2	75	87	340	11	360	7	10	8	7·5	82·4	c. to o., p.q. at times.	
22	1014·1	1015·8	85·7	86·3	87·4	84·6	12·7	12·4	87	82	345	7	360	4	10	10	0·4	83·0	p. early; o. to c. later.	
23	1019·3	1021·5	87·4	85·4	89·2	84·6	13·9	11·7	85	82	20	3	10	2	10 ≡⁰	6	—	82·0	o. to c. ∞ *a. and p.*; bc. *n.*	
24	1022·5	1021·3	87·1	87·1	89·9	82·5	15·0	15·2	94	95	—	0	255	3	10	10 ●⁰≡⁰	0·2	78·0	⌓ early; o. to c. *a. and p.*; d⁰ ≡⁰ *n.*	
25	1021·2	1022·3	87·3	87·6	89·8	86·4	14·4	15·3	89	93	305	4	275	3	10	1	0·5	84·8	d⁰ ≡⁰ early; o. to c. *a.*; bcp.; c. to o. *n.*	
26	1018·6	1015·8	88·5	88·9	90·0	87·2	17·2	16·7	98	93	245	7	235	10	10	10 ●⁰≡⁰	0·4	85·9	d ≡⁰ 5h.; o. *a and p.*; d⁰ ≡⁰ *n.*	
27	1012·4	1012·7	89·5	86·5	91·1	84·4	17·9	13·1	96	85	225	7	345	5	10 ●⁰	7	0·7	87·5	d. ≡⁰ *a.*; o. *p.*; c. *n.*	
28	1012·6	1010·6	86·3	85·0	88·9	82·6	12·9	11·0	85	79	—	0	260	4	8	3	—	79·3	o. to c. *a.*; bc. *p.*; b. *n.*	
29	1010·3	1017·6	86·6	84·9	87·4	81·1	12·4	10·2	80	74	280	4	355	3	4	2	2·2	78·1	p² 4h.; bc. () *a. and p.*; b. () *n.*	29 { 17855γ, 19° 6′·5, 68° 2′·2
30	1021·8	1017·4	84·8	86·3	88·4	n77·9	10·7	13·3	78	88	—	1	100	5	10	10 ●	2·4	n74·8	bc. y. *a. and p.*; ●⁰ *n.*	
31	1012·2	1008·4	88·3	88·6	89·5	87·5	16·4	16·5	95	94	170	9	185	6	10 ●	8	14·2	84·6	● *a.*; op. *p.*; op⁰. to c. *n.*	
Means	1013·2	1013·7	87·6	87·0	89·7	85·0	14·4	13·7	87	86	—	5·5	—	5·5	8·6	7·4	154·4	82·9	Monthly Totals or Means.	{ 17847γ, 19° 7′·0, 68° 2′·5
Normals	1012·7	1013·1	88·3	87·4	90·9	85·3	14·6	14·3	85	87	—	4·7	—	4·1	—	—	124·1	—	Normals.	
	←45 years→						←30 years→				←35 years→						45 years			

* By Campbell-Stokes Sunshine Recorder. † Mean for 30 days. No record on 21st. *x* denotes the maximum and *n* the minimum value in the column.

3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20 m.

Day.	Air Pressure at Mean Sea Level.		Air Temperature in Degrees Absolute. Dry Bulb.		Max.	Min.	Humidity. Vapour Pressure.		Percentage.		Wind. Veer from North and Force or Speed.		Cloud Amount, Weather and Visibility.		Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	Remarks.
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.			
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	mb.	mb.	%	%	° m/s.	° m/s.			mm.	a 200+	
1	1014·6	1011·5	93·2	92·2	96·0	91·2	18·5	18·3	79	83	195 3	215 3	10 I	1 I	—	89·0	Dull day.
2	1006·7	1012·7	93·3	89·7	97·0	85·9	17·7	9·4	75	50	200 7	255 3	10 J	1 L	—	89·1	Fine after 10h.; ⸗ (gust) 15h. 35m.
3	1012·2	1015·8	88·8	87·8	92·6	82·9	12·3	10·4	69	62	230 4	260 2	3 L	6 J	2·1	77·1	Dull to fine; p.; ⚐ 15h.
4	1018·0	1015·6	90·1	88·9	93·2	84·8	9·8	15·8	51	88	245 5	195 6	8 L	10 K	0·1	81·5	o. to c.; p. *p.*; 0.
5	1013·4	1007·3	92·9	90·6	96·0	88·6	17·0	13·2	74	66	220 7	195 7	10 K	10p. L	1·0	87·2	Mostly dull; ● *p. and n.*
6	1006·4	1011·5	91·7	90·3	95·7	88·2	12·2	11·7	57	60	255 7	260 3	2 L	1 L	0·1	86·1	Mainly fine.
7	1014·4	1008·6	91·6	91·7	96·4	86·8	13·0	16·2	61	76	245 5	225 7	6 L	10 L	—	83·6	Fine to o.; p⁰. *p.*
8	1016·3	1015·7	89·4	88·9	93·6	84·8	10·5	10·7	57	60	260 3	280 3	6 L	0 L	—	80·1	Fine to overcast.
9	1015·6	1012·1	89·4	89·1	95·0	83·0	10·9	12·5	59	69	280 3	230 2	5 L	0 L	—	77·3	☰ ; Fine to cloudy.
10	1005·5	1001·9	91·6	91·6	96·2	83·1	13·0	13·6	61	64	225 2	280 2	9 I	9 K	—	78·4	☰ ; o. to bc.; u. 17h.-18h.
11	1001·4	1004·7	89·2	89·5	96·4	86·8	13·7	11·9	75	64	280 2	245 2	6 I	1 K	—	85·6	o. to fine.
12	1006·9	1009·1	87·2	87·5	92·4	82·0	13·4	12·3	83	75	245 2	355 2	10 H	6 J	—	77·4	Overcast to fine. ⚳ *p.*
13	1008·4	1013·1	85·8	88·1	92·9	83·2	13·3	13·1	91	77	355 2	— 1	10●⁰ G	1 K	*x*9·6	78·1	● early; o. to bc.; showery.
14	1016·7	1016·4	89·6	88·0	91·6	85·4	10·8	13·5	58	80	315 3	— 1	2 K	9 K	0·1	83·0	o. after 10h.; p. *p.*
15	1015·3	1013·9	87·0	88·0	92·7	84·6	13·3	13·3	84	79	295 2	— 0	10●⁰ H	7 H	0·1	84·2	p. early, then o. to c.
16	1011·9	1007·2	89·3	91·1	95·9	82·9	13·0	15·8	71	77	280 2	190 4	1 H	10 K	—	77·9	≡⁰☰ ; Fine till 14h.; o later.
17	1005·4	1011·1	91·3	90·3	95·8	88·8	17·7	17·0	85	87	145 4	80 4	10p⁰ K	10 I	7·5	87·6	o. with frequent p.
18	1017·2	1019·1	94·4	93·1	99·1	88·9	14·8	11·3	59	49	60 5	75 2	1 H	0 J	—	87·0	≡⁰. Fine day.
19	1018·0	1013·5	92·0	93·2	*x*100·0	86·9	14·4	12·2	66	52	35 5	55 4	0 H	1 J	—	85·5	☰ Fine ∞⁰.
20	1009·5	1007·3	91·9	90·8	97·5	87·9	14·7	15·2	68	76	25 4	— 1	0 H	2 I	0·1	86·8	Fine *a.*; o. to c. *p.*
21	1005·2	1005·2	88·3	88·7	89·6	86·6	14·0	14·5	81	82	320 4	— 1	10 H	10 K	—	82·2	o., occasional ●⁰ or d.
22	1007·0	1012·0	90·7	89·2	95·4	85·5	15·4	13·2	77	72	290 2	170 2	8 G	2 I	—	85·4	≡⁰. o. to c.
23	1012·4	1015·7	90·7	90·1	94·1	83·1	15·4	17·2	77	89	10 5	— 1	4 G	10 H	4·2	78·5	☰ ≡⁰ Fine early; o. ⚐ *p.*; ●⁰ to o. *n.*
24	1018·0	1017·6	88·6	88·9	91·0	87·8	15·6	16·5	89	92	5 3	— 0	10 G	10 I	0·3	87·4	Dull ∞⁰.
25	1017·5	1018·1	89·9	89·6	93·6	86·5	15·3	13·7	80	73	285 3	325 3	5 H	5 K	—	83·9	≡⁰ c. to o.
26	1020·1	1017·5	88·6	90·7	95·3	82·1	11·2	14·6	64	73	300 3	225 6	3 K	7 L	—	76·7	☰ Fine to cloudy.
27	1015·6	1014·6	91·7	90·8	95·8	89·5	15·6	17·2	73	85	240 5	210 5	10 L	2 K	—	88·1	Mostly o.
28	1014·3	1010·0	91·1	90·2	97·6	88·2	15·0	15·0	73	77	240 3	200 2	10 L	4 L	—	86·0	●⁰ 7h. and 9h., then o. to fine.
29	1007·3	1011·2	90·0	87·9	92·7	84·5	10·9	10·0	57	60	275 6	270 4	2 L	9 L	—	83·9	Fine; ●⁰ 21h.
30	1019·7	1023·0	85·8	84·8	91·2	81·8	10·2	10·9	69	79	305 4	— 1	4 K	1 J	—	78·2	☰. Mainly fine.
31	1023·2	1020·4	86·8	88·2	93·4	*n*78·2	10·8	12·2	69	71	290 2	195 2	2 I	8 K	—	*n*73·4	≡⁰, ☰. Fine to o.; ⊕ 13h.
Means	1012·7	1012·7	90·1	89·7	94·7	85·5	13·7	13·6	71	72	3·7	2·7	6·0	5·3	25·2	82·8	Monthly Totals or Means.
Normal	1014·2	1014·1	89·6	88·8	94·1	85·1	13·9	14·1	75	80	3·5	2·5	—	—	56·6	—	Normals.
	45 years.						30 years.				35 years.				45 years		

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

1	978·8	976·2	88·0	88·7	91·2	87·4	16·7	16·5	99	93	200 7	210 5	10●⁰ F	10● H	24·6	84·9	≡ ⸗ early; ● ≡⁰ *a.*; o. *p.*; ● ≡⁰ *n.*
2	972·5	979·6	87·0	81·4	90·0	78·4	14·7	8·7	93	80	240 5	240 3	10● I	2 J	8·8	85·4	● *a.*; o.p⁰ *p.*; o. to b. *n.*
3	980·5	979·1	81·8	83·9	86·9	75·8	10·3	12·8	91	99	— 0	200 4	10●⁰ I	10●⁰ I	13·2	73*0	b. 1h.; ● to op. *a.*; op. to c. *p.*; ●⁰ *n.*
4	982·8	979·6	85·7	85·0	87·0	82·7	12·1	13·5	83	97	220 7	160 3	9 J	10●⁰ G	4·7	81·2	op. to o. *a.*; o. *p.*; ● *n.*
5	979·4	970·4	86·0	83·0	87·8	82·6	11·3	11·1	76	91	220 6	80 2	9 J	10●⁰ I	1·9	80·1	o. to c. *a.*; o., ●⁰ at times *p. and n.*
6	971·6	978·0	85·8	83·7	87·9	81·7	11·4	10·1	78	79	240 8	260 4	9 J	1 K	11·3	81·5	●⁰ ≡⁰ early; b. to ●² *a.*; ●² to c. *p.*; b. *n.*
7	980·0	977·9	85·6	83·0	87·4	81·6	11·6	9·9	80	81	220 7	260 3	9 J	3 I	2·6	79·5	d⁰ 1h.; o. *a.*; p² *p.*; bc. *n.*
8	981·9	984·1	85·0	82·5	87·8	80·6	11·7	9·5	84	80	270 5	— 1	7● J	5 J	2·0	79·0	cp. *a.*; op. to c. *p.*; bc. *n.*
9	985·0	981·6	84·2	83·9	87·2	80·2	9·6	11·2	73	87	240 3	160 3	7 J	10●⁰ I	2·0	76·6	bc. to c. *a.*; o. *p.*; op⁰ *n.*, ● after 21 h.
10	974·8	977·1	85·3	83·1	88·1	82·7	13·4	11·2	94	91	170 5	— 0	9 J	8 J	9·7	82·0	● ≡⁰ early; o., p² 12h. *a.*; c. *p. and n.*
11	978·8	981·7	85·5	83·8	88·8	82·7	13·0	11·5	90	89	30 5	30 5	10 J	10 I	1·7	80·0	b. 1h.; ● to o. *a.*; op⁰ *p.*; o. *n.*
12	980·6	978·8	83·7	84·3	85·7	82·9	11·1	12·6	87	95	— 0	— 1	10 I	10●⁰ H	1·6	82·0	o., d⁰ at times, *a. and p.*; o. to ● ≡⁰ *n.*
13	980·8	984·5	86·5	83·4	89·4	78·7	11·4	10·5	74	84	150 3	— 1	8 J	4 I	—	75·8	b. ☰ to c. *a.*; c. to bc. *p. and n.*
14	987·3	988·3	87·4	81·2	88·2	81·2	8·8	9·2	58	85	— 1	— 1	5 K	5 J	—	78·6	o. 1h. bc. *a.*; c. to bc. *p. and n.*
15	987·0	985·0	87·0	82·1	90·3	76·8	9·8	9·7	62	84	— 1	— 0	7 J	3 K	—	72·6	bc. early; cy. *a. and p.*; bc. to b. *n.*
16	979·5	974·9	84·3	87·9	88·0	78·3	12·6	14·3	95	85	160 3	140 5	10 I	9 J	*x*25·2	75·2	bc. ⊕ 1h.; od. *a.*; ● *p. and n.*
17	981·6	991·1	86·8	87·1	92·2	81·0	13·9	14·7	89	92	40 4	50 5	10 J	4 J	1·3	78·1	op⁰ to o. *a. and p.*; op. 18h. then c. to bc. *n.*
18	995·4	995·5	85·9	87·1	95·0	85·0	13·9	14·7	94	92	— 1	— 0	10 I	2 K	0·1	84·8	o. ≡⁰ to c. *a.*; bc. to b. *p. and n.* [≡⁰*n*
19	994·6	991·0	90·8	88·9	96·0	84·0	16·4	15·9	81	89	50 3	— 1	3 H	9 H	—	80·9	b. ☰ early; b. ≡⁰ *a.*; bc. ∞ *p.*; bc. to o.
20	987·2	983·2	92·1	87·9	*x*96·2	82·1	14·9	14·4	68	86	— 0	30 2	2 I	9 G	—	79·1	☰, ≡⁰ early; bcy. *a. and p.*; o. ≡⁰ *n.*
21	980·4	981·4	83·0	85·3	86·6	81·8	10·5	13·5	86	95	20 6	30 9	10● I	10● H	3·6	82·1	o. to ●⁰ *a.*; d⁰ ≡⁰ *p.*; o. to ●⁰ ≡⁰ *n.*
22	982·4	986·7	87·4	86·4	89·2	85·3	15·3	14·2	94	93	30 5	10 2	10 I	9 I	1·0	84·8	●⁰ ≡⁰ early; o. *a.*; d⁰ ≡⁰ to o. *p. and n.*
23	989·0	990·0	89·4	87·5	91·8	85·3	15·0	15·1	81	92	— 0	— 0	9 I	6 I	—	85·2	≡⁰ 1h.; o. *a. and p.*; c. to bc. *n.*
24	991·4	988·5	87·5	85·5	91·0	85·4	14·8	12·4	90	86	— 0	— 1	10 H	9 J	—	82·4	o. ≡⁰ *a. and p.*; o. *n.*
25	986·8	988·8	85·6	82·8	88·9	79·5	13·2	9·2	91	76	210 4	210 2	10●⁰ G	2☰ J	0·3	82·0	d⁰ ≡⁰ to c. *a.*; ⊕ 13 h.; bc. to b. ☰ *p. and n.*
26	988·1	977·2	84·2	88·1	88·2	77·7	10·4	16·3	79	96	220 6	210 13	9 J	10● H	15·5	74·4	bc. ☰ early; c. to o.; o.q. after 15h.
27	980·3	980·3	85·9	81·9	88·1	80·4	9·9	10·5	67	93	260 9	— 0	6 K	10● H	15·8	80·9	● q. 1h.; bc. *a.*; ● *p.*; ● ≡⁰ *n.*
28	986·1	983·7	83·8	81·3	87·8	75·5	9·3	9·1	72	84	— 0	— 1	2 J	9 I	0·1	73·0	b. ☰ early; c. *a. and p.*; c. to o., ●⁰ 22h. *n.*
29	979·3	983·9	82·6	80·2	83·4	78·2	10·3	9·0	87	89	60 3	20 3	10 K	9 J	23·4	79·0	●° ≡° early; o.*a.*; ● ≡⁰ 11h.-20h. then o. to b.
30	990·8	992·8	82·8	79·5	88·0	73·6	9·7	7·7	80	80	220 4	— 1	6 J	0 K	—	70·7	b. ⸗ to bc. *a.*; b. c. to c. *p*; bc. () *n.*
31	992·7	988·1	83·6	84·3	87·3	*n*71·7	9·7	12·2	76	92	— 0	190 5	6 K	10 I	4·1	*n*69·0	b. ⸗ to o. *a.*; ●⁰ ≡⁰ 15-20h. then o. to ●⁰.
Mean	983·5	983·2	85·8	84·3	89·1	80·7	12·2	12·0	82	88	3·6	2·8	8·1	7·0	174·5	79·2	Monthly Totals or Means.
Normal 1911-1920	984·9	985·2	86·4	84·6	89·8	81·1	12·5	12·1	82	88	4·5	3·2	—	—	123·0	—	Normals.

Temperatures at or below the normal freezing point of water are printed in small type. *x* denotes the maximum, and *n* the minimum, value in the column.

5. GEOPHYSICS :—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force.						Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}.		Air-Earth Current. × 10^{16}	Potential Gradient, Volts per metre.* Factor 2·35.			
					Horizontal Comp't.		Declination.		Inclination.				+.	−.					
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			About 15 h.		About 15 h.	3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m	v/m	v/m	v/m
1	93·0	89·6	167	..	..	..	..	..	..	..	0	0	..	..	..	160?	145?	130?	170?
2	92·9	89·5	166	..	..	..	..	..	..	..	1	1	..	1·10	..	—	—	−55	160
3	91·9	89·6	167	..	..	..	..	..	..	..	2	1	1·37	..	0·60	130	285	100	230
4	91·0	89·6	165	..	11 26	18362	14 20	14 25·6	14 37	66 57·8	1	0	..	..	..	130	170	145	115
5	91·2	89·5	165	..	..	..	..	..	14 42	67 0·3	1	1	..	..	..	100	130	115	100
6	91·2	89·4	163	..	..	..	..	..	..	..	1	0	..	..	..	130	130	55	160
7	91·6	89·4	165	..	..	..	..	..	..	..	1	0	..	..	..	115	130	55	115
8	91·5	89·2	168	..	..	..	..	..	..	..	1	0	..	0·41	0·45	130	170	70	170
9	91·4	89·2	169	..	..	..	..	..	..	..	0	0	..	..	0·20	130	185	30	115
10	91·4	89·2	170	..	..	..	..	..	..	..	0	0	0·63	..	0·65	130	200	70	130
11	91·8	89·2	171	171	10 43	18380	14 27	14 29·4	..	..	2	1	0·72	..	0·65	100	185	55	130
12	91·3	89·2	171	171	..	..	..	..	..	..	1	0	..	0·68	..	115	115	130	200
13	90·6	89·1	170	..	..	..	..	..	..	..	0	2	..	..	..	170	−130	85	145
14	90·8	89·1	169	..	..	..	..	..	..	..	1	1	..	..	..	145	170	−15	245
15	90·3	89·1	167	..	..	..	..	..	..	..	1	1	0·76	..	0·65	145	160	115	70
16	89·9	89·1	166	..	..	..	..	..	..	..	1	0	..	0·74	1·10	200	215	160	160
17	91·0	89·1	165	..	10 54	18388	14 32	14 23·5	..	..	1	1	..	..	..	100	145	115	30
18	91·4	89·0	165	..	..	..	..	..	..	..	0	0	..	..	..	160	460	315	445
19	91·1	89·1	164	..	..	..	..	..	15 9	66 55·9	0	0	..	0·47	1·75	185	375	275	315
20	91·6	89·1	164	..	..	..	..	..	..	..	1	0	..	..	..	145	345	160	145
21	91·1	89·1	165	..	..	..	..	..	..	..	0	1	..	..	..	115	55	55	70
22	90·5	89·1	166	..	..	..	..	..	..	..	0	0	..	..	..	55	185	115	115
23	90·1	89·1	166	..	..	..	..	..	..	..	0	1	..	0·34	0·85	185	245	z ±	230
24	90·2	89·0	166	..	..	..	..	..	..	..	0	1	..	..	..	70	160	145	115
25	90·0	89·0	166	..	10 59	18379	14 26	14 23·6	15 0	66 57·9	0	0	0·72	..	1·25	130	230	145	170
26	89·7	89·0	165	..	..	..	..	..	..	..	1	0	..	0·52	0·70	200	315	100	185
27	90·7	88·9	164	..	..	..	..	..	..	..	1	0	..	..	..	85	115	115	230
28	90·9	88·9	164	..	..	..	..	..	..	..	0	0	..	..	..	85?	115?	100?	170?
29	91·0	88·9	163	..	..	..	..	..	..	..	0	0	0·40	..	0·55	55?	160?	85	160
30	90·1	88·9	163	..	..	..	..	..	..	..	2	0	..	0·52	0·90	200	170	145	160
31	89·6	89·0	162	162	..	..	..	..	..	..	1	0	0·45	..	1·15	170	275	145	275
M.	91·0	89·2	166	—	—	—	—	—	—	—	0·68	0·39	0·72	0·60	0·82	134	190	115	167
No. of days used.	31	31	31	—	—	—	—	—	—	—	31	31	7	8	14	26	26	26	26

The 1st, 28th and 29th were omitted when calculating the monthly means of potential gradient, the behaviour of the electrograph being doubtful at the hours the observations of which are queried.

6. GEOPHYSICS :—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force.																Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre.* Factor 5·97.			
	North Component.					West Component.				Vertical Component.												
	Maximum 15000 γ +.		Minimum. 15000 γ +.		Range.	Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.	Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.				3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ				v/m	v/m	v/m	v/m
1	20 5	1032	977	9 55	55	15 13	789	737	7 42	52	8 0	1076	1056	12 0	20	0	ø		75	100	35	ø
2	20 21	1050	986	9 25	64	13 55	808	746	22 43	62	21 8	1082	1050	11 45 / 12 40	32	1	ø		ø	ø	115	165
3	5 46	1043	917*n*	8 7	126	12 33	843	747	5 40	96	14 15	1097	1046	4 43	51	1	2 *c*		365	z +	140	290
4	17 41	1063	966	10 31	97	13 38	811	737	6 0	74	19 29 / 19 46	1090	1058	24 0	32	2	1 *b*		115	95	150	185
5	18 38	1052	929	9 32	123	13 28	815	714	0 30	101	18 30	1093	1032	3 8	61	2	1 *b*		195	115	75	60
6	15 12	1052	949	9 51	103	12 32	810	744	8 17	66	16 18	1095	1030	3 2	65	1	2 *b*		100	90	165	180
7	18 48	1032	959	9 8 / 9 12	73	12 47	805	737	6 26	68	16 55	1076	1048	4 10	28	1	1 *b*		180	145	5	190
8	23 0	1037	961	10 16	76	15 10	808	732	7 20	76	16 10	1090	1031	4 30	59	1	1 *b*		80	−35	150	230
9	23 27	1042	962	11 6	80	13 58 / 14 38	801	748	7 52	53	20 25 / 20 40	1081	1052	11 25	29	0	1 *a*		145	125	120	100
10	20 46	1030	976	11 53	54	14 32	794	738	0 36	56	17 15	1071	1055	3 12	16	0	1 *b*		145	325	100	185
11	17 54	1071	971	13 55	100	14 41	838	695	21 44	143*x*	17 50	1099	1046	12 40	53	1	1 *a*		220	140	70	45
12	0 50	1027	973	11 30	54	0 5	828	732	1 28	96	18 0	1072	1008	0 49	64	0	1 *a*		75	45	115	140
13	19 32	1043	983	10 35	60	12 51	807	742	6 50	65	17 20	1077	1054	12 30	23	0	**		125	220	**	**
14	19 33	1054	970	11 20	84	13 31	790	737	7 21	53	20 51	1075	1053	0 48	22	1	**		**	**	**	**
15	16 51	1056	960	11 53	96	15 10	830	731	7 45	99	17 58	1118*x*	1045	1 15 / 12 22	73	2	**		**	**	**	**
16	19 4	1089*x*	947	11 14	142*x*	13 39	812	714	18 57	98	18 57	1099	1029	0 29	70	1	**		**	**	**	**
17	18 11	1058	969	10 28	89	13 2	806	737	18 2	69	18 0	1099	1056	11 9	43	1	**		**	**	**	**
18	22 18	1027	975	11 22	52	12 38	811	744	6 21	67	15 50	1093	1055	10 50	38	0	**		**	**	**	**
19	20 40	1038	978	10 11	60	13 18 / 13 41	802	743	6 25 / 7 1	59	17 32	1072	1060	11 10	12*n*	0	**		**	**	**	**
20	19 15	1052	970	10 13	82	0 1	805	743	20 30	62	20 30	1077	1052	0 57	25	0	**		**	**	**	**
21	18 35	1040	972	12 8	68	13 3	826	733	7 42	93	18 17	1079	1047	12 48 / 13 2	32	1	2 *b*		60	55	100	40
22	18 22	1032	976	10 0	56	12 36	806	739	7 46	67	18 58	1074	1050	13 10	24	0	†		200	245	170	†
23	19 6	1026	972	10 17	54	14 4	808	738	8 28	70	17 15	1066	1042	12 55	24	0	†		†	†	50	300
24	18 20	1039	972	11 38	67	14 0	807	743	7 0	64	19 30	1073	1050	12 20	23	0	1 *a*		95	90	160	285
25	20 59	1026	969	11 30	57	13 23	805	742	7 25	63	7 10	1073	1049	12 39	24	0	0 *a*		195	110	190	250
26	14 50	1047	948	12 0	99	14 48	849*x*	740	4 9	109	18 24	1103	1047	11 16	56	2	2 *c*		125	100	160	−225
27	19 24	1069	957	11 50	112	13 5	812	735	5 40	77	16 12	1094	1049	1 51	45	1	2 *b*		95	115	−20	−680
28	22 50	1034	988	9 / 10 25 / 20	46	12 4	792	737	6 38	55	7 42	1074	1053	11 20	21	0	0 *a*		170	150	110	295
29	21 32	1023	985	10 11	38*n*	12 43	791	747	6 11	44*n*	5 5	1069	1052	12 20	17	0	2 *c*		55	50	z ±	175
30	18 23	1074	950	14 30	124	13 59	823	690*n*	22 31	133	18 16	1109	1014	24 0	95*x*	2	0 *a*		370	315	170	295
31	0 57	1025	974	9 52	51	14 2	797	721	1 28	76	15 40	1081	999*n*	0 38	82	1	1 *b*		185	130	140	215
M.	—	1045	966	—	79	—	811	734	—	76	—	1085	1044	—	41	0·71	1·16		150	124	115	105
No. of days used.	—	31	31	—	31	—	31	31	—	31	—	31	31	—	—	31	19		17	17	17	17

x denotes the maximum, and *n* the minimum, value in the column.

*The potential gradient is reckoned as positive if the potential increases upwards.

z Indeterminate. ø Burner choked. † Light failed. ** Electrometer out of order.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	8·6	..	3·1	..	10·1	..	3·7	..	6·8	..	1·2	..	6·2	..	2·3	..	17	8 50
2	5·4	..	3·1	..	..	..	6·2	..	..	1·7	9·7	..	2·3	..	1·3	..	18	13 55
3	4·0	..	2·3	..	2·8	..	4·8	..	7·5	..	6·4	..	3·9	..	6·8	..	17	14 35
4	2·8	..	7·7	..	5·5	..	4·7	..	9·5	..	..	..	5·3	..	4·5	..	17	15 25
5	2·5	..	3·0	..	..	Ca	lm	..	10·2	..	..	..	8·2	..	4·7	..	19	19 40
6	3·6	..	9·8	..	6·0	..	7·0	..	4·7	..	8·2	..	1·5	..	8·4	..	18	3 50
7	1·0	..	5·5	..	5·1	..	6·1	..	3·0	..	2·5	..	..	..	9·8	..	15	22 50
8	..	2·0	11·3	..	1·6	..	9·4	..	6·0	..	7·0	..	..	..	4·3	..	15	3 00
9	..	..	6·9	..	2·1	..	3·7	..	6·2	..	3·6	..	7·4	..	1·3	..	14	22 50
10	7·1	..	4·1	..	2·5	..	3·0	..	..	0·7	4·2	..	..	Ca	lm	..	17	0 35
11	..	4·5	0·8	..	..	8·5	..	..	..	8·0	..	2·9	..	3·9	..	4·5	13	16 25
12	..	3·0	..	5·3	..	Ca	lm	..	..	0·5	2·6	..	3·5	..	3·0	..	9	23 05
13	..	..	5·9	..	..	3·9	4·5	..	..	1·8	3·1	..	0·6	..	3·2	..	10	1 05
14	..	0·6	3·2	..	..	1·2	3·4	..	..	1·1	2·0	..	..	Ca	lm	..	8	4 40
15	..	1·0	5·5	..	..	2·1	2·5	..	..	1·5	2·6	..	3·3	..	2·8	..	9	23 35
16	6·1	..	1·1	..	8·5	..	..	..	6·6	..	..	..	8·0	..	2·9	..	16	16 00
17	3·5	..	..	0·6	..	1·5	..	2·6	..	8·8	..	5·1	..	5·4	..	3·1	10	15 25
18	..	1·9	..	5·3	..	4·5	..	3·9	..	4·8	..	2·8	..	3·0	..	0·5	6	5 35
19	..	3·5	..	0·6	..	4·2	..	0·7	..	4·2	..	0·7	..	2·0	..	0·3	7	15 55
20	..	Ca	lm	..	..	2·1	..	2·5	..	7·8	1·4	..	..	9·8	3·6	..	18	23 40
21	..	10·5	6·6	..	..	10·1	3·7	..	..	8·4	1·5	..	..	4·9	..	..	20	7 25
22	..	5·5	..	1·0	..	4·8	0·9	..	..	3·6	..	..	..	Ca	lm	..	8	5 00
23	..	Ca	lm	..	..	5·5	2·0	..	..	6·1	1·1	..	..	5·2	..	..	11	16 25
24	..	5·1	0·9	..	..	3·7	1·3	..	..	2·3	2·8	..	4·5	..	2·6	..	11	23 45
25	..	..	4·9	..	..	..	10·2	..	..	2·8	4·8	..	1·6	..	2·9	..	15	11 30
26	..	1·1	6·1	..	3·5	..	3·0	..	7·4	..	4·2	..	7·3	..	6·2	..	19	23 50
27	3·9	..	6·8	..	..	1·1	6·5	..	9·4	..	5·4	..	8·5	..	7·1	..	21	18 00
28	..	3·2	0·6	..	..	1·7	..	1·0	..	2·8	..	3·3	..	1·0	..	2·8	9	0 20
29	..	3·0	3·5	..	..	4·2	7·4	..	1·0	..	5·5	..	..	4·4	7·7	..	14	19 40
30	..	8·5	..	..	..	2·8	2·3	..	0·7	..	4·2	..	3·0	..	3·5	..	14	0 40
31	1·8	..	1·5	..	6·8	..	..	2·5	8·5	..	..	..	8·1	..	1·4	..	17	23 50
S+N & W+E	103·7		117·0		116·4		109·5		154·4		98·8		122·8		101·5			
S−N & W−E	−3·1		91·4		−7·4		83·1		20·6		69·2		45·6		79·1			

SCOTLAND N.:—DEERNESS.

Cup. Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	1·9	..	..	2·3	3·7	..	..	2·1	..	2·8	2·3	..	..	1·8	..	3·1	6·6	13
2	3·0	..	..	2·5	2·0	..	..	..	..	2·6	4·5	..	1·3	..	7·1	..	7·9	20
3	4·3	..	3·7	..	8·1	..	1·4	..	7·0	..	..	2·6	5·8	..	..	2·1	8·2	9, 12, 18
4	3·8	..	0·7	..	5·1	..	2·9	..	2·8	..	1·0	..	..	Ca	lm	..	7·2	10, 11
5	2·4	..	0·9	..	2·0	..	5·5	..	5·1	..	8·8	..	..	..	2·0	..	10·2	15
6	..	Ca	lm	..	1·1	..	2·0	..	..	Ca	lm	..	..	2·1	2·5	..	8·2	16
7	3·0	..	3·5	..	2·0	..	5·5	..	..	..	6·6	..	..	1·1	6·5	..	9·8	23
8	..	2·5	6·8	..	..	3·6	9·8	..	..	5·8	6·8	..	..	4·0	3·4	..	11·5	12
9	..	1·8	1·5	..	..	Ca	lm	..	2·5	..	..	2·1	2·5	..	..	2·1	4·3	1, 24
10	..	..	..	7·5	..	1·3	..	7·4	..	3·7	..	6·5	..	5·1	..	6·1	8·2	16
11	..	5·1	..	2·9	..	4·2	..	0·7	..	3·6	..	..	..	2·6	0·5	..	6·9	1
12	..	1·6	0·3	..	..	2·3	..	..	..	3·0	..	0·5	..	2·6	..	0·5	4·6	18
13	..	2·8	1·0	..	..	4·3	3·7	..	..	5·4	3·1	..	..	4·2	2·4	..	6·9	14
14	..	1·3	1·5	..	..	3·1	3·8	..	..	5·1	0·9	..	..	3·4	1·9	..	5·6	14
15	..	4·3	1·6	..	..	5·8	2·1	..	..	6·2	3·6	..	..	3·1	1·1	..	9·5	12
16	..	Ca	lm	..	0·6	..	..	3·2	2·3	..	..	6·2	1·3	..	..	7·4	8·2	24
17	1·3	..	..	7·4	..	..	..	7·9	1·0	..	..	5·5	1·6	..	..	4·3	8·5	1
18	4·5	..	..	0·8	4·3	..	..	..	..	2·1	5·8	..	..	Ca	lm	..	8·5	14
19	1·7	..	2·0	..	2·6	..	1·5	..	3·7	..	1·3	..	4·2	..	..	2·4	5·6	20
20	4·3	..	..	1·6	..	Ca	lm	..	..	3·1	3·8	..	..	2·0	1·7	..	5·6	16, 17
21	..	5·8	2·1	..	..	5·1	..	2·9	..	5·7	..	4·8	..	3·0	..	3·5	8·9	17
22	..	2·1	..	5·8	..	1·8	..	4·9	..	1·6	..	4·3	..	2·1	..	3·7	6·9	10
23	..	1·3	..	2·3	..	Ca	lm	..	..	3·3	2·8	..	..	2·5	3·0	..	5·2	18
24	..	2·3	2·8	..	..	Ca	lm	..	4·9	..	..	..	1·0	..	2·8	..	5·2	24
25	..	..	3·6	..	..	2·5	6·8	..	1·4	..	8·1	..	..	..	5·6	..	9·2	13, 17
26	..	..	3·0	..	2·8	..	4·8	..	1·1	..	6·5	..	8·0	..	..	4·6	11·8	23
27	..	9·5	11·3	..	..	..	13·8	..	..	..	11·8	..	..	1·6	4·3	..	14·8	3
28	..	1·9	3·4	..	..	2·8	4·8	..	..	2·5	2·1	..	..	Ca	lm	..	6·6	11
29	..	Ca	lm	..	..	3·4	..	4·0	..	3·4	..	4·0	..	3·2	..	0·6	5·9	13
30	..	1·9	3·4	..	..	1·8	10·3	..	..	5·2	9·1	..	..	3·3	5·7	..	11·5	14
31	..	1·5	2·6	..	..	1·0	1·2	..	0·5	..	1·5	..	4·8	..	..	2·8	8·2	24
S+N & W+E	75·9		88·8		77·3		113·0		97·2		126·9		78·2		93·7			
S−N & W−E	−15·5		22·6		−8·7		46·8		−32·6		53·9		−17·2		7·3			

ENGLAND S.W.:—SCILLY.

Cup. Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	4·1	..	3·5	..	5·0	..	2·9	..	7·8	..	2·8	..	..	0·9	4·9	..	8·8	12, 18
2	2·0	..	5·5	..	..	2·3	12·8	..	..	1·4	8·0	..	3·6	..	6·3	..	14·2	8
3	..	..	10·8	..	..	1·6	9·2	..	..	1·5	8·7	..	..	2·7	7·4	..	13·5	5
4	..	..	7·7	..	4·1	..	3·5	..	4·5	..	7·8	..	3·4	..	6·0	..	10·8	12
5	4·3	..	5·1	..	5·3	..	3·0	..	8·5	..	3·1	..	9·4	..	7·9	..	12·3	21
6	..	1·3	7·6	..	..	..	6·3	..	2·8	..	7·6	..	1·1	..	6·2	..	9·3	17
7	1·6	..	4·5	..	4·5	..	1·6	..	5·2	..	9·0	..	..	5·3	9·2	..	10·8	18
8	..	1·1	6·0	..	..	0·6	3·4	..	..	1·8	4·9	..	..	2·4	4·2	..	8·3	1
9	..	1·2	3·2	..	..	Ca	lm	..	2·5	..	0·9	..	1·9	..	3·4	..	5·0	23
10	..	3·9	4·5	..	..	1·9	2·2	..	..	4·8	4·1	..	..	2·5	1·4	..	6·3	15
11	..	1·9	..	0·3	..	5·6	..	..	..	3·9	4·5	..	..	5·6	4·8	..	8·1	22
12	..	5·3	3·0	..	..	5·7	4·8	..	..	..	9·3	..	..	2·0	11·3	..	11·8	23
13	..	3·1	8·4	..	..	3·4	9·3	..	..	3·4	9·3	..	..	2·8	7·8	..	12·5	7
14	..	2·5	4·3	..	..	1·2	2·2	..	..	Ca	lm	..	..	Ca	lm	..	7·1	1
15	..	Ca	lm	..	..	1·6	0·9	..	..	1·2	1·4	..	..	Ca	lm	..	2·7	11
16	..	Ca	lm	..	3·2	..	2·7	..	..	0·9	5·3	..	0·9	..	5·3	..	7·9	14
17	..	1·1	6·3	..	..	Ca	lm	..	..	2·4	..	2·8	..	4·0	..	2·3	7·9	1
18	..	Ca	lm	..	..	1·4	..	3·9	..	2·8	..	2·4	..	1·0	..	2·7	6·3	11
19	..	0·7	..	2·0	..	4·5	..	3·9	..	2·2	..	1·2	..	4·9	..	0·9	7·1	10
20	..	3·7	..	..	..	5·9	..	..	..	7·9	..	..	..	7·9	..	..	8·3	12,20
21	..	9·1	..	..	..	11·7	..	..	..	8·0	6·7	..	..	5·9	2·2	..	12·5	12
22	..	2·5	..	0·4	..	6·3	..	..	..	6·5	1·1	..	..	5·4	..	..	7·6	11, 13
23	..	2·9	..	0·5	..	3·4	..	..	..	5·4	..	..	..	5·4	..	..	7·9	19
24	..	5·9	..	..	..	2·5	..	..	..	4·1	3·5	..	..	2·4	2·8	..	7·9	2
25	..	1·2	6·6	..	..	..	5·4	..	..	3·3	5·8	..	..	0·9	2·3	..	7·1	8
26	..	..	2·1	..	0·3	..	1·7	..	..	..	5·4	..	1·4	..	7·8	..	9·1	23
27	1·2	..	7·0	..	0·9	..	4·9	..	2·3	..	4·0	..	1·7	..	4·7	..	9·2	2
28	1·0	..	2·7	..	3·2	..	1·2	..	2·3	..	4·0	..	..	..	2·5	..	4·6	13, 15, 19
29	..	5·8	4·9	..	..	0·7	4·1	..	..	1·6	9·0	..	..	3·8	6·6	..	11·3	16
30	..	2·9	1·7	..	..	Ca	lm	..	..	Ca	lm	..	..	Ca	lm	..	3·4	3
31	5·5	..	..	2·0	3·2	..	..	1·2	5·8	..	..	1·0	4·1	..	0·7	..	6·3	2
S+N & W+E	75·8		110·6		90·0		91·1		104·8		133·6		93·3		121·6			
S−N & W−E	−30·4		100·2		−30·6		73·1		−21·4		118·8		−38·3		109·8			

ENGLAND E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	..	0·7	3·7	..	..	..	7·0	..	8·0	..	6·8	..	0·9	..	5·4	..	13	14 40
2	2·9	..	5·0	..	5·0	..	8·7	..	..	..	10·5	..	..	2·6	4·6	..	18	12 30
3	..	Ca	lm	..	0·9	..	5·4	..	..	2·1	5·6	..	..	Ca	lm	..	12	11 40
4	..	0·5	3·0	..	..	2·7	4·8	..	..	3·7	4·4	..	..	..	7·0	..	12	22 45
5	0·9	..	4·9	..	..	..	7·5	..	..	..	4·5	..	4·2	..	7·4	..	15	18 5
6	..	..	8·5	..	..	5·5	6·5	..	..	4·8	5·7	..	..	3·0	5·2	..	18	1 45
7	..	1·8	3·2	..	..	3·2	3·8	..	..	2·2	3·9	..	1·7	..	2·1	..	12	11 10
8	..	3·0	3·5	..	..	5·0	4·2	..	..	4·0	4·7	..	..	Ca	lm	..	12	8 15
9	..	2·2	2·7	..	..	5·0	..	..	2·1	..	..	3·6	1·2	..	2·2	..	11	9 30
10	3·7	..	4·4	..	7·7	..	1·4	..	6·4	..	1·1	..	3·4	..	4·0	..	11	20 20
11	3·3	..	..	..	4·0	..	..	..	3·7	..	..	0·7	..	2·5	..	0·4	10	5 20
12	..	Ca	lm	..	..	2·3	1·9	..	..	5·2	..	1·9	..	Ca	lm	..	10	12 55
13	..	Ca	lm	..	..	Ca	lm	..	..	..	1·6	..	..	Ca	lm	..	8	13 0
14	..	2·2	1·2	..	..	3·3	1·2	..	..	4·4	..	..	..	Ca	lm	..	12	13 5
15	..	2·2	2·7	..	..	5·0	..	..	..	4·7	..	4·0	..	Ca	lm	..	10	16 40
16	1·1	..	3·1	..	..	0·5	3·0	..	9·7	..	5·6	..	5·4	..	4·6	..	15	15 55
17	6·8	..	2·5	..	6·6	..	..	2·4	5·4	..	..	1·9	2·6	..	..	7·1	10	23 5
18	3·1	..	..	2·6	..	..	..	3·7	..	..	..	3·3	..	3·9	..	4·6	9	22 25
19	..	2·2	..	5·9	..	..	..	9·4	..	..	..	9·5	..	..	..	9·0	13	22 35
20	1·2	..	..	6·7	0·9	..	..	5·4	1·0	..	..	2·8	..	Ca	lm	..	11	4 5
21	..	2·3	0·8	..	..	2·0	0·3	..	..	2·0	..	..	..	Ca	lm	..	5	6 45
22	..	Ca	lm	..	..	Ca	lm	..	6·0	..	1·1	..	1·5	..	..	1·2	7	15 25
23	..	1·6	..	..	..	5·5	..	2·0	..	3·7	..	2·1	..	2·2	1·2	..	9	6 50
24	..	3·2	0·6	..	..	5·0	..	..	..	5·4	..	..	..	2·7	1·0	..	8	15 30
25	..	Ca	lm	..	..	2·6	3·1	..	..	2·2	1·9	..	..	3·8	3·2	..	9	21 0
26	..	0·8	2·3	..	..	1·1	2·9	..	..	1·7	3·0	..	1·5	..	2·7	..	9	23 50
27	2·2	..	6·1	..	..	1·5	8·4	..	..	0·9	5·0	..	1·7	..	4·6	..	14	9 5
28	..	..	4·9	..	..	..	4·0	..	..	0·8	..	4·7	6·9	..	1·2	..	12	23 50
29	2·1	..	3·6	..	..	1·8	5·1	..	..	5·4	4·6	..	..	2·3	1·3	..	14	13 5
30	..	3·4	1·9	..	..	4·5	..	..	..	4·4	..	0·8	1·1	..	2·9	..	14	11 25
31	..	1·7	3·0	..	..	Ca	lm	..	4·0	..	2·3	..	2·0	..	3·5	..	12	13 20
S+N & W+E	55·1		86·8		81·6		102·1		103·9		107·6		57·1		86·4			
S−N & W−E	−0·5		56·4		−31·4		56·3		−11·3		37·0		11·1		41·8			

8. Seismological Diary

The notation used is explained in the Introduction.

Earthquakes—Eskdalemuir.

Day.	Phase	Time G.M.T.	Period	Amplitudes. A_N.	Amplitudes. A_E.	Amplitudes. A_Z.	Δ.	Remarks.
		h. m. s.	s.	μ	μ	μ	km.	
9	e_Z (?P)	10 50 7	..	..	..	..	?8,700	
	e_E (?S)	11 0 2	..	..	..	..	..	
	L	11 18	..	..	..	..	..	
	F	11 55	..	..	..	..	..	
10	P	14 15 18	..	..	..	..	2,290	L phase irregular.
	S	14 19 6	..	..	..	..	..	
	L	?14 22	..	..	..	..	..	
	F	15	..	..	..	..	..	
13	e_N	13 14 26	..	..	..	..	..	L phase weak.
	e_E	13 14 26	..	..	..	..	..	
	e_Z	13 14 26	..	..	..	..	..	
	e_N	13 23 59	..	..	..	..	..	
	e_Z	13 23 59	..	..	..	..	..	
	L	13 40	..	..	..	..	..	
	F	14 25	..	..	..	..	..	
14	e_E (?P)	13 24 46	..	..	..	..	?5,750	N-S record defective.
	i_Z	13 24 42	..	..	..	..	..	
	e_E (?S)	13 32 6	..	..	..	..	..	
	?SR	13 35 37	..	..	..	..	..	
	L	13 40	..	..	..	..	..	
	M_E	13 46 14	21	..	9	..	..	
	F	15	..	..	..	..	..	
16	L	6	..	..	..	..	..	Faintly developed L phase.
	F	6 32	..	..	..	..	..	
22	e	4 28 8	..	..	..	..	..	
	L	4 49	..	..	..	..	..	
	M_N	5 3 to	18	2	..	..	..	
		5 4	..	..	..	..	..	
22		13 14 to	..	..	..	..	..	Faint disturbance.
		13 25	..	..	..	..	..	
23	e_N	5 15 55	..	..	..	..	..	
	e_E	5 15 54	..	..	..	..	?1,870	
	i_Z	5 15 55	..	..	..	..	..	
	e_N	5 19 7	..	..	..	..	..	
	L	5 20	..	..	..	..	..	
	M_N	5 22 16	14	3	..	..	..	
	F	5 50	..	..	..	..	..	
23	i_N	20 20 42	..	..	..	..	?1,590	Vertical disturbance commenced very sharply and was well marked throughout.
	i_Z	20 20 42	..	..	..	..	..	
	i_N	20 23 27	..	..	..	..	..	
	L	?20 24	..	..	..	..	..	
	M_N	20 25	16	62	..	..	..	
	F	22	..	..	..	..	..	
31	L	21 34	..	..	..	..	..	
	F	22 0	..	..	..	..	..	

Microseisms of N. Component—Eskdalemuir.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s.	μ	s.	μ	s.	μ	s.
1	1·0	4	0·8	4·5	0·6	4	0·6	4·5
2	0·6	4·5	0·7	4·5	0·6	4·5	0·6	4·5
3	0·5	4·5	0·4	4·5	0·7	4·5	0·8	4·5
4	1·0	4·5	0·9	4·5	1·0	4·5	0·9	4·5
5	1·0	4·5	1·0	4·5	1·0	4·5	0·9	5
6	1·0	4·5	1·1	4	1·0	4·5	1·0	4·5
7	0·8	4·5	0·8	4	0·8	4	0·7	4·5
8	0·8	4·5	0·7	4	0·7	4	0·5	4·5
9	0·9	5	0·5	4·5	0·6	4	0·5	4
10	0·8	4	0·5	4·5	0·5	4	0·4	4
11	0·5	4	..	..	0·6	4	0·5	4
12	0·8	4	0·5	4·5	0·5	4	0·4	4
13	0·5	4	0·5	4·5	..	..	..	..
14	..	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..	..
16	0·3	4	0·2	4·5	0·5	4	0·6	4
17	0·9	5	0·8	5·5	1·0	4·5	0·9	4
18	0·7	4	0·2	4·5	..	..	..	..
19	0·0	0	0·0	0	0·1	3·5	0·1	4
20	0·1	3·5	0·1	3·5	0·1	4	0·1	3·5
21	0·1	4	0·3	3	0·6	3	0·4	3·5
22	0·4	3·5	0·3	3·5	0·3	3·5	0·2	4
23	0·5	4	0·5	5	0·3	4·5	0·4	5
24	0·2	4·5	0·1	4·5	0·2	4·5	0·2	4
25	0·2	4·5	0·2	5	0·8	6	0·8	5
26	0·8	5	0·9	5	0·9	6	0·9	5·5
27	0·8	5·5	1·0	4	0·8	4·5	0·6	5
28	0·9	4·5	0·9	4	0·6	4·5	0·2	4
29	0·2	4	0·1	4	0·2	4	0·1	3·5
30	0·1	3·5	..	..	0·2	4·5	0·1	4
31	0·3	4	0·1	4	0·3	3·5	0·1	3

Means for month $\begin{cases} A_N. = 0·6\ \mu. \\ T = 4·2\ s. \end{cases}$

Normals for month, 1911–20: $\begin{cases} A_N. = 0·5\ \mu. \\ T = 4·3\ s. \end{cases}$

Earthquakes—Richmond (Kew Observatory).

Day.	Times, G.M.T., of Commencement.	Times, G.M.T., of Maximum Amplitude.	Remarks.
	h m	h m	
9	..	12 08	Very small.
10	..	14 22	Small.
14	13 35	13 48	Small. Small waves to 14h. 20m.
22	..	5 03	Very small.
23	..	5 23	Very small.
23	20 25	20 27	Amplitude on trace 2·1 mm. Waves to 21h. 35m.
31	..	21 44	Very small.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour. G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.–E.	S.–N.	
1 7	Ci.	270	2·5	+ 2·5	0·0	Ci. coarse in texture.
13	Cu.	205	8·3	+ 3·5	+ 7·4	Cu. of thundery appearance.
2 13	A.-Cu.	210	5·0	+ 2·5	+ 4·3	
18	Cu.-Nb.	270	8·3	+ 8·3	0·0	
3 7	Ci.	220	4·2	+ 2·6	+ 3·1	Ci. in radiant bands. Radiant S.W. Type heavy and coarse.
13	Ci.-Cu.	190	3·1	+ 0·6	+ 3·0	Ci. now become Ci.-Cu.
4 7	A.-Cu.	230	3·6	+ 2·7	+ 2·3	
13	St.-Cu.	235	5·6	+ 4·6	+ 3·3	
5 7	Cu.-Nb.	270	10·0	+10·0	0·0	
18	A.-Cu.	249	3·8	+ 3·6	+ 1·3	
6 7	A.-Cu.	270	5·7	+ 5·7	0·0	
13	Cu.	281	8·3	+ 8·2	− 1·4	
18	Cu.-Nb.	297	10·0	+ 8·8	− 4·5	
7 9	A.-Cu.	248	2·8	+ 2·6	+ 1·0	
8 7	St.-Cu.	275	6·5	+ 6·5	− 0·5	
13	Cu.	280	4·2	+ 4·0	− 0·7	
18 {	Ci.	270	4·0	+ 4·0	0·0	Faint indefinite Ci.
{	Cu.	280	4·2	+ 4·0	− 0·7	
9 13	Cu.	268	3·6	+ 3·6	+ 0·1	
18	Ci. to Ci.-Cu.	264	3·3	+ 3·2	+ 0·3	Ci. to Ci.-Cu., floccular and irregular.
13 13 {	St.-Cu.	287	5·8	+ 5·5	− 1·6	
{	Cu.	290	7·8	+ 7·4	− 2·6	
14 13	St.-Cu.	275	2·0	+ 2·0	− 0·2	Cu. flattening out into St.-Cu.
18	Cu.	310	2·5	+ 1·9	− 1·6	Cloud lower than at 13h. Some eddying visible.
15 13	Cu.	325	9·6	+ 5·5	− 7·9	Closed sheet of Cu., altitude obviously low.
18 {	Ci.	325	2·6	+ 1·5	− 2·1	Slight threads of Ci. Radiant N.W.
{	St.-Cuf.	300	12·0	+10·4	− 5·9	
22 7	St.-Cu.	80	3·0	− 2·9	− 0·4	High type of St.-Cu., rather fused structure.
13	A.-Cu.	116	2·5	− 2·3	+ 1·0	Fused sheet of A.-Cu. with edging of finer flakes.
25 7	St.-Cu.	268	4·3	+ 4·3	+ 0·1	High St.-Cu., fusing into sheet.
13	Cu.	276	3·6	+ 3·6	− 0·3	
18	St.-Cu.	280	5·7	+ 5·6	− 1·0	Low St.-Cu., formed from apices of Cu.-Nb.
26 7	St.-Cu.	276	6·9	+ 6·8	− 0·6	St.-Cu., rather low in altitude.
13	Cu.	272	6·2	+ 6·2	− 0·1	Degraded Cu., sheet of A.-St. above.
27 13	Cu.	264	6·9	+ 6·8	+ 0·6	Cu. to small Cu.-Nb.
28 13	Cu.	270	1·5	+ 1·5	0·0	Cu. packing into sheet.
18 {	A.-Cu.	257	3·7	+ 3·6	+ 0·7	A.-Cu. to small high St.-Cu.
{	Cu.	105	6·2	− 6·0	+ 1·6	
29 7	Cu.	45	8·0	− 5·6	− 5·6	Low Cu., eddying.
13	Ci.	267	1·2	+ 1·2	+ 0·1	Slight bands of Ci. at 90° to direction.
18	Cu.-Nb.	10	4·2	− 0·8	− 4·1	
30 7	St.-Cu.	293	4·2	+ 3·7	− 1·6	
13 {	St.-Cu.	290	4·1	+ 3·7	− 1·4	High St.-Cu., becoming lenticular later.
{	Cu.	303	8·5	+ 7·1	− 4·6	
18	St.-Cu.	302	5·0	+ 4·3	− 2·6	St.-Cu. layer, lower than that observed at 13h.
31 13	St.-Cu.	293	4·0	+ 3·6	− 1·5	Cloud layer rapidly dispersed with change of wind direction.
15	Ci.	259	1·3	+ 1·3	+ 0·2	Ci. of true type.
18	A.-Cu.	262	1·4	+ 1·4	+ 0·2	A.-Cu. in small flotillæ.

NOTE.—Spell of uniform stratus cloud from 10th to 12th and spell of fog from 16th to 21st.

10. AURORA.

None Reported.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

DAILY VALUES.—*Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology.*

Eleventh YEAR.—No. 9. SEPTEMBER, 1921.] Units based on the C.G.S. System. [*Price* 1*s.* 6*d. net.*

1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	11·30 h. to 12·30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p_0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	3·8	28	1200	41	78	12 45	75	3·6	27	..	..	..	0·7	5	..	..	..	..	0·0	0
2	1·1	8	832	29	64	10 45	61	0·6	4	..	..	..	6·5	47	..	..	..	..	2·8	21
3	8·5	63	1401	49	69	12 25	69	9·1	68	82	59	Clear	0·6	4	..	..	..	..	7·9	59
4	x10·3	77	1446	51	64	13 10	62	x10·8	81	..	..	..	3·4	25	..	..	..	..	4·8	36
5	9·6	72	1237	44	70	12 15	70	9·7	73	76	54	Hazy	5·8	43	..	..	..	..	10·6	80
6	7·3	55	708	25	37	10 05	31	9·4	71	..	..	..	3·5	26	..	..	..	..	x11·7	88
7	9·4	71	1127	41	59	12 00	59	10·4	79	53	38	Hazy	9·9	74	..	..	..	..	0·0	0
8	9·9	76	1155	42	57	12 20	57	10·0	76	64	44	Clear	8·5	64	12 10	Haze	1 53	71	1·0	8
9	8·8	68	..	..	..	..	..	8·6	66	67	46	Clear	7·1	54	..	..	..	..	0·3	2
10	4·6	35	..	..	..	..	..	4·4	34	..	..	..	7·1	54	..	..	..	..	7·0	54
11	7·0	54	..	..	..	..	..	6·1	47	..	..	..	2·9	22	..	..	..	..	0·1	1
12	7·7	60	..	..	..	..	..	8·8	69	88	60	Clear	5·1	39	..	..	..	..	3·8	29
13	0·0	0	..	..	..	..	..	0·0	0	..	..	..	1·5	12	..	..	..	..	0·0	0
14	2·7	21	..	..	..	..	..	1·8	14	..	..	..	3·4	26	..	..	..	..	0·1	1
15	3·3	26	..	..	..	..	..	3·7	29	..	..	..	4·3	34	..	..	..	..	4·5	35
16	9·2	73	..	..	..	..	..	10·2	81	79	52	Clear	x10·9	86	..	..	..	..	7·9	63
17	0·4	3	..	..	..	..	..	0·5	4	..	..	..	0·8	6	..	..	..	..	9·4	75
18	0·0	0	..	..	..	..	..	0·0	0	..	..	..	7·2	58	..	..	..	..	0·0	0
19	0·0	0	..	..	..	..	..	0·0	n0	..	..	..	4·1	33	..	..	..	..	0·0	0
20	0·0	0	..	..	..	..	..	0·0	0	..	..	..	1·9	15	..	..	..	..	8·4	68
21	4·3	35	..	..	..	..	..	5·9	48	..	..	..	2·3	19	..	..	..	..	0·0	0
22	6·0	49	..	..	..	..	..	7·0	57	..	..	..	0·0	0	..	..	..	..	0·6	5
23	2·7	22	..	..	..	..	..	1·8	15	76	48	Clear	0·4	3	..	..	..	..	0·2	2
24	0·0	0	..	..	..	..	..	0·0	0	..	..	..	4·8	40	..	..	..	..	3·5	29
25	9·8	82	..	..	..	..	..	9·2	77	..	..	..	4·7	39	..	..	..	..	7·0	58
26	6·9	58	..	..	..	..	..	8·0	67	75	45	Clear	6·4	54	..	..	..	..	10·4	87
27	2·4	20	..	..	..	..	..	4·2	35	..	..	..	0·4	3	..	..	..	..	10·0	84
28	6·4	54	..	..	..	..	..	7·2	61	48	28	Hazy	6·0	51	..	..	..	..	9·8	83
29	4·8	41	..	..	..	..	..	6·3	54	39	23	Hazy	0·0	0	..	..	..	..	8·7	74
30	6·2	53	..	..	..	..	..	7·2	62	46	27	Hazy	2·6	22	..	..	..	..	4·0	34
Means.	5·10	40	—	—	—	—	—	5·48	43	—	—	—	4·09	32	—	—	—	—	4·48	36
Normals.	4·23 (35 years)	34	909 (8 years)	36	—	—	—	4·83 (35 years)	39	—	—	—	3·91 (10 years)	31	—	—	—	—	4·43 (35 years)	36

Callendar Radiograph dismounted after 8th September, 1921.

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day.	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%	°	m/s.	°	m/s.	Tenths of Sky covered		mm.	a 200+		
1	1009·1	1012·9	88·0	87·4	89·3	86·2	15·7	15·1	93	93	240	8	315	5	8	10	—	86·2	c. early. Dull day.	
2	1015·7	1018·3	86·9	86·4	88·3	85·0	11·3	10·2	72	67	310	3	—	1	9	8	—	83·0	o. at first; Fair *p.*	
3	1017·8	1015·8	87·0	86·7	89·2	81·0	11·9	12·5	75	80	160	3	155	5	6	8	—	77·5	Fair ☌ *a.*; Fair, ☾, ⊕ day.	
4	1014·5	1014·9	88·2	87·7	90·8	86·4	13·0	14·2	76	86	175	6	160	5	7	4	—	81·8	o. to c. *a.*; Fair day.	
5	1017·1	1020·0	89·0	87·0	91·5	84·9	15·9	13·6	88	86	170	4	—	1	7	2	—	83·8	Fine, ☾ all day.	
6	1021·1	1019·7	88·9	88·8	91·1	84·4	16·1	16·2	90	91	145	3	180	3	2 ≡0	10 ≡0	—	80·6	☌ early; Fine ∞.	
7	1016·5	1015·3	88·9	89·3	91·2	88·2	16·1	16·7	90	91	175	5	175	4	10 ≡0	10 ≡0	—	86·2	Fair ∞ *a.*; o. ∞ *p. and n.*	
8	1016·0	1014·4	87·8	86·5	88·6	85·4	14·0	12·8	84	83	50	3	—	0	9	8	0·6	84·8	●0 *a.*; Fair day.	8 17841γ 19° 6′·2 68° 2′·7
9	1005·4	1004·0	86·8	86·2	88·5	83·8	14·1	11·9	90	79	170	7	285	8	10 ●0	3	9·3	79·2	Fair, ☌ early; ● day.	
10	1008·4	1010·3	86·0	86·0	88·0	84·4	11·0	12·0	74	81	245	9	240	8	3	9	2·1	80·7	Fine p. *a.*; c. to op. *p.*	
11	1008·6	1005·3	87·2	86·1	87·9	85·0	13·5	13·2	84	88	205	3	280	8	10	5	5·2	82·3	o. with ● *a. and p.*; bc. *n.*	
12	1013·9	1003·8	86·0	88·5	89·5	84·5	11·3	16·8	76	96	275	4	185	8	6	10 ●	x9·4	80·3	Fine *a.*; ●0 *p.*	
13	1006·0	1003·0	87·9	88·5	89·5	86·5	14·8	16·6	88	95	220	5	180	6	10 ●0	10 ●0≡0	4·7	83·7	p. *a.*; ●0 *p. and n.*	
14	1009·0	1015·2	86·3	85·5	87·3	83·3	11·5	11·0	76	76	270	6	295	3	10	10	1·9	83·9	●0 early; o. to c. *a.*; o. *p.*; ☐ *n.*	
15	1017·7	1019·8	84·8	83·5	87·8	81·4	11·2	10·1	81	80	—	1	—	0	10	8	0·2	78·2	p0. early; c. to o. *a.*; Fine ☾ *p.*; ☐ *n.*	
16	1019·6	1017·5	84·5	85·0	88·1	n78·4	10·7	9·3	79	67	75	2	100	5	4	4	—	n75·9	☌ early; Fine *a. and p.*; ☐ *n.*	
17	1017·8	1022·4	86·0	85·3	88·3	84·2	10·6	10·8	71	76	80	3	—	1	8 ≡0	8 ≡0	—	78·1	Fine *a.*; Fine y. ∞ *p.*	
18	1023·8	1022·0	86·0	87·3	88·2	85·1	11·7	13·4	79	83	90	3	—	0	10 ≡0	10 ≡0	—	80·3	o. to c. ∞ *a.*; o. ∞ *p. and n.*	
19	1020·0	1019·5	87·2	87·4	89·9	84·0	14·0	15·3	87	94	—	1	—	0	10 ≡0	10 ≡0	—	80·2	c. ∞ *a.*; o. ∞ *p. and n.*	
20	1021·6	1021·7	85·8	84·3	87·7	83·4	11·7	11·4	80	86	—	0	—	0	2	8	0·2	79·9	Fair, p0. *a.*; Fine *p.*	
21	1021·2	1024·4	87·5	88·4	88·9	84·8	14·3	16·6	87	96	175	6	—	1	10	10 ●0≡0	0·6	79·2	o. early; o. ≡0 to d. ≡0 most of day	21 68° 4′·1
22	1026·7	1027·4	89·8	89·6	x92·3	88·5	18·2	17·6	96	94	165	2	—	1	10	10	1·3	87·6	d0. early; p. *a.*; o. *p. and n.*	22 178347 19° 4′·1
23	1026·4	1026·3	88·7	88·6	90·5	88·3	17·0	16·9	96	96	215	3	—	1	10	10 ●0≡0	0·6	87·3	Dull, ≡0 *a. and p.*; o. to d0. ≡0 *n.*	
24	1027·8	1028·6	87·5	86·3	90·7	85·9	14·3	13·8	87	91	90	2	—	0	8	8	—	82·4	Fair most of day.	
25	1028·3	1027·3	87·3	85·8	90·0	84·8	15·0	13·3	93	91	—	0	—	0	8	0 ☌	—	83·0	o. ∞ *a.*; Fine day; ☌ *n.*	
26	1026·3	1024·4	85·7	86·8	90·6	81·6	14·0	13·1	96	84	—	0	—	0	0	0	—	79·5	☌☌ early; Very fine day.	
27	1024·0	1024·5	89·9	88·4	92·0	85·9	13·2	13·0	69	75	105	4	110	4	0 ≡0	0 ≡0	—	78·4	☌☌ early; Very fine day with ∞.	
28	1024·2	1022·4	87·3	84·3	90·7	82·6	12·9	12·1	80	91	—	0	—	1	0 ≡0	0 ≡0☾	—	80·6	☌ at first; Very fine day, ∞.	
29	1019·1	1014·5	84·6	85·7	90·6	80·9	12·6	11·4	93	78	60	2	80	2	2 ≡0	0 ≡0	—	79·1	☌☌ early; Fine day.	
30	1010·5	1008·3	86·3	88·5	90·5	83·8	12·7	13·5	84	77	—	0	—	1	7 ≡0	7 ≡0	0·6	80·4	Fair *a.*; c. to ☿ p. later.	
Means.	1017·8	1017·5	87·1	86·9	89·6	84·4	13·5	13·5	84	85		3·3		2·8	6·9	6·7	36·8	81·5	Monthly Totals or Means	178377 19° 5′·2 68° 3′·4
Normals.	1014·3 (45 years)	1014·5	86·6	86·2	89·6 (45 years)	83·8	13·4	13·2 (30 years)	85	86		4·7 (35 years)		4·3	—	—	113·3 (45 years)	—	Normals	

* By Campbell-Stokes Sunshine Recorder.

x denotes the maximum and *n* the minimum value in the column.

3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind—Veer from North in degrees and Speed in metres per second.				Cloud Amount Weather and Visibility				Rain 0 h. to 24 h.	Min. Temp. on Grass.	Remarks.
					Max.	Min.	Vapour Pressure.		Percentage												
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.		21 h.		9 h.		21 h.			18 h. to 9 h.	
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%	°	m/s.	°	m/s					mm.	a 200+	
1	1014·5	1010·7	92·2	90·3	94·9	84·4	14·1	15·7	64	80	185	4	205	4	10	J	7	L	0·1	82·0	o. to fine; *a. and p.*; ●⁰ *n.*
2	1011·5	1016·1	89·5	89·7	93·6	87·2	15·5	12·9	83	68	255	3	330	2	10	J	9	J	—	85·5	p. early; mostly o.
3	1019·2	1017·9	87·9	86·5	94·0	83·1	9·9	10·5	59	68	330	2	—	1	8	H	0	K	—	76·3	Fine after 9h.; ∞⁰.
4	1017·9	1018·3	86·9	88·3	94·8	79·9	11·0	12·6	70	73	—	1	260	2	3	G	0	K	—	74·2	☂, ≡⁰; Fine, ∞⁰.
5	1020·0	1020·4	88·7	89·2	96·7	83·0	12·8	13·2	72	72	—	1	175	2	1	H	0	K	—	78·9	☂, ≡⁰; Fine, ∞⁰ after 8h.
6	1022·9	1022·2	88·3	89·2	98·0	81·9	12·4	14·6	72	80	—	0	—	0	0	☂	G	0	I	—	77·0	☂, ≡⁰; Fine, ∞.
7	1021·8	1018·7	89·5	90·1	99·9	82·9	14·6	13·5	78	70	—	0	—	1	0	G	0	K	—	78·1	≡, ☂ early; ≡⁰ 9h.; Fine, ∞.
8	1017·4	1014·1	91·1	88·0	x100·6	82·7	14·6	11·8	71	70	—	1	—	0	0	E	0	K	—	77·4	≡, ☂ early; ≡⁰ 8½h.; Fine, ∞⁰.
9	1011·9	1007·5	90·5	92·7	100·5	81·7	12·5	15·2	63	67	140	2	—	1	0	G	8	I	—	77·3	≡, ☂; Fine to fair; ⊕ 12h.; 0 *p.*
10	1008·0	1012·0	89·3	87·3	92·1	85·2	15·4	10·2	84	63	220	4	260	3	10	J	7	L	0·2	86·9	Fine to dull; p., ⊕ 12h.; 0 *p.*
11	1012·1	1005·0	89·2	86·2	93·0	84·2	11·7	14·3	64	95	230	6	140	3	7	L	10●	H	x19·9	81·2	b. to o.; ⊕ 10h.; p. *p.*; ● *n.*
12	1010·4	1015·3	86·9	87·2	91·7	83·7	12·6	11·6	80	72	280	3	255	2	9	J	9	J	14·6	82·7	☈ oh. 30m.; ●, ⸝ (gusts); o. to fine.
13	1009·7	1013·0	91·2	89·8	93·6	87·0	18·0	18·0	87	95	225	6	—	1	10●	⁰ I	10	H	9·9	84·2	Dull; ● *a. and p.*; 0 later.
14	1013·2	1012·7	92·4	90·4	94·1	89·6	16·5	15·8	74	80	215	6	215	4	9	L	9	L	—	89·1	Mostly dull.
15	1015·5	1017·3	87·0	84·5	91·0	82·0	10·3	9·9	65	73	265	2	—	1	9	H	1	K	—	81·2	Dull to fine; ⊕ 9h., 13h.
16	1020·0	1021·2	85·0	85·1	89·6	79·1	9·5	9·4	68	67	320	3	55	6	2☂	J	0	J	—	n73·0	≡⁰, ☂ early; Fine.
17	1020·2	1023·5	87·0	86·9	89·2	83·3	9·8	10·7	62	68	50	8	45	5	10	H	10	J	—	81·2	o., ⸝(gusts), 10–14h.; ●⁰ *p.*
18	1025·0	1023·8	89·2	89·3	91·5	85·5	10·2	12·5	56	68	60	11	60	3	9	H	10	I	—	83·9	Fair early then dull.
19	1021·1	1019·3	86·4	87·4	89·5	86·2	14·5	15·6	95	96	65	2	—	0	10●	⁰ E	10	E	0·1	85·8	≡⁰, o. to ●⁰ *a.*; o. *p.*; ≡ 18h.
20	1019·8	1020·6	88·1	89·6	92·1	87·0	15·1	15·0	89	80	—	0	—	0	10	G	10	H	—	86·4	≡⁰; Dull, ∞.
21	1022·8	1025·3	88·3	87·7	94·7	84·9	15·0	13·4	87	81	—	0	—	1	10	F	0	I	—	84·1	≡⁰, ☂☂; Fine; ≡⁰ *n.*
22	1028·3	1028·0	86·4	88·9	95·4	81·8	12·2	16·1	80	90	285	2	—	1	3☂	H	2☂	H	—	75·9	≡⁰, ☂☂; Fine to c.; ≡, ☂ *n.*
23	1027·2	1025·4	88·2	91·4	95·4	85·6	15·9	16·4	93	78	—	1	—	1	10☂	F	8	J	—	81·1	≡⁰, ☂; Dull to fine.
24	1026·2	1027·9	90·8	88·6	93·3	85·9	15·1	14·0	75	80	295	2	40	3	10	H	0	J	—	87·3	Dull *a. and p.*; Fine *n.*
25	1029·0	1026·1	84·9	83·7	91·9	80·3	11·2	11·8	81	92	—	0	—	0	0☂	F	0☂	G	—	74·1	≡⁰ ☂; Fine, ∞ *a. and p.*; ≡⁰, ☂ *n.*
26	1026·0	1027·5	83·8	87·6	92·6	79·6	11·1	13·0	86	79	—	1	40	2	0☂	G	10	I	—	75·1	≡ early; ≡⁰ till 10h.; Fine to dull.
27	1029·7	1029·2	88·4	85·1	90·8	81·8	11·4	10·8	66	77	95	4	95	2	10	H	0	J	—	86·2	Dull to fine.
28	1028·4	1024·3	80·1	83·2	92·1	77·1	9·5	11·1	94	90	—	1	—	0	?0☂	A	0☂	E	—	73·7	≡² early; ≡, ☂ to 9h.; Fine, ∞ *p.*
29	1022·5	1019·4	79·3	84·4	90·7	n76·9	9·2	11·2	97	84	—	1	105	2	10☂	A	0	I	—	74·4	≡² early; ≡, ☂☂ to 9 h.; Fine, ∞ *p.*
30	1017·8	1014·9	85·8	84·4	93·8	78·7	12·0	10·4	82	78	100	4	—	1	1	F	0	H	—	75·0	≡² early; ≡, ☂ to 8h.; Fine, ∞.
Means	1019·7	1019·3	87·7	87·7	93·7	83·1	12·8	13·0	77	78	2·7		1·9		6·0		4·3		44·8	80·3	Monthly Totals or Means.
Normal	1016·0	1015·8	86·8	86·1	91·2	82·7	12·5	12·7	80	83	3·1		2·3		—		—		51·0 (45 yrs.)	—	Normals
	45 years.						30 years.				35 years.										

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

1	980·2	977·3	84·6	86·1	89·6	82·8	13·1	14·2	97	95	160	4	—	0	10●	F	4	K	x22·9	82·0	● ≡⁰ till 11h.; op. *p.*; ●² ≡⁰ to bc. *n.*
2	982·2	987·3	87·5	81·1	88·6	79·7	11·5	9·0	70	84	300	3	—	1	6	J	6	J	—	80·9	bc. to o. *a.*; c. to o. *p.*; o. to bc. *n.*
3	988·9	988·7	82·8	82·9	86·6	79·4	10·4	10·3	86	85	250	4	240	5	10●	⁰ J	8	J	0·5	76·1	o. to p⁰. *a.*; o. *p.*; o. to c. *n.*
4	988·7	989·5	86·1	84·7	89·3	80·8	12·9	12·3	86	90	220	4	—	0	4	I	9	J	—	78·4	b. 1h.; ≡⁝⁰ 7h.; bc. to o. *a.*; o. to c. *p. and n.*
5	990·3	992·7	86·5	83·8	90·4	83·4	13·4	11·9	87	93	210	4	—	0	10	I	4	G	—	82·1	o. early; c. to bc. *a. and p.*; b. ≡⁰ to ≡⁝ *n.*
6	994·0	994·5	86·5	85·3	91·5	84·5	14·2	13·2	92	93	210	4	—	0	10	H	9	D	—	80·1	≡⁝ early; o. *a.*; c. to bc. *p.*; ≡ *n.*
7	992·7	990·2	87·6	82·4	x93·1	79·0	14·8	10·2	90	87	180	2	—	0	2	H	0	H	0·1	81·8	≡⁝ early; b., ≡⁰ to b., ∞ *a. and p.*; b., ≡⁰ *n.*
8	989·8	987·1	87·3	85·1	92·8	75·9	13·6	13·5	84	96	190	3	—	0	7	H	10	C	—	74·0	≡⁝ ⁰ to o. ≡⁰; c. ≡⁰ to bc., ∞ *a. and p.*; c. ∞ to ≡ ⁝⁰.
9	981·7	975·7	88·0	86·7	92·7	79·9	13·8	13·7	82	88	—	1	200	8	1	I	10	I	0·5	77·5	≡⁝ ² early; b. to o. ∞; ⊕ 14½h.; c. ∞ to op. *n.*
10	974·3	974·8	83·6	81·3	86·0	79·3	9·9	8·9	78	82	240	9	230	7	7	I	4	J	18·0	78·5	●⁰ 1–3h.; b. 7h.; c. *a.*; bc. to c. ▲ p². *p. and n.*
11	973·0	976·1	82·0	79·1	85·1	77·3	8·6	8·0	75	85	230	12	—	1	10	J	6	J	2·4	79·2	b. 1h.; o., 7h.; op. to bcq. *a. and p.*; bc. to o. *n.*
12	979·3	980·5	83·5	80·5	86·7	75·2	9·5	7·6	75	73	240	4	260	5	9	J	9	J	2·0	73·0	≡⁝ at first; bc. to cp. *a. and p.*; c. to o. *n.*
13	981·0	982·2	80·8	80·6	83·9	77·6	8·4	9·8	80	94	60	5	30	2	8	K	10●	⁰ H	6·5	76·0	o. to c. *a.*; ●⁰ 13h.; ●⁰ ≡⁰ after 16h.
14	973·9	977·3	86·5	82·8	88·0	81·0	14·6	10·1	95	84	250	11	250	14	10●	I	8	J	21·9	80·0	Persistent ●²≡⁰ till 10h.; o. *a. and p.*; c. to bc. *n*
15	983·1	984·9	83·0	80·4	85·2	79·8	8·3	7·9	68	77	260	7	270	4	9	J	5	J	0·8	78·1	bc. to op. *a. and p.*; bcp⁰, Lunar ◠ *n.*
16	993·2	997·8	83·4	75·9	86·1	74·6	8·1	6·4	65	86	40	3	—	1	3	K	3	K	—	72·9	b. to bc. *a. and p.*; ☾ 18h.; b. *n.*; ☐ 20h.
17	1000·0	1003·3	81·5	80·5	84·6	75·1	8·3	7·8	75	76	60	5	—	1	10	K	10	J	—	71·6	c. early then o. all day.
18	1004·8	1002·5	83·9	83·3	87·6	80·0	9·5	9·8	74	79	60	6	100	4	2	J	8	J	—	78·7	o. at first; b. to c. *a. and p.*; bc. to o. *n.*
19	998·9	993·3	84·5	82·9	88·8	80·9	11·0	11·0	81	91	90	3	—	1	10	J	10	I	—	80·0	c. to o. *a. and p.*; o. *n.*
20	991·7	993·5	82·4	78·4	89·0	75·5	10·8	8·0	92	90	—	0	—	0	10	H	3	J	0·1	76·9	≡⁝ early; d⁰ ≡⁰ to o. *a.*; o. to bc. *p.*; b. *n.*
21	992·6	994·7	84·4	84·5	88·3	74·1	12·3	13·2	92	98	200	5	210	3	10	H	10●	D	0·8	71·5	b., ⌙ 1h.; ≡⁝ 7h.; o. ≡⁰ to c. *a.*; o. to d⁰ *p.*; d ≡ *n.*
22	995·0	995·0	87·4	89·2	89·6	85·4	16·2	17·3	100	95	200	5	210	7	10	C	10	H	1·1	83·8	●⁰ ≡ till 9h.; ≡⁝ *a. and p.*; ≡⁝⁰ *n.*
23	993·0	996·2	87·8	81·8	89·4	79·4	15·5	9·4	93	84	230	11	—	0	10●	G	3	J	2·1	87·1	☽⁰ ≡⁰ *a.*; o. to c. *p.*; bc. to b. *n.*
24	999·7	1001·4	84·4	78·0	86·9	74·8	8·9	8·1	67	93	290	4	—	0	4	J	0	J	—	74·7	bc. *a.*; o. *p.*; b. after 17 h.
25	1000·3	997·6	82·0	83·3	87·3	n72·5	9·7	10·9	85	88	180	2	220	3	10	J	4	J	—	n70·5	b. ⌙ early; c. to o. *a. and p.*; bc. *n.*
26	999·2	1002·3	87·4	80·9	89·4	76·0	11·6	9·4	71	89	—	1	—	0	2	K	0	I	—	79·3	b. to bc. *a.*; c. *p.*; b. *n.*
27	1002·8	1001·0	83·4	84·8	86·8	76·5	11·0	11·5	88	84	—	1	220	2	10	I	10	I	—	73·0	o. ≡⁰ early then o. all day.
28	998·9	997·1	86·3	80·0	90·2	79·0	11·2	9·1	74	91	220	4	—	0	7	J	3	G	—	77·2	c. to b.c. *a. and p.*; b. ≡⁰ *n.*
29	995·6	993·3	84·0	82·5	85·5	81·3	12·1	10·8	93	91	50	2	80	2	10	H	10	H	—	76·5	o. ≡⁰ to o. *a.*; ≡⁝ ⁰ *p.*; o. ≡⁰ *n.*
30	989·2	985·4	84·8	81·8	88·3	81·5	11·7	10·1	85	89	150	2	—	0	10	I	10	G	—	78·3	o. ≡⁝ ⁰ early; c., ⊕ *a. and p.*; c. to o. ≡⁰ *n.*
Means	990·3	990·4	84·8	82·4	88·2	78·7	11·5	10·4	83	88	4·4		2·5		7·7		8·5		79·7	77·7	Monthly Totals or Means.
Normal 1911-1920	986·7	985·1	83·7	82·0	87·1	78·6	10·8	10·3	84	88	5·0		4·0		—		—		102·2	—	Normals

Temperatures at or below the normal freezing point of water are printed in small type. x denotes the maximum, and n the minimum, value in the column.

5. GEOPHYSICS:—RICHMOND (KEW OBSERVATORY)

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force.						Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}.		Air-Earth Current. × 10^{16}.	Potential Gradient, Volts per metre.* Factor 2·25.			
					Horizontal Comp't.		Declination.		Inclination.				+.	−.					
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			About 15 h.		About 15 h.	3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m.	v/m.	v/m.	v/m.
1	89·0	89·0	162	..	10 46	18372	14 35	14 21·1	15 2	66 57·3	0	1	..	0·92	1·30	95	195	125	140
2	90·3	88·9	162	..	..	..	..	..	..	..	2	0	..	..	..	110	205	150	150
3	90·0	88·8	161	..	..	..	..	..	..	..	0	1	..	..	..	180	220	140	360
4	88·8	88·8	161	161	..	..	..	..	..	..	1	1	..	..	..	30	220	125	150
5	90·0	88·9	161	..	..	..	..	..	..	..	0	1	..	0·63	1·45	110	305	125	140
6	90·0	88·7	163	..	..	..	..	..	..	..	0	0	0·56	..	0·90	85	250	140	55
7	90·0	88·8	165	..	10 53	18366	..	..	..	..	1	0	..	0·76	0·85	165	235	110	205
8	90·0	88·7	166	..	..	..	10 49	14 19·8	15 0	66 56·6	2	0	0·65	..	0·55	85	275	205	150
9	89·8	88·7	166	..	..	..	..	..	..	..	1	1	..	0·74	1·35	235	360	55	110
10	90·7	88·8	167	..	..	..	..	..	..	..	0	1	..	..	..	70	140	95	165
11	89·7	88·8	166	..	..	..	..	..	..	..	0	2	..	..	..	85	110	30	z—
12	89·1	88·7	165	..	..	..	..	..	..	..	0	1	0·92	..	0·60	30	220	165	250
13	89·3	88·7	164	..	..	..	..	..	..	..	0	1	..	..	..	95	85	165	110
14	90·0	88·6	163	..	..	..	..	..	..	..	0	0	0·81	..	0·70	95	180	140	250
15	89·7	88·6	163	..	10 45	18374	..	..	14 40	66 57·9	0	0	..	0·34	1·05	150	385	220	165
16	88·0	88·7	162	..	..	..	14 18	14 21·7	..	..	1	0	0·67	..	0·95	165	315	345	345
17	87·6	88·6	162	..	..	..	..	..	..	..	0	0	..	..	..	260	540	440	375
18	87·1	88·3	165	..	..	..	..	..	..	..	0	0	..	..	..	160	315	275	290
19	87·4	88·2	167	..	..	..	..	..	..	..	0	0	..	..	0·25	180	305	260	140
20	87·6	88·2	169	..	..	..	..	..	..	..	0	0	0·54	..	1·00	85	205	180	140
21	88·1	88·1	170	..	..	..	..	..	..	..	1	0	..	0·22	0·85	125	195	165	165
22	87·6	88·1	171	171	10 45	18368	14 31	14 20·2	13 33	66 55·9	0	0	0·52	..	1·00	165	315	195	180
23	88·2	88·0	171	171	..	..	..	..	..	..	1	0	..	0·40	1·15	165	260	205	165
24	89·5	88·0	171	..	..	..	..	..	..	..	0	0	..	..	..	125	220	235	220
25	88·2	88·0	170	..	..	..	..	..	..	..	0	1	0·54	..	..	125	235	205	55
26	87·0	88·1	170	..	..	..	..	..	..	..	0	0	..	..	1·15	195	315	260	360
27	88·0	88·0	168	..	..	..	..	..	..	..	0	0	..	0·36	1·60	235	305	385	330
28	86·6	87·9	167	..	..	..	..	..	..	..	2	0	0·40	..	0·60	125	385	220	220
29	86·0	87·9	166	..	10 45	18361	14 29	14 21·5	14 53	66 58·3	2	0	..	0·22	1·70	150	360	375	260
30	85·6	87·8	165	..	..	..	..	..	..	..	1	0	0·85	..	0·85	180	315	150	315
M.	89·0	88·4	166	—	—	—	—	—	—	—	0·50	0·37	0·65	0·51	1·00	137	271	202	206
No. of days used	30	30	30	—	—	—	—	—	—	—	30	30	10	9	20	29	29	29	29

6. GEOPHYSICS:—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force.																Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre.* Factor 6·15.			
	North Component.					West Component.					Vertical Component.											
	Maximum. 15000 γ +.		Minimum. 15000 γ +.		Range.	Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.	Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.				3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ				v/m	v/m	v/m	v/m.
1	20 8	1018	974	9 53	44*n*	13 20	792	728	23 49	64	15 55	1080	1067	11 32	13	0	**	135	155	**	**
2	15 21	1073	854*n*	9 18	219*x*	10 1	827*x*	675	19 52	152	16 3	1154*x*	968	{4 58 / 5 2}	186*x*	2	**	**	**	160	370
3	15 18	1014	954	9 29	60	13 0	802	741	21 50	61	15 23	1096	1069	10 51	27	0	o *a*	240	95	110	205
4	19 42	1053	940	10 58	113	12 38	798	725	19 34	73	17 28	1101	1043	4 12	58	1	o *a*	185	300	150	230
5	22 2	1023	947	{10 35 / 11 51}	76	13 48	808	738	0 7	70	17 5	1092	1064	9 15	28	1	o *a*	145	225	135	930
6	23 12	1017	962	12 40	55	13 19	802	738	9 0	64	16 30	1092	1068	12 30	24	0	o *a*	460	240	180	450
7	21 25	1062	963	12 40	99	14 56	803	723	{23 17 / 23 22}	80	16 23	1092	1061	23 50	31	1	o *a*	440	355	215	440
8	1 32	1033	955	17 10	78	16 45	818	659	2 32	159	17 12	1120	1034	0 49	86	1	‖	495	260	230	‖
9	22 20	1028	968	11 19	60	22 20	801	728	7 29	73	0 1	1082	1063	3 32	19	1	‖	‖	130	260	285
10	21 55	1033	969	11 2	64	12 53	802	738	7 41	64	18 40	1079	1063	12 15	16	0	2 *c*	−700	170	−130	180
11	20 51	1023	972	10 15	51	13 7	791	744	8 50	47	22 25	1078	1062	12 0	16	0	2 *b*	55	20	120	305
12	22 11	1032	974	12 16	58	13 10	781	748	{8 8 / 8 14}	33*n*	{§ / 21 38 / 22 20}	1075	1059	11 18	16	0	1 *b*	85	140	z—	130
13	22 55	1037	973	12 0	64	13 55	789	744	23 12	45		1075	1060	{11 54 / 12 20}	15	0	1 *a*	55	215	85	90
14	24 0	1030	974	11 7	56	13 25	800	740	9 22	60	19 44	1074	1051	12 20	23	0	2 *b*	−15	45	145	55
15	4 0	1037	958	11 50	79	12 59	802	721	4 40	81	16 20	1080	1053	4 0	27	1	1 *b*	90	65	110	185
16	20 31	1046	976	10 19	70	13 4	793	730	21 10	63	21 23	1079	1063	12 56	16	1	o *a*	210	200	190	405
17	0 42	1019	970	10 13	49	13 14	792	744	4 55	48	23 40	1077	1058	12 39	19	0	o *a*	155	160	130	210
18	18 56	1025	963	10 14	62	13 42	798	727	20 39	71	20 46	1091	1060	12 25	31	1	o *a*	85	110	190	265
19	4 49	1020	967	8 32	53	13 41	803	743	4 40	60	¶	¶	¶	¶	¶	1	o *a*	170	215	285	370
20	21 5	1015	952	12 8	63	13 23	807	733	8 16	74	17 0	1083	1063	12 25	20	0	1 *a*	425	180	225	270
21	22 53	1053	962	12 40	91	13 30	800	732	23 38	68	0 1	1079	1033	23 24	46	1	o *a*	100	215	90	55
22	20 40	1015	966	11 2	49	14 30	778	738	0 34	40	7 0	1065	1038	0 1	27	0	ø	85	ø	ø	ø
23	2 24	1051	947	15 13	104	14 20	809	713	2 58	96	15 50	1075	1010	{4 30 to / 4 39}	65	1	ø	ø	90	**	**
24	20 30	1008	962	12 10	46	14 20	781	739	8 40	42	17 0	1070	1062	13 30	8*n*	0	**	**	**	110	460
25	19 29	1020	970	11 56	50	{14 14 / 14 50}	780	746	9 2	34	9 5	1069	1055	12 31	14	0	o *a*	165	105	130	95
26	22 45	1024	974	13 28	50	13 22	786	744	8 22	42	19 45	1069	1061	11 32	8*n*	0	†	†	110	175	130
27	22 54	1042	970	10 37	72	14 0	788	742	20 22	46	20 32	1071	1055	12 18	16	1	o *a*	45	175	230	215
28	23 8	1046	962	19 30	84	13 35	812	668	23 31	144	19 51	1133	1049	12 20	84	2	o *a*	130	130	165	170
29	19 14	1084*x*	936	11 48	148	1 35	809	642*n*	19 6	167*x*	19 3	1096	939*n*	2 0	157	2	ø	45	ø	ø	ø
30	22 28	1020	968	12 24	52	12 8	790	746	8 32	44	18 55	1082	1054	24 0	28	1	ø	ø	ø	170	440
M.	—	1033	959	—	74	—	798	726	—	72	—	1087	1048	—	39	0·63	0·50	128	169	145	270
No. of days used	—	30	30	—	30	—	30	30	—	30	—	29	29	—	29	30	20	19	19	19	19

The letters *x* and *n* denote the maximum and minimum values in the columns in which they occur. * The potential gradient is reckoned as positive if the potential increases upwards. z Indeterminate. ** Clock stopped. ø Instrument earthed. † Insulation faulty. ‖ Jet not working. ¶ Gas pressure low. § At 21h 0m., 22h. 0m., 22h. 45m.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	8·2	..	..	..	5·5	..	4·7	..	6·5	..	5·5	..	..	..	10·8	..	16	3 10
2	..	3·1	8·6	..	..	6·0	3·4	..	..	2·8	2·3	..	..	0·5	3·0	..	12	4 30
3	..	2·8	4·8	..	..	1·1	3·1	..	0·5	..	3·0	..	2·3	..	2·8	..	10	1 30
4	..	Calm		..	3·7	..	1·3	..	5·1	..	0·9	..	2·8	..	1·0	..	8	10 15
5	2·8	..	1·0	..	4·0	..	1·5	..	3·4	..	1·9	..	..	Calm		..	8	12 30
6	2·8	..	2·3	..	..	Calm		..	3·3	..	2·8	..	1·0	..	1·2	..	7	1 35
7	..	Calm		..	4·0	..	1·5	..	4·6	..	1·7	..	2·0	..	1·7	..	10	12 20
8	3·5	..	3·0	..	3·4	..	1·2	..	..	1·3	3·7	..	..	Calm		..	8	4 10
9	..	0·9	..	2·4	6·1	..	1·1	..	6·5	..	1·1	..	6·1	..	1·1	..	14	23 45
10	..	1·8	10·3	..	3·1	..	8·6	..	6·9	..	8·3	..	3·4	..	9·1	..	17	1 10
11	5·2	..	9·1	..	4·2	..	7·4	..	4·5	..	5·3	..	1·3	..	1·5	..	16	3 55
12	..	6·5	3·7	..	..	2·3	6·2	..	3·4	..	6·0	..	1·9	..	5·3	..	13	2 30
13	..	..	..	7·2	4·2	..	0·7	..	5·1	..	4·3	..	3·4	..	1·2	..	15	24 00
14	8·8	..	5·1	..	..	1·5	8·4	..	2·7	..	7·4	..	..	..	10·2	..	20	6 30
15	..	3·4	9·1	..	..	1·2	6·8	..	1·3	..	7·1	..	..	3·7	10·1	..	15	21 25
16	..	5·1	6·1	..	..	3·9	..	..	..	4·3	..	3·7	..	1·6	..	9·4	14	23 20
17	..	..	..	10·8	..	..	..	13·1	..	..	..	13·4	2·1	..	..	11·9	19	13 20
18	1·7	..	..	9·7	..	..	..	10·5	..	..	..	9·2	..	..	..	7·5	16	7 15
19	..	..	..	7·2	..	..	..	7·2	..	..	..	3·6	..	Calm		..	10	7 15
20	..	Calm		..	0·7	..	..	4·2	..	3·1	1·1	..	..	Calm		..	7	10 35
21	..	Calm		..	5·5	..	2·0	..	5·3	..	4·5	..	4·8	..	2·8	..	13	11 05
22	4·5	..	3·9	..	5·4	..	3·1	..	6·0	..	3·4	..	6·2	..	2·3	..	14	12 50
23	4·9	..	1·8	..	3·1	..	5·4	..	3·0	..	2·5	..	2·5	..	3·0	..	11	10 45
24	..	5·1	0·9	..	..	5·6	..	..	..	4·5	..	0·8	..	2·3	..	1·3	8	5 50
25	..	Calm		..	..	Calm		..	..	3·0	..	..	..	Calm		..	5	13 45
26	..	1·6	0·3	..	..	3·5	..	0·6	..	3·7	..	1·3	..	3·6	..	6·2	9	20 10
27	..	Calm		..	1·1	..	..	2·0	1·6	..	..	..	0·8	..	..	2·2	13	9 50
28	1·8	..	..	1·5	..	Calm		..	..	0·7	1·9	..	..	Calm		..	6	1 15
29	..	1·9	..	3·4	..	1·3	..	3·7	..	1·9	0·7	..	..	2·6	..	0·5	7	4 55
30	..	..	..	1·6	0·3	..	..	1·6	4·3	..	..	..	3·0	..	..	..	9	12 25
S+N & W+E	76·4		113·8		80·7		109·3		99·3		107·4		57·9		106·1			
S−N & W−E	12·0		26·2		27·9		23·5		48·7		43·4		29·3		28·1			

SCOTLAND N.:—DEERNESS.

Cup Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	6·1	..	..	5·1	5·5	..	..	1·0	1·6	..	..	..	..	4·0	3·4	..	8·9	1, 23
2	..	5·7	4·8	..	..	1·8	4·9	..	..	3·7	6·5	..	..	1·5	4·0	..	8·2	1, 16
3	..	0·5	3·0	..	..	1·0	5·8	..	..	..	2·0	..	2·2	..	..	0·8	5·9	9
4	0·9	..	..	5·1	0·7	..	..	4·2	3·0	..	..	3·5	1·9	..	..	0·7	5·9	13
5	3·7	..	1·3	..	7·1	..	1·3	..	..	..	5·2	..	0·9	..	2·4	..	7·2	9
6	..	Calm		..	2·6	..	0·5	..	2·0	..	..	..	2·4	..	0·9	..	3·6	22
7	3·6	..	..	..	6·9	..	..	..	4·2	..	..	0·7	2·2	..	0·8	..	6·9	9
8	..	3·0	2·5	..	..	Calm		..	2·3	..	..	0·4	..	Calm		..	4·6	2
9	..	Calm		..	1·5	..	..	2·6	4·3	..	..	3·7	3·9	..	..	..	7·5	24
10	6·9	..	..	..	6·5	..	3·7	..	9·5	..	3·5	..	10·7	..	3·9	..	13·4	23, 24
11	12·9	..	4·7	..	5·4	..	9·4	..	..	4·5	12·2	..	..	4·9	8·5	..	14·1	1, 2
12	..	2·6	7·0	..	0·6	..	3·5	..	..	4·7	5·5	..	..	8·0	4·6	..	9·2	21
13	..	5·7	3·3	..	..	4·8	2·8	..	..	3·5	0·6	..	..	Calm		..	8·5	1
14	4·0	..	..	4·7	8·0	..	..	9·6	4·7	..	..	8·2	5·4	..	3·1	..	16·1	24
15	..	..	14·8	..	..	1·1	2·0	..	..	2·0	1·1	..	..	9·2	..	..	18·0	2
16	..	7·4	2·7	..	..	5·7	3·3	..	..	4·3	1·6	..	..	2·6	..	0·5	9·2	2
17	..	2·4	..	0·9	..	..	..	2·0	..	..	..	2·3	2·8	..	..	2·3	3·9	1
18	3·4	..	..	1·9	6·8	..	..	2·5	7·4	..	..	1·3	6·2	..	..	2·3	8·2	19, 20, 24
19	8·3	..	..	3·0	7·7	..	..	2·8	7·4	..	..	4·2	8·6	..	..	3·1	11·8	19
20	8·8	..	..	3·2	6·2	..	..	2·3	..	0·9	4·8	..	..	Calm		..	11·1	1
21	6·1	..	1·1	..	7·8	..	1·4	..	2·4	..	0·9	..	1·3	..	3·7	..	8·5	8, 10
22	6·1	..	1·1	..	4·2	..	7·4	..	1·6	..	9·4	..	..	..	9·5	..	13·4	11
23	1·2	..	6·8	..	1·5	..	8·4	..	1·9	..	10·6	..	1·6	..	9·4	..	11·5	14
24	..	1·5	8·4	..	..	3·0	8·3	..	..	..	8·2	..	..	1·0	5·5	..	9·8	12
25	..	1·1	6·5	..	..	2·6	7·0	..	0·7	..	4·2	..	2·0	..	1·7	..	8·5	4
26	..	Calm		..	..	1·1	2·0	..	..	..	3·0	..	1·0	..	1·2	..	4·3	23
27	2·4	..	0·9	..	4·6	..	..	..	1·5	..	0·5	..	..	..	6·9	..	6·9	21
28	2·5	..	6·8	..	..	1·3	7·4	..	..	5·8	6·8	..	..	2·1	2·5	..	10·2	4
29	..	3·0	2·5	..	..	4·6	..	..	..	0·6	..	3·2	4·3	..	..	5·1	9·5	24
30	9·1	..	..	3·4	9·8	..	..	..	6·5	..	1·1	..	2·8	..	1·0	..	10·5	2
S+N & W+E	118·9		105·5		120·4		106·1		91·0		115·2		93·5		87·8			
S−N & W−E	53·1		50·9		66·4		52·1		31·0		60·2		26·9		58·2			

ENGLAND, S.W.:—SCILLY.

Cup Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	3·9	..	1·4	..	1·3	..	3·5	..	..	..	6·3	..	..	1·2	3·2	..	7·1	12
2	..	Calm		..	..	Calm		..	..	Calm		..	..	Calm		..	2·9	1
3	..	Calm		..	..	Calm		..	..	0·8	1·5	..	..	Calm		..	2·1	14
4	..	Calm		..	1·2	..	..	2·2	1·8	..	..	5·1	0·8	..	..	4·5	6·2	13, 17
5	0·9	..	..	5·3	0·8	..	..	4·5	1·7	..	..	4·7	0·4	..	..	2·1	7·9	11
6	0·5	..	..	2·9	0·8	..	..	4·5	1·7	..	..	4·7	1·6	..	..	4·3	5·0	13, 14, 15
7	0·9	..	..	2·3	2·2	..	..	2·6	..	Calm		..	1·0	..	..	1·8	4·6	12
8	0·3	..	..	1·7	..	..	..	1·7	..	Calm		..	..	..	..	1·7	2·9	1
9	..	Calm		..	..	Calm		..	..	Calm		..	2·9	..	5·1	..	7·6	24
10	..	6·1	5·1	..	..	5·2	6·1	..	..	..	7·9	..	..	..	7·6	..	8·3	12, 16
11	0·9	..	5·3	..	4·4	..	3·8	..	7·0	..	..	1·2	..	3·7	10·1	..	12·9	19
12	..	2·4	13·6	..	..	1·3	7·4	..	0·9	..	5·3	..	4·3	..	1·6	..	14·2	2
13	4·1	..	7·2	..	..	..	6·3	..	3·8	..	4·4	..	3·3	..	1·9	..	10·4	1, 4
14	5·5	..	3·1	..	6·7	..	2·4	..	..	0·5	2·9	..	..	Calm		..	7·5	10
15	..	1·3	..	1·1	..	1·4	..	2·5	..	2·2	..	1·9	..	3·1	..	1·1	5·3	12
16	..	Calm		..	..	..	..	5·0	..	..	..	6·3	..	..	..	3·8	9·6	24
17	..	..	..	10·6	..	..	..	12·1	..	..	..	12·1	..	1·4	..	8·2	13·3	1, 8
18	..	1·4	..	8·2	..	..	..	5·8	..	..	..	7·5	..	..	..	3·8	8·8	12, 14
19	0·3	..	..	1·7	..	Calm		..	..	Calm		..	..	Calm		..	5·8	14
20	..	Calm		..	..	Calm		..	..	2·1	..	0·4	..	Calm		..	2·9	17
21	..	Calm		..	..	1·7	..	..	..	Calm		..	..	Calm		..	2·5	13
22	..	Calm		..	..	Calm		..	..	Calm		..	..	Calm		..	2·9	1
23	..	Calm		..	..	Calm		..	..	Calm		..	..	Calm		..	2·5	16 to 19
24	..	Calm		..	..	Calm		..	..	2·2	..	1·9	..	3·5	..	3·0	5·0	{17, 18, 20, 23
25	..	1·6	..	4·3	..	..	..	7·5	..	..	..	7·9	..	0·4	..	2·1	7·9	15
26	..	0·4	..	2·1	..	1·3	..	3·6	..	..	..	4·2	..	0·9	..	4·9	7·9	24
27	1·7	..	..	9·5	1·3	..	..	7·4	1·4	..	..	8·2	..	..	..	7·9	11·3	5
28	1·1	..	..	6·2	1·0	..	..	5·7	..	..	..	5·4	..	..	..	4·2	7·9	1
29	..	..	..	3·3	1·2	..	..	7·0	1·2	..	..	6·6	..	..	..	5·4	7·5	11 to 14
30	1·8	..	..	5·1	2·0	..	..	5·5	2·0	..	..	5·5	2·3	..	..	6·3	7·1	22, 23
S+N & W+E	35·1		100·0		33·8		107·1		29·3		111·9		30·8		94·6			
S−N & W−E	8·7		−28·6		12·0		−48·1		13·7		−55·3		2·4		−35·6			

ENGLAND, E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	1·9	..	3·3	..	5·0	..	4·2	..	10·1	..	3·7	..	..	..	3·6	..	14	14 50
2	..	..	4·1	..	..	4·4	5·1	..	..	4·5	..	0·8	..	Calm		..	11	9 30
3	..	1·0	2·6	..	..	3·4	2·9	..	..	4·2	0·7	..	..	Calm		..	10	11 50
4	..	Calm		..	..	0·6	3·2	..	..	4·5	..	3·9	..	Calm		..	8	14 35
5	..	Calm		..	..	Calm		..	6·8	..	2·5	..	1·5	..	1·8	..	9	16 10
6	1·1	..	2·0	..	..	Calm		..	..	Calm		..	..	Calm		..	4	2 5
7	1·1	..	1·9	..	2·5	..	0·4	..	5·1	..	..	..	..	Calm		..	7	11 55
8	..	Calm		..	..	Calm		..	3·7	..	..	2·1	..	Calm		..	5	14 50
9	..	Calm		..	2·8	..	1·6	..	8·6	..	3·1	..	6·5	..	3·7	..	14	16 40
10	1·7	..	4·7	..	..	..	6·2	..	..	4·2	2·4	..	..	..	2·2	..	12	10 15
11	..	2·2	3·9	..	..	5·2	6·1	..	..	3·5	6·1	..	..	..	6·5	..	15	12 35
12	..	7·4	..	8·8	..	6·5	..	..	..	2·1	2·5	..	1·7	..	3·0	..	15	4 45
13	0·7	..	4·1	..	..	..	6·3	..	..	1·9	..	2·3	..	1·0	2·8	..	13	12 0
14	3·1	..	1·1	..	4·4	..	7·6	..	..	..	9·0	..	..	..	6·3	..	17	9 40
15	..	2·3	1·9	..	..	3·4	2·9	..	..	3·2	1·8	..	..	1·3	2·3	..	8	13 40
16	..	3·1	2·6	..	..	2·9	2·4	..	..	6·1	..	3·5	..	5·1	..	4·4	12	21 50
17	..	5·3	..	6·3	..	..	10·0	..	..	..	10·6	..	..	..	12·5	..	16	16 45
18	3·9	..	..	10·6	5·0	..	..	13·6	2·2	..	..	12·3	4·6	..	..	12·6	19	8 45
19	7·1	..	..	8·4	6·8	..	..	8·1	4·4	..	..	3·7	2·6	..	0·5	..	15	5 50
20	..	1·3	1·5	..	..	1·7	0·6	..	..	2·8	..	2·3	..	Calm		..	5	15 10
21	..	1·5	1·3	..	..	2·3	..	1·3	..	Calm		..	..	0·4	2·2	..	5	5 50
22	..	0·8	2·2	..	..	1·2	3·3	..	..	1·1	2·0	..	..	0·3	2·0	..	6	4 40
23	..	1·4	3·9	..	..	2·1	2·5	..	..	1·5	2·6	..	..	Calm		..	9	13 50
24	..	0·8	1·4	..	..	4·2	..	..	..	4·6	..	2·6	..	2·3	..	1·9	9	11 35
25	..	1·9	0·7	..	..	Calm		..	0·8	..	..	1·5	0·9	..	2·4	..	5	24 0
26	..	1·4	3·8	..	..	3·6	..	..	..	6·0	..	..	..	2·8	..	7·7	10	20 50
27	..	..	..	7·5	1·1	..	..	6·4	1·2	..	..	2·2	2·6	..	..	3·1	10	9 0
28	..	Calm		..	..	Calm		..	3·5	..	..	1·3	..	Calm		..	5	15 5
29	..	Calm		..	..	Calm		..	..	Calm		..	..	..	..	1·7	3	22 40
30	5·6	..	..	2·1	7·3	..	..	2·7	5·4	..	..	4·6	6·6	..	..	2·4	12	6 5
S+N & W+E	56·6		90·7		76·4		97·4		102·0		90·1		40·2		85·6			
S−N & W−E	−4·2		3·3		−6·6		33·2		1·6		3·9		13·8		18·0			

8. Seismological Diary.

The notation used is explained in the Introduction.

Earthquakes—Eskdalemuir.

Day.	Phase	Time. G.M.T.	Period.	Amplitudes. A_N.	Amplitudes. A_E.	Amplitudes. A_Z.	Δ.	Remarks.
		h. m. s.	s.	μ	μ	μ	km.	
1	e	10 26 17	..	..	..	..		
	F	11	..	..	..	..	..	
1	L	15 36 30	..	..	..	..	..	
	F	15 50	..	..	..	..	..	
3	e_Z	9 10 48	..	..	..	..	..	
	e_E	9 21 30	..	..	..	..	..	
	L	9 41 30	..	..	..	..	..	
	F	10 40	..	..	..	..	..	
5	eP_Z	20 9	..	..	..	..	..	Time marker out of action from 18h. 44m. onwards, so that times are only approximate. Commencement of P on horizontal record ill-defined, but a direct measurement of time interval S-P gives 9m. 40s. which corresponds to epicentral distance 8400 km.
	iS	20 18 5	..	..	..	..	..	
	L	20 30	..	..	..	..	..	
	M_E	20 40	20	..	18	..	..	
	M_N	20 40	22	16	..	..	..	
	F	22 40	..	..	..	..	..	
8	?e_N	19 48	..	..	..	..	..	Faint disturbance.
	L	20 2	..	..	..	..	..	
	F	20 20	..	..	..	..	..	
11	e_E	4 16 30	..	..	..	..	..	The record is very complicated and moreover further confused by microseisms and wind effects. Long wave movements of 25 sec. period were of amplitude 125μ (circa).
	i_E	4 21	..	..	..	..	..	
	F	7 30	..	..	..	..	..	
12	..	5 45 to	..	..	..	..	..	Slight disturbance.
		6 5	..	..	..	..	..	
13	i_E	3 2 7	..	..	..	..	..	Record confused by large microseisms.
	i_N	3 3 14	..	..	..	..	..	
	i(S)	3 5 52	..	..	..	..	..	
	SR	3 12 7	..	..	..	..	..	
	L	3 28	..	..	..	..	..	
	M_N	3 41 16	20	34	..	..	..	
	F	5 40	..	..	..	..	..	
13	e_N(?S)	9 9 6	..	..	..	..	..	Earlier phases masked by microseisms L phase irregular.
	L	9 10	..	..	..	..	..	
	F	9 30	..	..	..	..	..	
14	?e	3 37 4	..	..	..	..	..	
	L	3 40 29	..	..	..	..	..	
	F	3 55	..	..	..	..	..	
15	..	19 10 to	..	..	..	..	..	Slight disturbance.
		19 25	..	..	..	..	..	
19	e_N	4 27 40	..	..	..	..	..	L phase irregular.
	e_N	4 32 18	..	..	..	..	..	
	L	4 40	..	..	..	..	..	
	F	5 35	..	..	..	..	..	
19	?e	23 59	..	..	..	..	..	
20	L	0 16	..	..	..	..	..	
	M_N	0 55 50	17	4	..	..	..	
	F	1 45	..	..	..	..	..	
21	e_N (S)	11 18 7	..	..	..	..	..	
	L	11 24	..	..	..	..	..	
	M_N	11 33 10	20	6	..	..	..	
	F	12 30	..	..	..	..	..	
26	e_Z(?P)	9 32 10	..	..	..	..	..	
	S	9 36 59	..	..	..	..	..	
	L	9 39	..	..	..	..	..	
	M_N	9 43 15	15	6	..	..	..	
	M_E	9 45 55	12	..	4	..	..	
	F	10 15	..	..	..	..	..	
27	e_Z}(?P)	16 33 25	..	..	..	..	?9100	
	e_N}	16 33 25	..	..	..	..	..	
	e_N(?S)	16 43 41	..	..	..	..	..	
	L	17 4	..	..	..	..	..	
	M_N	17 7 48	20	2	..	..	..	
	F	17 55	..	..	..	..	..	
28	L	17 57	..	..	..	..	..	
	F	18 30	..	....	..	..	..	
29	e_N (?S)	13 30 28	..	..	..	..	..	
	L	13 46	..	..	..	..	..	
	F	15	..	....	..	..	..	

Microseisms of N. Component—Eskdalemuir.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s.	μ	s.	μ	s.	μ	s.
1	0·3	4·5	0·1	4	0·3	3·5	0·3	4
2	0·1	4	0·1	4	0·4	3	0·1	3·5
3	0·1	3	0·0	0	0·0	0	0·1	3
4	0·1	4	0·3	3·5	0·5	4	0·5	4·5
5	0·9	4·5	0·5	4·5	0·9	4·5	0·5	4
6	0·6	4	0·5	4	..	..	0·2	4
7	0·3	3·5	0·3	4	0·7	4·5	0·9	4·5
8	1·0	4·5	0·6	5	0·9	4·5	0·7	4·5
9	0·9	4·5	0·9	4·5	0·9	4·5	1·0	5·5
10	1·5	5	1·7	6	2·3	6	2·6	6
11	2·3	6	..	..	2·1	6	1·6	6
12	1·9	6	1·8	5·5	1·7	6	1·6	6
13	1·8	6	2·7	6·5	2·9	6·5	2·7	6
14	2·0	6	2·5	5·5	3·3	5·5	3·1	5
15	3·6	5	2·3	4	2·1	4	1·6	4·5
16	1·1	4·5	1·1	4·5	1·1	4	1·0	4·5
17	1·1	4	0·7	7·5	1·1	4·5	1·7	5·5
18	1·9	5	2·0	4·5	1·4	5	1·2	6
19	1·3	7	0·9	8	1·5	6	1·3	7
20	1·5	7·5	1·6	6·5	1·5	7	1·0	6
21	1·3	7	0·9	5·5	..	..	1·0	5
22	..	..	0·8	5	1·0	4·5	0·9	5
23	1·5	5·5	1·6	6	1·9	6	2·3	6
24	2·3	6	1·6	6	1·6	6	1·7	5·5
25	1·0	6	0·9	5·5	0·8	5·5	0·9	5
26	1·0	5	1·1	5	0·8	5·5	0·8	5·5
27	0·8	5·5	0·5	6	0·9	4	0·5	4·5
28	..	..	0·3	5	0·6	4·5	0·7	5
29	0·9	6	..	..	0·9	6	0·8	6
30	0·8	5·5	0·8	6	..	..	..	..

Means for Month $\begin{cases} A_N. = 1·2\mu. \\ T = 5·1s. \end{cases}$

Normals for Month, 1911–20: $\begin{cases} A_N. = 0·8\mu. \\ T = 4·9s. \end{cases}$

Earthquakes.—Richmond (Kew Observatory).

Day.	Times, G.M.T. of Commencement.	Times, G.M.T. of Max. Amplitude.	Remarks.
	h m	h m	
1	..	15 44	Very small.
2 to 6	Instrument	under adjustment.	
11	4 21	5 16	Amplitude on trace—3·0 mm. Succession of waves to 7h. 45 m.
12	..	5 57	Very small.
13	3 03	3 52	Amplitude on trace—1·0 mm. Small waves to 5h. 35m.
14	..	3 42	Very small.
14	..	13 55	Small.
19	..	3 59	Small. Succession of small waves to 4 h. 10 m.
19	..	23 59	Very small.
20	0 43	0 54	Small. Succession of small waves to 1h. 35m.
21	..	11 33	Small.
26	..	9 37	
27	..	17 17	Small.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
1 18	Ci.	264	1·0	+ 1·0	+ 0·1	Coarse Ci. in floccular patches.
2 7	St.-Cu.	301	6·9	+ 5·9	− 3·6	Sheet of St.-Cu. with some Cu. below and in contact.
13	Ci.	285	3·9	+ 3·7	− 1·0	Fine web of Ci., cross-striations at 60°, ⊕.
13	Cu.	270	5·5	+ 5·5	0·0	
18	Ci.	276	5·0	+ 4·9	− 0·4	Ci. in tufted wisps.
18	Cu.-Nb.	260	5·2	+ 5·0	+ 0·8	Low Cu.-Nb.
3 7	St.-Cu.	285	6·4	+ 6·1	− 1·6	Thin flat St.-Cu.
4 7	St.-Cu.	275	3·0	+ 2·9	− 0·2	Cloudlets of widely differing sizes.
13	St.-Cu.	274	3·2	+ 3·1	− 0·3	
18	A.-St.	274	3·0	+ 2·9	− 0·2	Cloud now appears as fused sheets, thin and hazy.
5 7	St.-Cu.	276	3·6	+ 3·5	− 0·3	St.-Cu. of high altitude; some cloud of similar type forming below it in places.
13	St.-Cu.	270	3·6	+ 3·6	0·0	
18	St.-Cu.	270	3·4	+ 3·4	0·0	
6 7	A.-Cu.	276	1·6	+ 1·6	− 0·1	
6 13	Ci.-Cu.	278	1·3	+ 1·3	− 0·2	Ci. to Ci.-Cu. "speckle" cloud, very fine and faint.
13	A.-Cu.	268	2·5	+ 2·5	+ 0·1	A.-Cu. in flotillae, cloudlets fused in places.
18	St.-Cu.	264	2·0	+ 2·0	+ 0·2	Velocity somewhat variable in places.
7 13	A.-Cu.	195	4·0	+ 1·1	+ 3·8	Approximate velocity of cloud-particles. Cloud as a whole almost stationary, and of lenticular form.
18	A.-Cu.	192	5·0	+ 1·0	+ 4·8	
10 7	St.-Cu.	185	7·2	+ 0·6	+ 7·1	Rear edge of rapidly clearing cloud sheet.
13	Cu.-Nb.	225	9·6	+ 6·7	+ 6·7	Small Cu.-Nb.
11 7	A.-Cu.	265	3·2	+ 3·1	+ 0·3	A.-Cu. in lenticular sheets, some lenticular St.-Cu. below.
13	Cu.	266	20·0	+19·9	+ 1·3	Heavy sheet of Cu.
18	A.-Cu.	270	3·0	+ 3·0	0·0	A.-Cu., fusing into sheet.
12 13	Cu.	263	4·8	+ 4·7	+ 0·5	
13 7	Ci.	273	3·4	+ 3·4	− 0·2	
13	Cu.	290	1·2	+ 1·1	− 0·4	Cu. eddying, velocity and direction varying.
14 13	St.-Cu.	238	10·0	+ 8·4	+ 5·3	Clouds moving very rapidly.
18	Fr.-Cu.	248	20·0	+18·5	+ 7·5	
15 13	Fr.-Cu.	260	15·0	+14·7	+ 2·6	
16 7	Cu.	273	7·4	+ 7·4	− 0·4	
13	St.-Cu.	350	10·0	+ 1·7	− 9·8	St.-Cu. of very low altitude, and coarse type.
18 13	St.-Cu.	345	9·8	+ 2·6	− 9·5	
18	Fr.-St.	170	9·8	− 1·7	+ 9·7	
20 13	Fr.-St.	175	12·5	− 1·2	+12·4	
24 9	St.-Cu.	235	12·0	+ 9·7	+ 6·8	
13	Ci.	268	4·2	+ 4·2	+ 0·1	
25 13	Ci.	268	4·2	+ 4·2	+ 0·1	
27 13	St.-Cu.	284	6·2	+ 5·9	− 1·5	
18	Ci.-St.	290	1·0	+ 0·9	− 0·3	Velocity approximate; cloud very hazy and diffuse; ⊕.
28 13	A.-Cu.	268	3·1	+ 3·1	+ 0·1	A.-Cu., high type, in small lenticular sheets.
	St.-Cu.	273	4·5	+ 4·5	− 0·2	

Note.—After 16th the clouds became very diffuse and ill-defined, generally stratiform in type and difficult or impossible of measurement.

10. AURORA.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
2	a.	●	..	..	..	
7	p.	..	1, 1	1, 2	Lerwick	Faint diffused light from 23h. 50m. to 1h. 30m. of 8th.
17	a.	○	..	..	..	
28	p.	..	2, 2	2, 2	Lerwick Deerness Wick	Faint band of diffused light from 23h. to 1h. 30m. of 29th.
29	p.	..	2, 1	2, 1	Lerwick	Very bright but diffused at 20h. 30m., decreasing in intensity, and disappearing about 23h. 30m.

Note.—The two magnetic "characters" entered in each case refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

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1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	WESTMINSTER. Bright Sunshine.* Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	11.30 h. to 12.30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p^0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	4·6	40	..	..	..	..	..	6·3	54	37	22	Misty	2·6	22	..	..	..	..	0·1	1
2	2·1	19	..	..	..	..	..	2·0	17	..	..	..	1·2	10	..	..	..	..	5·0	43
3	5·4	47	..	..	..	..	..	5·1	44	75	43	Clear	0·0	0	..	..	..	..	0·0	0
4	8·3	73	..	..	..	..	..	8·5	75	73	41	Clear	0·0	0	..	..	..	..	5·0	44
5	8·2	73	..	..	..	..	..	8·6	76	71	39	Clear	7·6	67	..	..	..	..	3·7	32
6	x9·3	82	..	..	..	..	..	x9·5	84	..	..	..	0·0	0	..	..	..	..	3·7	33
7	6·6	59	..	..	..	..	..	5·6	50	77	42	Clear	0·0	0	..	..	..	..	0·0	0
8	4·7	42	..	..	..	..	..	5·6	50	79	43	Clear	2·8	25	..	..	..	..	4·7	42
9	9·0	81	..	..	..	..	..	8·5	77	..	..	..	8·5	77	..	..	..	..	0·0	0
10	4·0	36	..	..	..	..	..	4·6	42	67	35	Clear	0·3	3	..	..	..	..	0·0	0
11	5·7	52	..	..	..	..	..	5·9	54	..	..	..	0·0	0	..	..	..	..	4·0	37
12	0·4	4	..	..	..	..	..	0·5	5	..	..	..	x9·0	84	..	..	..	..	1·5	14
13	4·8	44	..	..	..	..	..	4·3	40	48	25	Thro' Ci.	0·0	0	..	..	..	..	0·0	0
14	5·7	53	..	..	..	..	..	6·3	59	70	36	Clear	8·3	78	..	..	..	..	x8·8	82
15	7·4	69	..	..	..	..	..	7·6	71	55	28	Hazy	7·0	67	..	..	..	..	1·2	11
16	5·1	48	..	..	..	..	..	6·0	57	..	..	..	0·0	0	..	..	..	..	0·3	3
17	6·6	62	..	..	..	..	..	6·5	61	44	22	Hazy	0·0	0	..	..	..	..	0·0	0
18	7·9	75	..	..	..	..	..	8·1	77	70	34	Clear	5·3	51	..	..	..	..	1·7	16
19	3·7	35	..	..	..	..	..	3·6	34	..	..	..	0·0	0	..	..	..	..	1·8	17
20	0·0	0	..	..	..	..	..	0·4	4	..	..	..	1·5	15	..	..	..	..	5·6	54
21	4·8	47	..	..	..	..	..	6·1	59	59	27	Thro' Ci.	0·4	4	..	..	..	..	0·0	0
22	2·6	25	..	..	..	..	..	3·3	32	..	..	..	0·0	0	..	..	..	..	4·4	43
23	3·9	38	..	..	..	..	..	3·5	34	..	..	..	6·6	67	..	..	..	..	2·7	26
24	8·3	82	..	..	..	..	..	8·6	85	71	32	Clear	4·1	41	..	..	..	..	8·3	82
25	2·2	22	..	..	..	..	..	4·7	46	..	..	..	5·2	53	..	..	..	..	0·0	0
26	0·0	0	..	..	..	..	..	0·1	1	..	..	..	3·2	33	..	..	..	..	0·2	2
27	1·8	18	..	..	..	..	..	2·2	22	..	..	..	2·1	22	..	..	..	..	0·4	4
28	2·4	24	..	..	..	..	..	2·5	25	..	..	..	5·7	59	..	..	..	..	5·1	52
29	3·1	32	..	..	..	..	..	2·8	29	52	22	Thro'Cld	0·0	0	..	..	..	..	0·0	0
30	3·0	31	..	..	..	..	..	5·1	52	..	..	..	2·1	22	..	..	..	..	0·0	0
31	0·0	0	..	..	..	..	..	0·1	0	..	..	..	0·5	5	..	..	..	..	0·0	0
Means	4·57	42	—	—	—	—	—	4·92	46	—	—	—	2·71	26	—	—	—	—	2·20	21
Normals	2·26	22	485	29	—	—	—	2·97	28	—	—	—	2·63	25	—	—	—	—	3·26	31
	←—35 years—→		←—8 years—→					←—35 years—→					←—10 years—→						←—35 years—→	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day.	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. Dry Bulb. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%	°	m/s.	°	m/s.	Tenths of Sky covered.		mm.	a 200+		
1	1004·3	1002·5	89·5	88·8	90·6	87·5	15·5	16·6	83	93	95 7		165 4		8 ≡0	10	6·4	83·4	c. ∞ early; ● *a. and p.*; o. to op. *n.*	
2	1001·3	1001·9	89·7	89·1	x92·7	88·7	17·2	16·3	91	90	90 4		— 1		10	10	3·3	87·4	op. at first; c. *a. and p.*; o. *n.*	
3	1007·4	1007·8	88·1	89·9	90·2	87·4	16·0	17·6	94	92	— 1		130 2		10 ●0 ≡0	10	6·9	86·0	d0. ≡0 early; o. *a.*; o, ● at times *p. and n.*	
4	1008·1	1007·5	90·3	91·0	92·4	89·8	18·6	17·0	95	83	170 7		135 7		10	3	2·7	88·6	p. till 4h.; c. to bc. all day.	
5	1003·2	1003·7	90·3	89·8	91·8	89·3	16·8	17·3	86	91	160 11		175 8		7	10	0·2	87·9	d0. 5h.; c. *a. and p.*; c. to o. *n.*	
6	1009·6	1011·9	87·8	83·4	89·6	83·1	14·7	11·5	88	92	275 2		— 1		10	6	1·2	86·4	p2. 4½h.; o. to c. *a.*; bc. *p. and n.*	
7	1012·1	1014·9	88·8	89·1	89·2	85·9	16·0	17·0	90	94	180 6		210 3		10	10 ≡0	3·1	79·3	o. till 9h. then occasional ● ≡0 to	
8	1014·8	1009·7	89·4	86·4	89·5	86·3	18·1	14·2	98	93	175 3		155 3		10 ●0	0☌	1·5	88·1	d ≡0. *a.*; bc. *p.*; b. ☌ *n.*	[d ≡0.
9	1002·8	998·8	90·2	89·3	90·9	87·5	16·7	17·8	86	97	75 5		— 0		10	10	16·4	82·8	o *a.*; ●2. *p.*; ● to o. *n.*	
10	1006·1	1013·9	86·1	86·2	89·3	85·7	12·6	12·8	84	85	340 14		360 4		10	10	4·0	85·1	● early: o. all day	10
11	1016·9	1019·0	86·2	83·5	88·6	81·4	14·5	12·0	96	95	— 1		10 2		9	2☌	0·3	83·9	p. 6h.: o. *a.*: bc. *p.*: b, ☌ *n.*	
12	1020·7	1019·8	84·8	88·6	89·7	80·7	12·6	13·8	92	79	— 0		95 8		9	10 p.	2·4	77·8	o. to c. *a. and p.*: o. to ● *n.*	
13	1019·0	1020·9	89·5	88·5	90·7	87·8	17·7	16·8	95	96	175 5		— 1		10	10	2·2	86·4	d ≡0. early: o. to c. *a.*: o. *p.*: d ≡0. to o. *n.*	
14	1030·5	1033·8	85·2	83·3	88·0	83·2	10·3	11·3	73	91	50 6		45 2		1	9	—	81·4	b. to bc. *a. and p.*: c. to o. *n.*	
15	1030·3	1024·2	88·1	88·9	89·7	85·1	14·6	17·2	86	96	145 6		175 7		8	10	1·6	80·6	c. to o. *a.*: o. to d. *p. and n.*	
16	1019·8	1021·4	89·2	88·1	90·1	87·6	17·7	15·8	97	93	200 7		175 2		10	10	1·3	88·1	●0. early: o. to c. later: d0. 13h.	
17	1016·0	1013·4	89·0	89·2	89·6	87·4	17·7	17·7	98	97	170 9		160 7		10 ●	10 ●0	x30·0	84·6	● ≡0. most of day.	
18	1007·0	1010·9	89·5	87·8	90·2	86·9	17·4	15·3	93	92	170 8		195 3		10 ≡0	9 p.	4·6	87·6	d. early: o. ∞ to ● *a.*: c. to o. *p. and n.*: p. 21h.	
19	1013·9	1021·0	85·1	82·5	87·4	78·6	11·9	8·2	85	69	335 10		360 3		10	1	4·7	83·4	● early: c. to op. *a.*: c. *p.*: b. *n.*	
20	1022·3	1021·0	79·1	82·1	85·2	n76·4	8·1	9·2	86	80	55 2		200 3		8	6	—	n74·1	b. ☌ early: c. to bc. all day.	
21	1019·8	1014·6	84·6	86·5	86·9	80·9	11·4	13·5	84	88	165 3		175 6		9	8	2·1	77·8	bc. to o. *a.*: ● *p.*: o. to c. *n*	
22	1006·3	1010·7	86·6	83·5	87·5	83·0	14·5	8·7	94	69	295 7		345 7		10 ●	3	10·5	84·4	● 2½h.–9½h.: bc. *a. and p.*: b. *n.*	
23	1016·4	1025·9	86·2	83·4	86·2	82·6	10·5	7·5	70	60	295 11		355 7		10	2	0·8	78·6	p. 8h.: o. to c. *a. and p.*: b. *n.*	
24	1032·0	1033·8	78·8	79·4	84·5	77·5	8·4	8·6	91	90	— 1		90 2		1	8	—	n74·1	☌ early: Fine day.	24
25	1034·4	1034·4	84·0	84·6	86·4	80·0	11·8	11·0	91	81	— 0		155 2		10	10	—	77·2	o. all day.	
26	1032·8	1031·1	84·7	85·2	86·5	81·5	11·2	12·6	82	89	135 3		155 2		8	2	—	77·6	c. to o. *a. and p.*: d0. 14h.: bc. *n.*	
27	1032·6	1034·9	86·6	82·3	87·7	81·7	14·8	11·1	96	96	175 2		35 2		10	0	0·1	79·2	o. *a.*: c. to b. *p.*; b. *n.*, ≡: after 22h.	
28	1035·9	1035·4	84·0	86·1	87·1	81·0	12·6	11·8	97	79	— 0		5 3		4	6	—	78·7	bc. to c. all day.	
29	1033·3	1031·1	86·1	85·0	87·1	81·1	11·1	11·1	74	80	5 3		— 0		9	10	—	77·5	c. to o. *a.*: o. *p. and n.*	
30	1029·2	1025·9	84·6	84·8	85·6	84·0	10·2	10·7	75	78	110 3		165 4		10	10	—	82·6	Dull day.	
31	1021·3	1019·4	86·8	87·2	87·6	85·2	13·0	13·7	83	85	175 6		185 5		10	10	—	82·7	o. all day.	
Means	1018·1	1018·7	86·7	86·2	88·7	84·0	14·0	13·4	88	87	— 4·9		— 3·5		8·7	7·1	106·3	82·4	Monthly Totals or Means.	17839γ 19°3′·8 68°4′·8
Normals	1010·7	1010·9	83·7	83·6	86·6	81·1	11·1	11·0	86	86	— 5·2		— 5·1		—	—	144·5	—	Normals.	
	←—45 years—→						←—30 years—→				←—35 years—→						45 years			

* By Campbell-Stokes Sunshine Recorder.

x denotes the maximum and n the minimum value in the column.

(7806) Wt.134/6890/P27 500 11/22 Harrow G.69/7

3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20 m.

Day.	Air Pressure at Mean Sea Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. Dry Bulb. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind. Veer from North and Force or Speed. 9 h.	21 h.	Cloud Amount, Weather and Visibility. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	REMARKS.
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.												
	mb.	mb.	*a* 200+	*a* 200+	*a* 200+	*a* 200+	mb.	mb.	%	%	° m/s.	° m/s.			mm.	*a* 200+	
1	1013·9	1012·3	82·1	82·4	94·3	78·0	11·4	10·7	100	91	— 0	— 0	10 ☔ X	0 ☂ G	—	73·8	≡ till 11h. then fine with ∞.
2	1010·6	1008·0	85·1	89·9	97·4	78·3	12·2	16·0	87	84	150 2	220 4	9 ☔ D	5 J	—	73·9	≡ ☂ till 11h.: o. to fine.
3	1011·0	1015·3	91·2	91·2	94·8	89·9	14·5	17·2	70	83	240 6	225 4	9 L	10 J	—	87·9	o. to 9h. then c. to bc.
4	1016·7	1017·5	90·8	90·2	97·4	87·8	17·2	16·3	85	84	— 1	75 5	5 H	o H	—	84·8	Fine warm day.
5	1016·1	1014·1	90·6	90·1	*x*100·7	87·3	16·8	15·7	84	81	75 3	115 3	1 ☂ E	o K	—	84·0	≡, ☂: Fine. Very warm.
6	1014·9	1014·6	91·3	89·6	100·1	85·8	16·3	15·9	78	85	— 1	205 2	o ☔ H	o K	—	80·9	≡⁰, ☔☔: Fine, ∞. Very warm.
7	1018·6	1018·1	88·0	89·6	96·1	86·0	15·5	15·5	92	83	235 2	225 2	10 ☔ H	4 K	—	80·9	≡⁰, ☔☔: Fine to o.: ⊕ 14½h.
8	1019·3	1016·7	87·2	87·8	96·9	85·6	14·6	14·3	91	86	225 2	— 0	10 ☔ F	o K	—	82·2	≡². early: o. till 11h. then fine
9	1012·8	1009·2	90·2	91·6	99·5	83·2	14·8	12·3	76	58	85 2	150 3	7 ☔ F	4 L	—	78·2	≡, ☂: Very fine. Warm.
10	1012·5	1015·5	91·3	91·3	97·5	87·5	17·9	16·3	86	78	175 2	180 2	9 ☔☔☔ H	10 ● H	0·2	82·8	☂, Fine to o.: ⊕ *p.*: ● 21h.
11	1016·9	1018·4	90·0	88·9	95·0	87·0	17·7	15·2	92	85	— 1	235 2	7 ☔ D	2 J	—	83·3	≡², ☂: bc. to c.: ∞ *a.*
12	1022·9	1025·5	87·9	84·6	90·9	82·6	12·1	12·3	72	91	320 2	— 0	10 J	7 G	—	84·7	o. to c.: ⊕ *p.*: ≡⁰. *n.*
14	1025·8	1022·2	82·4	85·9	93·0	79·8	11·2	13·3	96	90	— 1	— 0	10 ☔ B	3 ☂☂ F	—	76·5	≡², ☂: Mostly b. to c.: ⊔ 21h.
14	1024·8	1033·9	87·4	83·1	90·4	80·5	15·5	9·2	95	75	— 1	— 1	10 F	o H	1·0	79·1	●⁰. early: o. ≡⁰. till 10½h., fine later.
15	1035·4	1031·0	78·9	80·6	89·7	76·6	8·7	10·0	95	96	— 0	— 0	0 ☂ E	o ☂ D	—	71·6	≡² ☂: Fine day: ≡, ☂ *n.*
16	1028·0	1025·0	80·4	81·1	90·6	77·7	10·2	10·2	99	95	— 1	— 0	10 ☔ A	4 ☂☂ F	—	74·0	≡ till 10½h., then b.: ∞ *p.*: 〓 *n.*
17	1025·7	1023·9	78·5	81·9	92·0	76·3	8·6	10·8	96	96	— 0	— 1	?0 ☔ D	2 ☂☂ D	—	72·2	≡ ☂ till 10h., b. later: ∞ *p.*: 〓 *n.*
18	1020·6	1017·4	83·2	86·4	96·3	78·8	11·5	14·5	93	95	— 1	— 0	?0 ☔ D	3 ☂☂ D	—	74·2	≡, ☂☂: Fine, warm day.
19	1017·5	1018·9	89·2	88·1	92·6	84·3	17·7	15·8	97	93	190 2	210 4	10 ●⁰ H	6 K	2·1	80·0	● 6h. 45m.—10h. 35m.: Dull to fine.
20	1020·0	1020·3	88·9	84·8	89·2	84·0	16·3	12·6	91	92	210 2	30 2	9 G	10 ☂ H	0·8	80·9	●⁰ early: o. *a.*: ●⁰ *p.*: ● *n.*
21	1021·8	1020·3	82·9	82·5	86·8	81·7	10·5	9·7	87	82	— 1	— 1	3 H	3 G	0·2	82·0	o. to bc.: ≡⁰ *n.*: p. 23½h.
22	1013·5	1002·0	86·7	86·0	90·0	81·3	12·2	11·7	78	79	195 6	275 7	7 K	9 I	*x*5·5	77·1	p. *a.*: bc. to o.: ● 17h.—19h.
23	1013·0	1017·0	80·2	77·1	82·5	76·1	7·1	7·1	70	87	290 4	5 3	2 L	o I	1·3	74·6	Fine to dull: ● 14h.—16h. 40m.
24	1026·6	1032·0	77·7	77·2	82·4	75·3	6·3	6·6	74	80	345 4	— 1	o ☔ H	o H	—	71·1	⊔, Fine day.
25	1032·7	1032·3	78·1	83·0	86·6	*n*74·4	7·1	11·2	81	92	360 2	— 1	1 ☔ F	10 F	—	*n*70·2	⊔, ≡⁰: Fine to o.: ≡⁰ *n.*
26	1032·9	1031·9	80·0	85·5	88·3	78·6	10·0	13·2	100	92	— 1	— 0	10 ☔ B	10 F	—	74·8	≡, ☂: Dull with ≡⁰.
27	1031·9	1031·9	85·7	83·1	88·4	81·9	13·0	11·3	89	92	— 1	— 1	10 F	o F	—	83·1	☂, Mostly o. to c.: ≡⁰, ☂ *n.*
28	1032·2	1029·4	80·3	81·3	86·9	77·6	9·9	10·1	97	93	— 1	— 1	3 ☔ F	o F	—	72·7	≡²: bc. to c.: ≡⁰, ☂ *n.*
29	1026·2	1023·3	83·1	85·6	88·8	78·1	10·6	9·9	86	68	245 3	305 4	10 H	o K	—	72·7	≡⁰, ☂: o. *a.*: o. to bc. *p.*
30	1026·9	1028·3	83·1	81·9	89·0	81·0	10·8	10·8	88	96	230 2	— 1	1 G	o D	—	76·4	☂: bc. to c., till 15h., then o. ≡.
31	1027·4	1023·0	79·2	85·0	86·8	76·8	9·1	12·1	97	87	— 0	215 5	8 ☂ E	10 I	—	72·4	≡². Dull day: ≡⁰ *a.*
Means	1021·6	1020·9	84·9	85·4	92·0	81·3	12·5	12·5	88	86	1·8	2·0	6·2	3·6	11·1	77·8	Monthly Totals or Means.
Normal	1012·9	1012·9	82·5	82·3	86·4	79·3	10·4	10·5	86	88	3·2	2·6	—	—	69·0	—	Normals.
			45 years.				30 years.				35 years.				45 years		

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

1	984·9	983·5	83·4	79·3	89·0	78·5	11·9	8·3	95	87	— 0	— 0	10 H	4 H	—	75·1	[bc. ≡⁰ *n.* b. ≡⁰ early: ≡⁝⁰ to bc. ∞ *a. and p.*:
2	981·2	977·2	85·7	84·0	90·0	79·4	12·7	11·1	87	85	— 0	— 0	10 H	10 ●⁰ H	1·5	74·5	c. to op. early: o, ⊕ *a.*: op⁰. *p.*: ●⁰. ≡⁰*n.*
3	977·1	986·6	85·6	80·8	87·3	80·3	12·2	9·8	84	93	200 3	40 7	10 H	10 H	4·0	81·3	● early: o. to d⁰. *a.*: ●⁰. *p.*: o. *n.*
4	991·1	990·2	82·0	84·6	84·8	80·3	10·5	13·0	92	96	80 4	— 0	10 K	10 ● H	7·0	79·8	● ≡⁰ early: o. *a.*: ●⁰ *p.*: ● *n.*
5	987·6	983·7	88·8	88·2	94·3	84·8	15·8	14·9	89	87	— 1	— 0	1 J	4 H	—	83·0	o. till 6½h.: b. to bc. *a. and p.*: c. ≺ *n.*
6	984·8	984·3	87·9	87·2	90·8	86·8	15·3	15·7	91	98	200 8	190 6	10 H	10 H	7·8	85·2	o. *a.*: o. to ● *p.*: ● ≡⁰ *n.*
7	982·7	985·3	85·7	85·9	87·0	84·3	13·3	13·0	91	88	230 10	270 3	10 J	10 I	8·4	83·0	o. at first: ● *a. and p.*: o. *n.*
8	988·0	987·3	86·0	86·4	89·3	84·0	14·0	15·3	94	100	230 4	200 2	8 H	10 C	0·2	81·8	o. early: bc. to o. *a.*; o. *p.*; ≡⁝² after 20h.
9	984·9	981·9	87·3	85·8	*x*94·4	83·8	14·9	12·9	92	88	— 0	— 1	1 J	1 I	0·1	81·1	≡⁝² early: b. after 8h.
10	981·8	987·8	85·0	83·5	89·5	82·5	13·4	12·0	96	95	— 0	— 0	10 ● H	5 D	0·7	79·5	b. 1h.: o. to ●⁰ *a.*: o. *p.*: bc, ≡ *n*: ⊔ 22h.
11	989·4	989·3	86·5	86·0	87·6	83·4	14·3	14·3	93	96	30 2	220 2	10 I	10 ●⁰ F	0·2	79·5	o. ≡⁰ *a.*: o. ≡⁰ ⊤ *p.*: o. ≡⁰ *n.*: d. 21h.
12	992·7	997·7	84·5	75·3	86·2	73·4	9·0	6·5	67	90	300 3	— 0	1 K	2 J	1·5	79·5	o. to ●⁰ early: bc. to o. *a. and p.*: b. *n.*
13	995·6	988·3	79·5	86·9	87·4	73·3	9·3	15·3	97	97	— 0	230 11	10 J	10 F	3·1	70·2	⊔ 1h.: ⊢ to op⁰.: ●⁰ ≡⁰ after 13½h.
14	997·5	1003·4	82·9	81·9	85·0	79·2	8·7	7·6	72	68	320 6	290 5	3 J	2 K	0·2	—	cp⁰ 1h.: bc. to cy. *a. and p.*: b. *n.*
15	1003·6	999·4	80·5	82·8	85·8	77·9	9·2	11·2	89	93	190 3	220 6	10 J	9 I	—	75·9	c. to o. *a.*: b. to bc. *p.*; bc. to o. *n.*
16	993·9	992·8	85·1	86·6	86·9	83·0	13·7	15·3	98	99	200 10	230 3	10 ●⁰ G	10 G	9·9	80·1	c. to o. early: o. to d ≡⁰ *a.*: ● 15h.—20h. then o. ≡⁰ *n.* [≡⁰ *n.*
17	994·9	992·1	85·3	85·8	87·5	82·2	14·2	13·5	100	92	— 0	190 6	10 E	10 H	0·7	77·6	≡⁝ till 9 h.: ●⁰ ≡⁰ at times *a. and p.*: o.
18	988·3	981·8	86·8	87·5	90·9	85·0	13·0	15·4	83	94	180 3	200 13	7 J	10 H	2·0	83·9	●⁰ ≡⁰ early: o. to bc. *a.*: o. ∞ *p.*: o. ≡⁰ to ●⁰ ≡⁰ *n.*
19	985·0	989·7	85·4	77·4	86·8	74·8	13·0	6·8	91	82	220 7	— 1	10 J	1 J	3·2	84·0	o. at first: o. to ●⁰ ≡⁰ *a. and p.*: o. to b. *n.*
20	992·5	990·0	78·9	78·2	81·4	69·8	7·7	8·0	84	91	250 6	180 3	10 J	5 J	—	66·6	b. ⊢² early: c. ⊕ to o. *a.*: o. *p.*: c. to bc. *n*
21	987·3	989·3	81·6	78·5	83·0	77·0	9·8	7·9	88	88	270 7	— 0	10 I	10 ● I	5·1	72·1	b. 1h.: o. 7h.: o. to ●⁰ *a. and p.*: ● *n.*
22	979·7	978·6	74·4	74·6	77·2	73·6	6·7	5·8	100	86	30 9	360 9	10 ●² H	3 I	*x*51·9	74·0	●² ≡⁰ *a.*: ✱ ≡⁰ till 20h. then b. *n.*
23	983·1	994·6	75·2	73·2	78·5	72·2	5·6	4·7	78	75	— 0	— 1	9 K	o K	—	68·5	b. ⊢ to o. ⊢ at first: b. *p. and n.*
24	1000·7	1000·2	73·4	79·0	80·5	*n*68·4	4·1	7·7	65	83	— 0	230 6	o J	9 J	—	*n*65·3	b. ⊢ early: cy. *a.*: c. to o. *p. and n.*
25	1000·6	1003·9	85·7	84·1	87·0	79·0	11·1	11·2	76	85	*310* 3	310 2	9 J	5 J	0·2	76·1	o. to ●⁰ early: c. to o. *a.*: bc. to c. *p. and n.*
26	1004·4	1002·1	79·9	82·7	86·7	77·0	9·6	10·3	97	86	— 0	240 4	4 C	10 I	—	73·5	bc. ≡⁝ at first: c. to o. *a.*: o. *p. and n.*
27	1000·6	1002·6	82·4	80·5	85·0	79·7	9·7	8·9	83	86	— 0	260 3	8 J	1 J	0·6	78·1	●⁰ early: c. to o. *a. and p.*: p⁰ 16h.: b. *n.*
28	999·4	998·4	84·5	82·8	85·6	81·0	10·2	9·3	76	77	300 15	290 8	8 K	4 J	—	76·0	c. ✓ *a. and p.*: bc. *n.*
29	992·0	993·4	84·9	84·5	85·9	83·7	10·5	10·9	76	81	330 17	320 11	9 K	3 K	—	79·0	c. to o. ✓ *a.*: o. ✓ *p.*: c. to b. *n.*
30	997·1	996·6	84·3	83·0	85·7	81·8	10·4	10·2	78	84	320 9	280 6	4 J	9 K	—	79·9	bc. to o. *a.*: o. *p.*: d⁰ 18h. to o. *n.*
31	990·7	980·4	81·6	84·3	84·7	81·3	9·0	12·2	81	92	240 9	250 14	9 K	10 ● I	10·2	80·2	Mainly o. *a. and p.*: ● after 19h.
Means	990·7	990·7	83·2	82·6	86·5	79·4	11·1	10·9	87	88	4·5	4·3	7·8	6·7	118·5	†77·5	Monthly Totals or Means
Normal 1911-1920	987·3	987·2	80·1	79·2	83·5	76·3	9·0	8·6	87	89	4·9	4·1			132·7		Normals

Temperatures at or below the normal freezing point of water are printed in small type. *x* denotes the maximum, and *n* the minimum, value in the column.
† Mean for 30 days.

5. GEOPHYSICS :—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force.						Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}.		Air-Earth Current. × 10^{16}	Potential Gradient, Volts per metre.* Factor 2·25.			
					Horizontal Comp't.		Declination.		Inclination.				+.	−.					
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			About 15 h.		About 15 h.	3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m	v/m	v/m	v/m
1	85·3	87·6	164	..	..	..	..	..	..	..	1	1	..	..	..	150?	..	165	305
2	85·0	87·4	166	..	..	..	..	..	..	..	0	0	..	..	..	195	345	165	205
3	86·9	87·5	170	..	..	..	..	..	..	..	0	0	..	0·58	1·05	70	140	150	195
4	88·0	87·3	171	..	..	..	..	..	..	..	1	0	0·79	0·57	1·15	85	305	110	220
5	88·3	87·2	173	..	..	..	..	..	..	..	1	0	1·17	0·74	1·35	165	220	125	180
6	88·5	87·3	174	..	11 27	18389	14 39	14 20·2	14 36	66 55·6	1	0	0·85	0·59	2·10	110	250	140	235
7	88·2	87·2	174	175	..	..	..	..	..	..	1	0	0·79	0·96	1·25	150	195	165	305
8	88·2	87·4	174	175	..	..	..	..	..	..	2	1	..	..	..	250	260	150	290
9	88·0	87·4	174	..	..	..	..	..	..	..	1	0	..	..	..	85	345	125	165
10	88·5	87·5	172	..	..	..	..	..	..	..	0	1	0·96	0·32	1·75	95	250	165	275
11	88·8	87·5	171	..	..	..	..	..	..	..	2	1	1·31	1·03	1·55	85	360	165	205
12	88·6	87·5	169	..	..	..	..	..	..	..	2	1	0·96	0·50	1·50	85	165	150	235
13	87·1	87·5	168	..	11 31	18359	14 32	14 20·2	14 47	66 58·7	0	0	0·59	0·16	1·50	220	345	205	195
14	87·4	87·6	167	..	..	..	..	..	..	..	1	1	0·49	0·43	0·65	*z* ±	260	180	70
15	85·8	87·6	166	..	..	..	..	..	..	..	1	0	..	..	..	180	315	195	125
16	85·2	87·3	165	..	..	..	..	..	..	..	0	1	..	..	..	220	385	220	195
17	84·6	87·3	165	..	..	..	..	..	..	..	0	1	0·67	0·23	1·40	305	540	260	315
18	84·5	87·2	164	..	..	..	..	..	..	..	0	0	0·98	0·47	2·10	205	375	250	250
19	85·5	87·1	163	163	..	..	..	..	..	..	0	1	0·99	0·59	1·35	195	140	165	345
20	86·2	87·0	165	163	11 17	18377	..	..	14 32	66 56·6	0	0	..	..	..	125	260	360	205
21	86·0	86·9	167	..	..	..	11 34	14 21·1	..	..	2	1	1·17	0·83	1·15	235	250	275	290
22	85·5	86·9	170	..	..	..	..	..	..	..	1	1	..	..	..	235	260	195	180
23	84·9	86·9	171	..	..	..	..	..	..	..	1	1	..	..	..	195	205	−345	580
24	82·5	86·8	171	..	..	..	..	..	..	..	0	0	0·41	0·25	1·00	290	415	275	580
25	81·4	86·6	172	..	..	..	..	..	..	..	0	0	0·47	0·22	0·80	260	580	195	345
26	82·3	86·3	172	..	..	..	..	..	..	..	0	1	0·49	0·47	0·25	180	430	345	70
27	83·8	86·1	170	..	11 39	18370	14 52	14 21·2	14 31	66 57·5	1	0	0·64	0·34	1·40	250	..	150	275
28	83·2	86·1	169	..	..	..	..	..	..	..	1	0	0·40	0·18	1·20	150	305	315	305
29	82·2	86·0	167	..	..	..	..	..	..	..	1	0	..	..	..	220?	275?	235?	235?
30	82·8	86·0	166	..	..	..	..	..	..	..	0	0	..	..	..	140?	260?	180?	150?
31	82·6	85·7	166	..	..	..	..	..	..	..	1	0?	0·41	0·16	0·80	205?	..	275	305
M.	85·7	87·0	169	—	—	—	—	—	—	—	0·71	0·43	0·77	0·48	1·26	174	305	181	259
No. of days used.	31	31	31	—	—	—	—	—	—	—	31	30	19	20	20	25	25	25	25

6. GEOPHYSICS :—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force.																Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre.* Factor 6·13.			
	North Component.					West Component.				Vertical Component.												
	Maximum 15000 γ +.		Minimum. 15000 γ +.		Range.	Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.	Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.				3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ				v/m	v/m	v/m	v/m
1	0 32	1023	925	12 10	98	1 50	802	729	1 3	73	15 35	1077	1022	2 13	55	1		0 *a*	415	435	395	375
2	6 0	1009	961	12 47	48	†	†	†	†	†	21 10	1076	1063	0 1	13	0		0 *b*	790	380	440	255
3	23 35	1020	966	13 35	54	†	†	†	†	†	16 55	1073	1060	0 40 / 23 35	13	0		1 *a*	285	395	120	−10
4	20 46	1034	969	11 52	65	14 6	793	731	21 30	62	16 44	1082	1059	12 30	23	1		‡	35	‡	‡	‡
5	20 21	1037	960	19 58	77	13 45	792	644	20 11	148	18 30	1113	1057	12 31	56	1		‡	‡	95	250	365
6	21 0	1069*x*	961	12 59	108	12 18	790	713	1 58	77	20 42	1083	1032	2 59	51	1		2 *b*	155	125	115	−50
7	23 31	1031	965	19 44	66	13 30	788	665	19 58	123	20 0	1098	1044	24 0	54	1		**	280	85	**	**
8	3 45	1052	819*n*	8 55	233*x*	5 20	825*x*	686	0 10	139	11 19	1147*x*	986	3 21	161*x*	2		**	**	**	130	345
9	3 29	1020	940	11 40	80	3 1	788	717	20 29	71	20 25	1085	1014	3 21	71	1		0 *a*	305	265	140	215
10	21 23	1004	960	13 48	44	14 6	782	732	17 42	50	17 50	1091	1065	3 40	26	0		0 *a*	135	65	150	375
11	8 17	1009	895	23 30	114	14 55	798	621*n*	23 33	177*x*	16 19	1147*x*	994	24 0	153	2		0 *a*	135	55	90	100
12	19 57	1047	909	0 34	138	14 1	782	642	0 20	140	17 2	1096	963*n*	1 40	133	1		0 *a*	215	155	420	410
13	5 23	1002	959	11 41	43	14 2	777	741	10 20	36*n*	17 12	1082	1073	24 0	9*n*	0		1 *b*	110	185	−5	135
14	23 49	1037	973	12 5	64	12 42	801	718	22 12	83	22 10	1088	1060	24 0	28	0		1 *a*	145	165	270	225
15	0 5	1035	954	14 39	81	13 6	802	726	0 46	76	14 59	1091	1056	0 11	35	1		0 *a*	95	175	245	285
16	20 25	1025	969	10 11	56	13 11	789	738	8 39	51	20 12	1081	1065	11 39	16	0		1 *b*	65	205	130	75
17	5 11	1003	969	11 22	34*n*	12 52	783	737	21 30	46	20 30	1084	1062	12 20	22	0		1 *b*	230	270	245	385
18	20 11	1018	968	10 49	50	12 50	788	744	9 0	44	23 11	1081	1065	12 0	16	0		1 *a*	160	430	385	5
19	6 38	1017	973	11 10	44	12 18	781	744	4 10	37	16 0	1081	1069	3 28	12	0		1 *a*	180	275	30	240
20	17 45	1015	968	11 39	47	13 14	787	728	20 10	59	20 59	1089	1070	12 6	19	0		0 *a*	135	245	305	425
21	21 17	1021	934	14 58	87	13 34	802	695	21 28	107	17 55	1118	1061	6 58	57	1		1 *b*	70	65	130	−390
22	19 5	1036	963	15 54	73	13 52	785	722	18 47	63	18 46	1091	1070	12 0	21	1		2 *c*	−2145	−1270	−210	††
23	21 25	1022	966	11 40	56	13 14	784	717	21 18	67	19 40	1090	1070	9 33	20	0		0 *a*	340	245	450	780
24	6 48	1008	958	12 7	50	13 59	795	733	9 12	62	20 14	1096	1075	6 48	21	0		0 *a*	155	260	270	345
25	1 3 / 23 33	1016	958	11 8	58	0 49	780	737	16 48	43	16 48 to 16 59	1087	1067	1 20	20	0		0 *a*	100	180	245	390
26	6 43	1012	962	17 39	50	18 2	786	736	22 39	50	20 55	1096	1071	12 10	25	0		0 *a*	390	535	240	225
27	22 28	1021	928	13 41	93	12 55	807	705	22 33	102	18 31	1096	1054	24 0	42	1		2 *b*	90	340	130	170
28	0 27	1035	962	9 56 / 10 4	73	12 50	785	679	21 55	106	20 7	1089	1039	0 48	50	1		0 *a*	105	105	220	230
29	23 50	1028	932	12 53	96	12 19	791	716	0 1 / 18 50	75	20 26	1085	1063	1 53	22	1		0 *a*	100	155	255	180
30	0 1	1020	963	10 56	57	13 29	773	737	20 51	36*n*	21 30	1083	1069	0 20	14	0		0 *a*	230	120	105	135
31	20 0	1015	963	12 35	52	13 52	789	671	19 40	118	19 44	1111	1069	7 19	42	1		2 *b*	85	180	150	−130
M.	—	1024	950	—	74	—	791	710	—	80	—	1093	1051	—	42	0·58		0·59	201	231	218	207
No. of days used.	—	31	31	—	31	—	29	29	—	29	—	31	31	—	31	31		27	26	26	26	26

x denotes the maximum, and *n* the minimum, value in the column. * The potential gradient is reckoned as positive if the potential increases upwards. For indeterminate potential gradient the following notation is used :—*z* ± Indeterminate in magnitude and sign. † Light failed. ‡ Leaking badly. ** Light cut off. †† Earthed.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	2·3	..	0·4	..	2·0	..	..	1·7	..	Ca	lm	..	3·0	..	..	0·5	7	22 35
2	1·6	..	..	0·3	..	Ca	lm	..	0·3	..	..	2·0	0·7	..	..	4·2	8	21 55
3	..	2·8	3·3	..	4·0	..	3·4	..	4·5	..	3·9	..	..	Ca	lm	..	11	12 30
4	1·2	..	..	6·8	3·5	..	..	0·6	4·9	..	..	..	0·5	..	..	1·5	10	12 40
5	1·9	..	..	2·3	1·5	..	..	2·6	..	Ca	lm	..	3·0	..	..	0·5	13	19 25
6	4·6	..	..	..	4·9	..	..	1·8	3·7	..	1·3	..	4·0	..	2·3	..	10	10 35
7	5·1	..	4·3	..	7·4	..	4·2	..	8·0	..	2·9	..	5·1	..	2·9	..	17	12 10
8	3·0	..	3·5	..	3·8	..	3·1	..	6·5	..	2·4	..	2·2	..	0·8	..	11	14 20
9	2·3	..	0·4	..	1·3	..	..	1·5	2·8	..	..	1·0	2·0	..	..	5·5	9	20 30
10	5·5	..	..	1·0	7·1	..	..	1·3	4·9	..	..	..	..	Ca	lm	..	15	12 15
11	..	Ca	lm	..	2·3	..	0·4	..	2·5	..	2·1	..	2·8	..	3·3	..	8	15 05
12	..	..	5·9	..	..	2·6	1·5	..	..	1·6	0·3	..	..	Ca	lm	..	9	04 05
13	..	Ca	lm	..	2·1	..	..	2·5	4·5	..	0·8	..	4·5	..	3·9	..	10	12 30
14	..	7·1	1·3	..	..	6·2	2·3	..	..	3·1	3·8	..	..	0·7	3·8	..	14	01 40
15	1·5	..	..	0·5	4·2	..	2·4	..	5·3	..	1·9	..	4·0	..	2·3	..	12	11 25
16	5·9	..	..	..	7·5	..	..	..	7·7	..	2·8	..	4·5	..	3·9	..	15	09 30
17	2·3	..	1·3	..	4·3	..	..	..	5·8	..	1·0	..	5·6	..	..	..	12	22 15
18	7·5	..	..	..	6·5	..	..	1·1	6·6	..	..	..	7·1	..	4·1	..	16	17 25
19	2·5	..	2·1	..	5·8	..	1·0	..	..	5·8	6·8	..	..	5·5	2·0	..	13	12 00
20	..	4·5	0·8	..	..	Ca	lm	..	..	..	2·3	..	0·5	..	2·6	..	8	00 20
21	1·8	..	4·9	..	2·0	..	5·5	..	4·3	..	5·1	..	3·3	..	5·7	..	11	11 30
22	6·8	..	3·9	..	3·7	..	6·5	..	..	9·1	10·8	..	..	11·9	2·1	..	22	16 50
23	..	8·0	6·8	..	2·4	..	0·9	..	..	2·4	..	6·5	..	7·1	..	4·1	17	01 05
24	..	5·2	..	..	..	3·7	1·3	..	..	3·4	1·9	..	..	2·9	5·1	..	10	01 55
25	..	1·3	7·4	..	..	2·5	6·8	..	..	2·1	5·8	..	..	1·9	3·4	..	12	01 25
26	..	Ca	lm	..	..	Ca	lm	..	..	Ca	lm	..	1·1	..	3·1	..	6	23 50
27	1·7	..	4·6	..	2·6	..	4·5	..	..	2·5	3·0	..	0·5	..	2·6	..	11	01 05
28	..	2·7	7·4	..	..	4·6	8·0	..	..	4·1	7·1	..	..	2·7	7·4	..	13	21 50
29	..	3·5	9·5	..	..	4·9	8·5	..	..	2·4	13·6	..	..	4·7	8·2	..	17	15 05
30	..	6·0	7·0	..	..	2·9	5·1	..	..	2·3	2·8	..	..	1·5	2·6	..	13	00 50
31	3·4	..	4·0	..	3·9	..	6·8	..	6·2	..	7·3	..	6·4	..	7·5	..	20	23 55
S+N & W+E	102·0		89·7		110·2		85·3		117·3		99·2		99·7		95·9			
S−N & W−E	19·8		67·9		55·4		59·1		39·7		80·2		21·9		63·3			

SCOTLAND N.:—DEERNESS.

Cup. Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	..	Ca	lm	..	..	..	0·7	1·9	..	..	Ca	lm	..	..	Ca	lm	5·2	1
2	1·4	..	0·8	..	0·9	..	..	2·4	0·5	..	..	1·5	0·5	..	..	1·5	3·6	5
3	..	3·5	..	3·0	..	8·0	..	2·9	..	8·2	..	..	..	3·4	..	1·9	12·8	5
4	..	1·7	..	4·6	5·7	..	..	4·8	9·3	..	..	7·8	12·2	..	..	4·5	13·4	18
5	8·8	..	..	1·5	6·8	..	..	1·2	8·2	..	..	4·7	9·1	..	..	3·4	11·5	1
6	6·1	..	..	1·1	7·2	..	..	..	..	0·7	3·8	..	1·0	..	2·8	..	8·9	8, 10
7	3·8	..	0·7	..	5·3	..	1·9	..	3·0	..	8·3	..	..	2·4	4·2	..	14·1	16
8	0·4	..	2·3	..	5·8	..	2·1	..	..	0·7	3·8	..	..	Ca	lm	..	6·6	8, 10
9	2·3	..	..	6·2	3·5	..	..	0·6	2·0	..	0·3	..	..	1·1	..	3·1	7·2	4
10	3·8	..	..	3·1	2·3	..	..	1·3	..	2·4	..	4·2	..	7·9	..	..	9·2	22
11	..	6·1	..	1·1	..	1·1	..	2·0	0·9	..	..	4·8	6·3	..	..	5·3	8·2	20, 21
12	3·5	..	..	0·6	..	2·6	7·0	..	..	..	6·6	..	..	Ca	lm	..	8·5	14
13	2·3	..	1·9	..	3·7	..	1·3	..	5·8	..	2·1	..	1·5	..	8·8	..	10·2	24
14	..	..	12·1	..	..	4·7	12·9	..	..	5·4	9·4	..	..	2·0	5·5	..	13·8	9
15	2·0	..	11·3	..	2·0	..	11·3	..	2·3	..	12·9	..	4·5	..	0·8	..	13·4	17
16	7·4	..	1·3	..	10·1	..	3·7	..	..	1·4	8·1	..	..	1·0	1·7	..	10·8	9
17	0·8	..	1·4	..	6·5	..	1·1	..	6·9	..	..	..	5·6	..	..	..	8·2	8
18	5·2	..	..	..	5·1	..	0·9	..	8·1	..	..	1·4	7·9	..	..	..	8·9	13, 18
19	1·9	..	3·4	..	0·5	..	3·0	..	..	2·2	12·3	..	..	1·0	5·5	..	12·5	15
20	6·8	..	5·8	..	8·8	..	5·1	..	..	1·4	7·8	..	6·5	..	3·7	..	11·1	12
21	..	3·7	10·1	..	..	2·0	11·3	..	..	5·2	9·1	..	..	2·3	2·8	..	11·8	12
22	..	1·3	2·3	..	..	1·5	2·6	..	..	Ca	lm	..	..	6·8	..	3·9	7·9	21
23	..	5·5	..	2·0	..	7·0	..	2·6	..	8·2	..	..	..	7·4	2·7	..	10·2	24
24	..	6·2	2·3	..	..	Ca	lm	..	5·1	..	4·3	..	3·2	..	8·8	..	11·8	18
25	..	2·3	13·2	..	..	3·9	6·8	..	..	2·3	6·2	..	..	2·7	7·4	..	13·4	3
26	..	..	8·2	..	3·1	..	3·8	..	1·7	..	2·0	..	5·1	..	2·9	..	9·5	2
27	..	1·6	9·1	..	..	1·1	6·5	..	..	1·2	6·8	..	..	..	6·6	..	9·5	23, 24
28	..	..	14·1	..	..	6·1	16·5	..	..	3·8	10·3	..	..	..	14·1	..	17·7	9, 23
29	..	3·0	17·4	..	..	9·5	16·5	..	..	9·6	8·0	..	..	3·3	2·8	..	19·7	5
30	..	1·8	3·1	..	1·6	..	9·4	..	2·0	..	11·3	..	4·1	..	7·1	..	11·5	15
31	5·5	..	4·7	..	5·7	..	4·8	..	6·6	..	7·8	..	..	3·3	19·0	..	19·3	21
S+N & W+E	98·7		148·7		132·8		148·2		115·1		165·6		112·1		130·8			
S−N & W−E	25·3		102·3		36·4		112·6		9·7		116·8		22·9		83·6			

ENGLAND S.W.:—SCILLY.

Cup. Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	3·5	..	..	4·1	3·8	..	..	4·4	6·8	..	..	3·9	4·1	..	..	4·8	8·3	13
2	1·8	..	..	5·1	3·9	..	..	6·8	13·2	..	..	4·9	5·6	..	9·8	..	15·0	14
3	2·5	..	4·3	..	4·0	..	2·3	..	6·3	..	..	..	4·5	..	..	0·8	6·7	1
4	3·9	..	..	1·4	3·2	..	..	2·7	1·4	..	..	8·2	1·0	..	..	5·7	8·3	15
5	3·0	..	..	3·5	3·0	..	..	3·5	7·4	..	..	2·7	3·3	..	..	1·9	9·6	14
6	3·6	..	..	1·3	1·3	..	..	1·6	1·7	..	..	..	2·0	..	0·7	..	6·3	5
7	2·5	..	..	..	1·9	..	1·6	..	2·7	..	1·0	..	2·1	..	..	..	4·6	23
8	1·1	..	..	1·3	2·3	..	..	4·0	2·3	..	..	6·3	1·1	..	..	6·2	7·1	16
9	1·8	..	..	5·1	4·8	..	..	8·3	4·8	..	..	8·3	6·3	..	..	..	11·3	14
10	4·3	..	..	2·5	1·8	..	..	1·0	..	1·6	..	1·9	De	fec	tiv	e	5·0	3
11	..	1·0	1·8	..	..	Ca	lm	..	2·9	..	..	0·5	..	Ca	lm	..	4·6	1
12	..	Ca	lm	..	1·1	..	..	3·1	1·4	..	..	7·8	3·0	..	..	8·2	9·6	16
13	4·1	..	..	7·2	3·0	..	..	8·2	1·4	..	..	8·2	..	0·3	..	1·7	10·0	11
14	..	1·6	2·9	..	..	3·3	..	..	..	2·7	..	3·2	..	0·6	..	1·6	5·0	12, 13, 14
15	..	..	..	2·1	2·1	..	..	2·5	1·6	..	..	4·3	2·9	..	..	1·6	4·6	15
16	2·3	..	..	0·9	3·5	..	..	3·0	2·2	..	..	1·2	2·2	..	..	1·2	5·0	8
17	3·5	..	..	4·1	2·5	..	..	4·3	3·2	..	..	3·8	3·8	..	..	4·4	6·3	11, 17
18	3·2	..	..	3·8	5·1	..	..	4·4	4·9	..	0·9	..	1·1	..	1·3	..	7·5	12
19	4·0	..	2·3	..	4·4	..	5·1	..	3·0	..	3·5	..	..	1·7	..	0·3	6·7	9, 11
20	..	Ca	lm	..	..	3·2	..	3·8	..	4·7	..	1·7	..	2·3	..	0·9	7·1	7
21	..	Ca	lm	..	..	Ca	lm	..	3·2	..	..	2·7	3·6	..	1·3	..	4·2	15, 16
22	5·0	..	..	..	3·1	..	8·6	..	5·3	..	14·4	..	..	9·9	8·3	..	16·3	16
23	..	7·6	4·4	..	..	3·1	8·6	..	..	12·8	10·8	..	..	14·6	..	..	18·8	17
24	..	1·1	..	3·1	..	2·3	..	0·9	..	3·3	..	..	..	2·9	..	0·5	6·7	1
25	..	Ca	lm	..	..	3·2	..	0·6	..	1·7	0·3	..	..	1·9	..	1·6	3·3	9, 10
26	..	Ca	lm	..	0·6	..	..	3·2	..	1·7	..	4·7	..	2·7	..	1·0	5·0	15
27	..	1·6	..	1·3	..	Ca	lm	..	..	3·7	..	0·7	..	2·1	..	..	4·6	16
28	..	1·7	..	..	..	2·5	..	..	..	3·3	..	..	..	5·9	2·2	..	6·3	21
29	..	4·9	0·9	..	..	4·6	..	..	..	4·6	..	..	..	4·9	..	0·9	6·3	18
30	..	3·2	..	0·6	..	2·2	..	1·2	..	Ca	lm	..	..	Ca	lm	..	3·8	1, 2, 4, 5, 6
31	5·3	..	..	0·9	3·5	..	4·1	..	4·1	..	4·8	..	3·2	..	3·8	..	6·3	8, 14, 15, 23
S+N & W+E	78·1		64·9		83·3		97·8		119·9		110·7		*99·6		*70·7			
S−N & W−E	32·7		−31·7		34·5		−37·2		39·7		−39·3		0		−15·9			

ENGLAND E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	1·7	..	1·0	..	2·5	..	..	0·4	2·3	..	..	0·9	..	Ca	lm	..	8	0 15
2	..	Ca	lm	..	..	Ca	lm	..	..	..	..	4·0	3·6	..	2·1	..	8	22 50
3	5·5	..	4·7	..	4·0	..	6·9	..	..	1·1	6·2	..	..	0·3	2·0	..	17	8 40
4	..	Ca	lm	..	..	0·3	2·0	..	2·4	..	..	4·2	2·2	..	..	3·9	9	14 0
5	5·4	..	..	3·1	6·1	..	..	3·5	3·0	..	..	1·7	6·3	..	..	3·6	9	20 45
6	5·9	..	1·0	..	5·2	..	..	..	5·6	..	..	..	4·1	..	0·7	..	8	2 20
7	2·0	..	3·5	..	..	1·6	4·3	..	2·2	..	6·0	..	..	..	4·0	..	12	14 45
8	..	0·9	2·3	..	..	1·5	2·6	..	4·4	..	0·8	..	..	Ca	lm	..	6	14 15
9	..	Ca	lm	..	3·0	..	..	..	1·9	..	..	1·6	2·3	..	0·4	..	8	19 0
10	2·8	..	1·0	..	3·0	..	1·1	..	3·8	..	1·4	..	..	Ca	lm	..	8	12 45
11	..	Ca	lm	..	..	Ca	lm	..	..	1·9	..	1·6	..	Ca	lm	..	6	4 45
12	..	..	3·0	..	..	1·0	1·7	..	..	1·4	1·7	..	..	0·7	1·9	..	7	5 25
13	..	1·1	1·9	..	..	Ca	lm	..	4·4	..	..	3·8	..	1·4	..	..	7	22 55
14	..	Ca	lm	..	..	4·9	0·9	..	..	6·8	..	..	..	0·9	2·5	..	13	11 25
15	..	1·2	3·3	..	..	0·9	2·3	..	..	0·9	2·5	..	1·5	..	2·6	..	6	11 15
16	3·9	..	..	0·7	..	Ca	lm	..	4·9	..	1·8	..	1·6	..	2·8	..	8	11 55
17	..	..	2·8	..	..	Ca	lm	..	3·9	..	0·7	..	2·3	..	1·3	..	7	12 15
18	2·7	..	2·2	..	3·6	..	2·1	..	6·1	..	1·1	..	3·5	..	2·0	..	9	13 20
19	3·5	..	2·0	..	1·5	..	1·3	..	2·6	..	4·5	..	2·7	..	4·8	..	10	12 55
20	..	Ca	lm	..	..	..	5·2	..	..	..	2·7	..	..	Ca	lm	..	8	9 5
21	..	0·8	1·5	..	..	1·2	3·3	..	..	0·6	3·4	..	..	0·6	3·2	..	7	11 55
22	2·0	..	..	..	2·9	..	3·4	..	6·3	..	5·3	..	..	3·0	8·2	..	20	22 55
23	..	5·5	9·5	..	..	3·1	8·4	..	..	2·9	2·4	..	..	9·2	..	..	18	2 40
24	..	8·9	1·6	..	..	10·3	..	1·8	..	7·6	..	..	..	2·1	2·5	..	22	2 35
25	..	0·6	3·3	..	..	..	4·0	..	..	0·9	2·3	..	..	0·6	3·4	..	9	10 50
26	..	1·6	2·8	..	..	1·5	1·8	..	..	3·0	..	0·5	..	Ca	lm	..	5	12 10
27	..	0·8	1·4	..	..	Ca	lm	..	..	0·9	2·5	..	..	1·4	0·8	..	8	19 0
28	..	1·4	2·4	..	..	0·8	4·4	..	..	2·9	5·1	..	..	2·5	4·3	..	7	12 30
29	..	0·6	3·5	..	..	1·9	5·3	..	..	5·8	6·9	..	..	6·2	5·2	..	16	12 45
30	..	3·5	2·0	..	..	1·3	3·5	..	..	1·2	2·2	..	1·5	..	2·6	..	10	0 20
31	1·1	..	3·0	..	3·2	..	3·8	..	2·1	..	5·7	..	3·4	..	6·0	..	14	23 10
S+N & W+E	63·4		63·5		70·5		68·8		96·5		77·0		66·3		72·2			
S−N & W−E	9·6		55·9		−0·5		57·4		15·3		48·0		11·3		57·2			

* 30 days only.

8. Seismological Diary

The notation used is explained in the Introduction.

Earthquakes—Eskdalemuir.

Day.	Phase	Time G.M.T.	Period	Amplitudes.			Δ.	Remarks.
				A_N.	A_E.	A_Z.		
		h. m. s.	s.	μ	μ	μ	km.	
1	e	21 25 29	..	..	..	..	..	
	L	21 41 22	..	..	..	..	..	
	F	22 15	..	..	..	..	..	
5	?e_N	1 53 58	..	..	..	..	..	L phase feebly developed.
	e_N	2 3 15	..	..	..	..	..	
	L	2 19	..	..	..	..	..	
	F	3 20	..	..	..	..	..	
6	i_Z	16 12 11	..	..	..	..	..	L indiscernible. Interpretation of record rendered difficult by wind effects.
	e_N	16 12 12	..	..	..	..	..	
	e	16 20 20	..	..	..	..	..	
	L?	..	..	..	..	..	..	
	F?	..	..	..	..	..	..	
6	L	22 58	..	..	..	..	..	Faint L waves.
	F	23 35	..	..	..	..	..	
9	e_N	0 40 37	..	..	..	..	..	
	e_N	0 47 54	..	..	..	..	..	
	L	1 4	..	..	..	..	..	
	M_N	1 14 27	26	5	..	..	..	
	M_E	1 14 14	28	..	6	..	..	
	M_N	1 16 13	23	5	..	..	..	
	F	2 40	..	..	..	..	..	
9	?e_N	5 19 30	..	..	..	..	..	Faint.
	e_N	5 44 40	..	..	..	..	..	
	L	5 50	..	..	..	..	..	
	F	6 20	..	..	..	..	..	
10	i_Z	2 26 17	..	..	..	..	..	L phase irregular at first. Sinusoidal movements did not occur until 3h. 12m. (on East-West record).
	e_N	2 26 17	..	..	..	..	..	
	e_E	2 26 17	..	..	..	..	..	
	i (?S)	2 36 5	..	..	..	..	..	
	L	2 54	..	..	..	..	..	
	M_N	3 28 53	24	8	..	..	..	
	M_E	3 29 37	20	..	10	..	..	
	F	4 45	..	..	..	..	..	
12	e	8 13 33	..	..	..	..	..	
	L	8 57	..	..	..	..	..	
	F	9 45	..	..	..	..	..	
14	e_N	17 3 48	..	..	..	..	..	
	e_N	17 11	..	..	..	..	..	
	L	17 16	..	..	..	..	..	L phase well developed.
	M_N	17 21 9	25	30	..	..	..	
	M_E	17 21 25	22	..	15	..	..	
	F	18 15	..	..	..	..	..	
15	L	2 15 30	..	..	..	..	..	
	F	2 30	..	..	..	..	..	
15	e^N	5 17 36	..	..	..	..	..	The character of record changed about 5h. 38m., the movements becoming longer and somewhat similar to those expected in S phase. There was a tendency towards sinusoidal movement at 5h. 46m. True sinusoidal movement did not occur until 6h. 20m.
	i_N	5 20 33	..	..	..	..	..	
	i_N	5 21 26	..	..	..	..	..	
	L	6 3	..	..	..	..	..	
	M_N	6 7 31	30	17	..	..	..	
	M_E	6 7 22	28	..	15	..	..	
	M_E	6 17 16	23	..	16	..	..	
	M_N	6 20 42	20	14	..	..	..	
	M_N	6 47 6	23	14	..	..	..	
	M_N	6 57 50	21	18	..	..	..	
	F	8 15	..	..	..	..	..	
20	?e_E	6 16 35	..	..	..	..	..	
	i_N	6 16 55	..	..	..	..	..	
	i_Z	6 16 55	..	..	..	..	..	
	e	6 20 7	..	..	..	..	..	
	i_E	6 20 56	..	..	..	..	..	
	S	6 26 46	..	..	..	..	..	
	L	6 41	..	..	..	..	..	
	M_N	6 53 44	22	11	..	..	..	
	M_E	6 54 36	22	..	12	..	..	
	F	8 45	..	..	..	..	..	
20	L	11 40	..	..	..	..	..	
	F	12 10	..	..	..	..	..	
21	..	2 20 to 2 23	15	3	3	..	..	A few waves. Wind effects masked other phases.
25	L	1 37	..	..	..	..	..	
	F	2 15	..	..	..	..	..	
26	L	7 40	..	..	..	..	..	Long waves of low amplitude.
	F	8	..	..	..	..	..	

Microseisms of N. Component—Eskdalemuir.

Day.	0 h.		6 h.		12 h.		18 h.	
	A_N.	T.	A_N.	T.	A_N.	T.	A_N.	T.
	μ	s.	μ	s.	μ	s.	μ	s.
1	0·8	5·5	0·6	5·5	0·8	4·5	..	..
2	..	..	..	..	..	..	..	..
3	0·9	4·5	0·6	4·5	..	..	0·9	4·5
4	1·0	4·5	1·1	4	1·0	4·5	..	..
5	1·0	4·5	1·0	4·5	0·8	4·5	0·8	4
6	0·8	4	1·0	4	1·0	4	0·8	4
7	0·8	4	0·7	4	0·7	4	0·9	4·5
8	0·9	6	1·1	6·5	1·0	4·5	0·5	4·5
9	0·5	5	..	..	1·4	7·5	1·4	7·5
10	1·4	6·5	1·0	6·5	1·6	6	0·8	6
11	1·0	5·5	0·8	6	0·8	5·5	0·7	5·5
12	..	..	..	..	..	..	0·5	4·5
13	0·7	5	0·8	5·5	0·8	5·5	0·9	6
14	1·0	5	1·0	5·5	1·6	6	1·1	4·5
15	1·2	5	..	..	1·0	5·5	1·0	5
16	1·0	5	1·1	5	1·0	5	1·1	5
17	1·1	5·5	0·9	5·5	1·0	5	1·7	5·5
18	1·0	5·5	1·5	6	0·9	5·5	0·8	5·5
19	1·1	4·5	1·0	4·5	1·1	4·5	1·1	4·5
20	1·2	5	1·1	4·5	..	..	1·0	4·5
21	1·0	4·5	1·2	4·5	..	..	..	..
22	..	..	..	..	1·0	5	1·0	5
23	2·6	4	1·4	5	1·7	5·5	..	..
24	1·4	4·5	1·4	4·5	0·9	5	1·0	4
25	0·9	5	0·9	5	0·9	5	0·8	5·5
26	0·8	5·5	0·7	5·5	0·9	4·5	0·9	4·5
27	0·9	5	1·0	4·5	0·9	6	0·9	5
28	0·9	5	..	..	..	..	..	..
29	..	..	..	..	..	..	..	..
30	1·5	5·5	1·4	5	1·0	6	0·8	6
31	..	..	0·9	5	1·9	5	2·0	5

Means for month $\begin{cases} A_N. = 1·1\ \mu. \\ T = 5·1\ s. \end{cases}$

Normals for month, 1911–20 : $\begin{cases} A_N. = 1·3\ \mu. \\ T = 5·2\ s. \end{cases}$

Earthquakes—Richmond (Kew Observatory).

Day.	Times, G.M.T., of		Remarks.
	Commencement.	Maximum Amplitude.	
	h. m.	h. m.	
9	..	1 27	Very small.
10	..	3 21	Small.
12	..	9 13	Small.
14	..	17 29	
15	5 24	6 55	Small.
20	..	6 30	
21	..	2 19	Very small.
26	..	7 46	Small.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour. G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.–E.	S.–N.	
4 7	Cu.	145	7·2	− 4·1	+ 5·7	Cu., low elevation, much elongated vertically. St. Cu. above.
6 7	A.-Cu.	195	2·5	+ 0·6	+ 2·4	Thin flat A.-Cu., formed from patches of false Ci.
12	A.-Cu.	200	6·2	+ 2·1	+ 5·7	Thin flat flakes of A.-Cu.
12	St.-Cu.	203	8·3	+ 3·4	+ 7·5	St. Cu. in small waves.
12	Fr.-St.	224	18·0	+12·7	+12·7	Fracto-stratus gathering into cumuliform masses.
7 13	A.-Cu.	296	4·0	+ 3·6	− 1·6	Flat A.-Cu. waves forming from false-Ci. sheets.
8 7	A.-Cu.	266	5·4	+ 5·3	+ 0·4	Small diffuse A.-Cu., fusing later into sheet.
13	A.-Cu.	268	4·6	+ 4·6	+ 0·1	A.-Cu. inclined to lenticular form.
17	A.-Cu.	260	4·5	+ 4·4	+ 0·8	A.-Cu. increasing to St.-Cu.
11 7	St.-Cu.	239	2·1	+ 1·8	+ 1·0	High St.-Cu. in flakes, dispersing.
15	False Ci	262	2·4	+ 2·3	+ 0·4	Coarse false Ci., very thick in places.
14 13	Cu.	307	10·4	+ 8·0	− 6·0	
15	Ci.	318	3·8	+ 2·5	− 2·9	Irregular wispy tufts of Ci.
15	St.-Cu.	298	9·6	+ 8·4	− 4·7	Coarse low St.-Cu.
15 13	Ci.-St.	282	1·7	+ 1·6	− 0·3	
16 7	St.-Cu.	238	4·2	+ 3·5	+ 2·1	High St.-Cu. in lenticular sheets.
13	Ci.-Cu.	260	3·3	+ 3·2	+ 0·5	
13	St.-Cu.	252	6·9	+ 6·5	+ 2·2	
13	Fr.-St.	230	19·0	+14·5	+12·3	
17 13	St.-Cu.	254	2·8	+ 2·7	+ 0·8	
17 13	Fr.-St.	207	26·0	+11·8	+23·3	
18 12	St.-Cu.	215	5·4	+ 3·2	+ 4·4	Thin high St.-Cu., dispersing.
19 7	St.-Cu.	225	3·8	+ 2·7	+ 2·7	Thin high St.-Cu., forming from false Ci.
13	St.-Cu.	215	4·1	+ 2·3	+ 3·3	Fused high St.-Cu.
20 15	A.-Cu.	257	4·9	+ 4·8	+ 0·8	A.-Cu. in lenticular fused sheets.
21 12	Ci.-St.	270	6·6	+ 6·6	0·0	Ci. to Ci.-St., webbed band; became Ci.-Cu. later.
13	Cu.	284	6·2	+ 5·9	− 1·4	
23 13	St.-Cu.	344	10·0	+ 2·7	− 9·5	St.-Cu. formed from upper parts of Cu.-Nb.
24 11	A.-Cu.	339	5·0	+ 1·6	− 4·6	Broad, thin, very flat A.-Cu.
25 13	St.-Cu.	317	6·2	+ 4·3	− 4·5	
26 13	Ci.	274	0·5	+ 0·5	− 0·0	
27 12	Ci., Ci.-Cu.	300	5·0	+ 4·3	− 2·4	Faint Ci. to "speckled cloud."
27 12	A.-Cu.	270	7·1	+ 7·1	0·0	Thin flat A.-Cu., dispersing.
28 13	St.-Cu.	305	20·0	+16·4	−11·5	Velocity approximate, varies somewhat.
16	Ci.-St.,—Ci.-Cu.	305	2·8	+ 2·4	− 1·6	Coarse floccular Ci.-St., to Ci.-Cu. in places.
29 13	Nb.	305	36·0	+29·4	−20·6	Low scud cloud.
30 13	St.-Cu.	302	9·3	+ 7·9	− 4·8	St.-Cu. of low elevation.
31 16	A.-St.	243	3·6	+ 3·2	+ 1·6	A.-St. opening into thin flat diffuse A.-Cu.
31 16	Fr.-St.	252	21·0	+19·8	+ 6·4	Low, broken St. in cumuliform masses.

10. AURORA.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
1	p.	●	..	..	..	
3	p.	..	0, 1	0, 1	Lerwick	Glow 22h. 30m.—24h.
5	p.	..	1, 1	1, 1	Lerwick	Very faint glow, 22h.—23h. 30m.
6	p.	..	1, 1	1, 1	Lerwick	Faint glow all evening, decreasing rapidly in intensity about 23h.
7	p.	..	1, 2	1, 2	Lerwick	Faint glow 20h. 25m.—23h. 40m.
					Kirkwall	
					Baltasound	
8	p.	..	2, 1	2, 1	Lerwick	Very faint glow.
					Paisley	
10	p.	..	0, 2	0, 2	Paisley	
11	p.	..	2, 1	2, 2	Baltasound	
13	p.	..	0, 0	0, 1	Baltasound	
16	p.	○	..	..	..	
21	p.	..	1, 1	2, 1	Lerwick	Arch of approximately 30° altitude.
					Deerness	
					Gordon Castle	
					Aberdeen	Glow moderately faint, greenish white, 18h.—20h.
22	p.	..	1, 0	1, 1	Lerwick	Glow not so intense or so high as on 21st.
					Paisley	
23	p.	..	0, 0	1, 0	Lerwick	Glow not so bright as Milky Way. Several bright rays shot up about 20h. 30m. but did not last long. All signs of aurora gone by 23h. 30m.
24	p.	..	0, 0	0, 0	Lerwick	Faint suspicion of aurora.
26	p.	..	0, 1	0, 1	Lerwick	Very slight appearance, and very doubtful as cloud layer was thick.
27	p.	..	1, 1	1, 1	Lerwick	Similar to 26th.
28	p.	..	1, 1	1, 1	Aberdeen	Faint glow, greenish-white, 19h.—22h.
31	p.	..	1, 1	1, 1	Lerwick	Very bright arch observed at times, the brightest so far this winter.
					Kirkwall	
					Gordon Castle	

Note.—The two magnetic characters "entered in each case" refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

DAILY VALUES.—*Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology.*

Eleventh YEAR.—No. 11. NOVEMBER, 1921.] Units based on the C.G.S. System. [*Price* 1*s.* 6*d. net.*

1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	11·30 h. to 12·30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p_0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	0·0	0	..	..	..	..	..	0·0	0	..	..	..	6·9	74	..	..	..	..	0·0	0
2	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
3	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
4	0·0	0	..	..	..	..	..	0·0	0	..	..	..	2·7	30	..	..	..	..	1·3	14
5	4·5	48	..	..	..	..	..	4·5	48	..	..	..	5·2	58	..	..	..	..	0·0	0
6	4·2	45	..	..	..	..	..	3·0	32	..	..	..	7·0	78	..	..	..	..	4·6	49
7	5·9	63	..	..	..	..	..	6·7	72	65	25	Clear	7·6	85	..	..	..	..	3·7	40
8	*x*6·4	70	..	..	..	..	..	*x*7·7	84	..	..	..	*x*7·9	90	..	..	..	..	3·3	36
9	0·0	0	..	..	..	..	..	1·4	15	..	..	..	0·0	0	..	..	..	..	0·0	0
10	3·6	40	..	..	..	..	..	3·3	36	..	..	..	0·7	8	..	..	..	..	0·9	10
11	1·4	15	..	..	..	..	..	0·8	9	..	..	..	6·8	79	..	..	..	..	0·0	0
12	0·0	0	..	..	..	..	..	0·0	0	..	..	..	6·2	73	..	..	..	..	1·8	20
13	0·0	0	..	..	..	..	..	3·6	40	..	..	..	2·7	32	..	..	..	..	0·0	0
14	1·7	19	..	..	..	..	..	1·5	17	..	..	..	0·0	0	..	..	..	..	4·0	45
15	0·0	0	..	..	..	..	..	0·0	0	..	..	..	1·6	19	..	..	..	..	0·0	0
16	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·1	1	..	..	..	..	*x*6·2	71
17	0·2	2	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	2·5	29
18	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·2	2	..	..	..	..	6·1	71
19	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
20	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	4·0	47
21	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·9	11	..	..	..	..	0·1	1
22	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
23	2·1	25	..	..	..	..	..	2·4	28	..	..	..	0·2	3	..	..	..	..	0·0	0
24	1·2	14	..	..	..	..	..	0·0	0	11	3	Fog	0·0	0	..	..	..	..	0·7	8
25	0·0	0	..	..	..	..	..	0·0	0	..	..	..	7·0	90	12 18	Clear	4·16	68	0·0	0
26	0·0	0	..	..	..	..	..	0·0	0	..	..	..	4·9	64	..	..	..	..	0·3	4
27	0·0	0	..	..	..	..	..	0·0	0	..	..	..	4·1	53	..	..	..	..	2·9	35
28	0·0	0	..	..	..	..	..	1·6	20	..	..	..	0·0	0	..	..	..	..	2·6	32
29	0·0	0	..	..	..	..	..	0·3	4	..	..	..	0·0	0	..	..	..	..	0·0	0
30	0·1	1	..	..	..	..	..	0·3	4	..	..	..	4·1	55	..	..	..	..	0·0	0
Means.	1·04	11	—	—	—	—	—	1·24	14	—	—	—	2·56	30	—	—	—	—	1·50	17
Normals.	1·00	12	227	23	—	—	—	1·73	20	—	—	—	1·77	21	—	—	—	—	2·17	25
	←—35 years—→		←—8 years—→					←—35 years—→					←—10 years—→						←—35 years—→	

Callendar Radiograph dismounted after 8th September, 1921.

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_s=12·8 m. h_a=13·9 m.

Day.	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. 21 h.	9 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	Remarks.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	mb.	*a* 200+	*a* 200+	*a* 200+	*a* 200+	millibar.		%	%					Tenths of Sky covered		mm.	*a* 200+		
1	1020·7	1022·0	87·5	87·6	*x*88·5	87·1	14·9	15·7	91	95	245	6	200	3	10	10	1·5	85·9	o. early; c. to o. *a.*; ●^{0} *p.*; o. *n.*	
2	1018·5	1019·2	88·0	86·9	88·1	86·7	16·6	15·0	98	95	235	8	—	1	10 ●^{0}	10 ≡^{0}	5·0	85·9	● early; od. to ●^{0} day.	
3	1015·9	1010·3	87·6	87·2	88·0	87·0	16·3	15·7	99	98	250	7	225	2	10 ●^{0} ≡^{0}	10 ●	14·0	85·8	d. ≡^{0} early; o. ≡^{0} *a. and p.*; ● *n.*	
4	1006·6	1012·6	86·9	84·1	87·7	84·0	15·1	9·6	96	73	315	8	290	9	10 ●^{0}	10	3·4	85·6	● early; Fair day.	
5	1011·8	1003·4	85·3	86·5	86·6	83·0	11·5	14·3	81	93	260	9	240	16	10	10	5·7	80·5	p.^{0} early; o. with d^0. *a. and p.*; ● *n.*	
6	1014·5	1020·2	82·2	82·1	84·7	80·7	7·3	7·5	63	65	330	12	350	6	5	8	0·8	77·8	pq. at first; c. *a.*; cpq. to c. *p. and n.*	
7	1021·4	1026·7	76·7	75·6	82·5	*n*72·9	7·1	6·2	89	85	45	2	—	1	6	0	—	74·3	bc. *a. and p.*; b. *n.*	
8	1028·4	1028·6	74·4	79·4	82·2	*n*72·1	5·6	7·8	82	82	75	2	90	2	7	10	—	*n*69·9	⌙ early; c. *a. and p.*; c. to o. *n.*	
9	1021·5	1017·7	83·2	84·4	84·7	80·7	11·4	11·9	92	89	150	12	135	15	10 ●	10 ●	*x*34·3	76·6	o. at first; Persistent ●^{2} after 6½ h.	
10	1020·4	1020·9	85·4	84·1	86·2	83·2	13·5	11·2	94	85	165	6	160	11	4	10	6·7	83·0	● till 2h.; bc. to op. *a.*; o. to ●^{0} *p. and n.*	10 {17838*γ* 19° 5′·5
11	1018·6	1019·0	82·2	81·1	83·2	80·3	8·0	9·2	69	85	140	9	130	4	8	10 ●	4·0	79·0	c. to o. *a.*; o. *p.*; d. to ● *n.*	
12	1018·9	1013·3	80·6	83·1	83·6	79·8	9·3	10·8	89	88	75	3	170	9	10	10 p^0.	3·8	78·2	o. to ●^{0} early; c. *a.*; cp. *p.*; op. *n.*	
13	1002·2	999·2	84·0	81·3	84·6	80·1	12·2	9·6	94	88	180	11	215	3	10 ●	8 p.	26·8	81·7	●^{2} till 10h.; op. *p.*; bc. to op.^{2} *n.*	
14	1002·7	1007·8	77·8	80·5	83·4	77·2	7·9	8·9	92	86	60	2	—	1	8 p.	7	3·3	74·3	p. early; bc. *a.*; bcp. *p.*; b. to c. *n.*	
15	1003·5	995·1	81·8	84·3	84·9	77·3	8·7	12·8	77	96	145	7	165	5	10	10	18·2	73·8	b. ⌓ early; o. *a.*; ● *p.*; ● to o. *n.*	
16	999·5	1009·2	78·0	83·1	83·7	78·0	8·3	9·7	96	79	85	2	360	6	4	6	0·5	76·3	p. 4h.; Fine day; p. 15h.	
17	1019·0	1022·5	83·0	80·6	84·1	77·6	9·3	9·4	76	90	15	5	60	2	7	0	0·2	77·9	c., p. 11h. *a.*; c. to b. *p. and n.*	
18	1020·4	1015·7	74·3	81·1	82·6	73·9	6·2	8·4	93	78	60	2	85	6	1 ≡^{0}	7 ≡^{0}	—	70·9	b. ⌙ early; bc. ∞ all day; o. *n.*	
19	1011·5	1011·6	81·6	82·9	83·5	80·7	8·5	9·5	76	79	90	6	85	6	10 ≡^{0}	10 ≡^{0}	—	78·3	o., ∞ all day.	
20	1014·4	1013·3	82·1	82·6	84·5	81·6	8·5	9·9	74	83	90	5	90	4	0 ≡^{0}	6 ≡^{0}	—	79·3	b., ∞ *a.*; Fair ∞ *p. and n.*	
21	1012·1	1010·4	82·9	84·5	84·9	82·3	9·8	11·6	81	86	85	7	145	6	10 ≡^{0}	10 ≡^{0}	0·6	79·5	o. to c., ∞ *a .and p.*; op. *n.*	
22	1010·6	1007·7	86·1	86·7	86·8	84·6	14·2	13·7	95	88	165	6	165	11	8	5	18·4	81·8	● early; o. to c. *a.*; ●^{2} *p.*; bc. *n.*	
23	1006·6	1008·2	86·7	86·4	87·7	86·1	14·0	14·4	90	94	150	9	150	7	10 ●	10 ●	22·6	85·1	o. to ● *a. and p.*; ●^{2} *n.*	
24	1010·5	1010·9	87·6	86·2	88·2	86·0	11·9	12·4	72	82	120	7	110	6	8	3	2·8	84·3	o. to ●^{0} till 5h.; c. *a. and p.*; b. *n.*	
25	1009·4	1005·5	85·8	85·8	86·4	85·5	12·0	12·6	82	86	110	7	105	9	10 ●^{0}	10	1·0	83·9	p. 6h.; od.^{0} *a.*; c. *p.*; o. to ●^{0} *n.* 25	{17856*γ* 19° 5′·9 68° 4′·0
26	1006·9	1011·4	85·3	81·7	85·6	81·4	11·7	9·2	83	82	100	6	95	2	10 ●^{0}	5 ≡^{0}	1·0	83·7	●^{0} 8–9h.; o. to c. *a.*; c. *p.*; o. to bc. ∞ *n*	
27	1011·8	1011·1	80·7	79·7	83·5	79·4	9·6	9·1	92	93	—	1	50	3	9 ≡^{0}	6	—	76·2	b., 7h.; o., 9h.; then b. ∞ all day.	
28	1008·0	1008·8	85·0	79·9	85·0	79·5	13·4	9·3	96	94	185	5	60	2	10 ●	2	11·6	75·2	● *a.*; Fine *p. and n.* 29	{17859*γ* 68° 3′·7
29	1003·9	998·2	84·6	86·2	86·3	80·6	11·9	11·3	88	75	160	7	135	15	10	4	1·2	76·2	c. to op. *a. and p.*; bc. *n.*	
30	988·8	995·8	83·9	79·8	86·5	77·9	9·5	8·5	74	86	130	14	75	2	10	2	5·6	82·6	o. to ● q. *a.*; o. to c. *p.*; b. *n.* 30	19° 2′·4
Means.	1012·0	1011·9	83·0	83·2	85·3	80·9	10·8	10·8	86	86	—	6·4	—	5·8	8·2	7·3	193·0	79·5	Monthly Totals or Means	{17851*γ* 19° 4′·6 68° 3′·8
Normals.	1011·3	1011·4	81·3	81·4	84·1	79·0	9·6	9·6	87	86	—	5·8	—	5·9	—	—	138·6	—	Normals	
	←45 years→						←30 years→				←35 years→						45 years			

* By Campbell-Stokes Sunshine Recorder.

x denotes the maximum and *n* the minimum value in the column.

(7989) Wt.134/6890/P27 500 1/23 Harrow G.69/7

3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind—Veer from North in degrees and Speed in metres per second.				Cloud Amount Weather and Visibility		Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9 h.	Remarks.
					Max.	Min.	Vapour Pressure.		Percentage										
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.		21 h.		9 h.	21 h.			
			a	a	a	a												a	
	mb.	mb.	200+	200+	200+	200+	millibar.		%	%	°	m/s.	°	m/s.			mm.	200+	
1	1017·8	1023·1	86·7	81·6	x87·5	80·9	11·5	8·6	74	77	240	6	—	0	10 I	10 H	—	82·2	o. ≡0 all day; d.0 12 h.
2	1022·4	1015·9	81·0	81·1	83·1	80·3	9·4	10·1	88	94	245	2	40	4	10 G	10 ●0 G	8·5	78·0	Dull and wet; ≡ 16 h.–18 h.
3	1015·0	1008·5	80·3	87·2	87·3	79·2	9·9	14·1	97	88	—	1	265	2	10 D	9 I	5·3	78·9	≡ 9 h.; ● *a. and p.*; o. *n.*
4	1003·4	1003·7	84·6	84·5	x87·5	82·1	13·0	11·1	96	82	—	1	330	4	10● C	1 H	x10·2	78·2	≡ ● 7 h.–15 h.; b. ≡ *p.*; b. *n.*
5	1007·5	1006·7	82·7	82·8	85·0	81·0	8·9	9·5	75	79	235	5	225	5	8 K	8 I	—	77·7	bc. till 15 h., then c. to o. ≡0.
6	996·4	1012·2	80·9	77·2	85·8	76·0	7·3	6·9	69	84	300	11	295	2	10 L	o J	7·7	79·5	● early; ⸝ (gusts) 6–9 h.; o. to b.
7	1018·2	1019·4	74·9	74·7	79·8	73·0	5·8	4·4	82	64	295	2	350	5	o F	o K	—	68·1	⸤ ≡0; Fine day; ∞0 *p.*
8	1020·3	1027·5	73·5	74·6	77·3	72·2	4·4	5·6	70	82	320	4	355	3	1 H	o H	—	68·5	Fine; ∞ *p.*
9	1032·9	1034·1	71·3	73·8	77·8	70·4	4·8	6·3	89	98	—	o	—	o	o D	?o B	—	66·2	⸤ ≡0 early; ≡ till 11 h., then b. to c. ≡0.
10	1035·6	1033·4	69·7	73·4	78·2	n68·4	4·4	4·7	92	75	—	o	100	2	?o B	o F	—	67·3	≡2 ⸤; ≡ *a.*; b. ∞ *p.*; ≡ ⸤ *n.*
11	1027·6	1020·7	72·6	75·1	78·1	71·2	4·5	5·8	76	82	80	2	20	3	o D	10p.0 H	—	64·9	b. ≡ early; o. *a. and p.*; ✻0 p. 21 h.
12	1020·8	1020·8	71·5	73·2	76·3	71·1	5·0	5·4	91	87	—	1	—	1	7 F	5 E	—	65·1	b. ≡ ⸤ early; o. to c. ≡0 *a. and p.*; bc ≡0 ⸤ *n.*
13	1019·0	1014·2	69·1	77·3	78·7	68·5	4·5	7·5	100	91	—	o	15	3	10 A	9 ▷ E	—	n64·1	⸤, ≡ till 11 h., then b. till 15 h.; o. later.
14	1012·0	1012·3	78·4	75·5	79·5	74·4	7·4	5·6	83	77	165	4	95	4	9 G	8 G	—	69·3	o. ≡0 *a.*; c. ∞ to o. ≡0 *p. and n.*
15	1013·3	1012·3	76·1	78·6	81·1	74·4	6·3	8·4	84	93	85	3	120	2	10 B	5 G	—	71·1	≡ *a.*; d.0 ≡0 to o. ≡0 *p.*; bc. ≡0 *n.*
16	1009·0	1010·0	81·1	81·4	83·7	78·5	9·5	10·2	89	93	115	5	125	3	10 ●0 F	10 ● H	4·2	72·7	o. ≡0 to d.0 *a. and p.*; ● ≡0 after 16 h.
17	1015·9	1020·7	79·6	79·4	80·8	79·0	8·5	7·4	87	78	75	5	40	4	10 E	10 H	4·7	78·1	● ≡0 till 5 h.; ≡ 9 h.; o. ≡0 to c. ≡0.
18	1020·4	1017·4	79·0	77·1	79·8	77·0	7·6	6·9	82	85	35	3	115	2	10 F	10 G	—	78·1	o. ≡0 all day; g. *a.*
19	1016·2	1017·8	78·7	79·3	80·0	77·3	7·9	7·8	87	82	105	3	90	7	10 G	10 H	—	76·5	o. ≡0 *a.*; ≡ *p.*; d.0 ≡0 to o. ≡0 *n.*
20	1018·2	1018·6	77·2	76·9	79·2	76·6	6·2	6·3	75	78	45	5	55	3	10 H	10 H	—	77·0	o. ≡0, gloomy at times.
21	1021·4	1022·1	77·5	76·0	78·6	75·4	7·0	6·4	84	85	55	2	105	4	10 ●0 E	10 F	2·2	76·1	o. ≡0 early; ●0 ≡0 at times *a. and p*; o. ≡0 *n.*
22	1024·3	1025·2	77·8	79·6	81·6	76·3	8·1	9·0	94	93	95	2	95	2	10 C	o A	0·1	74·6	o. ≡ at first; b. ≡ to o. ≡ all day.
23	1024·6	1022·9	79·0	80·1	86·6	78·3	8·0	7·3	86	73	95	2	110	2	6 ▷ D	o E	—	73·2	≡ *a.*; bc. ∞ to b. ≡ *p. and n.*
24	1022·1	1021·0	77·4	76·0	81·8	75·5	7·0	6·4	84	85	110	4	100	3	?3 D	o E	—	70·5	⸤ early; b. ≡ to c. ≡ all day.
25	1020·0	1017·8	76·2	75·0	76·6	72·9	7·5	6·9	98	98	100	3	95	2	10 D	10 ▷ B	—	69·1	o. ≡ all day; ▷ *n.*
26	1016·7	1016·9	73·5	73·9	76·2	71·9	6·3	6·1	100	94	95	2	—	1	10 ▷ A	10 X	—	70·2	≡ throughout day; ≡⁝2 ⸤ *n.*
27	1018·4	1019·1	74·2	74·2	74·8	70·7	6·6	6·5	99	98	—	1	—	1	10 A	10 ▷ X	0·2	68·4	⸤ ≡2 all day; ≡.2 *n.*
28	1019·0	1017·3	73·7	77·4	79·4	73·6	6·4	7·7	100	93	—	1	—	o	10 X	10 E	0·1	73·3	≡⁝2 *a.*; b. *p.*; o. ≡0 to ≡ *n.*
29	1017·5	1016·1	78·9	76·5	80·9	73·8	7·7	7·0	83	90	100	2	95	2	10 F	3 G	—	74·4	o. ≡0 *a.*; b. ≡0 *p. and n.*
30	1010·9	1005·7	73·5	73·7	75·0	72·1	5·6	5·9	88	92	85	5	105	4	10 F	10 G	—	71·9	o. ≡0 *a.*; b. ≡ to bc. ≡0 *p.*; o. ≡0 *n.*
Means	1017·9	1017·8	77·0	77·6	80·6	75·1	7·2	7·4	87	86	2·9		2·6		7·8	6·3	43·2	72·8	Monthly Totals or Means.
Normal	1013·3	1013·2	79·1	79·3	82·3	76·6	8·4	8·5	88	87	3·3		3·2		—	—	56·5 (45 yrs.)	—	Normals.
			45 years.				30 years.				35 years.								

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

1	988·9	991·8	77·0	76·0	84·0	73·1	5·5	6·2	68	82	330	2	280	5	1 K	6 I	0·4	71·9	● early; b. to c. ⊕ *a.*; cp.0 *p.*; bc. to cp.0 *n.*
2	992·6	991·5	74·3	73·9	75·7	71·7	5·4	5·4	81	83	—	1	—	o	10 K	10 J	—	69·8	bc. early; o. *a. and p.*; o. to c. *n.*
3	982·4	978·2	74·8	80·9	83·4	72·4	6·8	10·2	98	97	—	o	210	4	10● H	10● F	7·1	70·8	o. to ●0 ≡0 all day.
4	971·2	971·0	83·8	78·3	x85·0	77·5	12·2	7·4	95	83	220	5	270	8	10 I	6 J	3·4	79·0	o. to ●0 *a.*; c. to bc. *p.*; cp. to bc. *n.*
5	972·0	970·8	77·8	76·5	81·1	73·7	7·3	7·2	85	92	310	11	—	o	4 K	10● J	8·8	75·1	p. early; bc. to c. *a.*; c. to op. *p.*; ● *n.*
6	973·4	984·6	74·7	74·3	77·0	71·9	5·5	4·3	80	64	360	5	340	9	o K	o K	6·6	72·3	✲ to ⁎ till 5 h.; ⊠; very fine day.
7	989·9	992·7	72·8	69·9	74·4	67·9	4·5	4·9	76	100	—	o	360	3	8 J	o I	—	64·3	⸤ early; ✻0 p. 9 h; c. to b. *a.*; b. *p. and n.*
8	995·6	1002·0	72·8	67·5	76·4	64·7	5·8	3·1	97	80	360	9	—	o	o J	o J	—	64·4	b. *a.*; b. to bc. *p.*; b. *n.*
9	1001·7	1000·5	68·6	75·7	76·1	n64·1	4·2	5·8	94	78	—	o	160	2	10 K	10 I	—	n62·4	o., ⸤ to o. *a.*; o. *p.*; p.0 18 h. to o. *n.*
10	1002·1	1002·0	75·0	74·0	79·0	72·9	6·1	5·6	87	85	—	1	170	3	10 I	5 H	—	71·5	o. ≡0 *a.*; o. ≡0 to b. ≡0 *p.*; b. ≡0 *n.*
11	1001·6	996·5	69·5	71·2	77·5	66·6	3·3	3·5	70	65	—	o	—	1	o J	10 J	—	63·6	b. ⸤ *a.*; b. to o. *p.*; o, to bc. *n.*
12	993·9	991·7	67·4	70·2	78·1	65·5	3·1	4·1	80	81	—	o	—	o	o J	8 I	—	63·0	b. *a.*; b. ∞ to o. ∞ *p.*; c. ∞ *n.*
13	986·6	979·1	73·7	74·5	77·4	73·3	4·9	5·4	77	79	—	1	160	2	9 I	10● G	1·9	67·2	o. ≡0 to c. ∞ *a.*; o. ∞ *p.*; Δ to ● ≡0 after 20h.
14	978·3	984·2	76·6	76·6	77·4	75·6	7·2	6·9	92	88	160	3	160	3	10● I	10 H	10·2	73·0	●0 ≡0 till 19 h. then o.
15	985·0	981·2	73·0	76·2	77·3	71·9	4·4	6·1	73	80	—	o	140	4	1 I	3 I	—	68·9	o. 7 h.; b. 9 h.; bc. to o. *a.*; o. *p.*; o. to b *n.*
16	979·9	982·2	78·1	79·6	79·6	75·8	7·7	8·8	86	90	130	7	130	8	9 I	10 ●0 H	2·5	72·5	c. to o. *a.*; ●0 ≡0 *p.*; ●0 ≡0 to o. *n.*
17	990·7	996·2	78·0	78·2	79·0	77·8	8·4	8·4	97	96	—	1	—	o	10 ●0 G	10 G	1·8	77·1	o. ≡0 to ●0 ≡0 *a. and p.*; d.0 ≡0 *n.*
18	996·4	992·4	77·8	77·7	79·2	77·2	8·1	7·8	95	91	50	2	60	5	9 G	10 ●0 J	0·6	76·0	d. 5 h.; o. ≡0 *a.*; o. *p.*; op. *n.*
19	989·6	993·1	77·2	78·2	78·9	76·8	7·7	8·0	94	91	110	2	120	3	10 ●0 J	10 I	3·3	76·1	●0 ≡0 early; d.0 ≡0 *a.*; o. ≡0 *p.*; o. *n.*
20	993·9	994·4	77·2	74·8	78·1	74·6	7·5	6·2	92	89	60	3	50	4	10 J	10 J	0·7	76·2	o. to d. *a. and p.*; c. to o. *n.*
21	994·8	993·6	72·8	74·1	75·4	72·7	5·5	6·4	92	96	60	4	60	2	6 I	10● I	1·3	72·5	bc. ⸤ to o. *a.*; o. *p.*: ✲ *n.*
22	992·2	992·3	75·0	81·2	81·6	74·7	6·7	10·3	95	96	—	1	150	5	10● H	10 ●0 G	9·5	73·3	●0 early; ● ≡0 after 8 h.
23	991·8	992·0	82·6	82·5	84·5	80·1	9·5	7·7	80	65	170	2	—	1	10 H	4 H	3·7	78·6	● till 2½ h.; o. ≡0 *a. and p.*; bc. ≡0 *n.*
24	992·7	992·6	81·0	79·6	83·9	77·4	6·6	5·9	62	61	—	1	360	3	10 J	4 J	—	74·5	o. ≡0 to oy. *a. and p.*; c. to bc. *n.*
25	991·4	989·7	77·8	71·9	84·0	71·4	5·8	4·2	68	75	360	2	—	1	7 J	o J	—	71·6	c. to by. *a.*; b. *p.*; b. ⸤ *n.*
26	990·2	991·8	69·9	72·5	73·7	68·7	4·2	5·4	86	92	10	5	10	4	o I	o F	—	64·8	b. ⸤ *a.*; b. to c. *p.*; b., ⸤ ≡0 *n.*
27	991·3	989·4	70·0	70·5	73·4	68·4	4·7	4·4	97	85	10	2	350	2	2 G	3 H	0·3	66·1	b. ⸤2 ≡0 all day.
28	986·4	984·7	76·2	78·8	80·0	71·8	7·6	8·9	99	97	—	o	—	o	10 H	10● G	6·2	67·9	b. ⸤ early; ● 6h.; o. ≡⁝0 *a.*; d.0 ≡0 *p*; ● ≡0 *n.*
29	985·1	985·9	80·9	78·3	81·8	78·0	10·2	8·4	97	94	180	4	—	1	10 ●0 F	o F	x12·2	77·8	● ≡0 till 12 h.; b. ≡0 after 15½ h.
30	983·4	980·9	79·4	75·6	80·4	75·2	8·5	6·2	89	85	100	3	40	5	10 I	2 I	0·2	75·2	p.0 early; o. ≡0 to c. ∞ *a. and p.*; b. *n.*
Means	988·8	989·0	75·5	75·6	79·1	72·8	6·5	6·4	86	85	2·7		3·0		6·9	6·4	80·7	71·2	Monthly Totals or Means.
Normal 1911-1920	981·5	981·5	76·9	76·8	79·9	74·0	7·3	7·3	87	87	5·6		5·4		—	—	151·2	—	Normals.

Temperatures at or below the normal freezing point of water are printed in small type. x denotes the maximum, and ⁎ the minimum, value in the column.

5. GEOPHYSICS:—RICHMOND (KEW OBSERVATORY)

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force. Horizontal Comp't.		Declination.		Inclination.		Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}.		Air-Earth Current. × 10^{16}.	Potential Gradient, Volts per metre.* Factor 2·24.			
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			+.	−.	About 15 h.	3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m.	v/m.	v/m.	v/m.
1	83·5	85·7	167	165	..	..	..	..	..	..	1	0	0·47	0·25	0·85	85	140	425	275
2	83·0	85·5	176	..	..	..	..	..	..	..	0	1	..	..	..	165	290	−95	415
3	82·8	85·5	194	..	11 19	18385	14 28	14 18·5	14 18	66 57·5	0	1	..	..	..	205	205	250	250
4	83·2	85·3	210	..	..	..	..	..	..	..	0	1	..	..	..	385	220	55	150
5	83·0	85·3	220	..	..	..	..	..	..	..	2	0	..	..	..	110	345	220	470
6	83·0	85·2	224	224	..	..	..	..	..	..	2	1	..	..	..	85	55	195	305
7	80·9	85·2	222	..	..	..	..	..	..	..	1	0	0·53	0·38	0·30	250	510	290	330
8	79·1	85·2	221	..	..	..	..	..	..	..	1	0	0·38	0·41	0·70	260	275	370	370
9	77·8	85·1	218	..	..	..	..	..	..	..	1	0	0·43	0·49	0·50	370	—	535	360
10	77·0	84·8	215	..	11 47	18371	14 43	14 21·1	14 35	67 0·8	1	0	0·27	0·57	0·50	910	†—	580	1100
11	76·1	84·6	212	..	..	..	..	..	..	..	0	0	0·31	0·34	0·70	550	965	825	690
12	75·8	84·2	209	..	..	..	..	..	..	..	0	0	..	..	..	205	480	495	495
13	75·4	84·0	205	..	..	..	..	..	..	..	1	0	..	..	..	275	235	330	220
14	75·5	83·6	203	..	..	..	..	..	..	..	1	0	0·31	0·25	0·60	125	275	305	590
15	75·6	83·3	200	..	..	..	..	..	..	..	1	0	..	0·49	0·35	425	580	400	470
16	76·6	83·2	197	..	..	..	..	..	..	..	2	1	..	..	..	150	360	180	−110
17	78·2	82·9	195	..	11 26	18348	14 25	14 18·0	14 23	67 2·1	2	2	0·43	0·32	0·90	−370	605	590	810
18	78·4	82·8	193	..	..	..	..	..	..	..	2	0	0·43	0·27	0·70	385	855	715	425
19	78·5	82·8	191	..	..	..	..	..	..	..	1	0	..	..	..	235	480	675	550
20	78·8	82·7	189	..	..	..	..	..	..	..	1	0	..	..	..	195	345	425	290
21	78·2	82·7	187	..	..	..	..	..	..	..	1	1	..	..	..	235	565	415	470
22	78·2	82·6	185	..	..	..	..	..	..	..	1	1	0·51	0·39	0·55	305	425	715	605
23	78·0	82·4	184	..	..	..	..	..	..	..	1	0	0·50	0·43	0·65	385	635	690	755
24	77·6	82·5	182	..	11 22	18371	14 35	14 16·5	14 18	66 58·3	1	0	0·64	0·74	0·35	550	580	825	535
25	76·9	82·3	181	..	..	..	..	..	..	..	1	0	0·34	0·47	..	315	455	470	605
26	76·8	82·2	179	..	..	..	..	..	..	..	0	0	..	..	..	290	455	580	690
27	77·0	82·2	177	..	..	..	..	..	..	..	0	0	..	..	..	1170	590	840	1250
28	76·0	82·2	176	..	..	..	..	..	..	..	1	0	0·45	0·45	0·10	1515	1100	580	700
29	76·7	82·0	175	..	..	..	..	..	..	..	0	0	0·43	0·62	0·60	400	415	495	565
30	76·7	81·9	173	..	..	..	..	..	14 15	66 57·2	0	0	0·94	0·52	0·55	260	565	770	495
M.	78·5	83·7	195	—	—	—	—	—	—	—	0·87	0·30	0·46	0·43	0·56	326	464	465	488
No. of days used	30	30	30	—	—	—	—	—	—	—	30	30	16	17	16	28	28	28	28

† Jet frozen.

6. GEOPHYSICS:—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force. North Component. Maximum. 15000 γ +.		Minimum. 15000 γ +.		Range.	West Component. Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.	Vertical Component. Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.	Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre.* Factor 6·28.			
																		3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ			v/m	v/m	v/m	v/m.
1	3 21	1016	963	12 16	53	16 2	796	721	3 36	75	15 43	1088	1051	3 22	37	1	1 *a*	130	205	255	195
2	19 36	1004	969	{11 25 / 12 0}	35	12 58	774	742	9 16	32	15 6	1082	1075	6 30	7	0	0 *a*	355	260	220	335
3	20 55	1017	981	11 25	36	12 30	778	747	9 39	31	17 1	1078	1072	12 40	6	0	1 *a*	30	40	915	370
4	19 57	1009	972	11 40	37	13 30	774	741	9 11	33	15 33	1078	1071	12 50	7	0	1 *b*	205	245	180	70
5	22 20	*x*1061	952	23 36	109	15 53	793	624	23 0	169	21 40	1084	1015	24 0	69	1	1 *c*	— 25	50	65	−245
6	4 30	1004	933	10 3	71	13 42	790	638	0 1	152	15 3	1128	1015	0 1	113	1	1 *b*	−295	235	465	145
7	21 38	1048	?965	?0 1	?83	?7 25	?766	719	2 13	?47	19 22	1088	1057	1 51	31	1	0 *a*	395	195	235	315
8	23 6	1019	961	10 43	58	1 0	784	683	23 11	101	22 27	1076	1049	1 38	27	1	0 *a*	190	195	260	245
9	22 38	1029	965	11 56	64	14 2	779	693	22 14	86	20 53	1087	1056	3 35	31	1	0 *a*	100	195	225	315
10	7 44	1018	920	14 36	98	13 57	798	714	21 53	84	15 2	1114	1061	6 29	53	1	0 *a*	295	365	400	500
11	23 59	1012	974	12 15	38	13 5	767	735	9 11	32	14 55	1082	1069	24 0	13	0	0 *a*	475	445	355	280
12	0 6	1016	983	11 22	33	13 0	779	735	9 19	44	14 7	1075	1056	0 41	19	0	0 *a*	120	310	300	295
13	23 34	1056	974	16 14	82	23 33	778	708	21 1	70	16 40	1083	1044	24 0	39	1	1 *b*	60	225	250	75
14	0 1	1034	976	1 10	58	15 20	767	677	0 58	90	18 13	1078	1033	0 40	45	1	2 *c*	−195	50	25	190
15	17 15	1012	978	20 25	34	13 28	765	719	21 19	46	21 30	1089	1067	11 20	22	0	0 *a*	160	250	255	260
16	20 26	1057	*n*851	20 39	*x*206	20 30	*x*822	*n*587	21 20	*x*235	19 44	*n*1159	1040	21 10	119	2	2 *c*	255	185	−730	— 75
17	21 29	1043	899	12 29	144	6 50	801	617	21 23	184	15 35	1134	*n*941	1 32	*x*193	2	1 *a*	50	40	85	75
18	19 35	1046	930	11 30	116	22 11	792	677	20 1	115	15 39	1101	1043	1 5	58	1	1 *b*	295	660	155	90
19	5 1	1006	948	11 36	58	13 11	771	696	16 11	75	16 10	1105	1063	2 50	42	1	1 *b*	35	30	135	100
20	16 35	1003	969	§	34	15 30	762	735	15 59	27	16 8	1083	1068	5 51	15	0	1 *b*	— 5	35	−245	135
21	0 42	1014	953	13 5	61	14 15	777	713	18 46	64	17 8	1092	1056	23 54	36	1	†	120	165	355	†
22	22 12	1007	963	18 25	44	13 11	766	706	18 35	60	18 40	1088	1057	0 1	31	1	2 *c*	†	†	†	— 80
23	19 12	*x*1061	933	19 59	128	14 32	773	670	19 1	103	18 51	1099	1059	10 45	40	1	1 *b*	−115	280	475	395
24	24 0	1025	970	10 53	55	12 38	767	707	1 1	60	16 20	1073	1049	0 40	24	0	‡	240	240	‡	‡
25	0 6	1026	977	18 40	49	12 32	770	713	19 0	57	19 1	1080	1015	1 48	65	0	‡	‡	‡	350	490
26	6 11	1014	995	10 20	*n*19	12 35	757	746	21 1	*n*11	14 0	1066	1060	6 19	6	0	0 *a*	410	460	430	25
27	4 20	1015	990	12 51	25	13 19	765	734	4 30	31	20 45	1069	1057	4 20	12	0	0 *a*	650	755	540	525
28	6 49	1028	991	11 57	37	1 40	765	713	2 48	52	0 1	1066	1045	6 50	21	0	1 *c*	290	145	105	50
29	17 34	1014	990	11 36	24	13 22	761	739	21 11	22	21 38	1062	1057	13 30	*n*5	0	1 *c*	60	250	835	775
30	17 32	1015	990	11 40	25	13 18	770	728	23 27	42	23 40	1065	1053	12 30	12	0	0 *a*	390	250	785	425
M.	—	1023	960	—	63	—	777	702	—	75	—	1088	1048	—	40	0·60	0·70	166	244	268	226
No. of days used	—	29	29	—	29	—	29	29	—	29	—	30	30	—	30	30	27	26	26	26	26

The letters *x* and *n* denote the maximum and minimum values in the columns in which they occur. * The potential gradient is reckoned as positive if the potential increases upwards. *z* Indeterminate. † Electrometer faulty. ‡ Light cut off. Magnetograph light out on the 7th between 11h. and 16h. § At 10h 46m., 10h. 52m., 10h. 57m.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	6·2	..	10·8	..	..	7·0	6·0	..	..	4·0	3·4	..	..	1·9	5·3	..	19	00 10
2	..	0·5	1·5	..	4·0	..	..	2·3	..	3·0	..	8·3	..	2·8	..	4·8	12	14 20
3	1·3	..	..	1·5	4·2	..	7·4	..	..	1·5	8·8	..	..	..	5·9	..	14	11 55
4	2·8	..	4·8	..	1·6	..	2·9	..	..	9·0	7·6	..	..	4·6	12·5	..	20	17 05
5	..	2·0	11·3	..	..	2·3	12·9	..	1·3	..	7·4	..	7·4	..	8·8	..	21	22 55
6	..	11·8	14·1	..	..	11·0	13·0	..	..	7·5	13·1	..	..	8·1	1·4	..	27	05 55
7	..	6·8	2·5	..	..	8·3	3·0	..	..	10·6	1·9	..	..	9·2	..	..	21	13 35
8	..	10·2	12·0	..	..	10·8	..	..	..	8·1	..	1·4	..	0·6	..	3·5	22	02 35
9	1·1	..	..	2·0	5·8	..	..	1·0	7·5	..	..	..	7·4	..	..	1·3	15	23 30
10	8·1	..	..	1·4	8·5	..	..	..	9·1	..	..	1·6	6·8	..	..	1·2	17	09 10
11	6·2	..	..	2·3	5·7	..	..	3·3	4·0	..	..	2·3	1·1	..	..	3·1	12	05 30
12	..	Ca	lm	..	..	Ca	lm	..	2·3	..	0·4	..	4·3	..	..	1·6	12	23 45
13	6·9	..	..	..	7·7	..	..	2·8	9·1	..	..	1·6	11·9	..	..	2·1	25	23 55
14	13·2	..	..	4·8	9·1	..	..	3·4	9·1	..	..	1·6	3·1	..	..	1·1	26	03 15
15	..	Ca	lm	..	0·8	..	..	2·2	3·5	..	..	3·0	7·0	..	..	6·0	15	21 25
16	8·2	..	..	4·7	4·2	..	..	7·4	4·3	..	..	..	..	Ca	lm	..	18	12 30
17	..	Ca	lm	..	..	0·9	..	2·4	..	2·5	..	3·0	..	1·2	..	6·8	10	22 05
18	..	1·7	..	4·6	..	0·7	..	4·2	..	1·6	..	4·3	..	0·6	..	3·2	9	02 15
19	..	Ca	lm	..	1·5	..	..	2·6	..	0·5	..	2·6	..	..	..	2·6	8	22 40
20	0·3	..	..	2·0	..	..	..	10·5	..	..	..	10·8	..	..	..	9·2	14	19 30
21	..	..	..	9·2	..	..	..	4·3	1·2	..	..	3·4	0·6	..	..	3·5	12	03 00
22	1·6	..	..	2·9	7·1	..	..	1·3	4·8	..	..	0·9	8·8	..	..	3·2	17	21 45
23	7·4	..	..	1·3	6·8	..	..	1·2	7·4	..	..	1·3	4·6	..	..	1·7	15	00 35
24	3·2	..	..	0·6	..	Ca	lm	..	..	Ca	lm	..	..	Ca	lm	..	9	01 10
25	..	Ca	lm	..	..	Ca	lm	..	1·0	..	..	1·2	..	0·4	..	2·3	8	12 00
26	..	Ca	lm	..	..	1·0	..	5·5	..	..	..	7·2	..	..	..	10·5	13	19 45
27	..	..	..	5·6	..	..	..	5·2	..	..	..	3·0	0·3	..	..	2·0	10	07 30
28	7·4	..	..	1·3	5·1	..	..	0·9	5·5	..	..	1·0	5·9	..	..	..	13	02 50
29	5·8	..	..	1·0	6·8	..	..	2·5	6·1	..	..	1·1	5·1	..	..	4·3	14	10 20
30	2·0	..	..	5·5	1·5	..	..	8·8	..	..	..	9·8	1·5	..	..	8·8	15	13 50
S+N & W+E	114·7		107·7		122·4		117·0		124·5		112·0		105·2		116·7			
S−N & W−E	48·7		6·3		38·4		−26·6		27·9		−26·8		46·4		−48·9			

SCOTLAND N.:—DEERNESS.

Cup Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	..	7·8	13·6	..	..	8·9	10·6	..	..	9·5	11·3	..	..	7·4	8·8	..	18·7	4
2	..	8·0	2·9	..	..	8·8	1·5	..	..	4·8	0·9	..	..	0·9	2·4	..	10·8	8
3	..	Ca	lm	..	..	..	3·3	..	2·9	..	..	5·1	3·1	..	..	8·6	10·2	24
4	5·3	..	..	6·3	3·7	..	4·3	..	..	..	11·8	..	..	1·5	8·4	..	12·5	16
5	..	4·6	12·5	..	..	13·2	2·3	..	..	9·5	..	..	..	5·5	1·0	..	17·0	4
6	..	6·1	1·1	..	..	10·3	..	1·8	..	10·7	3·9	..	..	12·5	4·6	..	14·4	20
7	..	10·3	3·8	..	..	11·1	6·4	..	..	9·5	3·5	..	..	9·8	3·6	..	13·1	2
8	..	10·0	..	1·8	..	8·3	..	3·0	..	4·5	2·6	..	..	Ca	lm	..	14·8	1
9	2·8	..	3·3	..	5·3	..	1·9	..	8·5	..	4·9	..	..	0·3	1·6	..	9·8	15
10	2·3	..	2·8	..	7·4	..	2·7	..	7·1	..	1·3	..	10·2	..	..	..	11·5	20
11	11·3	..	2·0	..	10·8	..	..	..	10·7	..	3·9	..	12·1	..	..	..	14·1	13
12	8·1	..	1·4	..	3·5	..	3·0	..	1·7	..	1·0	..	5·2	..	..	..	9·5	1
13	7·8	..	..	1·4	13·2	..	..	2·3	14·6	..	..	2·6	14·1	..	..	5·2	15·4	24
14	15·9	..	..	5·8	11·6	..	..	2·0	9·1	..	..	1·6	6·2	..	..	..	17·0	3
15	9·8	..	..	..	10·9	..	..	1·9	12·2	..	..	7·0	10·8	..	..	6·2	15·1	17
16	10·0	..	..	8·4	8·6	..	..	10·3	11·0	..	..	9·3	12·8	..	..	7·4	16·4	20
17	10·2	..	..	5·9	7·4	..	..	2·7	4·5	..	..	3·9	6·2	..	..	3·6	13·4	2
18	4·5	..	..	3·9	7·8	..	..	6·6	4·3	..	..	5·1	4·2	..	..	7·4	10·5	22
19	5·1	..	..	8·8	5·5	..	..	9·6	4·3	..	..	11·7	6·6	..	..	7·8	13·8	11
20	4·2	..	..	7·4	5·8	..	..	6·8	7·3	..	..	6·2	3·7	..	..	6·5	10·8	1
21	..	..	..	3·6	1·2	..	..	3·4	0·6	..	..	3·5	..	Ca	lm	..	5·9	5, 6
22	1·9	..	2·3	..	6·0	..	..	3·4	6·5	..	..	1·1	5·3	..	..	1·9	7·9	12
23	10·3	..	..	1·8	9·7	..	..	1·7	11·6	..	..	2·0	11·0	..	..	4·0	13·1	14, 16, 19
24	10·0	..	..	1·8	11·3	..	..	2·0	8·1	..	..	1·4	3·5	..	..	0·6	11·5	2
25	3·1	..	..	1·1	4·5	..	..	2·6	7·4	..	..	2·7	5·3	..	..	1·9	8·2	12, 13
26	7·4	..	..	2·7	8·1	..	..	1·4	6·8	..	..	2·5	6·5	..	..	2·4	9·8	14
27	6·1	..	..	1·1	1·4	..	0·8	..	4·6	..	..	1·7	6·2	..	..	3·6	8·9	23
28	7·7	..	..	4·4	7·4	..	..	1·3	5·5	..	..	2·0	3·4	..	..	1·2	9·8	4, 5
29	4·3	..	..	1·6	1·6	..	..	..	..	Ca	lm	..	2·8	..	..	1·0	4·6	2, 3
30	1·5	..	..	0·5	5·7	..	..	3·3	6·8	..	..	3·9	5·8	..	..	6·8	10·5	24
S+N & W+E	196·4		114·0		219·0		102·9		204·6		118·4		182·9		106·5			
S−N & W−E	102·8		−22·6		97·8		−29·3		107·6		−28·2		107·1		−45·7			

ENGLAND, S.W.:—SCILLY.

Cup Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	hrs.
1	2·9	..	5·0	..	..	..	5·0	..	..	..	5·8	..	..	..	4·2	..	6·7	4, 6
2	..	..	5·4	..	..	..	7·1	..	2·1	..	11·9	..	..	1·4	7·8	..	12·1	15
3	..	..	6·3	..	1·7	..	9·8	..	..	..	9·6	..	1·3	..	7·4	..	10·4	6, 13
4	1·5	..	8·7	..	3·8	..	4·4	..	..	8·0	6·7	..	..	7·6	4·4	..	12·1	13
5	..	6·0	7·0	..	..	5·7	6·7	..	..	..	9·6	..	5·1	..	14·0	..	17·9	24
6	..	2·9	16·8	..	..	12·8	10·8	..	..	10·2	8·5	..	..	9·4	5·4	..	20·0	4
7	..	6·1	5·1	..	..	4·5	..	0·8	..	5·8	..	..	..	8·2	..	3·0	9·6	18
8	..	3·3	..	..	..	10·9	4·0	..	..	7·1	..	..	..	2·4	..	2·9	12·9	11
9	0·7	..	..	3·7	6·1	..	..	3·5	5·7	..	..	6·7	6·5	..	..	7·7	12·5	23
10	7·3	..	..	8·7	7·8	..	..	9·3	8·3	..	..	6·9	4·8	..	..	8·3	13·8	6
11	4·1	..	..	7·2	3·7	..	..	10·1	..	..	..	7·5	..	1·2	..	7·0	10·8	9
12	..	0·8	..	4·5	..	..	..	1·7	..	Ca	lm	..	1·9	..	..	1·6	4·6	3
13	3·3	..	..	..	4·9	..	0·9	..	14·2	..	..	..	16·4	..	..	2·9	17·9	23
14	9·5	..	1·7	..	..	10·8	6·2	..	..	6·2	10·8	..	..	10·2	12·1	..	17·9	22
15	..	4·5	12·4	..	..	3·3	8·9	..	5·8	..	..	..	12·1	..	..	10·2	17·1	24
16	1·2	..	6·6	..	..	Ca	lm	..	..	3·3	..	..	..	7·4	..	2·7	10·4	1
17	..	9·7	..	3·6	..	1·6	..	2·9	..	4·4	..	5·1	..	2·5	..	4·3	10·4	3
18	..	..	..	6·3	..	2·0	..	5·5	..	1·9	..	3·3	..	2·3	..	6·3	6·7	21
19	..	2·0	..	5·5	1·5	..	..	8·7	2·0	..	..	5·5	1·8	..	..	10·2	10·8	19
20	1·8	..	..	10·2	2·2	..	..	12·3	2·2	..	..	12·7	4·1	..	..	11·3	14·2	14
21	3·7	..	..	10·1	4·8	..	..	8·3	5·4	..	..	4·6	6·2	..	..	1·1	12·1	5
22	4·6	..	..	..	9·3	..	..	3·4	8·7	..	..	7·3	6·7	..	..	5·7	12·5	17
23	6·9	..	..	8·3	8·0	..	..	6·7	6·7	..	..	5·7	7·0	..	..	6·0	11·3	7
24	2·7	..	..	7·4	6·7	..	..	8·0	4·8	..	..	5·7	2·0	..	..	5·5	10·4	9
25	4·1	..	..	7·2	4·8	..	..	8·3	4·1	..	..	7·2	5·0	..	..	8·7	11·3	23
26	6·2	..	..	10·8	5·4	..	..	14·8	6·5	..	..	7·7	5·5	..	..	3·1	18·3	12
27	7·4	..	..	2·7	5·4	..	..	..	4·9	..	0·9	..	1·6	..	1·3	..	8·8	2, 4
28	1·1	..	1·3	..	3·8	..	..	..	4·9	..	..	0·9	5·5	..	..	2·0	7·1	23, 24
29	7·4	..	..	2·7	7·2	..	..	4·1	8·3	..	..	6·9	6·9	..	..	12·0	16·3	23
30	8·7	..	..	15·2	9·1	..	..	10·8	1·9	..	..	1·6	0·8	..	1·5	..	18·8	4
S+N & W+E	120·4		190·4		147·8		183·0		143·4		159·1		153·8		180·6			
S−N & W−E	49·8		−37·8		44·6		−55·4		49·6		−31·5		48·6		−64·4			

ENGLAND, E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	h. m.
1	2·4	..	6·6	..	..	3·8	6·7	..	..	3·2	5·6	..	..	0·6	3·3	..	17	3 10
2	..	0·6	3·5	..	..	0·5	3·0	..	..	0·3	1·6	..	..	Ca	lm	..	7	0 35
3	..	1·5	2·6	..	..	Ca	lm	..	0·9	..	1·6	..	..	0·5	1·5	..	6	13 55
4	..	..	2·4	..	1·5	..	2·6	..	1·0	..	2·8	..	..	3·7	6·5	..	13	20 15
5	..	..	6·4	..	..	..	7·1	..	..	2·5	6·9	..	1·2	..	3·2	..	17	12 0
6	8·0	..	6·8	..	..	1·4	8·2	..	..	9·5	5·5	..	..	6·6	5·6	..	35	9 40
7	..	7·2	4·1	..	..	8·4	3·1	..	..	6·7	5·7	..	..	5·1	2·9	..	17	2 15
8	..	6·6	5·6	..	..	6·6	5·6	..	..	11·1	..	4·1	..	7·0	..	4·0	21	13 5
9	..	6·4	..	5·5	..	1·1	3·0	..	..	Ca	lm	..	..	1·5	1·3	..	14	2 25
10	2·4	..	2·8	..	..	0·5	3·0	..	1·8	..	..	3·1	3·1	..	..	8·4	14	23 10
11	5·4	..	..	9·4	1·7	..	..	9·6	..	..	..	9·4	..	..	..	10·2	15	1 45
12	..	2·4	2·0	..	..	2·6	3·1	..	..	1·7	3·0	..	..	2·6	3·1	..	8	12 10
13	..	1·8	3·1	..	..	0·4	2·4	..	..	Ca	lm	..	2·8	..	2·3	..	7	5 25
14	4·1	..	3·5	..	5·9	..	3·4	..	8·9	..	..	1·6	7·9	..	..	2·9	12	17 30
15	6·4	..	..	1·1	5·5	..	..	2·0	7·6	..	..	2·8	7·0	..	..	1·2	11	14 10
16	5·3	..	..	0·9	7·7	..	..	2·8	8·4	..	..	7·1	6·8	..	..	8·1	16	17 25
17	3·7	..	..	6·4	4·1	..	..	7·2	..	..	..	7·5	..	..	..	6·7	11	23 35
18	1·2	..	..	6·8	3·4	..	..	5·9	2·3	..	..	6·3	7·8	..	..	4·5	13	23 45
19	8·8	..	..	7·4	8·5	..	..	7·1	4·1	..	..	7·2	1·2	..	..	6·7	15	7 40
20	..	1·2	..	6·6	..	3·7	..	6·4	..	3·4	..	6·0	..	1·3	..	7·5	13	5 55
21	..	0·8	..	4·6	2·7	..	..	4·8	4·6	..	..	5·4	8·4	..	..	7·1	14	21 30
22	8·7	..	..	3·2	6·6	..	..	1·2	3·6	..	..	1·3	5·6	..	..	2·1	12	1 5
23	4·8	..	..	1·7	7·2	..	..	1·3	4·3	..	..	2·5	5·5	..	..	4·7	10	23 15
24	4·2	..	..	4·9	4·3	..	..	3·7	2·9	..	..	3·4	4·9	..	..	4·2	11	4 15
25	3·7	..	..	3·1	5·1	..	..	4·4	2·0	..	..	3·6	5·1	..	..	4·4	9	19 5
26	2·1	..	..	2·5	3·5	..	..	4·1	1·5	..	..	2·7	3·3	..	..	3·9	6	8 40
27	2·2	..	..	1·9	..	Ca	lm	..	1·5	..	..	2·6	..	Ca	lm	..	4	0 20
28	..	Ca	lm	..	..	Ca	lm	..	..	Ca	lm	..	1·7	..	2·1	..	5	23 50
29	2·7	..	2·2	..	2·3	..	1·9	..	..	Ca	lm	..	4·6	..	..	0·8	7	18 15
30	5·9	..	..	3·4	7·5	..	..	4·3	4·4	..	..	7·7	5·8	..	..	6·9	14	24 0
S+N & W+E	110·5		121·0		106·5		117·9		98·2		117·0		111·6		126·1			
S−N & W−E	53·5		−17·8		48·5		−11·7		21·4		−51·6		53·8		−62·5			

8. Seismological Diary.

The notation used is explained in the Introduction.

Earthquakes—Eskdalemuir.

Day.	Phase	Time. G.M.T.	Period.	Amplitudes. A_N.	Amplitudes. A_E.	Amplitudes. A_Z.	Δ.	Remarks.
		h. m. s.	s.	μ	μ	μ	km.	
2	e_E	8 21 ..	..	..	..	..	..	Times uncertain. Record confused by microseisms.
	i_N	8 21 23	..	..	..	..	..	
	L	8 37	..	..	..	..	..	
	F	?	..	..	..	..	..	
6	L	18 4	..	..	..	..	..	
	F	18 40	..	..	..	..	..	
7	e_N(?P)	16 13 59	..	..	..	..	..	
	e_N		..	..	..	..	..	
	(?PR)	16 18 17	..	..	..	..	..	
	e(S)	16 25 45	..	..	..	..	..	
	L	16 47	..	..	..	..	..	
	M_N	16 56 10	32	30	..	..	..	
	M_N	17 5 13	24	28	..	..	..	
	M_E	17 5 30	21	..	22	..	..	
	F	18 45	..	..	..	..	..	
11		1 49 to 2 5	..	..	..	..	..	Slight disturbance.
11		19—22h.	..	..	..	..	..	A very considerable disturbance, but in the complete absence of time-marks the times of the phases are unknown. Vertical disturbance well marked.
13	L	9 12	..	..	..	..	..	Initial phases probably lost during changing of sheets.
	M_E	9 20	18	..	5	..	..	
	F	9 55	..	..	..	..	..	
13	i_N	14 16 8	..	..	..	..	..	
	e	14 22 53	..	..	..	..	..	
	L	14 38	..	..	..	..	..	
	F	15 30	..	..	..	..	..	
15	O	20 36 33	..	..	..	..	..	
	iP	20 45 31	..	..	..	..	5470	
	PR	20 47 33	..	..	..	..	..	
	iS	20 52 39	..	..	..	..	..	
	L	20 58	..	..	..	..	..	L phase irregular.
	M_E	21 3 37	20	55	..	..	..	
	F	23	..	..	..	..	..	

Microseisms of N. Component—Eskdalemuir.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s.	μ	s.	μ	s.	μ	s.
1	2·2	4·5	2·9	4·5	..	..	..	..
2	..	..	..	..	3·0	6·5	4·3	6
3	4·0	6	..	..	3·3	6	3·6	6·5
4	2·5	5·5	1·8	5·5	1·7	5·5	1·8	6
5	..	..	..	..	3·3	5	1·6	5·5
6	1·0	4·5	1·2	4·5	1·2	4·5	1·1	4·5
7	1·8	4·5	1·0	5	1·3	4·5	0·9	5
8	0·9	5	0·9	5·5	1·0	5	1·0	4·5
9	0·9	5	1·0	5	1·6	4·5	1·0	4·5
10	0·9	5	1·0	4·5	1·0	4·5	1·1	4
11	1·3	4·5	1·8	5	..	..	..	..
12	..	..	..	..	1·6	6	1·5	6
13	1·6	6	1·5	6	1·8	6·5	1·6	6·5
14	2·0	6	1·6	6·5	2·4	6·5	1·6	5·5
15	1·5	6	1·7	5	1·2	5	1·2	4·5
16	1·7	5	1·8	5	1·8	5·5	2·5	5·5
17	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..
20	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..
24	..	..	..	..	..	..	..	..
25	..	..	..	..	..	..	..	..
26	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..
29	..	..	..	..	..	..	0·8	5·5
30	1·6	5·5	3·2	5·5	4·6	6	3·7	6

Means for Month $\begin{cases} A_N. = 1\cdot8\mu. \\ T = 5\cdot3s. \end{cases}$

Normals for Month, 1911–20: $\begin{cases} A_N. = 1\cdot9\mu. \\ T = 5\cdot7s. \end{cases}$

Earthquakes.—Richmond (Kew Observatory).

Day.	Times, G.M.T. of Commencement.	Times, G.M.T. of Max. Amplitude.	Remarks.
	h m	h m	
2	4 29	4 36	Small.
2	8 43	8 55	Small.
6	..	18 28	Very small.
7	16 25	17 08	Small.
11	..	1 58	Very small.
11	18 55	19 45	Amplitude on trace—3·4 mm. Small waves to 21h. 30m.
15	20 45	21 12	Amplitude on trace—2·5 mm. Small waves to 22h. 05m.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
1 13	Cu.-Nb.	315	18·0	+12·7	−12·7	Fracto-base of cloud measured.
2 7	A.-Cu.	302	6·0	+ 5·1	− 3·2	Small fine A.-Cu. in long band. Radiant point N.W.
15	St.-Cu.	320	4·2	+ 2·6	− 3·2	Rather diffuse St.-Cu.
4 13	St.-Cu.	280	8·9	+ 8·7	− 1·5	
5 13	Cu.-Nb.	333	19·0	+ 8·3	−17·2	Base of cloud measured.
7 13	Cu.-Nb.	340	6·0	+ 2·0	− 5·5	Upper portion of cloud measured ; this was becoming St.-Cu.
8 13	Ci.	344	5·4	+ 1·4	− 5·2	Band of Ci., striated at 90° to direction, R. pt. N.N.W.
10 15	St.-Cuf.	210	18·0	+ 9·0	+15·6	Low cloud, really Stratus in cumuliform masses.
13 13	St.-Cu.	201	4·0	+ 1·4	+ 3·8	Velocity approximate, cloud dispersing.
17 13	St.-Cuf.	145	11·0	− 6·2	+ 8·9	Broken cumuliform Stratus ; thin fused St.-Cu. above.
18 13	Cu.	99	4·2	− 4·1	+ 0·6	
21 13	St.-Cu.	38	2·6	− 1·6	− 2·0	St.-Cu., formed from upper parts of Cu.-Nb.
24 13	St.-Cu.	190	3·1	+ 0·6	+ 3·0	Fused sheets of St.-Cu., lenticular inclination.
25 13 {	A.-Cu.	345	1·0	+ 0·3	− 1·0	Velocity approximate, cloud thin.
25 13 {	Fr.-St.	180	36·0	0·0	+36·0	Low, ragged Stratus.
26 13	St.-Cuf.	187	15·0	+ 1·8	+14·9	Stratus cumuliformis, very closely resembling St.-Cu.
28 15	St.-Cu.	184	1·4	+ 0·1	+ 1·4	Cloud very slow.
30 13	St.-Cuf.	161	14·0	− 4·8	+13·1	

Note.—A large proportion of the cloud this month was of uniform Stratus type.

10. AURORA.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
1	p.	..	1, 0	1, 0	Lerwick	Faint glow.
2	p.	..	0, 0	0, 0	Lerwick	Only faint suspicion.
5	p.	..	1, 1	2, 2	Lerwick	Trace of aurora about 19h. developed into bright auroral arch after moonset. Before 21h. some streamers shot up, arch increased in size and a bridge was formed in zenith.
6	p.	..	1, 1	2, 1	Lerwick Fort William Paisley	Glow 22h. 15m. — 23 h.
7	p.	..	1, 1	1, 1	Lerwick Paisley	Slight glow 21h. 30m. — 23h.
15	p.	○	..	..	..	
29	p.	●	..	..	..	

Note.—The two magnetic " characters " entered in each case refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

METEOROLOGICAL OFFICE OBSERVATORIES.—GEOPHYSICAL JOURNAL.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART III (2).

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1. SUNSHINE AND SOLAR RADIATION.

Day.	WESTMINSTER. Bright Sunshine.* Total.	Per cent. of Possible.	SOUTH KENSINGTON.—Lat. 51° 30′ N. Long. 0° 10′ W. Radiation received on Horizontal Surface by Callendar Radiograph. Daily Total.	Per cent. of Planetary.	Maximum. For Day. Amount.	Time.	11.30 h. to 12.30 h.	RICHMOND.—Lat. 51° 28′ N. Long. 0° 19′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation at Noon by Ångström Pyrheliometer. Intensity.	Vertical Component.	Sky.	ESKDALEMUIR.—Lat. 55° 19′ N. Long. 3° 12′ W. Bright Sunshine.* Total.	Per cent. of Possible.	Radiation by Ångström Pyrheliometer. Time.	Sky.	$\frac{p}{p^0}$ sec. Z.	Intensity.	CAHIRCIVEEN. Bright Sunshine.* Total.	Per cent. of Possible.
	hr.	%	j/cm².	%	mw/cm².	h. m.	mw/cm².	hr.	%	mw/cm².	mw/cm².		hr.	%	h. m.			mw/cm².	hr.	%
1	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	x6·7	83
2	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·1	1	..	..	..	..	4·1	51
3	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·1	1	..	..	..	..	0·1	1
4	0·0	0	..	..	..	..	..	0·0	0	..	..	..	x5·7	77	..	..	..	..	0·0	0
5	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
6	0·0	0	..	..	..	..	..	0·2	3	..	..	..	0·0	0	..	..	..	..	0·0	0
7	0·5	6	..	..	..	..	..	1·7	21	..	..	..	0·0	0	..	..	..	..	0·0	0
8	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
9	0·0	0	..	..	..	..	..	0·2	3	..	..	..	0·3	4	..	..	..	..	0·4	5
10	0·0	0	..	..	..	..	..	0·1	1	..	..	..	0·1	1	..	..	..	..	0·1	1
11	0·0	0	..	..	..	..	..	0·0	0	..	..	..	4·8	68	..	..	..	..	2·2	28
12	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	0·4	5
13	0·9	12	..	..	..	..	..	3·4	44	35	9	Misty	5·1	72	12 26	Clear	4·87	59	2·7	35
14	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
15	0·0	0	..	..	..	..	..	0·0	0	..	..	..	1·5	21	..	..	..	..	0·0	0
16	0·0	0	..	..	..	..	..	0·0	0	..	..	..	0·8	11	..	..	..	..	0·0	0
17	3·6	46	..	..	..	..	..	x4·7	60	66	17	Clear	2·0	29	..	..	..	..	1·3	17
18	2·3	30	..	..	..	..	..	2·5	32	..	..	..	0·0	0	..	..	..	..	0·0	0
19	0·1	1	..	..	..	..	..	0·0	0	..	..	..	0·0	0	..	..	..	..	0·0	0
20	x4·4	56	..	..	..	..	..	4·4	56	62	16	Clear	0·1	1	..	..	..	..	1·4	18
21	0·4	5	..	..	..	..	..	0·1	1	..	..	..	0·0	0	..	..	..	..	1·3	17
22	0·3	4	..	..	..	..	..	0·3	4	..	..	..	0·8	11	..	..	..	..	1·0	13
23	1·6	21	..	..	..	..	..	2·4	31	..	..	..	2·6	37	..	..	..	..	2·7	35
24	2·9	37	..	..	..	..	..	3·5	45	54	14	Clear	0·6	9	..	..	..	..	0·0	0
25	0·0	0	..	..	..	..	..	2·0	26	..	..	..	5·4	77	..	..	..	..	2·8	36
26	1·5	19	..	..	..	..	..	0·7	9	..	..	..	0·0	0	..	..	..	..	0·0	0
27	2·0	26	..	..	..	..	..	2·8	36	..	..	..	0·0	0	..	..	..	..	0·0	0
28	1·4	18	..	..	..	..	..	2·5	32	..	..	..	0·7	10	..	..	..	..	1·8	23
29	1·3	17	..	..	..	..	..	2·5	32	51	13	Thro' Ci.	2·1	30	..	..	..	..	2·0	26
30	0·1	1	..	..	..	..	..	0·1	1	..	..	..	0·0	0	..	..	..	..	0·0	0
31	1·7	22	..	..	..	..	..	2·2	28	43	11	Thro' Ci.	2·0	28	..	..	..	..	0·5	6
Means	0·81	10	—	—	—	—	—	1·17	15	—	—	—	1·12	16	—	—	—	—	1·02	13
Normals	0·52	7	130	19	—	—	—	1·19	16	—	—	—	0·98	14	—	—	—	—	1·32	17
	←35 years→		←8 years→					←35 years→					←10 years→						←35 years→	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56′ N. Long. 10° 15′ W.

Heights above M.S.L.:—H=9·1 m. H_b=13·7 m. H_a=26·4 m. Above Ground: h_t=1·3 m. h_r=0·56 m. h_c=12·8 m. h_a=13·9 m.

Day	Air Pressure at Station Level. 9 h.	21 h.	Air Temperature in Degrees Absolute. Dry Bulb. 9 h.	21 h.	Max. 0 h. to 24 h.	Min. 0 h. to 24 h.	Humidity. Vapour Pressure. 9 h.	21 h.	Percentage. 9 h.	21 h.	Wind—Veer from North in degrees and Speed in metres per second. 9 h. °	m/s.	21 h. °	m/s.	Cloud Amount (0–10) and Weather. 9 h.	21 h.	Rain 0 h. to 24 h.	Min. Temp. on Grass. 18 h. to 9h.	REMARKS.	Magnetism. Horizontal Force, Declination West, and Inclination.
	mb.	mb.	a 200+	a 200+	a 200+	a 200+	millibar.		%	%	°	m/s.	°	m/s.	Tenths of Sky covered,		mm.	a 200+		
1	997·9	1003·6	77·0	76·7	83·0	76·3	7·1	7·1	88	89	75	3	—	1	3	0	—	74·6	Very fine all day.	
2	1007·5	1011·2	79·0	78·0	81·9	76·5	8·1	7·6	87	88	50	5	—	1	5	5	—	n73·2	b. to bc. with ∞.	
3	1015·7	1018·3	76·6	81·6	82·1	n75·6	7·3	8·7	93	78	70	2	110	3	5 ∞	10 ∞	—	75·3	bc. ∞ *a.* : o ≡⁰ *p. and n.*	
4	1018·1	1016·7	82·2	84·2	85·1	81·2	9·7	12·7	84	96	105	7	165	9	10	10 ● ≡	9·3	79·2	bc. to o. *a.* : persistent ● after 11h.	
5	1018·3	1019·5	85·3	85·6	86·2	85·1	13·5	13·0	95	90	175	6	180	6	10	10	1·0	83·0	●⁰ ≡⁰ early : o. *a. and p.* : op. to o. *n.*	
6	1017·8	1020·9	85·9	84·2	x86·4	83·4	13·1	12·6	89	95	185	7	310	5	10	10 ●⁰	1·5	84·6	o. early : o. to ●⁰ *a. and p.* : d⁰	
7	1024·9	1026·2	83·3	84·0	84·5	82·5	11·2	12·0	90	92	260	5	230	4	10	10 ●⁰	0·2	80·2	p. 7½h. : dull all day. [to o. *n.*	
8	1024·2	1024·4	84·9	84·7	85·5	84·3	12·1	12·6	88	92	230	5	230	3	10	10	0·1	82·9	o. *a. and p.* : o. to d⁰ *n.*	8 { 17860γ 19°6′·4 68°3′·9
9	1025·9	1025·6	84·8	85·2	85·3	84·5	13·2	13·4	96	95	220	3	220	3	10 ●⁰	8	1·3	83·2	od. to c. *a. and p.* : ☿ 17½h. : c. to od. *n.*	
10	1020·9	1014·9	84·9	84·4	85·5	82·8	13·1	9·8	95	73	175	6	280	12	10 ●⁰	10	7·4	83·1	op. *a. and p* : ● to o. *n.*	
11	1026·0	1027·3	83·0	81·4	83·9	80·0	7·7	9·2	63	84	300	6	165	4	8	7	0·1	80·1	p. 1h. : o till 10h. then c. [op. *n.*	
12	1023·1	1028·9	85·1	81·8	85·2	81·5	13·7	8·5	98	75	190	6	320	4	10 ● ≡⁰	7	4·0	78·7	o early : ● 6h.–10h. : c. *p.* : c. to	
13	1032·9	1032·3	81·9	82·1	83·3	81·6	9·1	10·1	81	88	340	3	260	3	6	10	0·2	76·6	p. 6h. : bc. *a.* : c. to o. *p. and n.*	
14	1021·4	1018·2	84·2	83·1	84·6	81·6	12·7	10·7	96	87	235	10	330	10	10 ●⁰	5	1·1	77·3	o early : ●⁰ *a.* : op.⁰ *p.* : c. *n.*	
15	1019·4	1022·5	84·6	84·6	85·1	82·7	12·6	13·0	93	96	320	9	290	3	10 ≡⁰ ●⁰	10 ●⁰ ≡⁰	2·0	81·9	d⁰ ≡⁰ to o. *a.* : o. *p.* : ●⁰ ≡⁰ *n.*	
16	1022·8	1020·6	84·5	84·3	85·8	84·2	13·0	12·8	96	96	290	5	250	9	10 ≡⁰ ●⁰	10 ●⁰ ≡⁰	0·9	83·9	o with d ≡⁰ most of day.	
17	1020·0	1021·7	85·2	85·1	85·4	84·5	11·7	12·9	83	92	280	9	250	9	10	10 ●⁰	—	83·1	o. *a.* : bc. to c. *p.* : o. *n.*	
18	1021·2	1017·7	84·5	84·7	85·5	84·4	12·8	13·1	95	96	235	9	220	5	10	10 ●⁰ ≡⁰	0·3	83·2	o. *a. and p.* : d⁰ ≡⁰ *n.*	
19	1006·8	1006·0	84·6	82·3	85·8	81·2	12·5	8·9	92	76	185	7	260	13	10 ≡⁰	0	3·7	83·0	o. ≡⁰ to d⁰ ≡⁰ all day : b. after	19°3′·5
20	1011·4	1013·7	79·3	83·1	83·5	78·0	8·1	10·0	85	81	270	13	235	11	8	10	3·9	74·9	c. to ▲pq. *a.* : c. *p.* : op. *n.* [20h.	20 { 17863γ 19°3′·8 68°3′·0
21	1010·2	1004·1	84·0	84·4	84·5	83·3	11·1	12·0	85	90	230	10	210	10	10	10 ●	3·1	80·8	c. to op. *a. and p.* : ●⁰ to o. *n.*	
22	999·5	1007·2	81·8	81·7	84·5	79·1	8·2	7·3	73	65	240	13	280	16	10	6	4·5	78·8	bc. to o. with frequent ▲pq. : ⁄ *p.*	
23	1018·3	1027·9	81·4	80·3	82·1	79·5	8·1	7·6	74	74	350	9	335	6	8	2	3·8	79·3	c. to ▲p. *a. and p.* : b. *n.*	
24	1026·8	1020·4	79·5	84·4	84·5	77·7	9·0	12·7	93	95	—	1	235	9	10 ●⁰	10 ●⁰	0·8	76·5	c. to o. early : o. to ●⁰ *a. and p.* : o. ≡⁰ *n.* [b. to ●⁰ *n.*	
25	1019·9	1018·0	81·8	80·8	84·6	79·5	8·6	9·1	76	86	315	3	180	5	10	3	3·8	78·1	●⁰ till 6h. : b. to op. *a.* : bc. *p.* :	
26	1011·2	1008·4	85·3	82·6	85·8	81·7	13·4	9·8	94	82	205	10	265	9	10	8 p	x21·2	76·6	●⁰ early : o. *a.* : ●ˢ till 19½h. : c. to op. *n.* [⁄ 22h.	
27	1009·0	999·3	82·4	85·7	86·2	81·8	9·7	13·4	83	92	230	9	225	16	10	10 ●⁰	8·3	79·6	bc. to op. *a.* : ● to o. *p. and n.* :	
28	1007·4	1018·1	81·8	80·5	86·2	79·4	6·7	7·5	60	72	265	17	245	11	3	9	3·3	78·7	⁄ 1h. : op. to bc., △ 12h. *a.* : bc. *p.* : c. to op. *n.* [c. to o. *n.*	
29	1022·4	1026·1	79·9	81·6	82·4	79·4	7·5	8·2	75	74	295	11	205	7	6	7	1·7	76·7	p. early : △ p. to bc. *a.* : bc. *p.* :	
30	1010·8	1017·6	84·4	83·5	85·2	82·4	12·2	9·1	91	72	230	14	315	14	10 ●	2	2·7	78·7	op. early : o. to ●⁰, ⁄ *a.* : c. to [bq. *p. and n.*	30 { 17847γ 19°3′·3 68°3′·1
31	1031·6	1030·5	82·3	82·9	83·3	81·9	8·3	9·9	71	82	300	6	235	7	8	10	—	77·9	o. to c. all day.	
Means	1017·5	1018·3	82·8	82·9	84·6	81·2	10·5	10·5	86	85	— 7·4		— 7·2		8·7	7·7	90·2	79·5	Monthly Totals or Means.	17857γ 19° 4′·2 68° 3′·3
Normals	1009·5	1009·7	80·2	80·4	82·9	77·9	9·1	9·2	88	88	— 6·3		— 6·5		—	—	165·1	—	Normals.	
	←45 years→						←30 years→				←35 years→						45 years			

* By Campbell-Stokes Sunshine Recorder.

x denotes the maximum and n the minimum value in the column.

(7990) Wt.134/6890/P27 500 1/23 Harrow G.69/7

3. METEOROLOGY:—RICHMOND, SURREY (KEW OBSERVATORY).—Lat. 51° 28′ N. Long. 0° 19′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=5·5 m. Barometer, H_b=10·4 m. Cups of Anemometer, H_a=25 m.
Heights above Ground:—Thermometers, h_t=3·0 m. Rain-gauge, h_r=0·53 m. Sunshine Recorder, h_s=13·3 m. Cups of Anemometer, h_a=20 m.

Day.	Air Pressure at Mean Sea Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind.		Cloud Amount, Weather and Visibility.		Rain 0 h. to 24 h.	Min. Temp. on Grass.	Remarks.
			Dry Bulb.		Max.	Min.	Vapour Pressure.		Percentage.		Veer from North and Force or Speed.						
	9 h.	21 h.	9 h.	21 h.	0 h. to 24 h.		9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.		18 h. to 9 h.	
	mb.	mb.	*a* 200+	*a* 200+	*a* 200+	*a* 200+	mb.	mb.	%	%	° m/s.	° m/s.			mm.	*a* 200+	
1	1001·8	1002·4	76·4	79·6	80·2	72·7	7·3	8·5	94	87	75 5	65 9	10 ●⁰ D	10 G	*x*5·5	72· 6	● ≡⁰ to d ≡ *a. and p.* : o ≡⁰ *n.*
2	1006·2	1012·6	77·5	76·6	79·7	75·7	6·4	6·1	77	78	60 9	55 8	10 ● F	10 H	0·4	76·0	o ≡⁰ to ●⁰ ≡ *a. and p.* : o ≡⁰ *n.*
3	1017·4	1019·3	75·9	76·1	77·1	75·1	5·4	5·5	73	73	50 6	70 9	10 G	9 J	—	74·8	o ≡⁰ *a. and p.* : oq. *n.*
4	1023·1	1025·0	75·4	74·0	75·9	73·6	5·7	5·5	79	84	60 4	— 1	10 G	10 G	—	73·4	o ≡⁰ to ≡g. *a. and p.* : bc. ≡⁰ to o ≡⁰ *n.*
5	1026·7	1026·1	72· 2	77·4	78·7	*n*71· 8	4·7	7·6	81	92	255 2	230 2	10 G	10 F	—	71· 4	o ≡⁰ all day : ≡ 18h.
6	1025·7	1023·6	81·1	82·8	84·2	78·7	10·4	10·6	97	88	230 2	220 7	10 F	10 J	—	74·1	o ≡⁰ to c ≡⁰ *a.* : o ≡⁰ *p. and n.*
7	1022·0	1024·4	83·7	79·4	84·8	79·3	11·5	9·0	90	94	265 3	260 2	10 H	4 G	—	81·6	o ≡⁰ *a.* : bc. ∞ to bc. ≡⁰ *p. and n.*
8	1023·3	1021·5	81·1	83·0	84·5	79·1	10·0	10·5	93	86	260 2	250 2	10 G	10 I	—	75·5	o ≡⁰ all day.
9	1024·8	1025·6	82·1	83·7	85·4	82·0	10·6	11·6	93	91	280 2	270 2	9 G	10 G	—	78·9	o to o ≡⁰ *a. and p.* : c. ≡ to o ≡ ⁰ *n.*
10	1025·3	1020·5	82·7	83·0	84·3	82·2	9·9	10·5	83	86	270 2	240 2	9 G	10 H	—	79·1	o ≡⁰ most of day.
11	1018·2	1026·1	81·3	82·5	83·1	80·8	10·3	9·8	95	83	— 1	— 1	10 F	10 H	—	78·7	o ≡⁰ *a. and p.* : d⁰ ≡⁰ *n.*
12	1028·9	1026·1	79·1	78·9	82·0	76·6	9·0	8·7	96	95	— 1	— 1	?8 D	10 E	—	73·4	o. to c. ≡⁰ *a.* : bc. ≡ *p.* : o. ≡ *n.*
13	1025·1	1028·0	80·5	77·1	81·6	75·8	9·6	7·3	93	90	355 2	— 1	9 F	1 F	0·8	72· 4	●⁰ early : o. ≡⁰ to b ∞ *a.* : b. ≡⁰ *p. and n.*
14	1025·2	1011·4	75·0	81·1	81·4	73· 0	7·0	9·9	100	93	290 2	200 5	10 B	10 ● H	4·8	*n*68· 2	▬ ≡ till 9h. : o. ≡⁰ *p.* : ● ≡⁰ *n.*
15	1010·3	1016·3	80·9	80·7	82·0	79·9	9·3	9·1	88	87	300 3	360 4	10 ●⁰ H	9 G	0·2	78·9	d⁰ ≡⁰ at times, *a. and p.* : o. ≡⁰ *n.*
16	1021·5	1016·7	77·0	82·1	82·6	76·1	7·4	11·0	92	96	285 3	265 4	10 F	9 G	0·2	72· 1	c. ≡⁰ to o. ≡⁰ *a.* : ●⁰ *p.* : o. ≡⁰ *n.*
17	1013·5	1016·7	84·0	82·8	86·1	82·1	10·7	9·7	82	80	270 7	245 5	10 L	5 J	—	80·2	o. till 10h. then bc. to b.
18	1018·7	1018·0	82·4	84·2	85·9	82·2	10·8	11·2	92	85	245 3	245 5	5 H	10 J	—	79·8	b. to op⁰ *a.* : bc. to o. *p.* : o. *n.*
19	1016·1	1008·7	83·9	84·5	85·0	83·7	11·0	11·4	85	85	240 5	220 7	10 H	10 J	—	82·7	o. ≡⁰ *a.* : d⁰ to o. *p.* : o. 𝒻 (gust) *n.*
20	1006·9	1014·9	81·2	78·9	85·2	78·7	7·5	7·1	69	77	260 7	230 6	1 K	0 K	0·6	79·8	●⁰ early : o. till 9h. then fine.
21	1013·3	1011·9	82·5	83·5	84·5	78·9	9·4	8·9	80	71	235 7	230 8	10 J	8 K	—	76·1	oq. *a. and p.* : cq. *n.*
22	1005·6	999·4	83·9	79·7	84·8	78·0	10·0	7·6	77	78	210 8	240 5	9 H	3 K	4·2	81·0	o. *a.* : ● *p.* : bc. *n.*
23	1005·8	1015·6	78·0	77·1	81·1	75·5	7·3	6·3	84	78	285 3	340 5	1 H	2 J	1·7	74·3	o. to bc. *a.* : c. to ● *p.* : ● to b. *n.*
24	1024·1	1024·3	73·6	75·9	76·3	73·3	4·5	6·0	70	80	330 2	255 2	o ▬ G	10 H	0·1	70· 5	b. ▬ ≡⁰ *a.* : c. ≡⁰ *p.* : o. ≡⁰ to ●*n.* [b. ≡ D *n.*
25	1014·2	1021·0	82·7	75·5	83·1	72· 1	11·0	7·0	92	96	235 5	335 2	10 H	o D B	3·2	73·5	● early : o. ≡⁰ to ● *a.* : b. ≡⁰ *p.* :
26	1023·0	1015·4	73· 0	81·9	83·2	72· 2	6·0	10·2	98	89	— 1	200 8	10 ▬ B	10 I	0·1	69· 7	≡ ▬ till 11h. : o. ≡⁰ to c. ≡⁰ later.
27	1012·9	1009·9	80·0	83·6	84·9	79·8	9·2	10·8	92	85	250 3	210 9	9 H	10 I	5·3	76·3	𝒻 (gusts) ● early : o. to c, *a.* : b. *p.* : o. *n.*
28	1001·2	1016·6	86·2	78·7	*x*86·9	77·6	12·8	6·8	85	75	230 11	255 5	10 ● K	0 K	4·0	81·0	o, ●² 10h. *a.* : bq. 𝒻 (gusts) *p.* : b. *n.*
29	1017·5	1027·0	78·0	76·6	81·0	76·1	7·5	5·9	86	75	235 4	290 4	8 H	0 K	—	73·9	b. to bc. *a. and p.* : b. *n.*
30	1017·7	1001·1	81·5	82·0	85·4	76·3	9·2	7·4	84	65	225 10	265 11	10 K	0 K	1·8	71· 7	o. with p. and 𝒻 (gusts). [o. to b. *n.*
31	1023·1	1029·2	78·7	77·4	82·9	76·1	6·0	6·8	66	81	325 5	270 2	6 K	0 I	0·1	75·8	●⁰, 𝒻 (gusts) early : bc. ∞ *a. and p.*
Means	1017·4	1017·9	79·7	80·0	82·7	77·3	8·6	8·5	86	84	4·1	4·6	8·5	6·8	33·0	75·7	Monthly Totals or Means.
Normal	1012·9	1012·9	77·2	77·5	79·9	75·1	7·4	7·5	87	87	3·7	3·7	—	—	56·8	—	Normals.
			45 years.				30 years.				35 years.				45 years		

4. METEOROLOGY:—ESKDALEMUIR, DUMFRIESSHIRE.—Lat. 55° 19′ N. Long. 3° 12′ W.

Heights above Mean Sea Level:—Rain-gauge Site, H=242 m. Barometer, H_b=237·3 m. Vane of Anemometer, H_a=250 m.
Heights above Ground:—Thermometers, h_t=0·9 m. Rain-gauge, h_r=0·38 m. Sunshine Recorder, h_s=1·5 m. Vane of Anemometer, h_a=15 m.

1	979·8	982·5	77·0	77·5	78·3	75·5	6·5	7·3	80	88	20 3	60 6	10 H	10 ● H	2·5	73· 0	o. ∞ *a.* : o. ∞ to d⁰ *p.* : ● ≡⁰ to ✱ ≡⁰ *n.*
2	988·0	991·9	77·2	76·0	77·9	75·8	6·7	6·3	81	84	70 5	60 4	10 I	10 I	0·2	75·0	● ≡⁰ early : c. to o. *a.* : o. *p. and n.*
3	994·6	996·6	75·5	72·2	77·2	71· 3	6·1	4·9	84	84	60 3	— 1	10 J	2 I	—	74·2	o. *a.* : c. *p.* : b. ▬ *n.*
4	996·3	994·3	69· 1	68·8	76·9	*n*67· 8	3·8	3·8	84	87	— 0	— 0	1 K	10 I	—	65·5	▬ early : b. *a.* : b. to bc. *p.* : b. to o. *n.*
5	991·1	989·3	73·1	82·9	83·2	68· 9	6·1	11·4	99	94	— 1	230 11	10 ●⁰ F	10 G	4·4	*n*64·7	✱ ≡⁰ early : ●⁰ ≡⁰ *a. and p.* : o. ≡⁰ *n.*
6	988·1	980·4	82·8	83·4	84·0	81·1	10·8	11·6	90	93	210 10	230 14	10 I	10 ● H	23·8	80·8	o. *a.* : ●² ≡⁰ 12h. to 21h. then o.
7	987·7	990·4	81·7	81·5	83·0	80·6	10·1	9·8	90	89	270 7	230 7	10 ●⁰ I	10 I	2·6	79·0	o. to ●⁰ *a.* : d⁰ ≡⁰ *p.* : d⁰ to o. *n.*
8	988·4	986·2	82·2	84·7	*x*84·9	81·4	11·2	12·2	97	89	210 7	270 9	10 ●⁰ F	10 ●⁰ I	7·9	80·5	o. with ●⁰ ≡⁰ most of day.
9	993·8	993·1	79·2	83·0	83·4	77·2	7·5	9·9	80	81	— 1	240 6	9 K	8 J	0·2	74·2	bc. early : o. *a.* ; d⁰ ≡⁰ *p.* : o. to c. *n.*
10	993·1	986·6	82·2	81·7	83·4	81·5	10·9	10·9	94	97	220 3	180 7	10 ●⁰ I	10 E	1·3	80·5	o. ≡⁰ *a.* : d ≡⁰ to ≡⁝ *p. and n.*
11	988·6	998·9	80·0	71· 8	81·7	70· 5	9·4	4·7	94	83	220 4	— 0	10 ● I	6 J	2·4	77·6	● early : p⁰ 9h. : b. *a. and p.* : bc to c. ◫ *n.*
12	996·1	994·0	76·5	78·0	81·0	69· 6	7·4	8·1	95	93	190 4	290 2	10 H	4 J	2·9	67·0	o. ≡⁰ *a.* : ●⁰ ≡⁰ *p.* : b. after 19h.
13	997·9	999·4	76·2	73·5	80·4	73·2	7·1	5·9	92	94	250 2	— 0	5 J	9 I	0·1	70·0	b. to bc. *a. and p.* : c. to o. ◫ *n.*
14	986·5	980·1	79·4	80·2	80·9	75·5	9·0	8·6	94	85	200 10	290 3	10 ●⁰ G	9 K	6·2	70·0	o. early : ●⁰ ≡⁰ *a. and p.* : o. to c. *n.*
15	983·2	991·5	78·6	72·3	80·1	71· 7	7·9	5·5	87	95	290 2	— 0	6 K	5 J	—	73·0	o to bc. *a.* : bc. *p. and n.*
16	983·3	981·8	80·5	81·7	83·6	72· 5	10·0	8·7	97	78	200 8	240 10	10 D	10 ●⁰ J	2·9	68· 9	●⁰ ≡⁰ to ≡ ⁝ *a.* : c. *p.* : o. to d⁰ *n.*
17	975·9	978·3	80·9	78·5	83·6	78·1	7·1	6·9	67	77	280 15	260 12	6 J	3 J	2·3	78·8	o. to bc. with frequent p. : q. *n.*
18	984·0	983·5	77·8	76·1	78·8	76·0	6·8	7·3	80	97	270 9	— 0	9 J	10 ●⁰ E	5·6	75·2	p. early : bc. to o. *a.* : d. to ● ≡⁰ *p. and n.*
19	976·3	962·2	81·9	82·7	82·9	76·1	10·4	10·7	92	89	220 13	220 15	10 ●⁰ H	10 ● H	9·9	75·3	o, almost continuous ●⁰ ≡⁰ : 𝒻 at times.
20	966·1	972·9	72· 9	75·4	78·7	72· 7	6·1	6·5	100	90	240 13	230 12	10 ✱ H	10 ✱ I	12·4	73· 0	p. early : ✱ ≡⁰, ✱ *a.* : o. to ✱ p. *p.* : bc. to ✱ *n.*
21	969·6	970·1	81·9	81·8	82·4	77·4	10·1	10·4	89	92	230 15	210 13	10 ● H	10 ●⁰ G	24·4	73· 0	Persistent ● ≡⁰ throughout day.
22	965·4	965·8	79·7	76·0	81·8	75·0	8·8	6·6	90	87	230 7	260 3	10 ● H	8 K	4·0	79·4	op. to c. *a. and p.* : bc., ✱ p. to c. *n.*
23	975·4	991·5	75·7	72· 5	77·0	70· 8	6·4	4·0	87	69	340 9	330 6	6 K	0 J	0·3	73·8	b. to *p. a.* : b. *p. and n.*
24	994·6	984·1	69· 5	78·0	80·1	68· 1	3·2	8·6	69	99	— 0	180 5	5 K	10 ●⁰ F	8·9	64· 8	▬ early : bc. *a.* : ✱ ≡⁰ *p.* : ●⁰ ≡⁰ *n.*
25	985·5	989·1	74·2	75·0	79·1	72· 5	5·9	6·7	89	95	— 1	220 4	0 K	1 J	—	74·1	bc. to b. *a.* : bc. to c. *p.* : b. ▬ to c. *n.*
26	980·5	970·5	79·3	80·6	83·4	75·7	9·1	9·1	96	87	190 13	240 6	10 ● F	10 ● G	*x*41·4	68· 7	o. early : ●² ≡⁰ after 6½h.
27	972·4	970·9	77·3	77·7	79·1	76·1	7·6	7·4	91	87	200 10	200 6	10 ●⁰ J	10 I	2·7	75·0	o. to ●⁰ *a. and p.* : o. *n.*, ● after 23h.
28	963·9	976·3	76·1	74·7	77·4	72· 9	6·8	5·9	89	85	260 5	240 12	8 J	9 ✱ I	*21·1*	74·1	● at first : o. to c. with frequent ✱², and ▲ p.
29	980·1	990·0	73·9	73·8	75·0	72· 8	6·1	5·7	94	88	230 9	230 5	10 K	5 I	*23·1*	72· 9	✱ early : ✱ ✱² p. till 14h. then bc.
30	970·4	962·2	80·2	79·0	83·1	74·1	9·8	7·6	97	82	210 10	230 14	10 ● H	8 ●⁰ I	34·5	71· 2	●² 2h.–13h. : c. to op. *p. and n.* : 𝒻 22h.
31	992·6	991·8	75·6	77·6	78·3	74·8	5·6	8·0	77	94	240 5	210 9	5 K	10 ● H	1·1	72· 0	bc. *a.* : c. to op. *p.* : o. to ●⁰ *n.*
Means	983·5	983·7	77·7	77·7	80·7	74·4	7·8	7·8	89	88	6·6	6·6	8·4	8·0	249·1	73·4	Monthly Totals or Means.
Normal 1911-1930	977·8	978·0	75·3	75·7	78·1	72·9	6·6	6·8	89	89	5·8	5·9			191·2		Normals.

Temperatures at or below the normal freezing point of water in small type. *x* denotes the maximum, and *n* the minimum, value in the column.

5. GEOPHYSICS :—RICHMOND (KEW OBSERVATORY).

Day.	Earth Temperature at 9 h.		Height above M.S.L. of Surface of Underground Water.		Terrestrial Magnetic Force.						Magnetic Character of Day.	Electric Character of Day.	Charge per cc. × 10^{16}.		Air-Earth Current. × 10^{16}	Potential Gradient, Volts per metre.* Factor 2·23.			
					Horizontal Comp't.		Declination.		Inclination.				+.	−.					
	0·3 m.	1·2 m.	Daily Mean.	Extremes.	Mean Time.		Mean Time.	West.	Mean Time.	North.			About 15 h.		About 15 h.	3 h.	9 h.	15 h.	21 h.
	a 200+	*a* 200+	cm.	cm.	h m	γ	h m	° ′	h m	° ′			Coulomb.		Amp/cm².	v/m	v/m	v/m	v/m
1	76·1	81·7	173	173	..	..	..	..	..	..	0	2	..	..	..	290	190	385	410
2	77·1	81·7	172	..	11 44	18395	14 34	14 16·8	..	..	1	0	..	..	..	235	315	440	495
3	77·0	81·6	171	..	..	..	..	..	..	..	1	0	..	..	..	275	505	550	410
4	76·7	81·4	170	..	..	..	..	..	..	..	0	0	..	..	..	260	370	495	480
5	76·0	81·4	170	..	..	..	..	..	..	..	0	0	0·38	0·33	0·75	290	385	385	520
6	76·8	81·3	169	..	..	..	..	..	..	..	0	0	0·21	0·25	0·10	220	330	95	110
7	78·8	81·2	169	..	11 51	18400	14 27	14 16·3	..	..	0	0	0·32	0·23	0·30	80	135	300	290
8	78·9	81·2	168	..	..	..	..	..	14 26	66 57·7	0	0	0·41	0·29	0·15	260	345	275	290
9	79·4	81·2	167	..	..	..	..	..	..	..	0	0	0·34	0·37	0·40	135	330	355	300
10	80·1	81·2	166	..	..	..	..	..	..	..	1	0	..	..	..	180	385	370	190
11	80·5	81·3	—†	..	..	..	..	..	..	..	1	0	..	..	..	220	355	80	235
12	80·4	81·5	—†	..	..	..	..	..	..	..	2	1	0·31	0·34	0·15	80	220	330	330
13	79·7	81·6	163	..	..	..	..	..	..	..	2	1	0·50	0·23	0·50	80	505	465	450
14	78·1	81·6	162	..	..	..	..	..	..	..	1	1	0·47	..	0·55	385	630	685	− 95
15	78·9	81·7	162	..	11 17	18386	14 26	14 15·8	14 13	66 57·5	1	1	0·50	0·23	0·55	260	300	425	440
16	79·0	81·6	161	..	..	..	..	..	..	..	2	0	..	..	..	355	560	370	300
17	79·6	81·6	160	..	..	..	..	..	..	..	1	0	..	..	..	110	205	260	385
18	80·0	81·4	160	160	..	..	..	..	..	..	1	0	..	..	..	95	385	190	180
19	80·9	81·6	162	160	..	..	..	..	..	..	0	0	0·52	0·21	0·75	70	220	260	190
20	81·3	81·8	166	..	..	..	..	..	..	..	0	0	0·33	0·49	0·45	70	205	245	315
21	79·9	81·8	169	..	..	..	..	..	..	..	0	0	0·54	0·23	0·90	110	235	245	220
22	80·5	81·8	171	..	11 8	18395	14 34	14 17·1	14 12	66 57·3	1	1	..	..	..	135	245	95	395
23	79·6	81·9	171	..	..	..	..	..	..	..	2	1	0·43	0·36	0·75	180	480	505	275
24	78·3	81·9	171	..	..	..	..	..	..	..	1	0	..	..	..	300	615	630	605
25	77·8	81·9	170	..	..	..	..	..	..	..	0	1	..	..	..	95	205	370	440
26	77·2	81·5	168	..	..	..	..	..	..	..	1	0	..	..	..	495	710	245	205
27	78·7	81·6	167	..	..	..	..	..	..	..	1	1	..	..	..	−180	450	260	290
28	80·1	81·4	165	..	..	..	..	..	..	..	2	1	..	..	..	55	110	245	345
29	79·0	81·5	164	..	..	..	14 40	14 14·9	14 38	66 58·6	2	0	0·63	0·45	1·55	150	370	345	370
30	78·0	81·5	163	..	11 11	18388	..	..	..	..	1	1	..	..	..	180	165	135	165
31	79·0	81·5	163	..	..	..	..	..	..	..	0	1	..	..	..	80	300	260	480
M.	78·8	81·5	167	—	—	—	—	—	—	—	0·81	0·42	0·42	0·31	0·57	179	347	332	323
No. of days used.	31	31	29	—	—	—	—	—	—	—	31	31	14	13	14	31	31	31	31

† Line broken.

6. GEOPHYSICS :—ESKDALEMUIR, DUMFRIESSHIRE.

Day.	Terrestrial Magnetic Force.																Magnetic Character of Day.	Electric Character of Day.	Potential Gradient, Volts per metre.* Factor 6·33.			
	North Component.					West Component.				Vertical Component.												
	Maximum 15000 γ +.		Minimum. 15000 γ +.		Range.	Maximum. 4000 γ +.		Minimum. 4000 γ +.		Range.	Maximum. 44000 γ +.		Minimum. 44000 γ +.		Range.				3 h.	9 h.	15 h.	21 h.
	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ	h m	γ	γ	h m	γ				v/m	v/m	v/m	v/m
1	1 5	1019	980	12 32	39	14 49	776	717	0 52	59	9 8	1064	1052	8 0	12	0	1 *b*		150	320	150	125
2	7 3	1028	978	9 36	50	6 34	778	722	22 29	56	21 2	1065	1045	6 52	20	0	0 *a*		145	205	190	120
3	1 13	1028	983	7 15	45	1 18	795	728	0 29	67	15 30	1066	1025	1 38	41	1	0 *a*		115	185	265	555
4	20 43	1015	978	14 19	37	13 23	766	733	20 46	33	16 10	1066	1052	23 16	14	0	0 *a*		310	285	320	465
5	23 52	1012	993	11 30	19	13 50	761	739	0 1	22	16 40	1058	1049	12 15	9	0	1 *a*		325	180	535	270
6	20 28	1012	994	19 5	18	13 30	759	740	0 9	19	19 30	1057	1050	13 0	*n*7	0	2 *c*		235	130	−375	−415
7	2 23	1020	994	13 43	26	14 33	761	743	1 9	18	15 0	1057	1044	2 33	13	0	1 *b*		80	−40	205	265
8	6 3	1021	975	15 21	46	15 8 / 15 16	774	731	20 34	43	21 20	1065	1044	6 2	21	0	1 *a*		185	235	115	60
9	5 3	1015	992	21 49	23	12 53	765	736	22 25	29	21 49	1061	1045	9 15	16	0	0 *a*		265	220	560	185
10	1 8	1026	983	15 2	43	14 3	763	696	1 46	67	22 20	1059	1045	11 5	14	0	0 *a*		220	‡	235	415
11	17 10	1016	975	18 48	41	20 3	769	714	19 7	55	19 21	1070	1042	10 30	28	1	1 *b*		280	160	280	455
12	4 50	*x*1091	925	12 30	*x*166	4 35	800	656	20 13	144	18 55	1076	999	5 28	77	2	1 *b*		195	450	645	415
13	20 40	1080	918	13 17	162	13 8	776	*n*623	16 30	153	13 41	1098	1017	1 1	81	2	1 *a*		250	225	395	835
14	22 10	1021	967	0 44	54	11 21	767	700	0 38	67	20 30	1060	1039	1 11	21	1	1 *b*		395	155	−415	235
15	23 32	1012	982	1 31	30	1 43	783	723	22 57	60	15 2	1058	1035	2 1	23	1	0 *a*		160	265	315	505
16	19 28	1030	927	11 32	103	0 53	779	640	19 18	139	18 31	*x*1114	1022	3 50	*x*92	2	1 *a*		310	160	160	95
17	23 55	1024	952	11 10	72	23 43	777	681	18 31	96	18 25	1068	1023	23 59	45	1	1 *b*		45	110	145	180
18	0 1	1022	977	9 38	45	13 11	757	704	0 28	53	17 59	1057	1018	0 10	39	0	1 *b*		65	85	115	400
19	21 40 / 9 26	1009	984	11 15	25	13 20	757	725	21 16	32	15 45	1056	1046	13 5	10	0	1 *b*		155	170	70	−290
20	7 18	1010	994	12 30	*n*16	11 39	751	740	1 10	*n*11	15 28	1054	1046	12 58	8	0	2 *c*		110	z+	z+	− 15
21	7 10	1009	992	11 50	17	14 30	757	741	0 1	16	16 0	1052	1043	11 40	9	0	2 *c*		−60	−975	−790	−265
22	20 36	1028	969	24 0	59	13 33	771	692	20 30	79	20 32	1077	1040	11 0	37	1	1 *b*		230	170	255	250
23	21 10	1018	917	2 50	101	3 4	814	681	1 10	133	0 1	1064	984	3 21	80	1	1 *b*		85	−280	165	320
24	4 30 / 5 55	1017	967	20 15	50	17 38	762	706	3 46	56	20 38	1072	1040	6 0	32	0	1 *b*		405	250	555	85
25	5 40	1003	963	12 41	40	13 30	755	723	0 51	32	22 0	1057	1048	9 30	9	0	0 *a*		180	275	240	545
26	23 9	1021	958	16 59	63	16 31	782	686	23 21	96	18 3	1077	1043	9 40	34	1	2 *c*		180	−50	−750	−695
27	5 36	1020	983	1 1	37	1 55	779	708	0 1	71	0 1	1062	1029	2 18	33	1	1 *b*		100	45	−105	220
28	19 0	1060	*n*898	23 45	162	4 33	*x*821	649	23 6	*x*172	18 47	1088	*n*977	5 39	[illegible]	2	2 *c*		55	−190	z−	z+
29	20 38	1039	914	10 36	125	2 38	767	661	17 26	106	17 40	1079	997	0 1	82	1	2 *c*		z+	z+	1370	295
30	21 9	1031	965	1 0	66	1 20	760	693	20 39	67	20 10	1059	1021	1 50	38	1	2 *c*		−2380	−1480	130	− 55
31	6 3	1016	981	10 45	35	3 50	758	726	0 1	32	18 19	1050	1038	4 10	12	0	1 *b*		95	95	−170	z−
M.	—	1025	966	—	59	—	772	705	—	67	—	1066	1032	—	33	0·61	1·00		93	56	130	187
No. of days used.	—	31	31	—	31	—	31	31	—	31	—	31	31	—	31	31	31		26	26	26	26

x denotes the maximum, and *n* the minimum, value in the column. * The potential gradient is reckoned as positive if the potential increases upwards. For indeterminate potential gradient the following notation is used :—z+ indeterminate, positive value; z− indeterminate, negative value; z ± Indeterminate in magnitude and sign.
‡ Defective record.

7. WIND COMPONENTS: Metres per second at fixed hours, together with the greatest mean hourly velocity, or the greatest velocity attained in a gust, and the time of its occurrence.

NORTH WALES:—HOLYHEAD.

Components from Cup Anemometer: Gusts from Pressure Tube Anemometer.
Height of Head above—Ground 12·2 m., M.S.L. 18·3 m.
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	..	..	..	8·5	..	..	..	9·2	..	..	..	9·5	..	..	..	10·2	16	23 40
2	..	2·2	..	12·3	..	2·4	..	13·6	..	2·0	..	11·3	..	..	..	12·1	22	17 55
3	..	2·3	..	12·9	..	..	..	8·9	..	..	..	6·2	..	..	..	6·6	17	02 55
4	..	..	..	1·6	..	Ca	lm	..	3·7	..	1·3	..	6·5	..	1·1	..	9	24 00
5	7·2	..	..	..	8·1	..	1·4	..	5·1	..	2·9	..	4·3	..	3·7	..	15	23 55
6	4·9	..	5·7	..	5·1	..	2·9	..	8·8	..	5·1	..	7·4	..	8·8	..	20	17 50
7	..	..	11·1	..	..	1·8	10·0	..	..	..	5·2	..	1·9	..	3·4	..	16	00 10
8	2·8	..	2·3	..	4·0	..	3·4	..	4·7	..	5·5	..	1·6	..	9·4	..	16	22 20
9	..	1·4	8·1	..	..	..	5·6	..	1·5	..	4·0	..	0·9	..	4·8	..	16	00 50
10	2·8	..	4·8	..	2·1	..	3·7	..	5·4	..	3·1	..	7·0	..	2·6	..	14	21 10
11	..	1·8	10·3	..	..	7·6	9·0	..	..	6·3	5·3	..	..	2·9	1·6	..	16	06 55
12	2·0	..	..	1·1	4·7	..	4·0	..	5·1	..	2·9	..	..	4·4	7·7	..	13	11 40
13	..	5·8	6·8	..	..	6·3	5·3	..	..	6·1	5·1	..	..	2·5	2·1	..	14	03 45
14	2·1	..	3·7	..	5·5	..	6·5	..	5·8	..	6·8	..	..	6·9	8·3	..	17	17 25
15	..	6·8	8·0	..	..	6·0	7·0	..	..	7·4	2·7	..	..	2·6	..	0·5	17	00 30
16	0·5	..	2·6	..	4·3	..	3·7	..	..	..	6·6	..	1·2	..	6·8	..	17	19 50
17	5·5	..	9·6	..	2·1	..	11·9	..	..	..	12·5	..	2·4	..	13·9	..	21	20 30
18	..	..	11·1	..	2·9	..	5·1	..	3·5	..	9·5	..	4·3	..	5·1	..	19	01 05
19	4·3	..	5·1	..	9·1	..	5·2	..	10·3	..	3·8	..	7·8	..	9·3	..	23	19 55
20	2·2	..	12·6	..	2·7	..	15·2	..	..	..	16·1	..	6·2	..	10·8	..	26	11 45
21	6·4	..	11·1	..	7·4	..	8·8	..	7·0	..	6·0	..	7·4	..	8·8	..	23	01 05
22	8·3	..	5·9	..	3·8	..	10·3	..	3·4	..	9·1	..	..	..	13·1	..	22	05 05
23	..	7·0	12·2	..	..	9·3	11·0	..	..	11·8	10·0	..	..	10·6	..	1·9	24	10 55
24	..	8·8	3·2	..	..	3·0	2·5	..	4·5	..	5·3	..	4·6	..	8·0	..	15	18 00
25	3·9	..	6·8	..	..	6·3	5·3	..	..	4·3	3·7	..	..	1·6	2·9	..	13	00 10
26	8·5	..	4·9	..	9·1	..	3·4	..	9·0	..	7·6	..	5·9	..	10·2	..	22	07 05
27	..	..	11·1	..	4·7	..	8·2	..	4·9	..	8·5	..	3·3	..	2·8	..	19	12 55
28	8·9	..	10·6	..	..	..	14·4	..	..	3·1	17·7	..	..	..	14·8	..	28	12 50
29	3·9	..	10·7	..	..	2·4	13·6	..	..	5·8	15·9	..	..	..	8·5	..	23	14 05
30	8·8	..	7·4	..	9·3	..	7·8	..	3·2	..	18·4	..	..	7·5	20·5	..	34	19 20
31	..	13·6	11·4	..	..	7·1	8·5	..	..	..	8·5	..	4·4	..	7·7	..	29	00 02
S+N & W+E	132·7		234·5		137·1		225·4		132·7		236·1		116·1		228·0			
S−N & W−E	33·3		161·7		32·7		162·0		39·1		182·1		38·1		165·4			

SCOTLAND N.:—DEERNESS.

Cup Anemometer.
Height of Cups above—Roof 1·5 m., Ground 4·9 m., M.S.L. 57·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in Max. Hourly Run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	4·7	..	..	8·2	6·2	..	..	10·8	6·9	..	..	8·3	3·2	..	..	8·8	12·8	11
2	5·4	..	..	9·4	6·0	..	..	10·5	6·8	..	..	8·0	6·4	..	..	7·5	12·1	9
3	4·6	..	..	8·0	6·8	..	..	8·0	8·0	..	..	2·9	8·4	..	..	1·5	10·5	9, 13, 14, 16, 17, 23
4	6·9	..	..	..	5·7	..	3·3	..	2·6	..	1·5	..	3·2	..	0·6	..	10·5	1
5	6·6	..	..	..	9·5	..	..	..	5·1	..	2·9	..	3·0	..	2·5	..	9·8	10
6	..	..	Ca	lm	..	2·8	..	2·3	..	1·6	..	0·3	..	..	Ca	lm	14·8	23
7	..	4·1	11·3	..	..	3·5	9·5	..	..	1·0	5·8	..	2·5	..	2·1	..	13·4	7
8	..	1·8	10·3	..	0·9	..	2·4	..	3·4	..	9·1	..	..	2·7	7·4	..	13·8	1
9	..	2·2	12·3	..	..	..	9·8	..	2·1	..	2·5	..	1·3	..	7·4	..	13·8	4
10	No	Re	co	rd	No	Re	co	rd	4·5	..	0·8	..	6·9	..	..	..	8·2	24
11	8·5	..	..	..	1·4	..	8·1	..	..	2·4	6·5	..	2·5	..	3·0	..	11·5	12
12	8·4	..	1·5	..	14·6	..	2·6	..	5·7	..	4·8	..	1·3	..	7·1	..	14·8	9
13	..	..	5·2	..	..	..	7·5	..	1·1	..	6·5	..	5·3	..	4·5	..	8·9	18
14	8·0	..	2·9	..	7·7	..	4·4	..	3·1	..	1·8	..	..	..	4·9	..	11·1	5
15	..	9·4	1·6	..	..	10·0	1·8	..	..	6·5	1·1	..	..	0·5	1·5	..	10·5	7
16	12·1	..	..	..	..	..	18·4	..	..	2·9	16·7	..	5·7	..	10·0	..	18·4	9
17	10·7	..	18·5	..	..	4·3	24·4	..	..	..	18·7	..	..	..	21·6	..	26·2	5
18	..	7·6	21·1	..	..	3·8	10·3	..	..	3·9	10·7	..	..	2·3	4·0	..	24·6	2
19	..	Ca	lm	..	10·6	..	..	8·9	10·3	..	..	1·8	8·4	..	10·0	..	15·4	24
20	10·2	..	12·0	..	8·0	..	22·0	..	..	..	24·9	..	..	..	18·0	..	25·6	10
21	..	1·3	7·1	..	4·6	..	..	..	..	3·4	4·0	..	0·3	..	2·0	..	9·8	1
22	2·8	..	4·8	..	1·6	..	2·9	..	..	Ca	lm	..	..	3·8	..	0·7	8·2	23, 24
23	..	8·4	1·5	..	..	13·8	5·1	..	..	11·1	6·4	..	..	14·1	5·2	..	16·4	11, 12
24	..	8·2	4·7	..	..	1·0	1·2	..	..	..	..	..	..	..	..	..	? 9·8	1, 2
25	..	..	..	..	..	0·9	4·8	..	1·9	..	5·3	..	7·7	..	4·4	..	?10·8	24
26	9·5	..	3·5	..	12·6	..	2·2	..	9·1	..	1·6	..	1·0	..	5·5	..	13·4	10
27	5·7	..	4·8	..	7·3	..	6·2	..	6·2	..	10·8	..	6·8	..	8·0	..	12·5	16
28	5·3	..	6·3	..	3·3	..	5·7	..	1·8	..	10·3	..	..	3·1	18·1	..	18·4	21
29	..	4·8	13·2	..	..	5·1	6·1	..	..	7·4	12·8	..	1·8	..	10·3	..	16·7	2
30	5·5	..	4·7	..	10·9	..	..	1·9	..	..	8·9	..	..	16·3	6·0	..	19·3	20
31	..	10·3	8·6	..	..	7·8	9·3	..	..	..	12·5	..	4·6	..	8·0	..	17·0	1
S+N & W+E	173·0‡		181·5		170·7†		210·4		118·8†		208·2		123·1†		190·6			
S−N & W−E	56·8		130·3		70·3		130·2		41·6		166·2		37·5		153·6			

ENGLAND, S.W.:—SCILLY.

Cup Anemometer.
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

Day.	3 h.				9 h.				15 h.				21 h.				Vel. in max. hourly run.	Time of Max.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	hrs.
1	..	Ca	lm	..	..	1·1	..	3·1	..	4·1	..	4·8	..	5·0	..	8·7	10·0	21
2	..	5·4	..	6·4	..	4·1	..	7·2	..	2·9	..	5·0	..	..	..	9·2	10·4	20
3	3·4	..	..	9·3	3·1	..	..	8·6	1·7	..	..	4·7	..	..	..	1·7	10·0	3
4	..	..	..	1·7	..	..	..	1·7	De	fec	tiv	e	De	fec	tiv	e	4·6	24
5	De	fec	tiv	e	De	fec	tiv	e	4·3	..	2·5	..	4·1	..	3·5	..	5·4	20
6	4·7	..	1·7	..	6·3	..	2·3	..	4·9	..	0·9	..	2·9	..	5·0	..	6·7	6
7	2·7	..	7·4	..	..	2·3	6·3	..	..	1·8	5·1	..	..	1·3	7·4	..	9·2	6
8	..	..	5·0	..	..	1·7	9·8	..	..	..	7·1	..	..	1·4	7·8	..	10·0	7, 9
9	..	1·0	5·7	..	..	0·7	4·1	..	..	1·4	3·9	..	..	..	4·2	..	6·3	2, 4
10	..	0·7	2·0	..	..	Ca	lm	..	3·3	..	1·9	..	7·6	..	4·4	..	9·6	22
11	..	9·9	8·3	..	..	10·8	6·2	..	..	8·2	1·4	..	..	3·3	..	..	16·3	1
12	..	1·7	..	..	0·4	..	2·1	..	1·7	..	4·7	..	..	5·9	2·2	..	9·2	23
13	..	8·7	1·5	..	..	7·9	..	..	..	8·3	..	..	..	5·0	..	..	10·8	7
14	..	2·9	..	..	..	..	7·5	..	2·2	..	12·3	..	..	7·4	6·2	..	12·5	17
15	..	10·5	3·9	..	..	10·9	4·0	..	..	10·1	5·8	..	..	6·6	..	1·2	12·5	13
16	..	2·9	..	..	De	fec	tiv	e	..	4·4	7·6	..	..	2·8	7·8	..	9·6	24
17	..	2·2	12·3	..	..	..	12·1	..	..	2·0	11·5	..	..	1·9	10·6	..	13·3	4, 6
18	..	..	10·0	..	..	..	9·2	..	..	2·1	11·9	..	1·6	..	9·1	..	12·9	14, 16
19	3·1	..	8·6	..	7·4	..	6·2	..	8·3	..	6·9	..	8·5	..	10·2	..	11·7	20, 22, 24
20	..	2·0	11·5	..	..	5·1	14·0	..	..	2·5	14·0	..	..	..	12·1	..	15·8	10
21	2·4	..	13·6	..	4·0	..	10·9	..	3·7	..	10·1	..	5·2	..	9·0	..	14·2	1
22	7·3	..	8·7	..	4·1	..	11·3	..	..	..	19·2	..	..	6·3	17·1	..	21·7	17
23	..	5·8	16·0	..	..	9·6	11·5	..	..	14·4	2·5	..	..	13·6	2·4	..	18·3	2
24	..	9·1	1·6	..	..	6·3	2·3	..	..	0·4	2·1	..	..	..	9·6	..	10·8	23
25	..	..	10·8	..	..	..	12·5	..	..	5·5	2·0	..	..	Ca	lm	..	13·3	8
26	4·5	..	0·8	..	3·5	..	6·1	..	5·4	..	9·4	..	10·2	..	8·5	..	15·0	24
27	..	2·0	11·5	..	1·7	..	9·8	..	3·9	..	10·5	..	4·9	..	13·2	..	16·3	24
28	6·4	..	17·6	..	..	..	16·3	..	..	5·7	15·6	..	..	2·1	11·9	..	19·2	5
29	..	..	12·1	..	..	4·9	13·2	..	..	10·8	9·1	..	..	1·4	8·2	..	16·7	13
30	6·9	..	12·0	..	..	..	17·9	..	3·8	..	21·7	..	..	7·1	19·5	..	22·5	23
31	..	14·5	8·3	..	..	8·6	3·1	..	..	2·2	5·9	..	..	..	6·3	..	19·6	1
S+N & W+E	120·7		†208·3		104·5		‡219·3		130·0		†220·1		116·1		†217·0			
S−N & W−E	−37·9		173·5		−43·5		178·1		−43·6		191·1		−26·1		175·4			

ENGLAND, E.:—GORLESTON.

Pressure Tube Anemometer.
Height of Head above—Ground 12·8 m., M.S.L. 15·9 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	h. m.
1	7·0	..	..	6·0	5·0	..	..	8·7	9·1	..	..	1·6	11·5	..	..	4·2	16	24 10
2	12·4	..	..	4·5	6·9	..	..	12·0	2·1	..	..	12·1	..	..	..	11·6	18	9 45
3	..	1·8	..	10·0	..	4·0	..	10·9	..	4·0	..	11·0	..	1·6	..	9·4	16	16 15
4	2·0	..	..	11·1	1·5	..	..	8·7	0·7	..	..	3·9	0·9	..	..	2·3	15	1 20
5	..	1·5	2·6	..	0·7	..	1·9	..	2·0	..	2·4	..	0·7	..	3·7	..	7	20 0
6	0·6	..	3·6	..	0·6	..	3·2	..	0·7	..	2·0	..	5·1	..	6·1	..	13	23 35
7	1·9	..	5·3	..	..	0·8	4·4	..	..	3·4	5·9	..	..	0·5	3·1	..	13	0 40
8	..	..	3·5	..	..	0·8	4·6	..	..	0·7	4·2	..	..	1·7	4·7	..	11	23 40
9	..	2·6	4·6	..	..	1·9	2·3	..	..	Ca	lm	..	..	..	2·1	..	11	1 0
10	..	0·4	2·3	..	..	0·4	2·4	..	..	Ca	lm	..	..	..	2·3	..	6	1 20
11	..	Ca	lm	..	..	Ca	lm	..	..	Ca	lm	..	..	Ca	lm	..	5	9 30
12	..	Ca	lm	..	2·8	..	1·0	..	1·2	..	2·1	..	2·2	..	2·7	..	5	20 0
13	1·0	..	1·8	..	..	1·3	1·5	..	..	5·1	0·9	..	..	2·3	1·3	..	10	12 55
14	..	1·7	2·9	..	..	..	3·3	..	2·6	..	3·1	..	4·5	..	3·9	..	9	23 30
15	2·5	..	2·1	..	..	Ca	lm	..	..	5·0	..	..	..	5·8	..	..	11	21 20
16	..	2·8	1·0	..	0·9	..	2·5	..	3·7	..	6·4	..	..	..	5·7	..	11	15 0
17	..	..	4·9	..	..	2·5	6·9	..	..	3·6	6·3	..	..	0·8	4·4	..	16	14 20
18	..	1·4	7·9	..	..	4·6	5·4	..	..	0·5	1·5	..	..	..	6·5	..	20	4 10
19	..	0·9	4·9	..	1·9	..	3·4	..	2·2	..	6·1	..	6·2	..	7·3	..	18	22 50
20	2·8	..	7·6	..	1·1	..	6·3	..	..	1·9	11·0	..	..	..	6·6	..	19	14 20
21	2·6	..	7·1	..	3·9	..	6·8	..	1·4	..	7·9	..	2·5	..	6·8	..	18	6 10
22	2·9	..	8·0	..	5·7	..	6·7	..	7·5	..	6·4	..	..	..	4·0	..	17	14 35
23	0·9	..	5·4	..	0·6	..	3·2	..	..	2·8	4·9	..	..	8·2	..	..	20	22 30
24	..	6·3	2·3	..	..	3·2	5·6	..	..	1·7	2·9	..	0·7	..	3·9	..	21	1 35
25	5·9	..	7·0	..	3·0	..	5·2	..	..	4·8	2·7	..	..	1·9	2·3	..	13	3 5
26	..	0·6	3·6	..	4·1	..	3·5	..	5·1	..	6·0	..	8·5	..	10·1	..	19	20 55
27	6·1	..	10·7	..	..	0·9	4·8	..	1·0	..	5·7	..	6·2	..	7·4	..	18	1 5
28	5·9	..	10·2	..	..	..	13·4	..	..	2·4	6·7	..	..	1·3	7·1	..	25	6 35
29	..	..	6·5	..	2·4	..	6·6	..	..	2·4	6·6	..	..	5·8	4·9	..	14	18 15
30	..	..	5·7	..	10·3	..	8·7	..	1·8	..	10·1	..	..	1·4	8·2	..	25	19 10
31	..	13·6	2·4	..	..	8·7	5·0	..	..	4·7	4·0	..	..	0·7	4·0	..	29	1 55
S+N & W+E	88·1		155·5		80·5		158·9		84·1		144·4		81·0		146·6			
S−N & W−E	20·9		92·3		22·3		78·3		−1·9		87·2		17·0		91·6			

‡ 29 days only. † 30 days only.

8. Seismological Diary

The notation used is explained in the Introduction.

Earthquakes—Eskdalemuir.

Day.	Phase	Time G.M.T.	Period	Amplitudes. A_N.	Amplitudes. A_E.	Amplitudes. A_Z.	Δ.	Remarks.
		h. m. s.	s.	μ	μ	μ	km.	
1	e_N	11 11 51	..	..	..	..	..	
	L	11 31	..	..	..	..	..	
	M_E	11 35 39	16	..	4	..	..	
	M_N	11 37 58	15	12	..	..	..	
	F	12 10	..	..	..	..	..	
1		18 34 to 19	..	..	..	..	..	Slight disturbance.
7	L	1 43	..	..	..	..	..	
	M_N	1 48 24	18	6	..	..	..	Preliminary phases masked by wind and microseismic effects.
	F	2 5	..	..	..	..	..	
7	e_N	17 56	..	..	..	..	..	
	L	18 21	..	..	..	..	..	
	M_N	18 26 20	30	−11	..	..	..	
	M_E	18 34 1	26	..	8	..	..	
	M_N	18 35 57	23	7	..	..	..	
	F	19	..	..	..	..	..	
8	iP_Z	12 43 57	..	..	..	..	9120	
	?PR_Z	12 47 12	..	..	..	..	..	
	iS_N	12 54 14	..	..	..	..	..	
	L	13 12	..	..	..	..	..	
	M_E	13 18 23	26	..	11	..	..	
	M_N	13 24 35	19	−9	..	..	..	
	F	14	..	..	..	..	..	
18	iP_Z	15 40 46	..	..	..	..	?7970	The record was confused by vigorous microseismic movement. L phase irregular. iS (15h. 50m. 4s.) and i_N (15h. 54m. 4s.) were followed within the ensuing minute by sharp oscillations :— 15h. 50m.–15h. 51m. period 10–15s. max. ampl. 40μ. 15h. 54m.–15h. 55m. period 18–22s. max. ampl. 100μ.
	?PR_I	15 44	..	..	..	..	..	
	iS	15 50 4	..	..	..	..	..	
	i_N (?SR)	15 54 4	..	..	..	..	..	
	L?	16 1	..	..	..	..	..	
	F	18	..	..	..	..	..	
18 to 19	L	23 56	..	..	..	..	..	Initial phases masked by microseisms.
	F	0 15	..	..	..	..	..	

Microseisms of N. Component—Eskdalemuir.

Day.	0 h. A_N.	0 h. T.	6 h. A_N.	6 h. T.	12 h. A_N.	12 h. T.	18 h. A_N.	18 h. T.
	μ	s.	μ	s.	μ	s.	μ	s.
1	2·3	6	2·1	4	..	..	1·3	3·5
2	1·7	5	1·4	5	1·8	4·5	1·5	4·5
3	1·6	4·5	0·6	4	1·0	4·5	0·7	4·5
4	0·7	4	0·6	4	0·5	3·5	0·6	4
5	0·9	5	0·9	4·5	1·0	4·5	1·0	4·5
6	1·0	4·5	..	..	1·0	4·5	1·3	3·5
7	0·9	5	0·8	5·5	1·1	4·5	1·1	4
8	0·8	5·5	0·9	5	1·1	4·5	1·6	5
9	2·3	6	3·0	6·5	1·9	6	2·2	6·5
10	3·0	6·5	1·6	6·5	1·5	6	1·6	6
11	1·6	6	1·5	6·5	2·4	6	1·7	6
12	1·6	6·5	1·8	6·5	2·6	6·5	2·9	7
13	4·4	7·5	3·6	7	3·5	7	2·8	7
14	2·4	6	2·1	6·5	3·1	6	3·6	6·5
15	3·0	6·5	3·6	6·5	3·2	6	2·2	7
16	2·1	6·5	2·4	6·5	2·6	5·5	3·0	6
17	3·1	6	3·1	6	3·9	8	7·7	7
18	4·1	7·5	5·8	7·5	3·4	7	4·4	6·5
19	2·0	7	2·7	6	2·7	6	5·8	5·5
20	5·0	6	5·9	6·5	..	..	..	..
21	..	..	..	..	4·4	6	..	..
22	4·1	6	4·5	5·5	4·3	5·5	3·4	6
23	3·5	6	3·3	6	3·8	6	3·1	6
24	3·0	6	2·4	6	2·6	5·5	2·7	5
25	1·7	5·5	1·6	8	2·3	8	3·2	8
26	3·1	7	2·7	7·5	3·1	7	3·4	7·5
27	3·9	8	2·9	8·5	4·5	8	6·5	8·5
28	6·0	9	6·3	8·5	4·1	7·5	4·9	7·5
29	4·9	9	4·7	8	4·2	8	3·9	7
30	2·8	7	2·3	6·5	3·7	6·5	3·8	6
31	3·1	7	4·2	7	3·6	7	3·2	7

Means for month $\begin{cases} A_N. = 2·8\ \mu. \\ T = 6·2\ s. \end{cases}$

Normals for month, 1911–20 : $\begin{cases} A_N. = 2·2\ \mu. \\ T = 5·8 s. \end{cases}$

Earthquakes—Richmond (Kew Observatory).

Day.	Times, G.M.T., of Commencement.	Times, G.M.T., of Maximum Amplitude.	Remarks.
	h. m.	h. m.	
1	..	11 39	
8	..	13 24	Small.
18	15 42	15 56	Amplitude on trace 1·4 mm. Small waves to 16h. 50m.
19	..	0 07	Very small.

9. NEPHOSCOPE OBSERVATIONS.

ABERDEEN.

Day and Hour. G.M.T.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.–E.	S.–N.	
7 13	St.-Cu.	293	8·5	+ 7·8	− 3·3	
8 13	St.-Cu.	293	20·0	+18·4	− 7·8	Low St.-Cu., moving with high velocity above a S.S.W. surface-wind.
9 13	St.-Cu.	306	6·6	+ 5·4	− 3·7	Fused sheet of St.-Cu.
10 13	St.-Cu.	280	3·6	+ 3·5	− 0·6	Flat thin St.-Cu.
15 13	Cu.-Nb.	334	15·0	+ 6·5	−13·5	Base of cloud measured.
,, 15	Ci.	340	7·4	+ 2·5	− 7·0	Tufts of " false " Ci.
18 15	A.-Cu.	300	7·1	+ 6·1	− 3·5	A.-Cu. to thin high St.-Cu.
20 13	False Ci.	283	5·4	+ 5·3	− 1·2	Cloud formed from apices of Cu.-Nb.
21 13	A.-St.	279	8·0	+ 7·8	− 1·4	Thin patches of A.-St.
23 13	Ci.-St.	283	1·6	+ 1·5	− 0·4	Ci. to Ci.-St. webbed form.
	Cu.-Nb.	341	10·0	+ 3·4	− 9·4	
24 12	St.-Cu.	314	6·2	+ 4·4	− 4·4	Sheet of high St.-Cu. Radiant of bands=N.
25 13	Ci.	349	2·7	+ 0·5	− 2·6	Traces of patchy Ci.
26 15	False Ci.	259	6·9	+ 6·7	+ 1·2	Coarse false Ci. in patches.
	Fr.-St.	230	24·0	+18·3	+15·4	
27 12	Fr.-St.	249	13·0	+12·3	+ 4·4	Broken cumuliform St.
28 13	A.-St.	270	2·1	+ 2·1	0·0	Patches of A.-St., from false Ci.
30 13	False Ci.	245	6·4	+ 5·7	+ 2·7	False Ci. to flat floccular Ci.-Cu. and A.-St.

10. AURORA.

Day.	a.m. or p.m.	Moon.	Magnetic Character.		Aurora Observations.	
			Eskdalemuir.	Richmond.	Station.	Remarks.
15	a	○	..	..	..	
22	p	..	1, 1	1, 2	Deerness Gordon Castle Aberdeen	Glow, moderately bright, yellowish, 20 h.—24 h.
23	p	..	1, 0	2, 1	Deerness	
26	p	..	1, 1	1, 1	Deerness	
28	p	..	2, 1	2, 2	Aberdeen	Glow and arch, moderately bright, some streamers also, greenish-white, 18 h.–21 h.
29	a	●	..	..	..	
					(Also frequently observed at Lerwick).	

Note.—The two magnetic " characters " entered in each case refer to the two periods of 24 hours ending and beginning at midnight of the night in question.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, 1921.

PART III, SECTION 2.

GEOPHYSICAL JOURNAL, 1921.

ANNUAL SUPPLEMENT.

CONTENTS.

Upper Air Temperatures.—Soundings with Registering Balloons, 1921.

BENSON.—Lat. 51° 37′ N. Long. 1° 7′ W.

Height above Mean Sea Level:—57 m.

No.	370.	371.	374.	375.	376.	377.	378.	381.	383.	386.	387.
Day.	Jan. 13.	Jan. 31.	Mar. 21.	Apr. 22.	May 5.	June 2.	July 7.	Sept. 1.	Oct. 26.	Nov. 30.	Dec. 1.
Start G.M.T.	11 h. 36 m.	16 h.	17 h. 17 m.	15 h. 20 m.	18 h. 20 m.	19 h. 7 m.	19 h. 25 m.	17 h. 20 m.	15 h. 32 m.	15 h. 15 m.	15 h.
H_t = Greatest Height ..	11·6 km.	11·6 km.	12·5 km.	10·8 km.	7·2 km.	11 km.	12·3 km	11·9 km.	12·1 km.	9·8 km.	8·3 km.
T_t = Corresponding Temp. .	229 a.	224 a.	210 a.	216 a.	240 a.	220 a.	216 a.	219 a.	217 a.	218 a.	230 a.
P_t = Corresponding Pressure	196 mb.	190 mb.	179 mb.	235 mb.	393 mb.	237 mb.	195 mb.	200 mb.	199 mb.	265 mb.	332 mb.
Place of Fall ..	Shefford Henlow, Bedford.	Thurleigh, Bedford.	Bletch-ingley, Reigate, Surrey.	Churt, Surrey.	Iver, Bucks.	Lechlade, Glos.	Shorwell, I.O.W.	Tiptree, Essex.	Caver-sham Grove, Reading.	Nuneaton, Warwick.	Clare, Tets-worth, Oxon.
Distance	59 km.	78 km.	82 km.	61 km.	44 km.	38 km.	109 km.	127 km.	17 km.	101 km.	8 km.
Bearing	53°	29°	120°	158°	110°	293°	180°	81°	155°	346°	44°
Geostrophic Wind— Time G.M.T.	13 h.	18 h.	18 h.	13 h.	18 h.	18 h.	18 h.	18 h.	18 h.	13 h.	13 h.
Speed	?	7 m/s.	10 m/s.	6 m/s.	?	12 m/s.	?	15 m/s.	?	14 m/s.	11 m/s.
Deg. from N	?	240°	250°	290°	?	50°	?	260°	?	160°	120°
Wind (Anemometer)— Speed	1 m/s.	3·5 m/s.	4 m/s.	1 m/s.	6 m/s.	4 m/s.	Calm.	3 m/s.	Calm.	4 m/s.	1 m/s.
Deg. from N.	200°	210°	220°	295°	195°	20°		240°		90°	60°
Relative Humidity ..	90%	87%	85%	68%	60%	46%	58%	93%	84%	89%	95%
Tropopause— Type*	I.	I.	II.	I.	....	I.	I.	I.	I.	I.	....
H_e = Height	8·4 km.	7·6 km.	11·3 km.	10·8 km.	....	11 km.	12·3 km.	11·2 km.	11·6 km.	9·8 km.	....
P^e = Pressure	312 mb.	349 mb.	216 mb.	235 mb.	....	237 mb.	195 mb.	225 mb.	210 mb.	265 mb.	....
T_e = Temp.	221 a.	219 a.	210 a.	216 a.	....	220 a.	216 a.	216 a.	214 a.	218 a.	....
(P_9) Pressure at 9 km. ..	289 mb.	283 mb.	309 mb.	306 mb.	....	320 mb.	320 mb.	312 mb.	317 mb.	299 mb.	....
(P_s) Pressure at M.S.L. ..	991 mb.	990 mb.	1022 mb.	1020 mb.	1012 mb.	1028 mb.	1022 mb.	1011 mb.	1023 mb.	1007 mb.	1003 mb.
(T_m) Mean Temp. 1 to 9 km.	247 a.	242 a.	255 a.	254 a.	....	260 a.	263 a.	259 a.	259 a.	251 a.	....

* For the definition of the Types of Tropopause, see *Annual Supplement*, 1913, p. 92; or "The Characteristics of the Free Atmosphere," M.O., 220, c. *Geophysical Memoirs*, No. 13, p. 59.

NOTES.

370. Overcast; stratus, amount 10. Cloudy at 12·00 m. Balloon rose vertically.
Pressure Distribution. A belt of low pressure over England, extending from the mouth of the Channel to the North Sea.

371. A little cirrus present.
Pressure Distribution. Shallow "low" covering the British Isles.

374. Inversion of 4 a., 269 a. to 273 a., at 2·3 km. Balloon lost in clouds after 7 minutes.
Pressure Distribution. Extensive "low" centered over Iceland; ridge of high pressure extending from the Azores to Germany.

375. Inversion of 2 a. from 2·8 km. to 3·2 km. Balloon rose nearly vertically and was lost in 3 minutes.
Pressure Distribution. Extensive "low" centered south-west of Ireland; belt of high pressure stretching from the Azores to the Baltic.

376. Light showers at 16 h.; cirrus spreading from the north-west; cloud at 3 km. Inversion of 2 a. from 2·6 km. to 2·9 km.
Pressure Distribution. High pressure over southern England; shallow "low" to the south-west of Ireland.

377. Clouds forming in west and north-west. Slight inversions at 0·9 and 2·3 km.
Pressure Distribution. Ridge of high pressure across the British Isles.

378. Slight cirrus in north and south.
Pressure Distribution. Anticyclone covering the British Isles.

381. Overcast; shower about an hour before the ascent. Balloon travelled eastward and was lost in clouds in 5 minutes.
Pressure Distribution. Shallow "low" centered over northern Scotland.

383. Calm; cumulus, amount 9.
Pressure Distribution. Belt of high pressure across the British Isles.

386. Overcast and misty; cirrus spreading from east-south-east. Inversion of 6 a., 271 a. to 277 a., between 0·6 km. and 1 km.
Pressure Distribution. "Low" over the British Isles, centered south-west of Ireland.

387. Overcast and misty; rain throughout the day. Inversion of 2 a., between 0·5 km. and 1 km. Balloon lost in stratus in about 1 minute.
Pressure Distribution. "Low" centered over the south of France; "high" over the Baltic.

SOUNDINGS WITH REGISTERING BALLOONS. BENSON, 1921.

T = Temperature in Degrees Absolute. P = Pressure in millibars. H = Height in kilometres above M.S.L.

No.	370	371	374	375	376	377	378	381	383	386	387
Day.	Jan. 13.	Jan. 31.	Mar. 21.	Apr. 22.	May 5.	June 2.	July 7.	Sept. 1.	Oct. 26.	Nov. 30.	Dec. 1.

HEIGHTS AND TEMPERATURES CORRESPONDING WITH ISOBARIC SURFACES.

Pressure.	*H.*	*T.*	*H.*	*T.*	*H.*	*T.*	*H.*	*T.*	*H.*	*T.*	*H.*	*T.*	*H.*	*T.*	*H.*	*T.*	*H.*	*T.*	*H.*	*T.*	*H.*	*T.*
Millibars.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.
100	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
200	11·43	229	11·24	224	11·79	210	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
300	8·72	222	8·60	223	9·20	226	9·09	228	..	..	9·40	230	9·43	234	9·27	228	9·40	229	8·94	225	..	..
400	6·84	233	6·72	225	7·20	240	7·15	242	7·07	241	7·42	247	7·41	248	7·25	245	7·40	244	7·03	238	7·00	237
500	5·23	245	5·19	239	5·60	253	5·55	251	5·45	251	5·79	257	5·78	263	5·60	257	5·78	256	5·43	250	5·40	250
600	3·92	255	3·89	250	4·20	261	4·18	261	4·11	259	4·35	266	4·32	268	4·20	266	4·40	266	4·05	260	4·04	259
700	2·77	263	2·75	259	3·02	270	3·00	264	2·90	265	3·27	273	3·12	274	3·01	274	3·19	273	2·90	267	2·88	268
800	1·72	269	1·70	266	1·98	270	1·90	269	1·89	267	2·08	279	2·06	280	1·95	279	2·10	277	1·84	272	1·80	271
900	0·78	275	0·78	274	1·02	277	1·00	275	0·95	275	1·09	284	1·09	288	0·96	284	1·15	280	0·88	277	0·86	277
1000	..	..	..	..	0·18	284	0·19	282	0·10	283	0·20	287	0·19	294	0·10	290	0·28	285	0·06	273	0·02	277

PRESSURES AND TEMPERATURES AT GIVEN HEIGHTS.

Heights.	*P.*	*T.*	*P.*	*T.*	*P.*	*T.*	*P.*	*T.*	*P.*	*T.*	*P.*	*T.*	*P.*	*T.*	*P.*	*T.*	*P.*	*T.*	*P.*	*T.*	*P.*	*T.*
Kilometres.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.
12·0	..	..	..	..	193	210	..	..	..	..	..	..	204	217	..	..	202	217	..	..	..	..
11·0	214	228	207	223	227	213	..	..	..	..	236	220	238	223	231	217	236	218	..	..	..	..
10·0	248	225	242	222	266	220	264	222	..	..	275	225	277	228	269	223	275	225	..	..	..	..
9·0	289	223	282	223	309	228	307	229	..	..	319	233	321	236	313	231	319	232	299	224	..	..
8·0	337	224	329	221	358	236	356	236	..	..	369	240	370	243	362	238	369	240	348	231	347	232
7·0	391	233	383	223	413	242	410	243	405	241	424	248	425	250	416	247	424	247	402	238	401	237
6·0	451	241	445	231	475	250	472	248	465	247	486	255	486	258	477	255	486	254	463	245	462	245
5·0	519	247	514	241	543	257	540	255	534	253	554	262	554	265	544	262	555	262	532	253	530	253
4·0	595	254	591	250	619	263	616	261	609	260	630	269	629	270	619	267	631	268	607	260	605	259
3·0	679	261	676	257	704	270	702	266	694	265	714	275	713	275	702	274	716	274	691	266	690	267
2·5	725	264	723	261	750	273	748	266	740	264	760	277	758	278	747	276	762	275	737	269	734	269
2·0	773	268	771	264	798	270	797	270	790	267	808	279	806	280	795	278	810	278	785	272	782	271
1·5	824	271	822	268	850	274	849	274	841	271	859	283	856	284	845	281	862	277	836	274	833	272
1·0	877	274	876	272	905	278	903	279	896	275	912	285	909	288	898	284	916	280	889	276	887	276
0·5	933	277	932	277	962	281	961	283	953	279	969	286	964	292	953	287	973	284	946	272	943	276
G.L. 0·06	985	279	984	279	1015	285	1013	286	1005	283	1021	290	1015	295	1004	290	1026	288	1000	273	996	277

LAPSE RATE OF TEMPERATURE BETWEEN GIVEN HEIGHTS.

Degrees Absolute per kilometre.

Kilometres.											
11 to 12	..	..	3	..	..	..	6	..	1	..	..
10 to 11	−3	−1	7	..	..	5	5	6	7	..	..
9 to 10	−2	1	8	7	..	8	8	8	7	..	..
8 to 9	1	−2	8	7	..	7	7	7	8	7	..
7 to 8	9	2	6	7	..	8	7	9	7	7	5
6 to 7	8	8	8	5	6	7	8	8	7	7	8
5 to 6	6	10	7	7	6	7	7	7	8	8	8
4 to 5	7	9	6	6	7	7	5	5	6	7	6
3 to 4	7	7	7	5	5	6	5	7	6	6	8
2·5 to 3	6	8	6	0	−2	4	0	4	2	6	4
2 to 2·5	8	6	−6	8	6	4	4	4	6	6	4
1·5 to 2	6	8	8	8	8	8	8	6	−2	4	2
1 to 1·5	6	8	8	10	8	3	8	6	6	4	8
0·5 to 1	6	10	6	8	8	3	8	6	8	−8	0
0·06 to 0·5	5	5	9	7	9	9	7	7	9	2	2

(9377) Wt. 134/6890/P27 500 8/23 Harrow G.69/7

Notes on Seismological Work at Eskdalemuir Observatory during 1921.

Equipment.—The instrumental equipment consisted of three Galitzin pendulums, with galvanometric registration, arranged to record displacements in the north, east, and vertical directions.

As in recent years a certain amount of trouble was experienced with the clock-work mechanisms driving the recording drums.

The seismograph pendulums remained in good order and their constants showed no appreciable change.

Earthquakes.—Apart from very feebly marked disturbances the number of earthquakes recorded during the year was 144. A value of the epicentral distance was assigned in 20 cases.

Microseisms.—The amplitude and period of microseisms recorded by the North-South seismograph were tabulated as heretofore. The monthly mean values of the amplitude and period for the years 1911—1921 are given below, certain errors having entered into the values previously published. In computing the mean period, occasions of zero amplitude were omitted.

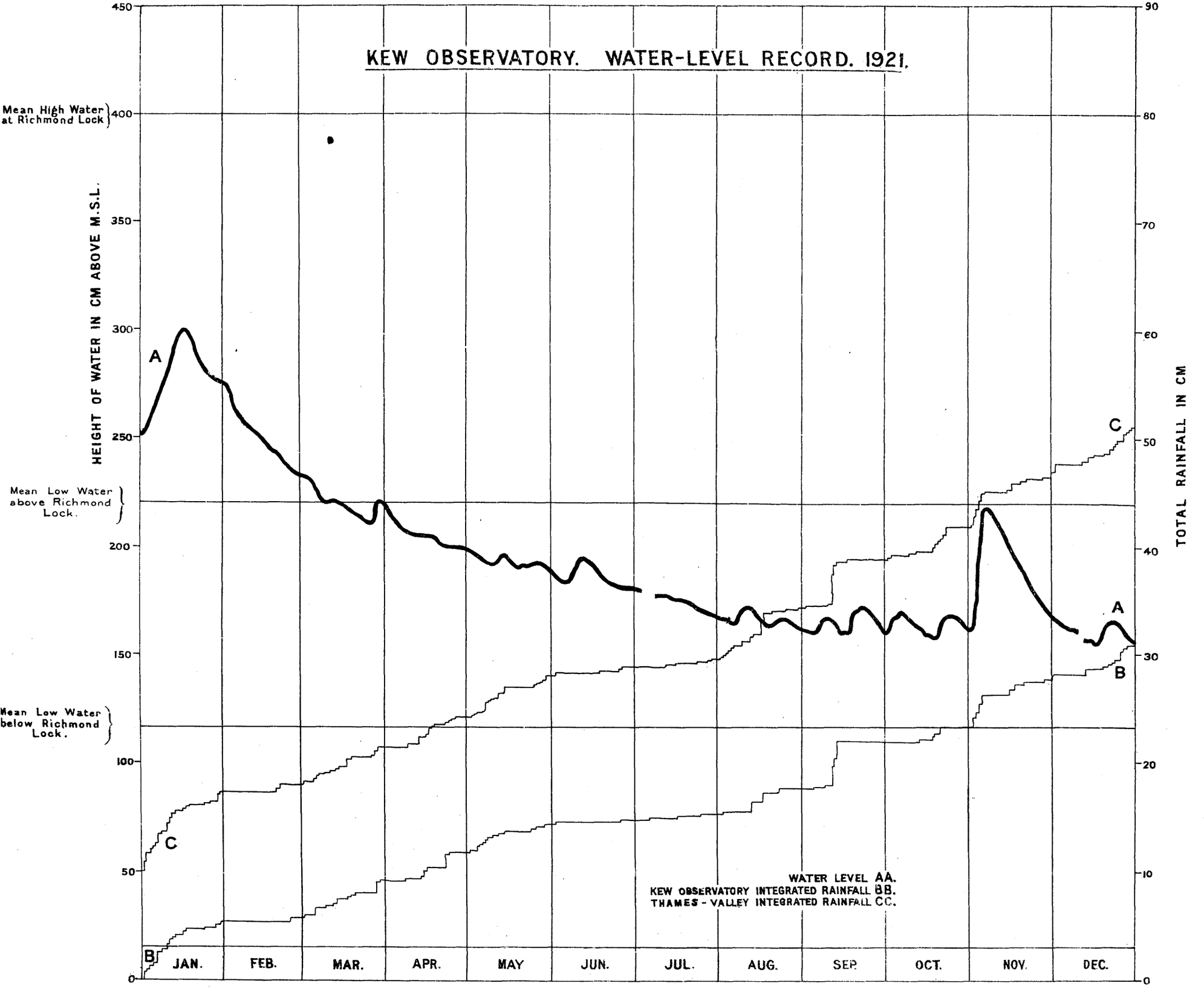
Microseisms. Monthly Means.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
Amplitude (μ) 1911 ..	2·1	2·1	1·2	1·1	0·6	0·4	0·3	0·3	0·6	0·9	1·8	1·8	1·1
,, 1912 ..	2·0	1·6	1·4	0·7	0·4	0·4	0·3	0·5	0·6	1·3	1·9	2·0	1·1
,, 1913 ..	3·7	3·1	3·0	1·1	0·9	0·7	0·2	0·4	0·7	1·2	2·6	2·1	1·6
,, 1914 ..	2·3	3·2	2·1	1·3	0·9	0·4	0·4	0·4	0·8	1·0	2·1	3·9	1·6
,, 1915 ..	2·4	2·8	1·6	2·0	0·8	0·3	0·3	0·3	0·7	1·0	1·3	2·0	1·3
,, 1916 ..	3·1	2·3	1·2	1·4	0·6	0·4	0·2	0·4	0·8	1·8	2·0	1·2	1·3
,, 1917 ..	1·8	1·1	1·7	1·0	0·4	0·4	0·2	0·5	1·0	2·0	1·8	1·7	1·1
,, 1918 ..	2·4	3·2	1·6	0·8	0·6	0·7	0·6	0·7	1·2	1·4	1·7	2·1	1·4
,, 1919 ..	1·8	1·5	2·1	1·2	0·7	0·7	0·3	0·6	1·1	0·9	1·5	3·0	1·3
,, 1920 ..	3·6	3·0	2·6	1·3	0·9	0·4	0·4	0·4	0·8	*	*	*	—
,, 1921 ..	2·8	1·5	1·9	1·0	0·9	0·3	0·4	0·6	1·2	1·1	1·8	2·8	1·4
Mean 1911–1921 ..	2·5	2·3	1·9	1·2	0·7	0·5	0·3	0·5	0·9	1·3‡	1·9‡	2·3‡	1·3‡
Period (secs.) 1911 ..	6·4	6·0	5·5	5·5	5·3	4·5	4·3	4·2	5·5	4·9	5·3	5·3	5·2
,, ,, 1912 ..	5·2	5·1	5·2	4·8	4·5	4·1	4·3	4·2	4·9	5·6	6·1	6·1	5·0
,, ,, 1913 ..	6·5	6·7	6·2	5·4	4·8	4·9	4·1	4·6	4·6	5·0	6·5	5·9	5·4
,, ,, 1914 ..	6·4	6·2	5·7	5·6	5·1	4·6	4·6	4·6	5·0	5·2	5·8	6·2	5·4
,, ,, 1915 ..	6·0	5·7	5·5	5·9	4·6	4·6	4·5	4·6	4·9	5·2	5·6	5·5	5·2
,, ,, 1916 ..	6·6	6·4	5·3	5·6	4·8	4·3	4·7	4·8	5·0	5·5	5·8	5·6	5·4
,, ,, 1917 ..	5·7	5·8	5·9	5·2	4·5	4·6	3·9	4·4	5·1	5·6	5·8	5·6	5·2
,, ,, 1918 ..	5·8	6·6	6·0	5·0	4·9	4·9	4·3	4·2	4·4	4·9	5·3	5·6	5·2
,, ,, 1919 ..	5·5	5·0	5·1	4·5	4·1	4·3	3·9	4·3	4·7	4·8	5·6	6·6	4·9
,, ,, 1920 ..	6·1	6·3	6·2	5·6	4·8	4·6	4·3	4·4	5·2	*	*	*	—
,, ,, 1921 ..	5·9	6·1	6·4	5·2	4·9	4·5	4·4	4·3	5·2	5·1	5·3	6·2	5·3
Mean 1911–1921 ..	6·0	6·0	5·7	5·3	4·8	4·5	4·3	4·4	5·0	5·2‡	5·7‡	5·9‡	5·2‡

* No records—recording mechanism under repair. ‡ Mean for 10 years only.

To face page 77.

KEW OBSERVATORY. WATER-LEVEL RECORD. 1921.



Note: Ground level (Site of Rain Gauge) = 550 cm. above M.S.L.

H.M. Stationery Office Press, Kingsway, W.C.2.

Ps 52509/691. Wt 134. D.6890/P.K.1067. 500. 3/21.

The Water Level Recorder at Kew Observatory, Richmond.

A description of the apparatus will be found in the *Annual Supplement* for 1914. Regular observations commenced in July 1914. The values of the mid-height for each day have appeared in the monthly numbers of the Journal, along with the extreme values recorded during the month and the dates on which these presented themselves. The general nature of the variation will be readily derived from the diagram, in which the graph A A shows the fluctuations in water level. The integrated rainfall (*i.e.*, the total fall up to any assigned date) at Kew Observatory is represented by the graph B B, whilst the general rainfall in the Thames Valley* (obtained from twenty-four stations above Teddington) is integrated in the graph C C. The rainfall scale is five times that for the height of the water in the well. In reading the graph C C, 10 mm. is to be *subtracted* from the amount indicated by the scale on the right of the diagram.

With the exception of smart rises of level in the first half of January and in the first few days of November, the general tendency throughout the year was markedly downwards, and at the end of the year the level was nearly a metre lower than at the beginning.

The response of the well to variations in the height of the barometer and to the tide in the neighbouring river has been discussed† by E. G. Bilham. The effect of the alternation of spring and neap tides can be easily recognised in the diagram.

The observatory is situated in the Old Deer Park, which lies within a bend of the River Thames and is not far from Richmond Lock. This lock is half-tidal, *i.e.*, at high water there is no obstruction to the flow of the river, at half-tide the sluices come into operation, so that the water above the lock does not fall below the half-tide level, whereas below the lock at low tide there is very little water—at any rate in a dry season.

The result of a comparison of the graphs for the period 1914—1919 was discussed in the 1919 Supplement.

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*A Chart showing the Rainfall of the Thames Valley is published monthly in *The Meteorological Magazine*.

†*Roy. Soc. Proc.*, A94, 1918, p. 165; and *Q.J.R. Met. Soc.*, Vol. XLIV, 1918, p. 171.

Table of Monthly Means of Magnetic Data for Eskdalemuir, 1921.

The following table gives the mean monthly values of daily maximum and minimum and of the corresponding daily range of the magnetic elements at Eskdalemuir Observatory.

Month.	North Component.			West Component.			Vertical Component.		
	Max. 15000 γ +	Min. 15000 γ +	Range.	Max. 4000 γ +	Min. 4000 γ +	Range.	Max. 44000 γ +	Min. 44000 γ +	Range.
January	1019	968	51	825	766	59	1065	1043	22
February	1018	968	49	821	763	58	1058	1036	22
March ..	1027	953	75	832	752	80	1057	1020	37
April ..	1039	948	92	835	747	88	1074+	1030	44+
May ..	1059+	887—	172+	838	692—	146+	1114	1000—	114+
June ..	1049	970	80	822	746	76	1093	1056	38
July ..	1052	974	78	817	741	75	1082	1047	35
August ..	1045	966	79	811	734	76	1085	1044	41
September	1033	959	74	798	726	72	1087	1048	39
October	1024	950	74	791	710	81	1093	1051	42
November	1024	961	63	777	703	74	1088	1048	40
December	1025	966	59	772	705	67	1068	1032	36
Year ..	1035+	956—	79+	812	732—	79+	1080+	1038—	42+

The traces passed the limits of registration on the North Component trace on two days, the West on two days, and the Vertical on four days. The value accepted for the maximum or minimum in such a case represents the upper or lower edge of the photographic sheet. Such values have been excluded in the calculation of the monthly means published in the Geophysical Journal, Table 6, but are used in obtaining the figures entered in the table above. On 20th January and 7th November loss of trace occurred owing to the partial failure of the lights. It was, however, possible to tabulate certain of the extreme values which have been included in the above table, but were omitted from the calculation of the monthly means in Table 6. The mean values of the daily range for the months affected are still underestimated, but the differences from the true values are probably small.

The extreme values actually recorded during the year and the corresponding annual ranges were as follows, the signs > or < indicating that the traces passed the limits of registration :—

	Maximum.	Date.	Minimum.	Date.	Range.
North Component. ..	16223 γ	May 19	<15504 γ	May 15	>719 γ
West Component ..	4953 γ	May 13	<4322 γ	May 15	>631 γ
Vertical Component ..	>45250 γ	April 29	<44686 γ	May 13, 14, 15	>564 γ

Table of Monthly Means of Electrical Data for Kew Observatory, Richmond, 1921.

The following table gives mean values of positive and negative charges obtained with the Ebert apparatus. The observations are made only on certain days, and so the figures do not necessarily represent true means for the months. The number of days utilised for computing the respective means are given in the table.

Charge per cc. at about 15 h. G.M.T. at Kew Observatory, Richmond. Unit 1×10^{-16} *coulomb.*

Year.	Sign of Charge	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
1921	+	0·37	0·40	0·56	0·64	0·76	0·80	0·81	0·72	0·65	0·77	0·46	0·42	0·60
	−	0·23	0·22	0·48	0·49	0·57	0·58	0·60	0·60	0·51	0·48	0·43	0·31	0·45
No. of Days.	+	16	16	17	20	14	12	13	7	10	19	16	14	174
	−	16	16	17	20	14	14	12	8	9	20	17	13	176

A popular account of the method of measurement of positive and negative charges will be found in a paper* by Mr. C. D. Stewart. For a comparison of the units used in corresponding tables elsewhere reference may be made to the Introduction. Mean values of potential gradient at Kew Observatory will be printed in *Hourly Values*.

In the means for the year equal weight has been assigned to each individual observation independently of the month it occurs in, as the number of days available was unduly low for some of the months.

ERRATA.

Page 8. Table 3. For rainfall on 11th, *read* —, on 25th *for* x 4 *read* x 4·3.

Page 13. Table 1. Westminster sunshine on 18th, *for* 0·0, 0 *read* —, —. The mean refers to 29 days only.

Page 21. Table 5 Magnetic character of Day. Mean for month. *For* 0·06 *read* 0·63.

Page 25. Table 1. Westminster sunshine :—
17th *For* 5·4, 35 *read* 9·7, 62.
18th *For* 2·2, 14 *read* 8·6, 55.
19th *For* 0·5, 3 *read* 12·0, 76.
20th *For* 5·0, 32 *read* 10·3, 66.
Mean *For* 6·44, 41 *read* 7·33, 47.

Page 31. Table 1. Sunshine normals :—
Eskdalemuir, *For* 6·27, 38 *read* 5·87, 34.
Valencia, *For* 5·87, 34 *read* 6·27, 38.

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* *Q.J.R. Met. Soc.*, Vol. XLIII., 1917, p. 409.

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