

METEOROLOGICAL OFFICE.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, 1916,  
PART III., SECTION 2.

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GEOPHYSICAL JOURNAL, 1916,

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;

TABULATIONS OF OCCASIONAL SOUNDINGS OF THE UPPER AIR;

AND RESULTS OF CLOUD OBSERVATIONS;

*TOGETHER WITH ANNUAL AND SPECIAL SUPPLEMENTS.*

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# METEOROLOGICAL OFFICE.

## BRITISH METEOROLOGICAL AND MAGNETIC YEAR-BOOK: GEOPHYSICAL JOURNAL.

### INTRODUCTION TO THE TABLES FOR 1916.

THE Geophysical Journal gives daily values for the meteorological and geophysical elements observed at the three observatories of the Meteorological Office, Kew Observatory, Richmond, Surrey, Valencia Observatory, Cahirciveen, Co. Kerry, and Eskdalemuir Observatory, Dumfriesshire. Data are given for Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology. Wind components are given for four additional anemograph stations.

The results of ascents at Upper Air Stations at Aberdeen, Benson (which replaced Pyrton Hill in April 1914), Eskdalemuir, Falmouth, and South Farnborough are also included in the Journal. Corresponding upper air results for the years 1909 to 1912 appeared in the Weekly Weather Report.

Greenwich Mean Time is used in all cases, 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 (highest and lowest) values in the column.

The tables are as follows:—

1. **Duration of Bright Sunshine and Solar Radiation.** The total number of hours of bright sunshine as measured by the Campbell-Stokes Recorder is given for South Kensington, Richmond, Eskdalemuir, and Cahirciveen; also the percentage this represents of the "possible," regarded as the number of hours from sunrise to sunset. The Campbell-Stokes instrument records only bright sunshine, no trace being obtained in thick haze or when the sun is very near the horizon. Thus the total it gives is less than the number of hours during which the position of the sun is visible to the naked eye. While the result is somewhat arbitrary, the records from different instruments of the pattern which have been correctly adjusted show a close agreement. The normal values for Richmond and Cahirciveen are from the 35 years 1881 to 1915; those for South Kensington and Eskdalemuir from the 5 years 1911 to 1915.

Solar radiation results 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 radiation received from the sun by a unit surface which is normal to the line drawn from the instrument to the sun. This is described as the intensity of radiation at Richmond and Eskdalemuir, to distinguish it from its vertical component, the two being connected by the formula

$$\text{vertical component} = \text{intensity} \times \cos Z,$$

where  $Z$  is the zenith distance of the sun. At Richmond the observations are made within half an hour of noon, and the vertical component is given as well as the

intensity of radiation, to facilitate comparison with South Kensington. The hour of observation at Eskdalemuir being more variable is given explicitly, and the value is also given of  $(p/p_0) \sec Z$ , where  $p$  is the barometric pressure at the observatory in millibars at the time of the observation, while  $p_0$  is 1000 millibars. Thus  $(p/p_0) \sec Z$  affords a measure of the mass of atmosphere through which the solar radiation has had to travel before reaching the earth. The entries in the columns headed "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. 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 records the amount received on a horizontal surface from all sources. In bright sunshine the greater part of the radiation consists of the vertical component of the direct solar radiation, but even then an appreciable part comes from the general atmosphere and from clouds. Thus if a Callendar and an Ångström instrument were simultaneously recording side by side, one would naturally expect the radiation recorded by the former to exceed the vertical component of that recorded by the latter. 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

$$1 \text{ mw. per sq. cm.} = 0.01435 \text{ gramme-calorie per sq. cm. per minute.}$$

At 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 11 h. 30 m. and 12 h. 30 m. It is the latter that is most appropriate for comparison with 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. This accepts Dr Abbot's result, 1.93 gramme calories per sq. cm.; but it should be remembered that the scales of the Callendar and Ångström\* instruments undoubtedly differ from that accepted at Washington.

**2. Daily meteorological data** at 9 h. and 21 h. G.M.T. for **Cahirciveen, Co. Kerry** (Valencia Observatory). This table is in the form adopted for Part III., Section I., of the Year-Book (Daily Readings at Meteorological Stations of the First and Second Orders). The instrumental values in the table are taken from the self-recording instruments at the observatory. Some account of these instruments will be found in the Introduction to Hourly Values Meteorological 1913. It may be noted here that the temperatures refer to a large louvered 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.

\* Ångström No. 100 was in use at Richmond until the end of April 1916, No. 24 subsequently.

**Pressure** is given in "millibars" (1000 millibars = one megadyne per square centimetre). One millibar is approximately equivalent to the pressure of 0.75008 mm. of mercury under standard conditions (273a, lat. 45°). The name is used in the Year-Book, following the example of Professor Bjerknes of Christiania in his work for the Carnegie Institution of Washington. The expression of atmospheric pressure in millibars shows that any necessary reduction of the readings of the barometer to standard temperature and latitude has already been made.

**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.

**Vapour-Pressure**, deduced from the readings of the dry and wet bulb thermometers by Glaisher's Tables, is given in millibars.

**Wind-Speed** is expressed in metres per second. The values are estimated for periods of 60 minutes centering at the hours named.

**Wind-Direction** is given in points of the Compass, from N by E (1) through East (8), to True North (32). The directions refer to the exact hour, and are not mean values. No direction is given when the anemometer shows a smaller velocity than 1.6 metres per second.

**Precipitation** is given in millimetres of equivalent rainfall. Values of rainfall are for the 24 hours beginning at 9 h.; previous to May 1st, 1914, they were for the 24 hours beginning at 10.30 a.m.

The normals for Pressure, Temperature, and Precipitation are from the 45 years 1871 to 1915; those for Humidity from the 30 years 1886 to 1915; and those for Wind from the 35 years 1881 to 1915. Except in the case of Pressure, no allowance has been made for the removal of the observatory from Valencia Island to Cahirciveen in 1891.

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.	w. ☁ dew.	h. ▲ hail.
c. clouds (detached).	x. ☃ hoar frost.	△ soft hail.
o. overcast.	< ice crystals.	t. T thunder.
g. gloomy, dull appearance.	∨ rime.	l. < lightning.
u. ugly, threatening appearance.	~ glazed frost.	⚡ thunderstorm.
v. visibility, unusually clear atmosphere.	e. water deposited copiously on exposed surfaces, without rain falling.	↘ gale (17.2 m/s and over).
z. ∞ haze.	p. passing showers.	q. squally.
m. ≡ <sup>0</sup> mist, light fog.	d. drizzling rain.	⊙ solar corona.
f. ≡ fog.	r. ● rain.	⊕ solar halo.
fe. ≡: wet fog, <i>i.e.</i> fog which deposits water copiously on exposed surfaces.	s. * snow.	☾ lunar corona.
	☃ snow drift.	☾ lunar halo.
	☒ snow lying (more than half the surrounding country covered with snow at 9 h.).	— rainbow.
		☄ aurora.
		♌ zodiacal light.

The figure <sup>0</sup> attached to a symbol indicates very slight, whilst the figure <sup>2</sup> indicates strong or heavy: thus ●<sup>0</sup> = slight rain, ●<sup>2</sup> = heavy rain. When economy of space is necessary, morning, afternoon, and night are denoted by *a*, *p*, *n*. respectively. ↘ is used in the Remarks Column when the wind as recorded by the anemometer averages 17.2 m/s or more for an hour.

Table 2 also contains results for **Magnetic Horizontal Force, Declination, and Inclination** from absolute observations, at least two a month. The observations are made at approximately fixed hours, and may be regarded as referring: Horizontal Force to 11 h. 30 m., Declination to 10 h. 30 m., and Inclination to 14 h. 30 m. The unit of force employed,  $1\gamma$ , 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.

3. A corresponding **meteorological table** for **Richmond** (Kew Observatory). Information is also supplied as to the readings at 9 h. of thermometers exposed in the ground at depths of 0.3 m. (1 foot) and 1.2 m. (4 feet) below the surface. The last two columns give the mean recorded level of underground water for each day, and the highest and lowest levels recorded during the month. The periods from which the respective normal values are derived are: Pressure and Temperature 1871 to 1915, Humidity 1886 to 1915, Wind 1881 to 1915, Rain 1871 to 1915, and Earth Temperature 1904 to 1915.

4. A corresponding **meteorological table** for **Eskdalemuir**. The normals all refer to the 5 years 1911 to 1915.

5. **Electrical and magnetic data** for **Richmond** (Kew Observatory). Values of the potential gradient in the open are given for 3 h., 9 h., 15 h., and 21 h., 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 a short thick “-” before the number. When the fluctuations of potential are too large or 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 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.

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 gradient: 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 previous volumes other units have been used for the ionic charges.

In 1911 the number of ions was given. In computing the number the value  $3.4 \times 10^{-10}$  C.G.S. electrostatic unit or  $11 \times 10^{-20}$  coulomb was accepted as the charge upon an ion. Recent research has shown that this value was too low. Millikan's experiments\* give  $4.77 \times 10^{-10}$  C.G.S. electrostatic unit, or  $15.9 \times 10^{-20}$  coulomb, for the ionic charge.

\* *Phil. Mag.*, Series 6, vol. xxxiv., 1917, p. 3.

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

For the years 1912–1915 the charge per cc.  $\times 10^{20}$  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 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.

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.

The **magnetic data** published in previous years were 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 made the records useless for this purpose from the end of January. 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.

6. **Electrical and magnetic data for Eskdalemuir.** These data are of the same general character as those for Richmond in 5, but with modifications. In the electrical character statistics at Eskdalemuir, 0, 1, and 2 have the same significance as at Richmond, but letters  $\alpha$ ,  $b$ ,  $c$  are attached according to the range of oscillation of the potential gradient:  $\alpha$  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.

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.

**7. Seismological Diary.** This consists in the main of results given by the **Galitzine Seismographs** (two horizontal components and the vertical component) at **Eskdalemuir**, but includes 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).

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

Y refers to a wave of the type for which the name polychord is proposed by J. J. Shaw (*B.A. Report*, 1915, p. 69). Y is identified provisionally with  $PR_{\infty}$ .

$M_1, M_2 \dots$  are the times of successive maxima of the displacement of the ground, corrected, if necessary, for the lag of the instrument.  $c_1, c_2 \dots$  are secondary maxima following the principal phase; only the periods and approximate times are given.

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

T, the period in seconds, is the duration of a double oscillation (to-and-fro movement).  $\mu$  represents a micron (0.001 mm.).

$\Delta$  is the distance in kilometres of the epicentre measured along the arc of the great circle passing through the station.  $\alpha$  the azimuth of the epicentre ( $0^\circ$  to  $360^\circ$ ) measured from North through East.

$A_N, A_E$  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.

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 shown on the trace, and the time of the largest displacement 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 recorded unless at least 1.0 mm. Those less than 0.1 mm. are characterised as very small, those between 0.1 and 1.0 mm. as small. During the year the period of the boom was approximately 18 seconds, and a movement of 1 mm. on the trace was produced by a tilting of from  $0''\cdot43$  to  $0''\cdot46$ .

**8.** A table of **Wind** data 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 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. These hourly values are all derived from Robinson cup anemometers recording direction as well as speed. These anemometers at Holyhead, Deerness, and Great Yarmouth are of the same large size as at Kew Observatory, the arms being 0.61 m., the diameter of the cups 0.229 m., and the factor used for deriving the run of the wind from the run of the cups is 2.2. The Scilly instrument is smaller, the arms being 0.305 m., the diameter of the cups 0.127 m., and the factor 2.8.

Recent investigations have shown that the correct factor depends on the speed. The tabulated speed is probably correct at about 9 m/s. A correction amounting to about +0.7 is required at such low speeds as 2 m/s. A negative correction is necessary at high speeds.

It is not proposed to depart from the use of the constant factor 2.2 until the corrections have been determined with greater certainty. Components are not shown when the tabulated wind-speed is less than 1.6 m/s.

At Holyhead, Scilly, and Great Yarmouth (or rather Gorleston, a neighbouring station) there are also Dines pressure-tube anemometers, and the entries given under the heading "Maximum in a Gust" represent the highest velocities 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 anemometer, particulars are given as to the largest of the twenty-four mean hourly velocities, and the hour or hours of its occurrence.

9. A table giving the results of **exploration of the free atmosphere** over the British Isles by means of pilot balloons. In view of the increase in the number of pilot balloon ascents a more compact form has been adopted for setting out the 1916 results. The components of velocity at each level which have been published hitherto are now omitted.

The times refer to the beginning of the sounding; they are given to the nearest five minutes. Wind directions are given in degrees from True North (through East).

The wind velocity is derived from that of the balloon itself. This may be observed with two theodolites at the ends of a known base, or with one theodolite. As a rule, only one theodolite is employed, and the velocities are then deduced in the way explained in the Computer's Handbook, Section II.

The vertical velocities are generally calculated from the formula

$$V = 81 L^{\frac{1}{2}} / (W + L)^{\frac{1}{2}}$$

in which

L is the free lift of the balloon, *i.e.* the weight in grammes which the balloon can carry without rising,  
 W is the weight of the balloon in grammes, and  
 V is the vertical velocity in metres per minute.

The value of the constant adopted in this formula is based on experiments made by Mr J. S. Dines (*Roy. Met. Soc. Quarterly Journal*, vol. xxxix. p. 101).

The "Geostrophic Velocity" shown for each ascent is determined from the prevailing pressure gradient by the formula  $v = \gamma / 2\rho\omega \sin \lambda$  in which  $\gamma$  is the horizontal pressure-gradient,  $\omega$  the angular velocity of the earth,  $\rho$  the density of the air,  $\lambda$  the latitude, and  $v$  the required geostrophic velocity. The significance of geostrophic velocity is explained in the introduction to the Geophysical Journal for 1915. Reference may also be made to the Meteorological Glossary and to the Computer's Handbook, Section II. iii. The relation between actual winds and geostrophic winds

has been discussed with reference to observations by J. S. Dines,\* J. Fairgrieve,† and G. Dobson,‡ and from a theoretical standpoint by G. I. Taylor.§

The pressure gradient is derived from the Working Charts of the Office which refer to the hours 7, 13, and 18 respectively. If the hour of an ascent differs decidedly from a chart hour, results are usually calculated from each of the two charts which come nearest in time.

In the deduction of wind components, etc., the calculations are all carried out to 0.1 *m/s* (metre per second), but this degree of accuracy does not appear in the printed results except in the case of observed wind velocities under 5 *m/s*. Observed wind velocities of 5 *m/s* and over are given only to the nearest 0.5 *m/s*. Geostrophic or gradient wind velocities are given only to the nearest 1 *m/s*. Directions are given to the nearest 5° in the case of observed wind velocities, but only to the nearest 10° in the case of geostrophic or gradient wind velocities.

No data derived from kite observations are available for 1916. Details of the few soundings by registering balloons are to be given in the Annual Supplement.

10. A table giving 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 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.

An **Annual Supplement** gives a summary of the Observations of the Upper Air and of some electrical and magnetic data from Richmond (Kew Observatory) and Eskdalemuir. A discussion of the constants of the seismological instruments at Eskdalemuir is also included, as well as a diagram showing the variation in the level of the underground water at Richmond.

\* "Advisory Committee for Aeronautics," *Fourth Report on Wind Structure*, 1914, p. 19.

† *Geophysical Memoir*, No. 9, 1914.

‡ *Q.J. Royal Met. Soc.*, 1914, p. 123.

§ *Phil. Trans. Roy. Soc.*, A, 1915, p. 1; *Proc. Roy. Soc.*, 1916, p. 196.

NAPIER SHAW (*Director*).



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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m. Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with columns: Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8 = E, 16 = S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes).

45 years 30 years 35 years 45 years 12 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<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m. Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with columns: Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8 = E, 16 = S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes), REMARKS.

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

5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 29 days; they are computed from the data for those days on which values at each of the four hours, 3<sup>h</sup>, 9<sup>h</sup>, 15<sup>h</sup>, 21<sup>h</sup>, are given in the table. A similar note applies to the values in Table 6. † The insulation was less satisfactory than usual. x denotes the maximum and n the minimum value in the column. z Indeterminate.

Table with columns: Day, Remarks, Potential Gradient (Volts per metre, Factor 4.12), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, Horizontal Force (Mean Time, h m, gamma), Declination (West, Mean Time, h m, o), Inclination (North, Mean Time, h m, o).

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—ESKDALEMUIR.

Table with columns: Day, Potential Gradient (Volts per metre, Factor 5.25), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, North Component (Maximum, Minimum, 15000 gamma+), West Component (Maximum, Minimum, 4000 gamma+), Vertical Component (Maximum, Minimum, 45000 gamma+).

\* 22 days. See note above.

† 28 days.

‡ 29 days.

!\*

7. SEISMOLOGICAL DIARY.

EARTHQUAKES :—ESKDALEMUIR.

MICROSEISMS OF N. COMPONENT :—ESKDALEMUIR.

Day.	Phase.	Time, G. M. T.	Period.	Amplitudes.			Δ.	Remarks.	Day.	MICROSEISMS OF N. COMPONENT :—ESKDALEMUIR.							
				A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>				0 h.		6 h.		12 h.		18 h.	
										A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
1	i P (?) e i F	h m s 13 39 49 13 43 1 13 49 1 16	s ... ... ...	μ ... ... ...	μ ... ... ...	μ ... ... ...	km. ... ... ...	Large, masked by wind and microseisms.	1	μ s 3.1 7.5	μ s 2.6 6.5	μ s 2.5 7	μ s 2.5 7	μ s 2.5 7	μ s 2.5 7		
9	e i	14 5 14 14 7 14	... ...	... ...	... ...	... ...	... ...		10	1.5 7	2.1 7.5	3.7 5.5	4.2 5.5	4.2 5.5	4.2 5.5		
13	M F	7 19 7 7 1/2	25 ...	... ...	80 ...	... ...	... ...		11	3.7 5.5	4.4 5	3.3 5	3.3 5	2.4 5	5 5		
13	e L M F	8 50 57 9 12 9 15 9 22 11	... 60 45 28 ...	... ... ... 370 350 ...	... ... ... ... ...	... ... ... ... ...	... ... ... ... ...		12	2.1 4	1.7 4.5	2.1 4.5	2.1 4.5	3.7 4.5	4.5 4.5		
24	e P (?) S (?) M M F	7 1 32 7 6 30 7 14 7 16 8	... ... 22 18 ...	... ... ... 230 250 ...	... ... ... ... ...	... ... ... ... ...	... 3210 ... ... ...		13	4.3 6	4.7 6	4.3 6.5	4.3 6.5	5.2 6	6 6		
26	i P i S M F	7 42 40 7 46 20 7 50 8 20	... ... 17 ...	... ... ... 96 ...	... ... ... ... ...	... ... ... ... ...	... 2200 ... ... ...		14	3.1 7	4.4 6.5	3.8 6.5	3.8 6.5	5.1 7	7 7		
26		13 to 15	...	...	...	...	...	Small disturbance masked by microseisms.	15	3.5 7.5	3.3 6.5	4.2 8	4.2 8	3.2 7	7 7		
30	e e e F	21 17 20 21 22 20 21 42 1/2 23	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	Phases not identified.	16	3.3 7.5	4.4 7.5	3.6 8	3.6 8	3.5 7.5	7.5 7.5		
31	e S (?) L M	18 34 18 56 18 59	... ... 26	... ... ...	... ... 17	... ... ...	... ... ...	Masked by microseisms. Note.—Wind and microseisms masked most of the earthquakes during the month.	17	2.7 7	2.7 5	3.1 7	3.1 7	4.1 7.5	7.5 7.5		
									EARTHQUAKES :—RICHMOND (KEW OBSERVATORY).								
									Times, G. M. T. of								
									Remarks.								
									Commence-ment.								
									Max. Phase.								
26	i P i S M F	7 42 40 7 46 20 7 50 8 20	... ... 17 ...	... ... ... 96 ...	... ... ... ... ...	... ... ... ... ...	... 2200 ... ... ...		1	h m 13 42.0	h m 14 44.9	Amplitude on trace 7.4 mm. Prolonged disturbance.					
26		13 to 15	...	...	...	...	...	Small disturbance masked by microseisms.	13	6 30	...	Series of small movements till 10 h. 30 m. Be- haviour of instrument doubtful.					
30	e e e F	21 17 20 21 22 20 21 42 1/2 23	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	Phases not identified.	24	7 1.0	7 17.5	Amplitude on trace 7.9 mm. Prolonged disturbance.					
31	e S (?) L M	18 34 18 56 18 59	... ... 26	... ... ...	... ... 17	... ... ...	... ... ...	Masked by microseisms. Note.—Wind and microseisms masked most of the earthquakes during the month.	26	7 41.1	7 50.3	Amplitude on trace 1.0 mm.					
31		18 35.0	...	...	...	...	...		26	13 20	13 59	Series of small movements.					
31		18 35.0	...	...	...	...	...		30	22 7	22 9.5	Series of small movements.					
31		18 35.0	...	...	...	...	...		31	18 35.0	19 7.5	Amplitude on trace 1.0 mm.					

8. 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.

Height of Head above—Roof 8.8 m., Ground 13.7 m., M.S.L. 19.2 m.  
Height of Cups above—Roof 4.6 m., Ground 7.6 m., M.S.L. 15.2 m.

SCOTLAND N. :—DEBRNESS.

Height of Cups above—Roof 1.5 m., Ground 4.9 m., M.S.L. 57.3 m.

Table for North Wales: Holyhead, showing wind components (S, N, W, E) in m/s and gusts in h m for days 1-31. Includes summary statistics at the bottom.

Table for Scotland N.: Deerness, showing wind components (S, N, W, E) in m/s and gusts in h m for days 1-31. Includes summary statistics at the bottom.

ENGLAND S.W. :—SCILLY.

Height of Head above—Ground 9.8 m., M.S.L. 49.7 m.  
Height of Cups above—Ground 5.8 m., M.S.L. 45.7 m.

ENGLAND E. :—GREAT YARMOUTH.

Height of Head above—Roof 10.7 m., Ground 12.8 m., M.S.L. 15.9 m.  
Height of Cups above—Roof 3.7 m., Ground 18.3 m., M.S.L. 22.3 m.

Table for England S.W.: Scilly, showing wind components (S, N, W, E) in m/s and gusts in h m for days 1-31. Includes summary statistics at the bottom.

Table for England E.: Great Yarmouth, showing wind components (S, N, W, E) in m/s and gusts in h m for days 1-31. Includes summary statistics at the bottom.

\* No record—instrument under repair.

## 9. SOUNDINGS WITH PILOT BALLOONS.

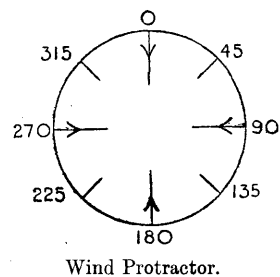
Day.	Station.	Time of Start, G.M.T.	Horizontal Velocity of Wind.															
			Geostrophic.		By Anemometer.		At Heights above M.S.L.											
			Degrees from N.	m/s.	Degrees from N.	m/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.	
							Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.
5	S. Farnborough	7 55	280	17	260	3'0	280	17'0	295	17'0	295	21'0	290	34'5	...	...	...	...
8	"	7 50	320	16	305	8'0	315	18'0	330	24'5	340	15'5	330	20'0	...	...	...	...
14	"	7 45	330	8	305	1'0	340	11'0	350	10'0	325	12'0	335	16'5	340	24'0	...	...
18	"	7 50	240	8	260	1'0	275	9'5	260	7'5	240	11'5	...	...	...	...	...	...
18	Benson	12 10	230	8	...	0'0	250	7'0	245	10'0	230	11'0	220	13'0	215	23'0	...	...
24	"	12 10	270	8	275	2'5	300	8'0	305	10'5	290	13'5	...	...	...	...	...	...
25	S. Farnborough	7 40	270	16	235	5'5	260	13'0	255	13'5	250	8'5	285	5'5	290	3'5	240	8'5
26	"	7 35	260	9	250	2'0	260	10'5	265	14'5	270	6'5	275	10'0	280	4'5	...	...
29	Falmouth	11 35	200	14	180	10'5*	180	14'0	180	27'0	175	21'0	180	20'5	...	...	...	...
31	Benson	12 0	180?	4	...	0'0	325	1'8	210	5'0	325	2'1	340	10'0	350	14'0	...	...

Height of Station above M.S.L. = H.  
 Height of Anemometer above ground = h.

S. Farnborough	70 m.	35 m.
Benson	57 m.	25 m.
Falmouth (Pendennis)	51 m.	12 m.

## Notes on Pressure Distribution, etc.

- Jan. 5 7 h. Depression N. of Shetlands. Anticyclone over Spain.  
 8 7 h. Depression over Baltic. Anticyclone west of Bay of Biscay.  
 14 7 h. Anticyclone over Bay. Ridge of high pressure running N.N.E. over England.  
 18 7 h. Depression S.W. of Iceland. Anticyclone over Mediterranean. Balloon lost in A.-Cu. at 2700 m.  
 24 7 h. Depression off East Iceland. Anticyclone over Spain.  
 25 7 h. Depression between Iceland and Norway. Anticyclone over France and Spain.  
 26 7 h. Depression over Spitzbergen. Anticyclone over France and Spain.  
 29 7 h. Depression N. of Iceland. Anticyclone over Central Europe. \*Anemometer at Pendennis Castle.  
 31 7 h. Depression over Iceland. Anticyclone over Europe.



## 10. NEPHOSCOPE OBSERVATIONS.

ABERDEEN. Taken at 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity—height—ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
1	A.-Cu.	225	3'6	+ 2'5	+ 2'5	A.-Cu. formed from sheets of "false" Ci.
5	Ci.-Cu.	296	3'5	+ 2'2	- 1'5	Faint, indefinite Ci.-Cu.
7	Fr.-Cu.	292	28'0	+ 26'0	- 10'5	
8	Cu.-Nb.	315	10'0	+ 7'1	- 7'1	Base of cloud measured.
10	Cu.	274	18'0	+ 17'9	- 1'3	
11	Fr.-Cu.	330	20'0	+ 10'0	- 17'3	
13	Cu.-Nb.	318	12'5	+ 8'4	- 9'3	"Rain screen" measured.
15	Ci.-Cu.	290	2'5	+ 2'3	- 0'9	Ci.-Cu. in lenticular masses.
21	Ci.	255	4'8	+ 4'6	+ 1'2	Ci. to Ci.-Cu.
	Fr.-Cu.	257	12'5	+ 12'2	+ 2'8	Transition type between Cu. and St.-Cu.
25	Ci.-Cu.	268	12'5	+ 12'5	+ 0'4	Ci. to Ci.-Cu. in lenticular masses.
26	St.-Cu.	258	7'6	+ 7'4	+ 1'6	Observation at 12 h
27	Ci.-Cu.	226	1'5	+ 1'2	+ 1'0	"False" Ci, becoming Ci.-Cu. and A.-Cu.
29	Fr.-Cu.	225	25'0	+ 17'7	+ 17'7	



I. SUNSHINE AND SOLAR RADIATION.

Day.	SOUTH KENSINGTON.—Lat. 51° 30' N. Long. 0° 10' W.							RICHMOND.—Lat. 51° 28' N. Long. 0° 19' W.					ESKDALEMUIR.—Lat. 55° 19' N. Long. 3° 12' W.					CAHIRCIVEEN.			
	Bright Sunshine.		Radiation received on Horizontal Surface by Callendar Radiograph.					Bright Sunshine.		Radiation at Noon by Ångström Pyrheliometer.			Bright Sunshine.		Radiation by Ångström Pyrheliometer.			Bright Sunshine.			
	Total.	Per cent. of Possible.	Daily Total.	Per cent. of Planetary.	Maximum.			Total.	Per cent. of Possible.	Intensity.	Vertical Component.	Sky.	Total.	Per cent. of Possible.	Time.	Sky.	p sec Z. P <sub>0</sub>	Intensity.	Total.	Per cent. of Possible.	
					Amount.	Time.	11.30 h. to 12.30 h.														hr.
1	0'0	0	74	7	20	10	40	7	0'0	0	...	...	...	0'0	0	...	...	...	...	4'6	51
Means	2'24	23	375	27	29	—	—	25	2'59	26	—	—	—	2'31	24	—	—	—	—	2'86	29
Normal	1'63	17	—	—	—	—	—	—	2'13	22	—	—	—	1'56	17	—	—	—	—	2'48	25

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

Heights above M. S. L.:—H = 12.5 m. H<sub>0</sub> = 13.7 m. H<sub>a</sub> = 26.4 m. Above Ground: h<sub>t</sub> = 1.2 m. h<sub>r</sub> = 0.56 m. h<sub>a</sub> = 13.9 m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind Direction in Points (8=E, 16=S) with Speed in metres per second.				Cloud Amount (0-10) and Weather.		Rain 24 hours beginning 9 h.	Remarks.	Magnetism.			
	9 h.	21 h.	9 h.	21 h.	Max.	Min.	Vapour Pressure.		Percentage.				9 h.	21 h.	9 h.	21 h.			Horizontal Force.	Declination West.	Inclination.	
	mb.	mb.	a.	a.	a.	a.	millibar.	%	%	Dir.	m/s.	Dir.	m/s.	Tenths of Sky covered.	mm.	mm.			...	...	...	
1	1024.1	1014.9	200+	200+	200+	200+	10.6	10.9	96	88	15	5	15	8	9	10.0	10.5	7	...	...	...	
Means	1008.9	1007.8	78.0	78.8	80.9	76.3	7.6	7.8	85	83	6.9	7.8	7.4	6.5	156.9	130.6	17879	19	54.3	68	67	
Normal	1011.4	1011.5	79.6	79.8	82.5	77.5	8.4	8.5	87	86	6.0	6.1	—	—	130.6	—	—	—	—	—	—	—

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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., and Height above M.S.L. of Surface of Underground Water. Includes means and normals for 45, 30, 35, and 12 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<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity, Wind Direction in Points (8=E, 16=S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., and Height above M.S.L. of Surface of Underground Water. Includes remarks on weather conditions and monthly totals/means.

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



## 7. SEISMOLOGICAL DIARY.

## EARTHQUAKES :—ESKDALEMUIR.

## MICROSEISMS OF N. COMPONENT :—ESKDALEMUIR.

Day.	Phase.	Time, G. M. T.			Period.	Amplitudes.			$\Delta$ .	Remarks.	Day.	0 h.		6 h.		12 h.		18 h.			
		h	m	s		$A_N$ .	$A_E$ .	$A_Z$ .				$A_N$ .	T.	$A_N$ .	T.	$A_N$ .	T.	$A_N$ .	T.		
1	P	7	49	19	...	$\mu$	$\mu$	$\mu$	km.	8120	1	$\mu$	s	$\mu$	s	$\mu$	s	$\mu$	s		
	PR <sub>1</sub>	7	52	55	...	...	...	...	...		2	1.5	6.5	1.8	7.5	1.6	7.5	1.4	6.5	1.8	7.5
	S	7	59	45	...	...	...	...	...		3	1.4	6	1.6	6	2.3	5.5	1.7	5.5	1.7	5.5
	L	8	14	...	...	...	...	...	...		4	2.5	5	2.3	6	2.4	6	3.0	6	2.4	6
	M	8	19	39	...	92	...	...	...		5	2.8	7	2.6	7	4.1	7.5	3.4	8	4.1	7.5
	M	8	20	40	...	100	...	...	...		6	4.1	7.5	4.3	7	4.9	8	5.3	8.5	4.9	8
F	10	...	...	...	...	...	...	...	7	(e)	(e)	4.6	8	4.7	8.5	4.8	7.5	4.7	8.5		
2		22	23	to	...	<4	<4	...	...	Small waves.	8	4.2	8	4.6	7.5	5.4	8	5.1	8		
		22	46	...	...	...	...	...	...		9	5.3	8	3.3	7.5	3.1	7	2.5	7		
6		14	54	to	...	...	...	...	...	Masked by microseisms.	10	2.5	5.5	2.1	6.5	2.2	7.5	3.7	7.5		
		15	0	...	...	...	...	...	...		11	2.7	7	2.6	6	2.2	7.5	2.0	7.5		
6	S (?)	22	12	46	...	...	...	...	...	Subsequent disturbance masked by microseisms.	12	3.2	7	3.1	7	2.7	7	3.1	7.5		
		...	...	...	...	...	...	...	...		13	2.8	7.5	5.2	8	5.9	9	6.9	8.5		
10	L	2	46	...	...	...	...	...	...	Masked by microseisms.	14	3.8	8.5	2.9	7.5	3.5	7.5	4.5	8		
	M	2	52	25	...	12	...	...	...		15	3.9	7.5	3.1	8.5	(e)	(e)	3.3	7.5		
F	3	5	...	...	...	...	...	...	...	16	2.8	7	2.7	7.5	3.0	7.5	2.7	7.5			
14	L	10	53	...	...	...	...	...	...	Masked by microseisms.	17	3.5	7.5	2.1	8	2.4	5.5	2.3	5.5		
	M	10	59	31	...	16	...	...	...		18	2.0	7	1.2	6.5	1.3	5.5	1.4	5.5		
15	S (?)	11	54	25	...	...	...	...	Circa	Masked by microseisms.	19	1.6	6	1.2	7.5	1.3	7	1.0	7		
	SR <sub>1</sub>	11	58	27	...	...	...	...	6000		20	1.7	5.5	1.0	6	1.0	5.5	(e)	(e)		
	L	12	3	...	...	...	...	...	...		21	0.8	6	0.9	5	0.8	5	0.9	5		
M	12	9	30	...	24	...	...	...	...	22	0.9	5	0.9	5	0.8	5	0.8	5			
20		10	52	to	...	<2	<2	...	...	Small disturbance.	23	0.9	5	0.7	5	1.0	4.5	1.1	5		
		11	13	...	...	...	...	...	...		24	0.9	4.5	0.9	5	0.9	5	1.1	4.5		
20	P	17	59	7	...	...	...	...	...	Azimuth N. 13° W. Epicentre 52° N. 162° E. Harvard confirms.	25	0.8	5	0.9	5	0.8	5.5	0.8	5		
	S	18	8	23	...	...	...	...	7920		26	0.7	5	0.8	4.5	0.7	5	0.7	5		
	L	18	24	...	...	...	...	...	...		27	0.8	5	0.9	5	0.7	5	0.8	5.5		
	M	18	27	25	...	32	...	...	...		28	0.8	5	0.7	5	0.9	5	0.9	5		
F	21	...	...	...	...	...	...	...	...	29	1.0	5	1.0	4.5	1.0	5	0.8	4.5			
27	P	20	33	4	...	...	...	...	...	The disturbances marked e S both had large E.-W. components. The epicentre was to the West. The $\Delta$ 's given for these two disturbances are calculated on the assumption that they were of type S; either may have been of type Y. For iL the speed 3.5 km/s. is assumed.											
	e S (?)	20	42	26	...	...	...	...	8050												
	or Y	20	43	46	...	...	...	...	9650												
	e S (?)	20	48	...	...	...	...	...	8200												
	SR <sub>1</sub>	20	57	43	...	...	...	...	7400												
	iL	20	57	43	...	...	...	...	...												
M	20	59	30	...	155	...	...	...													
M	21	8	18	...	87	...	...	...													
F	23 $\frac{1}{2}$	...	...	...	...	...	...	...													
28	e S (?)	13	36	10	...	...	...	...	...	Amplitude on trace 1.5 mm. Prolonged disturbance.	1	h	m	h	m	Amplitude on trace 3.8 mm. Prolonged disturbance.					
	L	13	40 $\frac{1}{2}$	...	...	...	...	...	5		...	...	15	32	Very small movement.						
	M	13	44	31	...	7	...	...	...		6	...	...	14	53	Series of small movements.					
29	M	19	28	18	...	2	...	...	...	Amplitude on trace 5.5 mm. Prolonged disturbance.	6	...	...	14	53	Series of small movements.					
		...	...	...	...	...	...	...	...		6	22	14.0	22	49.1	Amplitude on trace 1.8 mm. Prolonged.					
		...	...	...	...	...	...	...	...	10	...	...	3	0	Very small.						
		...	...	...	...	...	...	...	...	14	...	...	11	approx.	The disturbance was recognizable at 11 h. 4 m. before artificial movements arising from changing the sheet had fully subsided.						
		...	...	...	...	...	...	...	...	15	11	54.4	12	7.5	Small.						
		...	...	...	...	...	...	...	...	20	18	9.0	18	42.5	Amplitude on trace 1.5 mm. Prolonged disturbance.						
		...	...	...	...	...	...	...	...	27	20	32.9	21	8.9	Amplitude on trace 5.5 mm. Prolonged disturbance.						
		...	...	...	...	...	...	...	...	28	...	...	13	49	Series of very small movements.						
		...	...	...	...	...	...	...	...	29	...	...	19	29	Very small.						

## EARTHQUAKES :—RICHMOND (KEW OBSERVATORY).

Day.	Times, G. M. T. of		Remarks.		
	Commence-ment.	Max. Phase.			
1	7	52.1	8	29.5	Amplitude on trace 3.8 mm. Prolonged disturbance.
5	...	...	15	32	Very small movement.
6	...	...	14	53	Series of small movements.
6	22	14.0	22	49.1	Amplitude on trace 1.8 mm. Prolonged.
10	...	...	3	0	Very small.
14	...	...	11	approx.	The disturbance was recognizable at 11 h. 4 m. before artificial movements arising from changing the sheet had fully subsided.
15	11	54.4	12	7.5	Small.
20	18	9.0	18	42.5	Amplitude on trace 1.5 mm. Prolonged disturbance.
27	20	32.9	21	8.9	Amplitude on trace 5.5 mm. Prolonged disturbance.
28	...	...	13	49	Series of very small movements.
29	...	...	19	29	Very small.

### 8. 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.**

Height of Head above—Roof 8·8 m., Ground 13·7 m., M.S.L. 19·2 m.  
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

**SCOTLAND N. :—DEERNESS.**

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.				Max. in a Gust.	Time of Gust.	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.				S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
1	4·5	...	1·9	...	3·8	...	0·8	...	6·2	...	...	...	6·5	...	1·3	...	13·6	...	23	55	1	3·5	...	0·7	...	8·2	...	...	...	7·2	...	...	12·1	...	12·8	23	

**ENGLAND S.W. :—SCILLY.**

Height of Head above—Ground 9·8 m., M.S.L. 49·7 m.  
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

**ENGLAND E. :—GREAT YARMOUTH.**

Height of Head above—Roof 10·7 m., Ground 12·8 m., M.S.L. 15·9 m.  
Height of Cups above—Roof 3·7 m., Ground 18·3 m., M.S.L. 22·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in Gust.	Time of Gust.	Day.	3 h.				9 h.				15 h.				21 h.				Max. in Gust. (Gorleston.)	Time of Gust.
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.				S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		
1	4·5	...	1·9	...	3·8	...	0·8	...	6·2	...	...	...	6·5	...	1·3	...	13·6	...	23	55	1	3·5	...	0·7	...	8·2	...	...	...	7·2	...	...	12·1	...	12·8	23	

9. SOUNDINGS WITH PILOT BALLOONS.

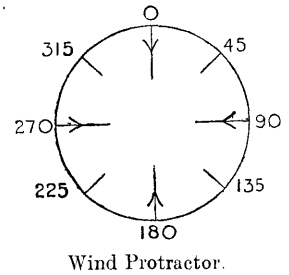
Day.	Station.	Time of Start, G.M.T.	Horizontal Velocity of Wind.															
			Geostrophic.		By Anemometer.		At Heights above M.S.L.											
			Degrees from N.	m/s.	Degrees from N.	m/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.	
							Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.
5	S. Farnborough	7 30	300	8	...	...	300	11'0	300	11'0	285	9'5	270	11'0	250	4'5	...	...
8	"	7 25	270	10	250	6'0	265	11'5	270	16'5	275	11'5	260	13'5	...	...	...	...
9	"	7 20	270	11	235	light	275	5'5	300	6'5	300	9'5	290	10'0	...	...	...	...
10	Eskdalemuir	12 40	270?	7?	?	light	260	1'9	240	3'7	280	6'5	315	16'0	...	...	...	...
12	S. Farnborough	7 25	340	12	325	6'5	340	20'5	355	15'5	355	19'0	...	...	...	...	...	...
12	Benson	11 55	280?	9?	315	4'0	320	6'5	330	8'5	315	14'0	...	...	...	...	...	...
17	S. Farnborough	7 20	310	22	270	6'0	280	13'0	305	31'0	315	21'5	...	...	...	...	...	...
18	Aberdeen	11 35	...	...	160	2'0	155	5'0	185	3'8	175	6'5	...	...	...	...	...	...
21	Benson	12 20	90?	10?	40	5'0	90	8'0	85	8'5	80	9'0	...	...	...	...	...	...
28	"	12 15	140	8	...	0'0	75	2'8	180	2'3	140	3'5	155	5'5	235	13'5	...	...

Height of Station above M.S.L. = H.  
 Height of Anemometer above ground = h.

S. Farnborough	70 m.	35 m.
Benson	57 m.	25 m.
Eskdalemuir	242 m.	15 m.
Aberdeen	14 m.	32 m.

Notes on Pressure Distribution, etc.

- Feb. 5 7 h. Deep depression over Iceland. Secondary over North Sea.
- 8 7 h. Depression between Iceland and Norway. Anticyclone over Azores.
- 9 7 h. Depression over Shetlands.
- 10 7 h. Depression S.W. of Iceland. Shallow depression over North Sea.
- 12 7 h. Shallow depression over Germany. Anticyclone over Azores.
- 12 18 h. Depression spreading down from Iceland.
- 17 7 h. Deep depression over Baltic. Anticyclone Azores to Spain.
- 18 7 h. Depressions off W. of Scotland and over Finland.
- 18 18 h. Atlantic depression moved over West Scotland.
- 21 7 h. Anticyclones over N.E. Atlantic and Germany. Shallow depression over Bay of Biscay.
- 28 7 h. Depression over Bay of Biscay. Irregular secondary over England. Depression spreading N.E. during day. Secondary dispersing.



10. NEPHOSCOPE OBSERVATIONS.

ABERDEEN. Taken at 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
1	Fr.-St.	207	mr/s.	mr/s.	mr/s.	Thin high St.-Cu; Cu. below from W.N.W. Fused St.-Cu., rather indefinite. False Ci., changing to thin A.-Cu. Ci. to Ci.-Cu.: <i>Observation at 12 h.</i>
2	St.-Cu.	197	20'0	+ 9'1	+ 17'8	
4	St.-Cu.	178	5'0	+ 1'5	+ 4'8	
8	False Ci.	252	3'8	- 0'1	+ 3'8	
9	Ci.	252	3'1	+ 2'9	+ 1'0	
	Fr.-Cu.	274	2'1	+ 2'1	- 0'1	
15	Fr.-Cu.	292	15'6	+ 14'5	- 5'8	
16	Fr.-Cu.	260	9'6	+ 9'4	+ 1'6	
17	Cu.-Nb.	328	18'0	+ 9'5	- 15'3	
17	Cu.-Nb.	283	16'0	+ 15'0	- 4'0	
21	St.-Cu.	15	10'0	- 2'6	- 9'7	
22	Cu.-Nb.	18	12'0	- 3'7	- 11'4	
23	Cu.-Nb.	31	6'4	- 3'3	- 5'5	
24	(?) Cu.-Nb.	15	8'3	- 2'1	- 8'0	
25	St.-Cu.	5	7'6	- 7'6	- 0'7	
26	Cu.	37	7'0	- 4'3	- 5'5	
29	Cu.-Nb.	40	15'0	- 9'6	- 11'5	

Central part of cloud measured. Measurement approximate; base of cloud. St.-Cu. formed from apices of Cu.-Nb. Base of cloud measured. Degraded sheet of Cu.-Nb. Nb.-Cuf. or low Cu.-Nb. Cu. changing to Cu.-Nb. Much internal change. Velocity approximate.



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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m. Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with columns: Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8 = E, 16 = S) and Velocity (metres per second), Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes).

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<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m. Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with columns: Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity, Wind Direction and Velocity, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., Height above M.S.L. of Surface of Underground Water. Includes a REMARKS column with weather symbols and notes.

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



5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 25 days ; they are computed from the data for those days on which values at each of the four hours, 3h, 9h, 15h, 21h, are given in the table. A similar note applies to the values in Table 6. † The insulation was less satisfactory than usual. ‡ Observations taken at time of considerable disturbance. z Indeterminate.

Table with 18 columns: Day, Remarks, Potential Gradient (Volts per metre, Factor 2.77) at 3h, 9h, 15h, 21h; Charge per cc. (x 10^16) at About 15h; Air-Earth Current (x 10^16) at About 15h; Electric and Magnetic Character of Day; Horizontal Force (Mean Time, h m, gamma); Declination (West) (Mean Time, h m); Inclination (North) (Mean Time, h m).

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—ESKDALEMUIR.

Table with 17 columns: Day, Potential Gradient (Volts per metre, Factor 5.57) at 3h, 9h, 15h, 21h; Charge per cc. (x 10^16) at + and -; Air-Earth Current (x 10^16) at c; Electric and Magnetic Character of Day; North Component (Maximum, Minimum in 15000 gamma+ and 15000 gamma-); West Component (Maximum, Minimum in 4000 gamma+ and 4000 gamma-); Vertical Component (Maximum, Minimum in 45000 gamma+ and 45000 gamma-).

\* 25 days. See note above.

† 29 days.

‡

7. SEISMOLOGICAL DIARY.

EARTHQUAKES:—ESKDALEMUIR.

MICROSEISMS OF N. COMPONENT:—ESKDALEMUIR.

Day.	Phase.	Time, G.M.T.	Period.	Amplitudes.			Δ.	Remarks.
				A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>		
		h m s	s	μ	μ	μ	km.	
4	M	8 27	20	...	3	...	...	
	M	8 31	20	4	...	...	...	
7		13 56 to 14 4	...	...	...	...	Small waves.	
			...	...	...	...		
8	M	11 58	10	< 2	< 2	...	Similar small earthquakes.	
8	M	12 45	10	< 2	< 2	...	"	
8	M	12 58	10	< 2	< 2	...	"	
8	M	13 3	10	< 2	< 2	...	"	
12	L	3 31	...	...	...	...		
	M	3 33	Circa 5 to 16 35	...	...	...		
16	P	23 1 55	...	...	...	...	Azimuth N.N.E. or S.S.W.	
	S	23 9 33	...	...	...	6040		
	L	23 12	...	...	...	...		
	M	23 19	19	...	3	...		
	F	23 22	16	3	...	...		
18	P	1 7 57	...	...	...	...		
	S	1 17 48	...	...	...	8610		
	L	1 33½	...	...	...	...		
	M	1 43	24	4	...	...		
	F	2 10	...	...	...	...		
26	M	0 49	19	13	12	...	Confused by wind and micro-seisms.	
30	M	2 32	23	...	3	...		
	M	2 40	22	4	...	...		
31	P (?)	11 30 9	...	...	...	...	Confused by wind and micro-seisms.	
	e (?)	11 37 32	...	...	...	...		
	L	11 40	...	...	...	...		
	M	11 43	28	6	5	...		
	M	11 49	18	5	...	...		

Day.	0 h.		6 h.		12 h.		18 h.	
	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
	μ	s	μ	s	μ	s	μ	s
1	0.8	5	0.7	4.5	1.0	4	0.7	6.5
2	1.0	4	0.8	4.5	0.7	5	0.9	5
3	1.2	5	1.3	5	1.5	5	1.5	5
4	1.2	5.5	1.3	5	1.2	5	1.1	5
5	0.7	7	0.9	5.5	1.3	7	1.2	6
6	1.3	6	1.2	6	0.9	7	1.2	6
7	0.9	5.5	0.9	5	0.8	5	0.8	5
8	0.7	5	0.9	4.5	0.7	4.5	0.8	5.5
9	0.7	5	0.8	5	1.0	7.5	1.4	7
10	1.7	5.5	1.3	7	1.0	5	1.5	7
11	1.7	5.5	1.1	6	1.0	5	1.1	4.5
12	0.9	5	0.9	5	1.1	5.5	0.9	5
13	1.1	4	0.8	5	0.9	5	0.8	5
14	0.7	4.5	0.5	4.5	0.3	4	0.6	4
15	0.7	3	0.6	4	0.7	4	0.5	4
16	0.6	3	0.9	4	0.7	4	0.9	4
17	0.6	4.5	0.8	4.5	0.8	5	0.7	5
18	0.8	5	0.9	4.5	0.9	4.5	0.7	5
19	0.8	5	1.0	4.5	1.0	5	0.8	5
20	0.7	5	0.5	4.5	0.8	5	0.9	5
21	1.0	4.5	0.4	5	0.6	4	0.7	4
22	0.6	5	0.7	5	0.7	5	0.7	5
23	0.7	5	0.8	5	1.3	7	1.5	6.5
24	1.5	7	1.5	7	1.3	7	1.4	6
25	1.1	6	1.5	5	2.9	5.5	2.4	6
26	2.4	7	3.4	6	3.0	6.5	3.4	6
27	3.1	5.5	2.7	5	3.4	5	2.1	7
28	1.8	7.5	2.5	6	1.6	6	1.7	6.5
29	1.6	7	1.6	6	1.6	5.5	1.6	6
30	1.7	5.5	1.3	5	1.1	5	1.3	5.5
31	1.5	5.5	1.2	5	1.0	6	1.2	5.5

EARTHQUAKES:—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of		Remarks.
	Commence-ment.	Max. Phase.	
	h m	h m	
4	...	8 37	Very small.
12	3 29.9	3 30.8	Maximum amplitudes shown by trace 1.0 mm.
"	8 9.2	8 20.3	Small earthquake.
16	...	23 25	Series of small movements.
18	...	1 48	"
26	0 4.1	0 51.4	Small earthquake.
30	...	2 41	Series of very small movements.
31	...	11 50	Series of small movements.

8. 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.

Height of Head above—Roof 8.8 m., Ground 13.7 m., M.S.L. 19.2 m.
Height of Cups above—Roof 4.6 m., Ground 7.6 m., M.S.L. 15.2 m.

SCOTLAND N.:—DBERNESS.

Height of Cups above—Roof 1.5 m., Ground 4.9 m., M.S.L. 57.3 m.

Table with columns for Day, 3 h., 9 h., 15 h., 21 h., Max. in a Gust, Time of Gust, Day, 3 h., 9 h., 15 h., 21 h., Vel. in Max. Hourly Run, Time of Max. Includes sub-headers for S, N, W, E directions and m/s units.

ENGLAND S.W.:—SCILLY.

Height of Head above—Ground 9.8 m., M.S.L. 49.7 m.
Height of Cups above—Ground 5.8 m., M.S.L. 45.7 m.

ENGLAND E.:—GREAT YARMOUTH.

Height of Head above—Roof 10.7 m., Ground 12.3 m., M.S.L. 15.9 m.
Height of Cups above—Roof 3.7 m., Ground 18.3 m., M.S.L. 22.3 m.

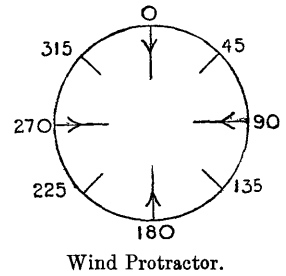
Table with columns for Day, 3 h., 9 h., 15 h., 21 h., Max. in a Gust, Time of Gust, Day, 3 h., 9 h., 15 h., 21 h., Max. in a Gust, Time of Gust. Includes sub-headers for S, N, W, E directions and m/s units. Also includes summary rows for S+N, W+E, S-N, W-E.

9. SOUNDINGS WITH PILOT BALLOONS.

Day.	Station.	Time of Start, G. M. T.	Horizontal Velocity of Wind.															
			Geostrophic.		By Anemometer.		At Heights above M.S.L.											
			Degrees from N.	m/s.	Degrees from N.	m/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.	
							Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.	Degrees from N.	m/s.
1	Benson	16 55	130	9	...	0°0	175	3.5	195	3.8	140	3.6	125	6.0	130	8.5	105	21.5
7	Eskdalemuir	12 55	60	14	35	9.5	40	13.5	50	17.0	45	12.5	...	...	...	...	...	...
24	S. Farnborough	7 10	40	7	315	light	15	6.5	15	6.5	20	5.5	...	...	...	...	...	...
25	"	7 5	250	15	225	2.5	250	13.0	255	21.5	255	14.5	...	...	...	...	...	...
27	"	7 20	270	15	245	6.5	265	13.0	265	18.5	275	12.5	...	...	...	...	...	...
27	Eskdalemuir	7 30	310	12	215	2.6	...	...	335	8.5	310	10.5	...	...	...	...	...	...
27	Benson	12 15	250	12	240	5.0	230	6.5	230	4.3	250	7.5	255	14.5	265	15.5	...	...
29	Eskdalemuir	7 50	320	8	...	0.0	325	6.5	330	6.5	315	5.5	275	9.0	275	8.0	...	...
30	S. Farnborough	7 10	240	11	200	...	255	8.0	255	11.5	255	7.5	...	...	...	...	...	...

Notes on Pressure Distribution, etc.

March 1 18 h. Depression over Mouth of Channel. Trough extending over Norway.  
 7 7 h. Anticyclone between Iceland and Scotland. Depression over English Channel.  
 24 7 h. Depression over North-East France. Slight pressure gradient over British Isles. S. Farnborough; Ci. and Ci.-Cu. moving from 200°.  
 25 7 h. Deep depression over Hebrides.  
 27 7 h. Deep depression between Shetlands and Norway. Secondary off S. of Ireland. S. Farnborough; Ci. from 270° at 7 h. Benson; Ci. moving quickly from 270°.  
 27 18 h. Secondary had formed a deep centre over Cornwall.  
 29 7 h. Anticyclone Cornwall to Azores. Depressions over Scandinavia and Iceland. Eskdalemuir; Ci. moving from 360° (3.5 milliradians per second).  
 30 7 h. Anticyclone over Bay of Biscay. Depression between Iceland and Norway.



Height of Station above M.S.L. = H.  
 Height of Anemometer above ground = h.  
 H. h.  
 Benson . . . . . 57 m. 25 m.  
 Eskdalemuir . . . . . 242 m. 15 m.  
 S. Farnborough . . . . . 70 m. 35 m.

10. NEPHOSCOPE OBSERVATIONS.

ABERDEEN. Taken at 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
2	Cu.	359	9.6	+ 0.1	- 9.6	Small type of Cu.-Nb. Base of cloud measured. Low St.-Cu., probably transition type between Cu. and St.-Cu., small Cu. being merged into it.
3	Cu.-Nb.	356	10.0	+ 0.7	- 10.0	
4	St.-Cu.	340	2.8	+ 1.0	- 2.6	
6	Cu.-Nb.	13	14.0	- 3.2	- 13.6	
7	St.-Cu.	56	6.3	- 5.2	- 3.5	
9	St.-Cu.	45	3.7	- 2.6	- 2.6	
11	St.-Cu.	88	6.9	- 6.9	- 0.2	
17	A.-Cu.	173	4.5	- 0.5	+ 4.5	Fine A.-Cu. changing to St.-Cu. later. St.-Cu. formed from apices of Cu.-Nb. Normal St.-Cu., with Cu. below and in contact.
21	St.-Cu.	33	7.4	- 4.0	- 6.2	
22	St.-Cu.	21	3.3	- 1.2	- 3.1	
23	Cu.	315	8.9	+ 6.3	- 6.3	
24	Ci.	328	2.5	+ 1.3	- 2.1	Ci. to high Ci.-Cu. in small patches.
24	Cu.	326	6.0	+ 3.4	- 5.0	
27	A.-St.	265	1.5	+ 1.5	+ 0.1	Heavy "false" Ci., massing into A.-St.
28	Fr.-Cu.	315	17.0	+ 12.1	- 12.1	
29	Cu.	235	5.2	+ 4.3	+ 3.0	Ci.-nebula above, with ⊕. No detail.
30	Fr.-Cu.	267	10	+ 10.0	+ 0.5	



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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction and Speed, Cloud Amount and Weather, Rain 24 hours beginning, Earth Temperature at 9 h, and Height above M.S.L. of Surface of Underground Water. Includes means and normal data for 45 years, 30 years, 35 years, and 12 years.

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

Heights above Mean Sea Level :—Rain-gauge Site, H = 242 m. Barometer, H<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity, Wind Direction and Speed, Cloud Amount and Weather, Rain 24 hours beginning, Earth Temperature at 9 h, and Height above M.S.L. of Surface of Underground Water. Includes remarks and monthly totals or means.

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

5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 25 days; they are computed from the data for those days on which values at each of the four hours, 3h, 9h, 15h, 21h, are given in the table. A similar note applies to the values in Table 6. z denotes the maximum and z the minimum value in the column.

z Indeterminate.

Table with columns: Day, Remarks, Potential Gradient (Volts per metre), Charge per cc., Air-Earth Current, Electric Character of Day, Magnetic Character of Day, Horizontal Force, Declination (West), Inclination (North). Rows 1-30 and M.

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—ESKDALEMUIR.

Table with columns: Day, Potential Gradient (Volts per metre), Charge per cc., Air-Earth Current, Electric Character of Day, Magnetic Character of Day, North Component, West Component, Vertical Component. Rows 1-30 and M.

\* 27 days. See note above.

† Magnet touching side of case.

‡ 29 days.

§ 27 days.

7. SEISMOLOGICAL DIARY.

EARTHQUAKES:—ESKDALEMUIR.

MICROSEISMS OF N. COMPONENT:—ESKDALEMUIR.

Day.	Phase.	Time, G.M.T.	Period.	Amplitudes.			Δ.	Remarks
				A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>		
		h m s	s	μ	μ	μ	km.	
2	P F	7 17 7 21	...	...	...	...	...	Very slight disturbance.
3	Pe Max F	8 54 9 2 10 10	...	...	...	...	...	Slight disturbance with no marked phases.
6	P F	19 35 19 39	...	...	...	...	...	Very slight disturbance.
7	Pi PR <sub>1</sub> PR <sub>2</sub> PR <sub>3</sub> S SR <sub>1</sub> SR <sub>2</sub> SR <sub>3</sub> (?) L M F	9 39 57 9 44 4 9 46 33 9 49 44 9 50 35 9 53 4 10 1 42 10 8 33 10 13 10 31 12 30	...	...	...	...	9560	Azimuth uncertain.
7	P	15 28 to 15 49	...	...	...	...	...	Very slight disturbance.
11	P	4 20 to 4 30	...	...	...	...	...	Slight disturbance obscured by wind effects.
15	Pi M M F	12 57 5 13 25 14 13 36 26 14 20	...	...	...	...	...	Phase-times obscured by wind effects.
16	P F	23 3 23 36	...	...	...	...	...	Very slight disturbance.
18	P S Max F	4 12 52 4 21 54 4 36 6	...	...	...	...	7650	Small earthquake. Record obscured by wind effects and microseisms.
21	Pi PR <sub>1</sub> PR <sub>2</sub> S SR <sub>1</sub> SR <sub>2</sub> L F P	11 44 33 11 48 6 11 51 32 11 54 46 12 2 12 9 12 15 14 0 14 12 28	...	...	...	...	9040	The sharply pronounced P. at 14 h. 12 m. 28 s. was possibly due to a wave travelling round the earth in the direction opposite to that of the principal disturbance.
24	P S L M F	4 37 4 45 18 4 58 4 59 5 45	...	...	...	...	6780	P and F obscured by wind effects. L well marked on E-W instrument.
24	P S L M M M M F	8 14 12 8 23 40 8 35 8 37 8 40 8 43 8 51 10 28	...	...	...	...	8160	Large distant earthquake; azimuth uncertain, L prominent on vertical instrument.
26	P S L M M F	2 33 38 2 43 18 2 58 3 3 3 4 ?	...	...	...	...	8400	P indistinct on N-S trace. Azimuth uncertain.
26	P F	6 47 8 30	...	...	...	...	...	Prolonged disturbance with no marked phases.

Day.	0 h.		6 h.		12 h.		18 h.	
	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
	μ	s	μ	s	μ	s	μ	s
1	1.8	5	1.6	5.5	1.7	5.5	1.7	5.5
2	2.2	6	1.7	5	1.5	7	1.4	5.5
3	1.7	5.5	1.2	6	1.5	5	1.1	5.5
4	1.3	6	1.6	6	1.9	6.5	2.2	7
5	1.6	6	1.2	5.5	1.0	5.5	1.0	5
6	0.8	5	0.8	5	0.9	5	1.0	5
7	0.7	6.5	0.8	6.5	Earthquake		1.7	7
8	1.3	7	1.7	5.5	1.2	6	1.9	5.5
9	2.1	6.5	2.6	6	2.3	6	1.8	6
10	1.7	5.5	1.6	5.5	0.9	6	1.4	6.5
11	1.6	7	1.6	6	2.2	8	2.5	8
12	1.7	7	1.7	5.5	1.4	6.5	2.2	5
13	1.7	5.5	1.7	7	1.8	6.5	2.3	5.5
14	2.3	5.5	1.7	5.5	0.9	6.5	0.9	5
15	1.2	6	0.9	5	1.2	5	0.8	6
16	0.9	5	0.6	5	0.7	5.5	0.9	5
17	1.1	5.5	1.5	6	3.7	5.5	2.3	6
18	3.0	5.5	2.7	5.5	2.0	5	2.5	6
19	1.9	5	1.5	6	1.2	5	1.0	5
20	1.1	5	1.0	5	0.9	5	0.9	5
21	0.8	5.5	0.7	5.5	Earthquake		0.6	5
22	0.5	5	0.4	5	0.8	5	0.8	5
23	0.7	5	0.9	5	1.0	5	1.3	4.5
24	1.7	5.5	1.9	5	1.9	6	1.9	5
25	1.6	5.5	1.5	5	1.5	4.5	1.7	5
26	1.2	5	1.1	5	1.4	5	1.1	5.5
27	1.7	5.5	1.7	5.5	0.9	6	1.5	5
28	0.9	5	0.7	5	*	*	*	*
29	†	†	†	†	†	†	†	†
30	0.5	6	0.6	5	0.4	5	0.5	5

EARTHQUAKES:—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of		Remarks.
	Commence-ment	Max. Phase.	
	h m	h m	
5	21 12	21 14	Small earthquake.
7	...	...	Prolonged disturbance ending 12 <sup>h</sup> 30 <sup>m</sup> . Record previous to 11 <sup>h</sup> 3 <sup>m</sup> lost owing to clock stopping.
11	...	4 19	Series of very small movements.
15	12 58.0	13 47.3	Prolonged disturbance.
16	23 15	...	Series of very small movements till 23 <sup>h</sup> 30 <sup>m</sup> .
18	4 22	4 35.9	Prolonged disturbance.
21	11 47.5	11 56.1	Prolonged disturbance. Amplitude on trace 2.0 mm.
24	4 45.0	4 59.5	
24	8 14.0	8 48.8	Prolonged disturbance. Amplitude on trace 3.7 mm.
26	2 42.6	3 9.5	Amplitude on trace 2.1 mm.
26	7 6	8 2.0	Long succession of small movements.

\* No trace.

† Trace indistinct.



8. 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.

Height of Head above—Roof 8·3 m., Ground 13·7 m., M.S.L. 19·2 m.  
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

SCOTLAND N. :—DIBBERS.

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.				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.		
1	3·0	...	1·3	...	4·5	...	1·9	...	4·7	...	4·7	...	1·1	...	10·4	12 0		
2	0·7	...	0·7	...	0·2	...	0·2	...	1·1	...	1·1	...	1·4	...	4·0	14 15		
3	1·6	...	1·6	...	4·0	...	1·6	...	5·7	...	2·4	...	3·6	...	11·5	22 47		
4	...	3·8	9·1	...	...	3·3	7·9	...	...	1·3	6·5	...	...	5·6	15·3	17 8		
5	...	9·6	1·9	...	...	6·2	...	...	...	5·6	...	...	...	1·6	15·1	1 52		
6	...	2·0	...	...	4·8	...	2·0	...	5·2	...	2·1	...	1·6	...	9·7	12 9		
7	1·5	...	...	0·6	4·3	...	1·8	...	1·0	...	2·4	...	0·5	...	9·9	9 50		
8	0·5	...	2·6	...	1·6	...	4·0	...	6·6	...	4·4	...	3·7	...	13·6	14 18		
9	...	2·1	5·2	...	...	2·8	6·7	...	1·0	...	5·1	...	...	0·7	11·5	9 20		
10	...	...	2·3	...	3·8	...	2·6	...	6·2	...	4·2	...	3·1	...	13·7	22 18		
11	...	3·5	8·5	...	...	4·8	11·6	...	...	1·3	6·8	...	1·3	...	20·6	0 48		
12	7·8	...	7·8	...	3·1	...	7·6	...	3·5	...	8·5	...	1·8	...	20·5	15 40		
13	2·8	...	6·7	...	...	12·5	...	1·9	...	9·6	...	...	7·8	11·7	21·5	22 6		
14	...	5·4	13·0	...	...	4·5	10·9	...	...	11·5	...	...	4·4	10·6	21·0	0 29		
15	...	5·0	12·1	...	...	5·8	8·7	...	...	1·6	4·0	...	2·2	...	19·4	1 28		
16	5·1	...	1·0	...	7·1	...	4·7	...	3·7	...	3·7	...	4·6	...	15·5	23 55		
17	2·8	...	6·7	...	3·8	...	9·1	...	2·1	...	10·6	...	...	13·8	23·9	23 56		
18	...	3·7	18·6	...	...	5·9	14·2	...	...	7·5	11·1	...	...	2·8	14·1	2 37		
19	...	5·4	13·0	...	...	5·6	5·6	...	...	1·8	1·8	...	...	3·0	...	22·2	2 11	
20	...	6·6	...	...	...	5·5	1·1	...	...	4·3	1·8	...	...	2·7	1·8	10·7	5 9	
21	...	4·5	...	0·9	...	2·3	...	0·4	...	2·6	...	0·5	...	2·9	...	0·6	7·1	23 34
22	...	3·5	...	0·7	...	5·3	...	...	...	1·4	3·3	...	3·5	...	3·5	...	10·3	10 48
23	2·6	...	6·4	...	...	5·8	...	...	...	8·7	...	5·8	...	6·7	...	2·8	18·0	15 43
24	11·3	...	2·2	...	11·3	...	2·2	...	9·4	...	3·9	...	7·9	...	3·3	...	20·2	7 35
25	9·3	...	1·9	...	8·7	...	1·7	...	6·5	...	1·3	...	0·9	...	0·4	...	17·7	2 53
26	0·6	...	0·3	...	4·8	...	2·0	...	4·8	...	2·0	...	3·3	...	2·4	...	10·4	11 22
27	6·1	...	2·5	...	6·8	...	1·3	...	7·3	...	3·0	...	3·6	...	1·4	...	12·0	12 57
28	0·2	...	0·2	...	...	4·2	...	0·8	...	6·1	...	1·2	...	3·2	...	0·6	9·9	11 58
29	...	2·6	...	0·5	...	2·9	...	4·3	...	3·3	...	4·9	...	2·0	...	3·0	12·3	12 34
30	...	1·2	...	6·1	...	3·1	...	7·6	...	6·4	...	2·6	...	5·2	...	3·4	13·7	12 9

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

S+N&W+E }  
S-N&W-E }

S+N&W+E }  
S-N&W-E }

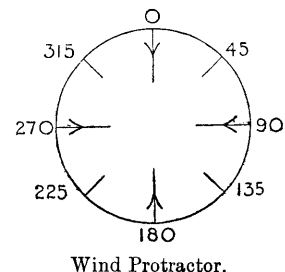
ENGLAND S.W. :—SCILLY.																		
Height of Head above—Ground 9·8 m., M.S.L. 49·7 m. Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.																		
Day.	3 h.				9 h.				15 h.				21 h.			Max. in a Gust.	Time of Gust.	
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.			E.
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.			m/s.
1	...	0·7	1·6	...	...	...	4·2	...	1·3	...	3·1	...	1·8	...	2·7	4·8	10 28	
2	...	...	...	2·5	...	...	4·2	1·8	...	...	1·8	0·7	...	0·3	5·5	9 30		
3	...	0·6	0·6	...	1·4	0·9	...	...	1·6	3·9	...	...	8·3	5·6	14·5	21 30		
4	...	9·2	3·8	...	...	7·3	3·0	...	...	6·5	6·5	...	10·1	6·7	17·2	20 55		
5	...	10·4	...	...	11·7	...	...	...	9·2	...	...	...	6·2	...	4·2	18·0	5 25	
6	...	3·5	...	1·5	...	...	0·8	4·7	...	...	4·7	5·0	...	5·0	10·4	22 48		
7	5·2	...	...	3·5	0·9	...	...	4·5	...	3·5	...	1·5	3·3	...	...	10·5	0 10	
8	...	2·5	...	...	3·3	...	...	...	3·8	2·6	...	...	0·8	4·1	...	7·5	16 25	
9	...	2·4	1·6	...	...	5·0	...	2·1	...	4·6	...	...	...	3·8	...	8·0	6 44	
10	...	1·7	...	...	...	1·4	...	0·9	...	...	4·2	...	...	1·4	7·0	...	11·0	21 53
11	...	4·5	10·8	...	...	9·0	6·0	...	...	4·9	7·3	...	...	3·8	9·2	...	17·2	5 3
12	2·1	...	10·6	...	...	13·3	...	...	2·7	13·5	...	...	2·6	13·1	...	19·5	16 10	
13	...	2·4	12·3	...	...	4·8	11·6	...	...	5·7	13·9	...	...	7·2	17·4	...	26·0	15 37
14	...	4·9	11·9	...	...	4·6	11·2	...	...	7·2	10·7	...	...	7·4	11·1	...	20·5	2 20
15	...	6·3	9·4	...	...	7·4	7·4	...	...	1·9	4·6	...	...	...	1·7	...	16·4	0 46
16	3·9	...	1·6	...	...	5·4	...	...	...	8·8	...	...	3·4	...	8·1	...	18·0	23 59
17	...	2·4	11·9	...	...	2·5	12·7	...	...	3·3	16·8	...	...	7·2	17·4	...	25·3	17 56
18	...	7·2	17·4	...	...	10·2	15·3	...	...	9·8	14·6	...	...	9·5	14·2	...	26·3	5 50
19	...	9·1	13·6	...	...	9·5	14·2	...	...	5·4	13·1	...	...	6·2	15·1	...	22·6	18 10
20	...	5·7	13·9	...	...	4·0	9·6	...	...	2·1	5·0	...	...	0·7	1·1	...	23·0	4 0
21	...	0·7	1·1	...	...	...	2·5	...	...	4·3	...	1·8	...	4·6	...	...	11·4	23 53
22	...	6·7	...	...	...	7·7	5·1	...	...	6·8	6·8	...	...	2·0	10·2	...	14·7	21 50

9. SOUNDINGS WITH PILOT BALLOONS.

Day.	Station.	Time of Start, G.M.T.	Horizontal Velocity of Wind.																Cloud Observations.			
			Geostrophic.		By Anemometer.		At Heights above M.S.L.												Type.	From N.	mr/s.	
			From N.	m/s.	From N.	m/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.					
							From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.
1	S. Farnboro'	7 0	...	0	295	light	355	3'0	85	1'5	220	1'0	100	1'5	225	1'0	235	4'5	...	...	...	
1	Eskdalemuir	7 50	250	9	270	5'0	260	4'9	260	6'5	305	3'5	...	...	...	...	...	...	Ci.-St.	260	2'3	
1	Benson	11 40	...	0	10	2'0	25	5'5	40	6'0	80	2'0	170	1'7	...	...	...	...	...	...	...	
3	S. Farnboro'	11 25	...	...	315	light	320	1'5	190	4'5	195	6'0	220	6'0	...	...	...	...	...	...	...	
3	Benson	12 40	...	...	...	0'0	305	1'2	230	2'3	205	6'0	...	...	...	...	...	...	...	...	...	
5	S. Farnboro'	6 55	360	7	325	light	15	9'5	355	5'5	325	5'5	30	5'5	...	...	...	...	...	...	...	
5	Eskdalemuir	7 25	10	9	15	4'5	360	6'5	5	11'0	5	4'3	...	...	...	...	...	...	...	...	...	
7	S. Farnboro'	18 15	360	4	10	light	355	6'0	345	9'5	275	5'0	...	...	...	...	...	...	Ci.	200	...	
8	"	7 15	...	0	295	light	20	5'5	360	9'0	350	5'0	...	...	...	...	...	...	...	...	...	
10	Benson	12 25	300	7	240	2'0	295	3'3	315	8'5	350	7'5	...	...	...	...	...	...	...	...	...	
25	S. Kensington	11 40	210	6	...	...	215	6'0	215	8'0	190	10'0	210	8'5	...	...	...	...	...	...	...	
26	Eskdalemuir	7 35	160	15	360	2'2	...	...	175	7'0	200	8'5	200	6'0	...	...	...	...	Ci.	220	3'1	
27	S. Farnboro'	7 15	...	0	270	light	360	2'5	285	3'0	220	3'5	350	7'0	...	...	...	...	...	...	...	
27	Benson	12 20	350	8	290	1'0	270	3'0	220	1'5	225	3'5	205	7'0	200	9'5	...	...	...	...	...	
27	S. Farnboro'	17 0	360	7	280	light	290	4'0	295	5'0	190	2'5	...	...	...	...	...	...	...	...	...	
28	"	7 15	60	8	...	0'0	80	4'5	70	4'5	60	4'0	...	...	...	...	...	...	Ci.-Cu.	135	...	
28	"	17 35	90	10	80	4'0	70	13'5	75	11'0	75	11'0	...	...	...	...	...	...	Ci.	110	...	
										6000 m.		7000 m.		8000 m.		9000 m.		10,000 m.				
1	S. Farnboro'	7 0	(For observations up to 5000 m. see above)						275	6'5	305	1'5	235	1'0	60	2'5	...	...				

Notes on Pressure Distribution, etc.

April 1 7 h. Anticyclone extending over England and Germany. Depression between Iceland and Azores.  
 3 7 h. Depression over Iceland. Uniform pressure over England.  
 5 7 h. Anticyclone over Atlantic. Depression over Baltic.  
 7 18 h. Col over British Isles. Anticyclones over Azores and Baltic.  
 8 7 h. Anticyclone over Azores extending to England.  
 10 7 h. Anticyclone over Azores extending to England.  
 25 7 h. Depression off S.W. of Ireland. Anticyclone over Russia.  
 26 7 h. Shallow depression W. of Ireland.  
 27 7 h. and 18 h. Uniform rather high pressure over England.  
 28 7 h. Anticyclone over British Isles.  
 ,, 18 h. Depression spreading over England from S.



Height of Station above M.S.L. = H.  
 Height of Anemometer above ground = h.  
 Benson . . . . . 57 m. 25 m.  
 Eskdalemuir . . . . . 242 m. 15 m.  
 S. Farnborough . . . . . 70 m. 31 m.  
 S. Kensington . . . . . 10 m. ...

10. NEPHOSCOPE OBSERVATIONS.

ABERDEEN. Taken at 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
1	Ci.-Cu. to A.-Cu.	282	3'6	3'5	-0'7	Ci.-Cu. changing to A.-Cu. Central part of cloud-mass measured. Main cloud-mass measured. Observation at 12 h. Heavy type, transitional from Cu.
4	Cu.-Nb.	300	2'5	+2'2	-1'3	
5	Cu.-Nb.	340	7'4	+2'6	-6'9	
6	St.-Cu.	238	6'2	+5'3	+3'3	
8	Ci.-Cu.	253	4'0	+3'8	+1'2	
10	A.-Cu.	282	8'3	+8'1	-1'7	
11	Cu.	290	10'0	+9'4	-3'4	Cu.-Nb. of "thunder" type. Cu.-Nb. of "shower" type; "rain screen" measured. Base measured.
12	Cu.-Nb.	267	6'0	+6'0	+0'3	
13	Cu.-Nb.	289	7'0	+6'6	-2'3	
14	Cu.-Nb.	291	6'9	+6'4	-2'5	
15	Cu.	322	10'0	+6'2	-7'9	Average velocity; varying in places. St.-Cu. from upper portions of Cu.-Nb. St. below from N.
22	St.-Cu.	237	1'4	+1'2	+0'8	
28	Cu.	320	2'8	+2'1	-1'8	

# METEOROLOGICAL OFFICE OBSERVATORIES—GEOPHYSICAL JOURNAL.

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

Sixth Year.—No. 5.

MAY 1916.]

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## 1. SUNSHINE AND SOLAR RADIATION.

Day.	SOUTH KENSINGTON.—Lat. 51° 30' N. Long. 0° 10' W.							RICHMOND.—Lat. 51° 28' N. Long. 0° 19' W.				ESKDALEMUIR.—Lat. 55° 19' N. Long. 3° 12' W.				CAHIRCIVEEN.			
	Bright Sunshine.		Radiation received on Horizontal Surface by Callendar Radiograph.					Bright Sunshine.		Radiation at Noon by Ångström Pyrheliometer.		Bright Sunshine.		Radiation by Ångström Pyrheliometer.		Bright Sunshine.			
	Total.	Per cent. of Possible.	Daily Total.	Per cent. of Planetary.	Maximum. For Day.		11.30 h. to 12.30 h.	Total.	Per cent. of Possible.	Intensity.	Vertical Component.	Sky.	Total.	Per cent. of Possible.	Time.	Sky.	$\frac{p}{p_0}$ sec Z.	Intensity.	Total.
hr.	%	h/cm <sup>2</sup> .	%	Amount.	Time.	mw/cm <sup>2</sup> .	hr.	%	mw/cm <sup>2</sup> .	mw/cm <sup>2</sup> .		hr.	%	h. m.			mw/cm <sup>2</sup> .	hr.	%
1	11'3	76	1749	50	70	13 5	59	10'9	74	...	...	4'3	28	12 21	Hazy	1'30	79	12'3	83
2	0'0	0	n 258	7	n 20	14 40	6	0'0	0	...	...	2'4	16	12 16	Hazy	1'29	74	9'6	64
3	0'3	2	653	18	53	12 40	39	0'4	3	...	...	5'7	37	...	...	...	...	12'5	84
4	2'0	13	1147	32	70	12 15	70	1'4	9	...	...	5'2	34	...	...	...	...	7'3	49
5	0'7	5	1255	35	64	11 10	47	1'1	73	...	...	0'0	0	...	...	...	...	0'5	3
6	1'2	8	925	26	64	11 42	25	0'6	4	...	...	0'0	0	...	...	...	...	0'0	0
7	2'5	17	868	24	63	15 10	21	3'8	25	...	...	0'0	0	...	...	...	...	8'5	56
8	0'0	0	515	14	28	10 25	15	0'1	1	...	...	0'4	3	...	...	...	...	3'6	24
9	0'0	0	483	13	28	9 5	18	0'0	0	...	...	0'0	0	...	...	...	...	10'0	66
10	8'0	53	1652	45	87	11 20	86	8'5	56	...	...	11'7	74	12 12	Ci.	1'24	90	0'8	5
11	0'1	1	717	19	44	15 0	12	0'1	1	...	...	0'3	2	...	...	...	...	0'0	0
12	0'7	5	784	21	71	12 50	55	0'5	3	...	...	0'0	0	...	...	...	...	10'1	66
13	0'1	1	448	12	41	9 40	32	0'0	0	...	...	0'9	6	...	...	...	...	0'6	4
14	3'2	21	1171	31	69	8 45	57	3'1	20	...	...	0'0	0	...	...	...	...	0'0	0
15	6'0	39	1280	34	82	13 25	27	7'1	46	...	...	8'0	50	...	...	...	...	5'5	35
16	1'8	12	972	26	57	9 25	29	1'2	8	...	...	7'2	45	...	...	...	...	0'7	4
17	10'6	68	1906	57	68	12 20	65	10'1	65	...	...	0'0	0	...	...	...	...	11'8	75
18	13'0	83	1788	47	55	11 30	55	11'4	73	...	...	12'7	78	12 10	Clear	1'23	85	11'2	71
19	11'5	73	2016	52	69	12 35	67	12'5	80	65	55	81	12'7	12 20	Hazy	1'23	72	11'3	72
20	13'7	87	2439	63	78	11 50	78	14'0	89	80	68	10'4	63	...	...	...	...	11'2	71
21	13'4	85	2398	62	78	12 10	78	13'0	82	...	...	5'6	34	...	...	...	...	0'7	4
22	2'2	14	1081	28	60	8 50	57	2'2	14	...	...	8'4	51	...	...	...	...	6'6	42
23	6'0	38	1587	41	72	11 50	72	6'8	43	...	...	1'0	6	...	...	...	...	0'0	0
24	8'4	53	1991	51	81	13 5	73	8'7	55	...	...	2'5	15	...	...	...	...	9'2	58
25	6'3	39	1532	39	x 90	12 10	90	7'4	46	...	...	0'4	2	...	...	...	...	12'8	80
26	10'8	68	2083	53	x 90	12 10	90	10'9	68	80	69	10'8	65	...	...	...	...	12'4	77
27	7'6	47	1430	36	71	14 10	57	9'3	58	57	49	10'6	63	...	...	...	...	14'1	88
28	12'6	78	2106	53	x 90	11 50	90	12'4	77	57	49	12'4	74	...	...	...	...	215'5	96
29	12'1	75	2325	58	x 90	12 5	90	12'4	77	76	66	9'6	57	...	...	...	...	12'8	79
30	2'3	14	1094	27	71	14 40	27	5'7	35	...	...	8'5	50	...	...	...	...	5'0	3
31	9'7	60	2010	50	77	11 50	77	10'3	64	53	46	0'0	0	...	...	...	...	0'0	0
Means	5'74	37	1376	36	66	—	54	6'00	39	—	—	4'90	31	—	—	—	—	7'00	45
Normal	6'13	40	—	—	—	—	—	6'48	42	—	—	5'23	33	—	—	—	—	6'55	42

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

Heights above M. S. L.:—H=12.5 m. H<sub>b</sub>=13.7 m. H<sub>a</sub>=26.4 m. Above Ground: h<sub>t</sub>=1.2 m. h<sub>r</sub>=0.56 m. h<sub>a</sub>=13.9 m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind Direction in Points (8=E, 16=S) with Speed in metres per second.		Cloud Amount (0-10) and Weather.		Rain 24 hours beginning 9 h.	Remarks.	Magnetism.				
	9 h.	21 h.	9 h.	21 h.	Max.	Min.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.			Horizontal Force.	Declination West.	Inclination.		
	mb.	mb.	a.	a.	a.	a.	millibar.	%	%	Dir.	m/s.	Dir.	m/s.	Tenths of Sky covered.	mm.	°	'	°			
1	1011'6	1011'2	88'3	86'0	91	82	10'7	11'0	62	74	6	5	3 00	1 00	—	Fine. ∞. Fine sunset.	γ	0	0		
2	1011'2	1009'8	86'0	82'9	87	79	11'6	10'8	78	89	—	1	29	5	4 00	8 00	...	...	...		
3	1008'1	1006'7	82'6	80'5	84	80	7'8	8'6	66	83	1	7	—	1	7	2	...	...	...		
4	1003'9	1000'7	81'2	81'8	83	n 77	7'2	8'5	67	75	2	6	31	8	6	9	∞ a. Fine to c. Fine sunset.	...	...		
5	998'9	995'1	80'7	79'5	83	79	7'9	8'2	75	85	1	9	2	11	10	10 00	Fair to c. ∅ 21 h.-23 h.	...	...		
6	993'7	997'4	78'7	78'7	n 80	78	8'0	8'0	87	87	1	11	1	9	10	10	o. and g., with ∅.	...	...		
7	1002'2	1008'7	80'2	79'2	82	78	7'1	5'9	70	62	32	11	30	10	7	4	∅ n. Fine. ∆ in evening.	...	...		
8	1007'8	1003'3	81'9	81'1	84	78	7'9	8'3	69	77	14	2	5	5	8	9	c. to dull. ∅ showers p.	17865	19 52'7	68 8'2	
9	1008'5	1013'6	81'2	80'6	84	78	8'1	8'0	75	77	29	7	25	3	8	4	Fine all day. v.	...	...		
10	1011'8	1010'6	81'6	82'2	84	n 77	8'7	11'0	78	95	13	6	18	2	10	6	Dull and d. a. Fine evening.	...	...		
11	1008'6	1007'5	84'3	83'6	85	82	12'6	12'3	95	97	15	5	15	5	10 00	0	∅ n. ∅ and ∅ at times.	...	...		
12	1010'5	1014'6	81'5	81'7	85	80	9'4	9'2	85	82	28	4	23	2	4	10	∅ n. Fine during day. ∞ n.	...	...		
13	1012'2	1014'9	83'6	82'7	85	81	12'2	11'0	96	92	23	5	20	4	10	10	∅ early. ∅ a. Fair p. ∅ n.	...	...		
14	1010'3	1007'3	84'2	84'7	86	82	13'1	13'2	99	97	19	5	20	8	10 00	10 00	∅ n. ∅ all day.	...	...		
15	1012'9	1012'5	84'1	84'5	88	82	10'9	10'5	83	78	25	4	13	6	8	10 00	10 00	Fine early to c. ∅ ∅ n.	...	...	
16	1016'0	1018'6	83'6	84'6	87	83	11'5	13'1	91	97	26	3	15	5	10	10 00	Fair to c. d. from 20 h.	...	...		
17	1022'1	1024'4	87'2	84'6	89	83	13'8	12'3	86	91	15	5	15	2	9	0	∅ n. Fine.	...	...		
18	1024'4	1024'4	91'6	89'7	94	83	13'4	12'5	63	66	12	6	9	4	3	7	∅ a. Fine.	...	...		
19	1021'9	1018'1	93'7	87'5	x 96	x 86	13'6	14'0	n 56	85	8	6	14	8	2 00	7 00	Fine. ∅ ∅ n.	...	...		
20	1021'3	1022'0	89'1	83'9	90	83	15'2	12'3	84	95	14	3	15	2	7	9 00	∅ showers early. Fine. ∅ n.	...	...		
21	1016'1	1018'8	87'1	83'3	89	82	13'1	11'5	82	93	14	7	—	1	10	1	∅ early and 13 h.-19 h. Dull.	...	...		
22	1024'4	1022'9	86'6	84'9	89	81	12'8	11'9	83	86	22	7	16	4	4	10	12'1	Fine early, then c. to o.	...	...	
23	1014'7	1005'6	84'8	84'7	87	84	13'0	13'2	95	97	16	7	15	8	10	10	Dull, with ∅ n.	...	...		
24	1004'6	1005'2	84'0	82'6	87	81	11'7	9'8	90	82	19	3	24	2	10	4	∅ showers 7 h.-9 h. Fine.	17860	19 55'6	68 5'6	
25	1005'1	1006'7	84'6	82'6	86	80	9'9	9'5	73	80	25	4	24	2	6	3	1'4	∅ showers a. Mostly fine.	...	...	
26	1008'2	1009'4	86'6	82'1	88	79	11'1	10'0	72	87	18	3	—	1	6	6	∅ early. Fine all day. Fine sunset.	...	...		
27	1009'5	1010'7	86'4	83'4	88	80	11'2	9'6	73	77	6	2	—	1	7	2	Fine all day.	...	...		
28	1011'7	1014'7	86'4	83'0	87	78	10'9	9'5	71	78	26	2	28	3	4	2	—	Very fine all day. v.	...	...	
29	1018'0	1020'6	84'4	83'3	87	79	9'3	9'7	70	78	29	3	27	2	7	7	∅.	...	...		
30	1021'1	1020'8	85'2	84'3	88	81	11'0	11'3	78	85	21	3	20	3	8	10	1'2	∅ showers early. Fine to o.	...	...	
31	1017'4	1013'3	85'9	85'5	87	84	13'3	13'1	90	91	17	6	16	7	10	10	7'3	Dull and o. ∅ showers 22 h.-24 h.	...	...	
Means	1011'9	1011'9	84'8	83'2	86'6	80'5	10'9	10'6	79	84	—	5'1	4'4	7'4	6'8	99'9	—	Monthly Totals or Means.	17863	19 54'2	68 6'9
Normal	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.	—	—	—

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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with 18 columns: Day, Air Pressure at Station Level (9h, 21h), Air Temperature in Degrees Absolute (9h, 21h, Max, Min), Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second (9h, 21h), Cloud Amount and Weather (9h, 21h), Rain 24 hours beginning 9 h (mm), Temp. on Grass (Min, 200+), Earth Temperature at 9 h (0.3 m, 1.2 m), Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes).

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<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with 18 columns: Day, Air Pressure at Station Level (9h, 21h), Air Temperature in Degrees Absolute (9h, 21h, Max, Min), Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second (9h, 21h), Cloud Amount and Weather (9h, 21h), Rain 24 hours beginning 9 h (mm), Temp. on Grass (Min, 200+), Earth Temperature at 9 h (0.3 m, 1.2 m), Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes), and a REMARKS column.

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

5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 28 days; they are computed from the data for those days on which values at each of the four hours, 3<sup>h</sup>, 9<sup>h</sup>, 15<sup>h</sup>, 21<sup>h</sup>, are given in the table. A similar note applies to the values in Table 6.  
 † The insulation was less satisfactory than usual.  
 z denotes the maximum and n the minimum value in the column.  
 z Indeterminate.

Day.	Remarks.	Potential Gradient, Volts per metre.† Factor 1'89.				Charge per cc. × 10 <sup>16</sup> .		Air-Earth Current. × 10 <sup>16</sup> .	Electric Character of Day.	Magnetic Character of Day.	Horizontal Force.			Declination (West).			Inclination (North).			
		3 h.	9 h.	15 h.	21 h.	+.	-.	× 10 <sup>16</sup> .			Mean Time.		Mean Time.	Mean Time.		Mean Time.				
		v/m.	v/m.	v/m.	v/m.	Coulomb.	amp/cm <sup>2</sup> .	h			m	γ	h	m	°	'	h	m	°	'
1	≡ <sup>0</sup> till 8 h. Fine. Distant R 21 h.	v/m.	v/m.	v/m.	v/m.	...	...	1'70	1	0	...	...	...	...	...	...	...	...		
2	Dull, with ≡ <sup>0</sup> .	z±	435	30	...	...	...	...	2	1	...	...	...	...	...	...	...	...		
3	● <sup>0</sup> 4 h.-6 h. ≡ <sup>0</sup> early. Dull.	...	...	115	190	...	...	0'60	0	1	...	...	...	...	...	...	...	...		
4	≡ <sup>0</sup> till 14 h. Dull to fair.	85	320	245	255	...	...	0'40	1	0	11	12	18418	14	17	15	17'5	15	0	66 56'1
5	≡ <sup>0</sup> till 8 h. Dull, with ● showers.	320	380	340	245	...	...	0'60	1	1	...	...	...	...	...	...	...	...	...	...
6	● showers. Unusual v. 14 h.-18 h.	65	105	125	65	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...
7	Fine from 15 h. ● n.	40	115	190	235	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...
8	● till 15 h. Dull. Fine n.	55	0	-490	200	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...
9	Dull and o., with ●.	320	115	295	235	...	...	0'45	1	1	...	...	...	...	...	...	...	...	...	...
10	Fine a. Fair to fine p.	140	200	170	275	...	...	0'60	0	0	...	...	...	...	...	...	...	...	...	...
11	Dull to fair.	295	180	235	275	...	...	1'15	0	1	11	19	18433	14	16	15	15'8	15	0	66 57'8
12	Mostly dull. ● 16 h. and 23 h.	160	235	140	370	...	...	...	0	1	...	...	...	...	...	...	...	...	...	...
13	Dull all day.	-40	210	140	245	...	...	...	2	0	...	...	...	...	...	...	...	...	...	...
14	Fair to fine till 12 h., then dull.	255	190	140	140	...	...	...	1	0	...	...	...	...	...	...	...	...	...	...
15	● early. Fair to fine from 8 h.	105	210	170	350	...	...	...	1	0	...	...	...	...	...	...	...	...	...	...
16	Fine early. c. from 10 h. Fine n.	330	360	255	330	...	...	0'75	1	1	...	...	...	...	...	...	...	...	...	...
17	Fine from 9 h. ≡ n.	255	255	225	160	...	...	0'85	0	1	...	...	...	...	...	...	...	...	...	...
18	≡ <sup>2</sup> till 7 h. Fine throughout.	245	550	415	425	...	...	0'55	1	0	11	18	18453	14	23	15	16'2	14	38	66 55'6
19	≡ <sup>0</sup> early. Very fine throughout.	150	285	425	490	...	...	0'80	0	1	...	...	...	...	...	...	...	...	...	...
20	Very fine. ⊕ 13 h.-15 h. v. p.	340	255	225	455	...	...	...	0	0	...	...	...	...	...	...	...	...	...	...
21	Very fine throughout.	340	255	105	170	...	...	...	0	2	...	...	...	...	...	...	...	...	...	...
22	Dull 9 h.-16 h., then fine.	160	245	...	305	...	...	...	0	0	...	...	...	...	...	...	...	...	...	...
23	⊕ 7 h. and 13 h.-15 h. Fine.	170	285	105	105	...	...	0'85	0	1	...	...	...	...	...	...	...	...	...	...
24	⊕ 7 h.-11 h. Fine.	190	225	125	340	...	...	1'00	0	1	...	...	...	...	...	...	...	...	...	...
25	Dull till 10 h., then fine. v. p.	245	75	125	150	...	...	0'70	1	1	11	15	18445	14	14	15	18'0	14	46	66 56'5
26	Mostly fine.	170	235	105	105	...	...	0'65	0	0	...	...	...	...	...	...	...	...	...	...
27	Fine. Distant T 13 h.	170	330	140	105	...	...	...	0	0	...	...	...	...	...	...	...	...	...	...
28	Very fine all day. v. p.	160	275	85	125	...	...	...	0	0	...	...	...	...	...	...	...	...	...	...
29	Fine throughout. v. p.	125	295	95	105	...	...	0'60	0	1	...	...	...	...	...	...	...	...	...	...
30	o. till 8 h. and 12 h.-14 h. T 13 h.	125	255	-75	65	...	...	...	1	2	...	...	...	...	...	...	...	...	...	...
31	≡ <sup>2</sup> 6 h.-7 h. Fine. ⊕ 12 h.	200	190	95	170	...	...	0'35	0	1	...	...	...	...	...	...	...	...	...	...
M.		190*	247*	165*	227*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—ESKDALEMUIR.

Day.	Potential Gradient, Volts per metre.† Factor 5'61.				Charge per cc. × 10 <sup>16</sup> .		Air-Earth Current. × 10 <sup>16</sup> .	Electric Character of Day.	Magnetic Character of Day.	North Component.				West Component.				Vertical Component.						
	3 h.	9 h.	15 h.	21 h.	About 15 h.		About 15 h.			Maximum. 15000 γ+.		Minimum. 15000 γ+.		Maximum. 4000 γ+.		Minimum. 4000 γ+.		Maximum. 45000 γ+.		Minimum. 45000 γ+.				
	v/m.	v/m.	v/m.	v/m.	Coulomb.	amp/cm <sup>2</sup> .	amp/cm <sup>2</sup> .			h	m	γ	h	m	h	m	γ	h	m	h	m	γ	h	m
	3	9	15	21	...	...	...			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	448	76	144	160	...	...	...	0 a	1	22	14	1040	918	12 22	12 8	1075	982	8 40	158	133	9 54	...		
2	76	99	144	z	...	...	...	1 b	1	18	24	1075	944	10 30	14 43	1092	991	{ 3 29 27 }	18 58	157	109	1 47	...	
3	220	99	76	160	58	40	...	1 b	1	23	54	1031	924	8 57	4 13	1066	970	8 22	15 27	158	124	4 36	...	
4	160	304	114	-836	75	75	...	2 b	0	18	49	1022	940	9 16	14 18	1072	986	8 2	{ 5 12 12 }	149	130	11 27	...	
5	-562	-23	-258	-114	...	...	...	2 b	1	16	47	1068	945	10 3	14 5	1109	977	8 32	17 25	177	129	12 23	...	
6	106	114	z	46	...	...	...	2 c	1	17	50	1025	904	10 38	13 18	1097	1013	9 32	17 0	156	114	7 4	...	
7	-350	-1148	38	76	...	...	...	2 c	1	20	20	1042	954	11 55	17 19	1061	996	7 54	18 3	174	123	24 0	...	
8	z	76	84	114	40	17	...	2 c	1	19	18	1036	948	12 59	0 8	1056	981	2 18	18 10	155	106	0 27	...	
9	z	61	61	-1626	...	...	...	2 c	0	19	44	1027	962	13 55	1 10	1058	1000	1 35	19 35	139	96	4 30	...	
10	-68	160	91	388	...	...	...	1 a	1	19	6	1046	955	11 21	13 34	1053	991	7 37	17 46	141	116	11 34	...	
11	160	76	167	152	...	...	...	0 a	1	18	10	1047	927	10 39	15 35	1077	975	3 5	18 59	152	86	2 35	...	
12	471	152	327	-372	...	...	...	1 b	1	22	47	1034	950	9 49	14 48	1060	984	6 10	17 22	141	84	1 59	...	
13	61	84	167	304	29	46	...	1 a	0	20	35	1024	960	{ 12 2 2 }	13 40	1058	994	22 11	21 34	137	115	13 0	...	
14	243	-167	213	160	...	...	...	2 b	0	18	40	1025	960	10 31	12 32	1072	995	6 50	20 20	131	100	11 27	...	
15	-464	144	114	228	...	...	...	1 b	0	18	38	1032	947	12 2	{ 13 5 3 }	1064	986	8 1	19 20	136	112	11 57	...	
16	129	152	129	388	...	...	...	1 b	1	19	26	1061	934	10 59	16 7	1058	985	6 28	19 15	133	102	11 16	...	
17	114	99	327	486	...	...	...	1 a	1	18	41	1033	950	10 32	13 10	1066	989	{ 6 47 35 }	17 56	134	103	11 25	...	
18	456	190	...	372	52	23	...	0 a	0	17	47	1023	960	12 9	13 23	1071	1001	6 58	18 0	129	103	11 34	...	
19	144	190	99	243	40	35	...	0 a	1	21	23	1061	961	9 48	14 10	1058	986	21 10	19 36	126	91	11 43	...	
20	160	296	160	305	0	23	...	0 a	0	23	8	1032	957	11 31	23 8	1053	1002	8 54	4 52	115	87	12 8	...	
21	182	144	76	410	...	...	...	1 a	2	18	0	1117	928	23 37	18 23	1051	990	8 5	18 36	211	52	24 0	...	
22	281	190	144	388	...	...	...	0 a	2	17	42	1068	897	11 45	16 57	1071	862	1 43	17 50	172	n 6	2 22	...	
23	84	129	152	76	...	...	...	0 a	2	18	26	1067	921	5 17	14 51	1069	969	0 0	17 43	137	51	4 16	...	
24	76	175	68	-91	35	29	...	1 a	1	17	17	1117	921	8 53	14 4	1070	978	7 25	17 7	147	60	4 22	...	
25	190	129	z	167	...	...	...	1 b	1	18	35	1069	941	11 34	14 20	1076	990	5 38	18 30	135	80	1 50	...	
26	152	190	122	228	46	46	...	0 a	0	18	7	1035	947	{ 12 4 1 }	12 48	1061	978	6 20	18 29	132	87	11 31	...	
27	167	152	13																					

7. SEISMOLOGICAL DIARY.

EARTHQUAKES :—ESKDALEMUIR.								MICROSEISMS OF N. COMPONENT :—ESKDALEMUIR.									
Day.	Phase.	Time, G.M.T.	Period.	Amplitudes.			Δ.	Remarks.	Day.	0 h.		6 h.		12 h.		18 h.	
				A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>				A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
		h m s	s	μ	μ	μ	km.		μ	s	μ	s	μ	s	μ	s	
3	P F	4 54 6 7	...	...	...	...	...	Disturbance with no prominent phases except long wave maxima between 5 h. 41 m. and 5 h. 46 m.	1	0.4	5	0.2	4	0.0	...	0.0	...
7	L	12 3	...	...	...	...	...		2	0.0	...	0.0	...	0.0	...	0.0	...
9	Pi L M F	13 57 41 14 21 14 29 15 13	...	...	...	...	...	Small earthquake. S obscure.	3	0.0	...	0.0	...	0.0	...	0.2	4
10	Pe (?) S F	21 48 30 21 58 20 23	...	...	...	...	...	Small earthquake. L not prominent.	4	0.4	5	0.5	5	0.9	5	1.0	5
11	L F	10 46 11 9	18	9	...	...	...	Small earthquake, with feebly marked initial phases.	5	0.9	5	0.8	5	0.8	4.5	0.6	5
13	L	5 55	...	...	...	...	...	Very slight disturbance.	6	0.8	5	0.5?	5	0.7	5	0.9	5
14	P F	12 36 12 50	...	...	...	...	...	Slight disturbance obscured by wind effects.	7	1.2	5	0.9	5	1.0	5	0.9	5
15	L F	0 38 1 6	...	...	...	...	...	Slight disturbance.	8	0.8	4.5	0.6	5	†	†	0.7	4.5
17	S (?) M	12 56 20 13 0 20	...	...	...	...	...	Initial phases obscured by wind effects and microseisms.	9	0.8	4	0.7	4	0.6	4.5	0.6	4.5
17	P F	15 13 15 32	...	...	...	...	...	Slight disturbance.	10	0.8	4	0.3	4	0.3	5	0.3	4
20	L	22 57	...	...	...	...	...	Time uncertain, owing to time marking arrangements being under adjustment.	11	0.5	5	0.6	4	0.4	5	0.5	5
23	L	23 22	...	...	...	...	...	Slight disturbance.	12	0.5	5	0.6	4	0.4	5	0.6	5
									13	0.4	4.5	0.4	5	0.5	5	0.6	5
									14	0.6	5	0.6	4.5	0.6	4.5	0.3	3
									15	0.5	5	0.5	5	0.9	5	1.0	5
									16	1.5	5	1.7	5	1.4	6	1.0	5
									17	0.9	5	1.0	5	0.8	6	0.6	5
									18	0.7	4.5	0.7	4.5	0.7	5	0.6	5
									19	0.8	5	0.5?	5	0.6	5	0.6	5
									20	0.9	5	0.9	5	0.9	5	0.8	5
									21	0.8	5	0.8	5	0.8	5	0.9	5
									22	0.7	5	0.7	5.5	0.8	5	0.7	5
									23	0.9	5	0.9	5	0.7	5.5	0.5	5
									24	0.7	5	0.4	5	†	†	†	†
									25	0.4	5.5	0.6	5.5	†	†	0.5	5
									26	†	†	†	†	†	†	†	†
									27	0.5	5	0.9	4	†	†	0.2?	5
									28	0.2	4	0.2	4	0.1?	...	0.1?	4
									29	0.1	4	0.1	4	0.1	4	0.1?	5
									30	0.1	3.5	0.0	...	†	†	†	†
									31	†	†	†	†	†	†	†	†

EARTHQUAKES :—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of		Remarks.
	Commence-ment.	Max. Phase.	
	h m	h m	
3	...	5 53	Very small.
7	...	12 13	Succession of very small movements.
9	...	15 32	Small earthquake.
10	...	22 25	Small earthquake.
11	...	10 51	Disturbance confused by changing.
17	12 55.8	12 58.0	Maximum amplitudes shown by trace 3.4 mm.
17	...	15 21?	Small movements obscured by air tremors.
20	...	22 30	Small movements.

\* Trace indistinct. † Instrument being standardised. ‡ No trace.  
 Note.—The horizontal instruments were under adjustment on 26th May, 10 h.—13 h. and 17 h.—20 h.

8. 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.

Height of Head above—Roof 8·8 m., Ground 13·7 m., M.S.L. 19·2 m.  
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

## SCOTLAND N.:—DEERNES.

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.				Max. in a Gust.	Time of Gust.		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.					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.	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.			
1	3·8	5·7	3·8	9·1	2·6	12·9	3·6	1·9	9·3	18·7	16	5	1	3·0	3·0	5·6	1·4	3·3	0·6	1·5	6·2	8																	
2	2·1	10·6	2·1	3·6	1·7	10·6	2·1	1·1	18·3	5	40	2	2·8	2·8	5·7	2·4	6·1	0·9	2·1	7·5	13																		
3	2·5	2·5	4·0	1·6	1·1	0·7	0·9	2·1	9·8	11	30	3	0·3	1·3	4·3	1·8	5·2	2·1	3·6	6·9	12																		
4	0·6	2·9	2·5	1·7	7·4	4·9	4·6	6·8	13·0	23	5	4	0·5	2·6	4·0	4·0	9·5	4·3	2·9	9·5	15																		
5	7·8	7·8	4·4	10·6	5·3	12·8	4·4	10·6	22·2	23	5	5	6·5	1·3	8·0	1·6	9·2	6·7	2·8	9·5	11,12,13,17,18																		
6	2·3	11·6	3·3	10·2	1·3	6·8	0·4	2·3	20·1	4	25	6	6·4	2·6	8·8	3·6	14·1	12·4	5·1	14·1	15,17,18																		
7	0·6	3·2	3·3	7·9	4·0	4·0	0·8	1·8	19·6	23	55	7	7·2	7·2	2·4	5·7	1·6	1·6	1·5	10·8	2																		
8	11·7	7·8	6·6	9·8	3·0	7·3	2·5	1·7	20·5	0	0	8	6·1	2·5	4·7	4·7	5·6	0·5	1·3	8·2	8,18																		
9	0·4	0·9	3·6	2·4	5·5	2·3	2·5	1·7	10·4	10	35	9	1·1	1·7	6·4	2·6	6·8	4·6	2·6	8·5	14,16																		
10	0·5	1·2	2·5	1·7	4·5	1·9	3·6	1·5	10·2	19	0	10	1·3	3·0	2·4	5·7	2·5	6·1	0·6	7·2	12																		
11	5·9	4·8	2·0	5·5	1·1	5·2	2·1	11·8	2	15	11	0·4	0·9	4·7	5·8	3·0	2·3	5·5	2·3	6·6	16,18																		
12	6·1	1·2	6·1	1·2	5·5	1·1	2·9	4·3	12·0	19	20	12	4·7	4·7	5·8	2·8	4·7	7·1	5·8	10·8	11																		
13	5·2	3·4	3·6	2·4	3·7	3·7	1·4	4·2	10·9	14	20	13	6·6	4·4	6·7	5·8	4·9	3·3	2·1	8·5	12																		
14	1·5	7·4	5·7	3·8	5·1	5·1	4·2	4·2	15·8	12	35	14	4·3	1·5	3·6	3·3	4·2	1·4	0·7	5·6	8																		
15	2·2	11·3	4·7	7·1	8·2	2·7	4·1	17·9	3	55	15	1·8	0·8	6·6	0·4	4·2	4·2	1·5	3·6	6·9	16,17,19																		
16	2·2	3·2	2·8	1·1	0·3	1·6	3·7	3·7	11·1	6	55	16	0·4	2·3	3·3	1·4	0·4	0·9	3·6	1·5	4·9	19,20																	
17	5·2	2·1	8·2	3·4	5·5	3·7	5·5	2·3	14·1	10	0	17	1·4	3·3	4·2	4·2	0·6	3·2	3·7	6·9	8																		
18	2·1	0·9	0·6	0·3	1·4	2·2	0·4	0·6	9·3	0	15	18	5·6	5·6	4·0	6·0	2·4	5·7	2·5	7·9	3																		
19	0·9	1·3	2·5	1·7	3·0	1·3	0·9	2·4	6·6	13	15	19	3·0	3·0	5·7	2·4	7·1	4·7	6·0	9·5	22,23																		
20	1·9	0·7	6·0	4·0	4·3	1·8	3·6	2·4	12·6	11	40	20	7·4	4·9	6·9	2·9	3·3	9·5	10·8	6																			
21	1·1	0·7	0·5	2·6	3·0	3·0	5·7	3·8	12·5	19	25	21	8·5	1·1	2·8	4·6	4·2	6·2	8·9	23																			
22	4·1	2·7	2·9	4·3	4·9	3·3	2·7	3·8	12·3	6	45	22	5·1	5·1	2·1	5·2	1·6	8·0	1·8	8·5	14																		
23	2·2	3·2	6·2	4·2	7·9	3·3	5·8	1·2	15·8	12	50	23	2·5	1·7	5·5	2·3	4·5	1·9	2·5	8·2	12																		
24	6·8	1·3	6·6	6·6	3·6	1·5	1·3	0·9	11·5	5	10	24	2·3	0·4	5·7	3·8	7·3	3·0	5·5	8·9	13																		
25	3·3	1·8	2·3	5·5	0·8	4·2	9·5	14	14·0	18	55	25	5·8	5·8	4·6	6·8	1·6	8·0	1·9	12·1	24																		
26	1·7	2·5	2·8	2·8	4·8	2·0	1·5	0·6	9·5	14	15	26	2·4	12·3	5·6	5·6	2·7	4·1	0·7	12·5	1,3,5																		
27	1·1	0·7	2·3	2·3	1·6	0·6	0·8	5·4	8	25	27	1·3	0·9	0·9	2·1	0·6	2·9	0·3	1·6	3·9	18																		
28	0·4	0·9	1·7	1·1	2·7	1·8	0·3	1·6	7·6	22	5	28	2·1	2·1	0·7	3·5	4·9	2·8	2·8	4·9	10,16,23																		
29	0·4	2·0	1·3	1·1	1·7	0·2	0·2	6·4	6	0	29	0·9	2·1	0·8	4·2	0·4	2·3	1·3	0·9	4·9	18																		
30	0·9	0·4	2·2	1·4	1·3	0·9	2·2	3·2	7·5	20	15	30	2·4	1·0	2·7	1·8	2·7	1·8	2·5	4·6	11																		
31	5·9	6·4	2·6	8·1	5·4	8·7	5·8	18·5	23	25	31	1·3	0·3	0·4	2·0	4·9	3·3	4·7	7·1	8·5	21																		

## ENGLAND S.W.:—SCILLY.

Height of Head above—Ground 9·8 m., M.S.L. 49·7 m.  
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

## ENGLAND E.:—GREAT YARMOUTH.

Height of Head above—Roof 10·7 m., Ground 12·8 m., M.S.L. 15·9 m.  
Height of Cups above—Roof 3·7 m., Ground 18·3 m., M.S.L. 22·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.		Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust. (Gorleston.)	Time of Gust.	
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.					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.	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.			
1	3·0	3·0	2·1	5·0	6·7	1·8	1·8	11·5	11	29	1	2·7	4·1	6·0	9·0	6·2	9·2	7·8	11·7	15·0	18	5																	
2	0·6	2·8	2·9	0·6	2·8	calm	1·6	6·7	7	11	2	5·7	8·5	3·5	8·5	2·6	3·8	2·5	2·5	14·7	7	45																	
3	1·2	1·2	0·3	0·2	1·7	0·7	1·6	3·8	23	40	3	1·9	1·3	2·0	3·0	0·5	2·6	1·3	3·6	6·3	13	10																	
4	1·8	2·7	4·1	4·1	5·3	5·3	4·5	3·0	12·0	15	4	1·0	0·2	0·7	3·5	1·4	7·1	0·3	1·3	10·0	14	50																	
5	2·1	1·4	4·2	2·8	5·8	2·4	0·8	9·3	13	20	5	0·4	0·6	4·3	1·8	4·8	1·0	2·0	3·0	11·5	16	55																	
6	4·8	11·6	5·3	12·8	12·5	10·8	26·2	21	23	4	43	6	0·4	2·0	3·4	5·2	5·5	1·1	3·6	13·2	16	30																	
7	8·3	3·1	1·3	6·6	9·4	9·4	11·8	21·6	0	48	7	3·2	0·6	5·9	2·5	5·7	1·7	2·2	1·4	16·8	17	20																	
8	11·8	4·0	9·6	5·0	7·7	3·2	21·6	0	48	8	3·5	0·7	2·3	5·5	3·5	3·5	1·5	3·6	12·4	4	35																		
9	1·9	4·6	8·3	11·1	2·2	4·9	7·3	17·1	13	38	9	1·5	3·6	4·2	0·8	8·7	1·7	7·2	17·0	15	35																		
10	3·7	5·6	5·8	3·8	5·8	2·7	11·5	19	43	10	1·8	4·4	4·7	4·7	2·5	1·7	0·8	0·6	12·6	9	5																		
11	1·6	2·4	3·3	4·2	2·8	4·5	0·9	7·5	17	14	11	0·8	1·8	1·0	2·4	3·6	1·5	0·7	0·1	7·5	14	15																	
12	5·8	5·8	1·1	5·3	5·1	7·7	15·5	17	55	12	0·5	0·5	4·5	0·9	4·1	2·7	4·2	4·2	4·2	8·3	12	35																	
13	3·9	5·9	2·5	6·7	2·6	6·2	12·2	0	28	13	2·3	5·5	2·1	2·1	0·6	1·5	0·4	0·6	6·9	1	5																		
14	2·6	6·2	3·5	1·7	8·6	10·0	15·1	15·1	6·4	1	26	14	2·2	3·2	1·7	2·5	1·6	2·7	4·1	9·3	19	30																	
15	12·9	4·0	1·4	7·0	2·9	19·3	6	15	19·3	6	15	15	3·0	3·0	1·2	5·8	3·1	7·6	0·4	2·3	12·8	13	55																
16	4·2	2·8	2·8	4·2	2·1	3·2	calm	8·6	3	23	16	0·6	3·2	1·7	2·5	1·9	4·5	0·9	2·1	11·7	12	35																	
17	calm	3·1	1·3	1·7	3·3	5·8	19	43	5·8	19	43	17	0·9	2·3	2·8	1·1	2·1	5·2	2·1	6·1	16	20																	
18	1·6	3·9	2·2	5·4	4·2	2·7	6·6	11·5	11	47	18	0·9	1·3	3·6	1·5	3·0	1·3	0·3	0·6	6·8	7	55																	
19	2·9	6·9	3·7	5·6	3·9	5·9	3·2	12·2	11	15	19	0·9	1·3	1·4	2·2	3·5	3·5	3·0	2·0	7·3	13	45																	
20	1·6	0·7	2·3	2·3	1·8	1·2	7·4	0	14	20	3·3	1·4	3·3	1·4	5·8	1·2	2·9	0·8	10·6	15	15																		
21	2·3	1·0	0·1	0·4	0·4	0·7	3·9	2	45	21	0·4	2·3	1·8	2·7	5·5	1·1	2·7	1·8	10·0	16	5																		
22	5·9	3·9	8·3	4·5	4·5	3·2	14·4	4	15	22	1·8	2·7	3·6	2·4	1·3	0·3	2·2	1·4	9·1	18	45																		
23	1·1	2·7	2·5	3·9	1·6	1·9	6·4	13	26	23	1·1	1·7	0·5	1·2	4·8	2·0	1·5	0·6	9·4	15	55																		
24	3·9	1·6	2·3	1·0	1·5	1·5	6·4	1	26	24	3·0	4·2	4·2	4·2	1·7	8·7	8·5	9·7	17	5																			
25	1·4	0·9	8·0	5·3	3·2	7·5	14·6	8	30	25	6·9	7·2	4·3	1·8	2·9	0·6	9·5	17	25																				
26	1·2	1·8	5·2	3·5	5·3	5·3	3·3	11·2	13	13	26	3·3	1·9	1·3	1·9	1·0	2·4	1·3	3·0	6·3	12	20																	
27	0·4	4·1	4·1	4·1	4·1	3·5	3·5	7·4	8	25	27	0·6	0·4	2·2	1·4	3·0	3·0	0·7	0·7	5·0	15	0																	
28	1·5	1·5	0·9	0·9	2·1	2·1	1·8	4·0	1	5	28	0·9	0·9	0·6	2·9	4·0																							

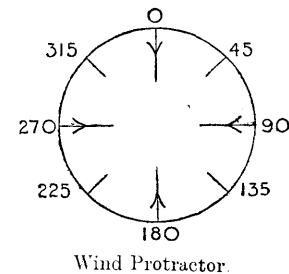
9. SOUNDINGS WITH PILOT BALLOONS.

Day.	Station.	Time of Start, G.M.T.	Horizontal Velocity of Wind.																Cloud Observations.		
			Geostrophic.		By Anemometer.		At Heights above M.S.L.														
			From N.	m/s.	From N.	m/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.		Type.	From N.	m/s.
							From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.			
1	Benson	12 0	90	14	45	7.5	55	11.0	95	10.0	105	10.5	...	...	...	...	...	...	A.-Cu.	100	...
1	S. Farnboro'	16 35	90	17	80	9.0	75	7.0	85	10.5	110	7.5	...	...	...	...	...	...	...	...	...
2	Eskdalemuir	12 50	180	6	125	0.9	150	1.6	125	1.2	270	1.0	...	...	...	...	...	...	A.-Cu.	270	2.8
4	S. Farnboro'	14 35	120	7	160	2.5	175	7.0	170	8.5	205	14.5	...	...	...	...	...	...	...	...	...
4	"	17 0	130	7	160	1.0	175	8.0	185	8.5	210	15.0	...	...	...	...	...	...	St.-Cu.	135	...
5	"	7 25	90	12	45	light	100	9.5	115	9.0	180	10.5	...	...	...	...	...	...	...	...	...
10	"	7 15	310	10	290	2.5	300	7.0	300	7.5	270	9.0	...	...	...	...	...	...	...	...	...
10	Eskdalemuir	7 30	320	6	330	3.5	320	4.1	285	4.1	275	3.9	...	...	...	...	...	...	...	...	...
10	Aberdeen	8 0	330	5	300	5.0	320	6.0	310	7.0	280	7.5	...	...	...	...	...	...	...	...	...
10	S. Farnboro'	17 5	230	6	250	2.0	265	7.5	260	7.5	265	3.5	285	11.0	...	...	...	...	...	...	...
17	"	17 20	...	0	...	0.0	270	1.5	275	3.5	285	4.5	250	5.5	...	...	...	...	...	...	...
18	"	7 10	40	3	...	0.0	95	3.0	60	1.5	325	4.0	350	5.5	315	7.0	...	...	...	...	...
18	Benson	11 55	...	0	125	2.0	120	1.6	55	0.7	165	0.4	310	1.2	335	7.5	325	7.5	...	...	...
19	S. Farnboro'	6 55	100	6	100	light	120	9.5	95	5.0	145	4.5	50	1.5	...	...	...	...	Ci.	270	...
19	Benson	12 5	140	6	110	5.0	140	6.0	145	4.3	170	3.9	...	...	...	...	...	...	Ci.	315	...
20	S. Farnboro'	6 45	210	6	145	light	180	8.0	180	5.5	200	4.0	...	...	...	...	...	...	...	...	...
20	Benson	11 40	240	6	180	7.0	180	8.0	200	6.0	220	6.5	260	4.4	245	6.5	260	4.7	...	...	...
22	S. Farnboro'	6 40	320	5	270	light	280	6.5	245	8.0	250	9.0	...	...	...	...	...	...	Ci.-Cu.	270	...
23	"	6 20	...	0	...	0.0	330	4.5	305	4.5	315	5.5	270	10.5	...	...	...	...	Ci.	270	...
23	Benson	7 15	...	0	...	0.0	315	3.2	305	5.5	300	2.4	260	10.5	...	...	...	...	Ci.	270	...
23	Aberdeen	7 25	?	?	135	3.0	190	4.9	220	8.0	250	8.5	...	...	...	...	...	...	A.-Cu.	245	4.0
24	S. Farnboro'	6 30	130	7	135	light	160	7.0	200	4.5	175	7.5	...	...	...	...	...	...	...	...	...
24	Benson	7 10	130	7	130	4.1	165	7.0	180	5.0	175	8.5	205	8.5	...	...	...	...	...	...	...
24	Eskdalemuir	7 25	180	? 18	170	4.3	205	3.0	195	8.5	185	9.5	190	8.0	...	...	...	...	...	...	...
26	S. Farnboro'	6 40	...	0	260	light	265	4.0	265	6.5	225	6.5	200	9.5	...	...	...	...	Ci.	170	...
26	Benson	7 15	...	0	225	1.0	260	3.8	250	2.9	220	5.0	195	9.0	...	...	...	...	...	...	...
27	S. Farnboro'	6 35	140	5	...	0.0	95	3.0	95	0.5	115	5.0	145	2.5	155	4.0	155	5.5	...	...	...
27	Benson	7 10	140	5	...	0.0	110	2.9	120	3.1	105	3.6	160	3.1	160	5.0	160	6.5	...	...	...
27	Eskdalemuir	7 20	...	0	135	0.3	185	1.1	205	3.5	200	3.7	210	2.7	165	4.5	180	8.0	...	...	...
29	Benson	7 15	...	0	...	0.0	235	2.5	150	0.8	220	6.5	205	4.5	230	5.5	...	...	Ci.	200	...
29	Falmouth	7 25	360	5	350	2.0	360	6.0	315	2.2	185	0.8	230	3.4	195	3.9	225	7.0	...	...	...
29	Eskdalemuir	7 30	360	5	...	0.0	...	0.0	285	3.3	240	2.7	280	2.3	200	3.1	...	...	Ci.-Cu.	...	0
30	S. Farnboro'	6 45	20	3	...	0.0	265	5.0	290	4.0	265	2.0	30	1.5	...	...	...	...	...	...	...
30	Benson	7 10	20	3	340	2.5	15	6.0	345	5.0	245	2.6	...	...	...	...	...	...	...	...	...
30	Eskdalemuir	7 20	360	3	135	0.7	215	0.5	245	3.0	215	3.5	220	3.6	240	5.0	225	7.5	...	...	...
31	Benson	7 20	?	?	290	1.2	315	4.0	275	4.3	245	6.0	270	9.0	...	...	...	...	...	...	...
31	Aberdeen	7 25	?	?	...	0.0	305	2.9	230	3.6	220	7.0	...	...	...	...	...	...	...	...	...
20	Benson	11 40	(For winds at lower levels, see above)						6000 m.		7000 m.		8000 m.		9000 m.		10,000 m.				
							305	7.5	315	4.0	...	...	...	...	...	...	...	...	...	...	...

Notes on Pressure Distribution.

- May 1 7 h. and 18 h. Depression from Azores to Bay of Biscay. Ridge of high pressure from Iceland to North Sea.
- 2 7 h. Depression over Madeira. Ridge running southwards to North Sea. Separate depression forming over English Channel during day.
- 4 18 h. Depression over Bay of Biscay.
- 5 7 h. Depression over Bay of Biscay. Secondary over North Sea.
- 10 7 h. and 18 h. Anticyclone Azores to Spain. Depressions to westward of Ireland and over North Sea.
- 17 18 h. Anticyclone over England.
- 18 7 h. Anticyclone over British Isles and Iceland.
- 19 7 h. Anticyclone over British Isles and North Sea.
- 20 7 h. Anticyclone stretching from Bay of Biscay to Norway. Depression S.W. of Iceland.
- 22 7 h. Anticyclone Azores to Bay of Biscay. Ridge over North Sea to Norway.
- 23 7 h. Depression S. of Iceland. Shallow depression over Bay of Biscay.
- 24 7 h. Depression S. of Iceland, with trough stretching to Corunna.
- 26 7 h. Depression off W. of Scotland. Uniform pressure over England.
- 27 7 h. Depression S. of Iceland. Uniform pressure over British Isles.
- 29 7 h. Uniform pressure over British Isles and surrounding areas.
- 30 7 h. Anticyclone Azores to British Isles.
- 31 7 h. Anticyclone over Bay of Biscay. Shallow depression W. of Scotland.

Height of Station above M.S.L. = H.	h.	m.
Height of Anemometer above ground = h.	h.	m.
Aberdeen	14	32
Benson	57	25
Eskdalemuir	242	15
Falmouth (Pendennis)	51	12
S. Farnborough	70	31



10. NEPHOSCOPE OBSERVATIONS AT ABERDEEN.

See page 36.



1. SUNSHINE AND SOLAR RADIATION.

Day.	SOUTH KENSINGTON.—Lat. 51° 30' N. Long. 0° 10' W.							RICHMOND.—Lat. 51° 28' N. Long. 0° 19' W.					ESKDALEMUIR.—Lat. 55° 19' N. Long. 3° 12' W.					CAHIRCIVEEN.		
	Bright Sunshine.		Radiation received on Horizontal Surface by Callendar Radiograph.					Bright Sunshine.		Radiation at Noon by Ångström Pyrheliometer.			Bright Sunshine.		Radiation by Ångström Pyrheliometer.			Bright Sunshine.		
	Total.	Per cent. of Possible.	Daily Total.	Per cent. of Planetary.	Maximum.			Total.	Per cent. of Possible.	Intensity.	Vertical Component.	Sky.	Total.	Per cent. of Possible.	Time.	Sky.	$\frac{p}{p_0}$ sec Z.	Intensity.	Total.	Per cent. of Possible.
	hr.	%	j/cm <sup>2</sup> .	%	mw/cm <sup>2</sup> .	h. m.	mw/cm <sup>2</sup> .	hr.	%	mw/cm <sup>2</sup> .	mw/cm <sup>2</sup> .	...	hr.	%	h. m.	...	...	mw/cm <sup>2</sup> .	hr.	%
1	0'1	1	1058	26	42	8 20	39	0'0	0	...	...	0'0	0	...	...	...	...	6'6	40	
2	10'3	63	1833	45	88	11 15	87	9'2	56	...	...	7'1	42	...	...	...	...	10'1	62	
3	8'3	51	1573	39	85	11 30	85	8'8	54	...	...	5'7	34	...	...	...	...	0'6	4	
4	3'7	23	890	22	56	7 55	21	2'7	17	...	...	1'0	6	...	...	...	...	1'1	7	
5	8'3	51	1587	39	90	11 55	90	8'8	54	...	...	6'3	37	...	...	...	...	9'3	56	
6	6'8	41	1503	37	86	12 45	77	6'2	38	75	66	Clear	2'4	14	...	...	...	11'0	67	
7	9'5	58	1566	38	89	11 45	89	10'3	63	65	57	Ci.	0'0	0	...	...	...	9'5	58	
8	5'7	35	1639	40	97	12 50	89	5'8	35	81	71	Clear	3'8	22	...	...	...	10'8	65	
9	7'9	48	1780	44	<i>x</i> 98	12 20	<i>x</i> 98	6'7	41	...	...	...	5'2	30	...	...	...	6'6	40	
10	3'5	21	1232	30	81	13 15	78	4'9	30	...	...	...	2'1	12	...	...	...	2'4	14	
11	3'8	23	1223	30	89	13 20	64	4'1	25	...	...	...	0'6	3	...	...	...	10'3	62	
12	0'0	0	<i>n</i> 463	11	36	9 40	8	0'0	0	...	...	...	12'6	73	12 23	Ci.	1'16	92	6'3	38
13	2'7	16	1039	25	79	13 30	40	1'3	8	...	...	...	6'1	35	...	...	...	7'5	45	
14	0'0	0	640	16	<i>n</i> 26	10 15	24	0'3	2	...	...	...	8'0	46	...	...	...	10'4	63	
15	6'7	41	1607	39	85	14 0	44	6'4	39	...	...	...	14'0	81	12 19	Clear	1'17	90	14'5	87
16	5'5	33	1284	31	83	11 55	83	6'2	38	...	...	...	14'6	84	12 16	Clear	1'18	92	15'6	94
17	<i>x</i> 14'0	84	<i>x</i> 2561	62	78	13 5	76	<i>x</i> 13'6	82	...	...	...	<i>x</i> 14'7	84	...	...	...	15'4	92	
18	6'0	36	1318	32	74	13 50	39	6'4	39	...	...	...	11'8	68	...	...	...	15'2	91	
19	0'7	4	916	22	78	13 45	51	0'9	5	...	...	...	10'2	59	...	...	...	0'9	5	
20	9'3	56	1982	48	94	11 45	94	9'1	55	...	...	...	0'3	2	...	...	...	0'1	1	
21	2'1	13	1609	39	79	9 55	56	2'3	14	...	...	...	1'1	6	...	...	...	0'0	0	
22	2'8	17	1605	39	87	11 0	60	3'1	19	...	...	...	0'0	0	...	...	...	2'0	12	
23	0'2	1	969	24	62	10 10	30	0'2	1	...	...	...	4'6	26	...	...	...	1'8	11	
24	3'5	21	1323	32	88	12 20	88	2'5	15	...	...	...	1'0	6	...	...	...	15'2	91	
25	10'3	62	2029	49	92	11 55	92	9'2	55	...	...	...	3'8	22	...	...	...	5'2	31	
26	0'0	0	938	23	49	11 55	49	0'0	0	...	...	...	0'4	2	...	...	...	3'5	21	
27	0'6	4	?868	?21	59	12 33	52	0'5	3	...	...	...	1'4	8	...	...	...	4'7	28	
28	1'9	12	1114	27	78	11 24	77	2'7	16	...	...	...	1'4	8	...	...	...	4'5	27	
29	2'5	15	1305	32	82	12 9	82	2'7	16	...	...	...	4'7	27	...	...	...	0'1	1	
30	7'5	45	1543	38	83	13 12	81	7'2	44	77	68	Clear	9'9	57	...	...	...	8'5	51	
Means	4'80	29	1367	33	76	—	65	4'73	29	—	—	—	5'17	30	—	—	—	7'00	43	
Normal	6'97	43	—	—	—	—	—	6'57	40	—	—	—	5'43	32	—	—	—	6'27	38	

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56' N. Long. 10° 15' W.  
 Heights above M. S. L.:—H=12'5 m. H<sub>b</sub>=13'7 m. H<sub>a</sub>=26'4 m. Above Ground: h<sub>t</sub>=1'2 m. h<sub>r</sub>=0'56 m. h<sub>a</sub>=13'9 m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind Direction in Points (S=E, 16=S) with Speed in metres per second.				Cloud Amount (0-10) and Weather.		Rain 24 hours beginning 9 h.	Remarks.	Magnetism.		
	9 h.	21 h.	9 h.	21 h.	Max.	Min.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.			Horizontal Force.	Declination West.	Inclination.
	mb.	mb.	a.	a.	a.	a.	millibar.	%	%	Dir.	m/s.	Dir.	m/s.	Tenths of Sky covered.	mm.	Dir.			Force.	Force.	Force.
1	1009'6	1019'2	85'6	83'4	86	84	13'9	9'8	96	78	20	9	29	6	10 <sup>0</sup>	5	0'7	● showers a. Fine p.	...	...	...
2	1020'0	1021'8	84'0	83'3	85	82	9'8	9'6	75	77	24	5	29	8	6	7●	1'3	● showers 7 h.-9 h. Fine.	...	...	...
3	1022'0	1014'1	84'0	83'6	86	82	8'6	11'2	66	88	26	4	18	4	10	10●	11'8	⊕ 7 h.-9 h. c. to o. ● from 20 h.	...	...	...
4	999'1	996'9	85'3	83'8	86	83	13'5	10'7	95	83	21	10	24	12	10●	7	1'1	● till 9 h. Mostly o. d. midday.	...	...	...
5	1001'2	1005'6	84'3	83'1	86	81	11'1	9'5	84	77	27	9	27	6	9	7	1'7	● showers a. and n. Sunny p.	...	...	...
6	1006'4	1007'8	84'1	82'0	86	81	9'3	8'2	71	72	27	5	28	5	8●	6	1'1	Fine. Showery evening.	...	...	...
7	1007'3	1007'8	82'7	82'0	85	<i>n</i> 80	8'7	8'2	73	72	29	4	30	5	6	6	0'3	Mostly fine. Showery afternoon.	...	...	...
8	1008'6	1010'9	83'4	82'4	<i>n</i> 84	<i>n</i> 80	8'5	8'2	68	70	1	4	29	6	6	7	0'5	● showers a. Fine to c. p.	17865	19 51'6	68 3'6
9	1013'5	1019'4	83'4	83'2	85	82	8'7	8'8	70	71	29	7	29	6	8	7	—	— 7 h. Fine to c.	...	...	...
10	1023'9	1026'5	84'4	84'0	87	81	11'2	10'2	84	78	27	3	27	3	10	10	0'3	● showers a. Fine to c. p. o. n.	...	...	...
11	1026'9	1028'5	85'0	84'0	88	82	10'2	10'3	73	79	32	5	31	4	8	2	—	Fine from 8 h. v.	...	...	19 55'0
12	1025'2	1021'2	85'1	84'5	87	85	9'0	10'7	64	79	32	8	32	4	8	7	—	Fine to c. Fine sunset.	...	...	...
13	1018'1	1018'2	85'7	85'8	89	83	10'1	11'6	69	79	3	3	—	0	4	10	—	Fine to c. o. n.	...	...	...
14	1020'0	1020'0	88'6	86'2	90	82	10'0	10'7	57	71	8	2	—	1	200	6	—	∞ a. Fine. Fine sunset.	...	...	...
15	1019'8	1020'0	88'7	85'9	90	81	13'9	12'5	79	85	—	1	—	0	000	700	—	Fine. Fine sunset.	...	...	...
16	1021'1	1020'8	89'9	87'7	93	83	12'2	9'1	64	<i>n</i> 55	6	5	7	3	100	400	—	Fine. Fine sunset.	...	...	...
17	1020'8	1021'0	89'1	86'6	<i>x</i> 95	83	10'2	11'3	56	73	3	3	16	2	200	000	—	Fine. Fine sunset.	...	...	...
18	1019'7	1021'0	89'0	84'4	<i>x</i> 89	83	12'4	10'6	69	79	32	3	32	4	1	6	—	Fine all day.	...	...	...
19	1022'0	1023'7	85'2	85'1	87	84	9'7	11'1	69	79	30	7	30	3	10	10	—	Mostly o. Cool.	...	...	...
20	1023'1	1020'7	85'6	85'6	88	84	11'7	12'6	81	87	24	3	16	3	10	10	1'1	d. a. o. all day.	...	...	...
21	1015'5	1010'0	86'6	86'3	87	<i>x</i> 85	14'3	14'9	93	98	14	7	14	3	10● <sup>0</sup>	10●	<i>x</i> 15'1	— 8 h. o. all day.	...	...	...
22	1002'3	1001'0	86'5	86'3	90	<i>x</i> 85	14'3	13'7	93	90	14	6	—	0	10	10	8'1	≡ early. ● at times. o. n.	17862	19 51'2	68 3'9
23	1004'4	1010'4	84'9	84'9	87	84	13'3	11'3	96	82	27	8	28	5	10●	9	—	● early. o. to c. Fine sunset.	...	...	...
24	1011'0	1014'1	86'8	85'5	89	82	12'8	12'4	82	86	29	3	28	4	5	1	—	Fine and bright.	...	...	...
25	1014'9	1009'1	88'8	86'4	90	82	14'2	14'7	80	96	28	2	19	6	7	10● <sup>0</sup>	3'3	∞ <sup>2</sup> early. Dull to o. ● n.	...	...	...
26	1007'2	1011'1	87'3	85'7	88	<i>x</i> 85	13'8	12'4	85	85	27	5	30	8	9	7	1'1	● showers early. o. d.	...	...	...
27	1012'8	1015'4	85'6	84'8	88	84	13'2	10'3	91	75	29	7	30	8	10	10	0'6	● showers a. c. to o. p.	...	...	...
28	1014'1	1011'7	87'1	85'4	89	84	11'7	12'6	73	88	26	2									

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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m.

Heights above Ground:—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with 20 columns: Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes).

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<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m.

Heights above Ground:—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with 20 columns: Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes), REMARKS.

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

5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 22 days ; they are computed from the data for those days on which values at each of the four hours, 3<sup>h</sup>, 9<sup>h</sup>, 15<sup>h</sup>, 21<sup>h</sup>, are given in the table. A similar note applies to the values in Table 6. z denotes the maximum and n the minimum value in the column.

z Indeterminate

Table with columns: Day, Remarks, Potential Gradient (Volts per metre, Factor 1.74), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, Horizontal Force, Declination (West), and Inclination (North). Rows 1-30 and M.

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—ESKDALEMUIR.

Table with columns: Day, Potential Gradient (Volts per metre, Factor 5.54), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, North Component (Maximum, Minimum), West Component (Maximum, Minimum), and Vertical Component (Maximum, Minimum). Rows 1-30 and M.

\* 24 days. See note above.

† Instrument earthed.

‡ Insulation very bad.

6\*

## 7. SEISMOLOGICAL DIARY.

## EARTHQUAKES:—ESKDALEMUIR.

Day.	Phase.	Time, G.M.T.	Period.	Amplitudes.			Δ.	Remarks.
				A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>		
1	L	h m s 15 10 to 15 24	s ...	μ ...	μ ...	μ ...	km. ...	
2	P F	14 11 11 14 55	...	...	...	...	...	Timing indistinct on horizontal traces. P taken from vertical.
5		1 50 to 2 20	...	...	...	...	...	Very slight disturbance, chiefly E.-W.
9	Pe e L M M F	21 43 1 21 49 33 21 50 53 22 21 22 23 22 29 23 50	...	...	...	...	...	Very distant earthquake. Remarkably smooth waves after L. Direction of oscillation N.W.-S.E. at 22 h. 16 m.; N.E.-S.W. at 22 h. 28 m.
11		0 30 to 1 30	...	...	...	...	...	Prolonged slight disturbance.
14		14 26 to 15 10	...	...	...	...	...	Slight disturbance.
15	Pe L M M M	11 53 12 18 12 32 12 33 12 36	...	...	...	...	...	
15	L	16 53	...	...	...	...	...	Noticeable on E.-W. instrument.
16		23 40 to 24	...	...	...	...	...	Very slight disturbance.
19	e L M	1 39 33 1 45 48 1 58 2 2	...	...	...	...	...	
19		4 9 to 4 50	...	...	...	...	...	Very slight disturbance.
20	L	7 38	...	...	...	...	...	
21		1 46 to 2 10	...	...	...	...	...	Slight disturbance; initial phases imperfectly marked.
21		20 22 to 20 47	...	...	...	...	...	Slight disturbance.
21	P PR <sub>1</sub> S SR <sub>1</sub> M F	21 45 11 21 48 24 21 54 45 21 58 55 22 1 24	...	...	...	...	8280	No well-marked long waves.
24	e S(?) L	4 22 9 4 27 21 4 37	...	...	...	...	...	Slight disturbance.
24	e M M	7 9 7 32 7 33	...	...	...	...	...	Slight disturbance; initial phases obscure.
25	L	19 2	17	...	...	...	...	
28		18 18 to 18 34	...	...	...	...	...	Slight disturbance; maximum at 18 h. 33 m.
30	P S L M M F	3 12 45 3 23 3 3 34 3 38 3 49 6	...	...	...	...	9140	Epicentre 2° N., 92° W.

## MICROSEISMS OF N. COMPONENT:—ESKDALEMUIR.

Day.	0 h.		6 h.		12 h.		18 h.	
	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
1	μ	s	μ	s	μ	s	μ	s
1	0.2	4.5	0.2	4.5	0.6	3	0.5	4
2	0.9	3.5	0.9	4	1.0	5	0.9	5
3	1.0	5	0.7	4.5	0.9	4.5	0.8	4
4	0.7	4.5	0.7	4	0.9	4	1.1	3.5
5	1.5	5	1.3	4.5	1.5	4.5	1.3	4.5
6	1.7	4	1.1	4	1.1	4	0.5	5
7	0.6	5	0.5	5	0.8	4.5	0.5	5
8	0.6	4.5	0.5	5	0.2	4	0.0	...
9	0.0	...	0.0	...	0.0	...	0.0	...
10	0.0	...	0.0	...	0.0	...	0.0	...
11	0.0	...	0.0	...	0.1	3	0.4	3.5
12	0.5	4	0.5	3.5	0.8	4	0.5	4.5
13	0.8	5	0.6	5	1.0	5	1.1	4.5
14	0.7	5	0.6	4.5	0.5	5	0.3	4
15	0.5	4	0.1	4.5	0.4	4.5	0.2	5
16	0.5	5	0.2	5	0.3	3	0.2	5
17	0.2	5	0.2	5	0.1	4	0.2	4.5
18	0.0	...	0.2	5	0.0	...	0.0	...
19	0.2	4	0.5	5	0.4	5	0.3	5.5
20	0.1	5	0.0	...	0.0	...	0.1	4.5
21	0.0	...	0.3	4.5	0.4	4.5	0.1	4
22	0.0	...	0.0	...	0.0	...	0.0	...
23	0.2	4	0.1	5	0.1	5	0.1	4
24	0.1	5	0.1	5	0.1	4	0.0	...
25	0.1	4.5	0.5	4	0.5	4	0.2	5
26	0.6	4	0.1	4	0.0	...	0.0	...
27	0.0	...	0.1	4.5	0.0	...	0.1	4
28	0.1	4	0.1	4.5	0.1	4	0.1	4
29	0.2	4	0.6	4	0.6	4	0.6	4
30	0.4	4.5	0.4	4.5	0.3	3	0.1	4.5

## EARTHQUAKES:—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of		Remarks.
	Commence- ment.	Max. Phase.	
2	h m ...	h m 14 50	Small movement.
9	22 21	22 33	Succession of small movements lasting till 22 <sup>h</sup> 52 <sup>m</sup> .
11	0 37	1 5	Succession of small movements lasting till 1 <sup>h</sup> 10 <sup>m</sup> .
14	...	15 7	Small movement.
15	12 26	12 38.4	Small earthquake.
19	2 1	2 10.3	„
21	21 48	21 59.6	Prolonged disturbance.
24	...	7 39	Very small.
25	...	19 9	Succession of small movements.
30	3 12.6	3 51.8	Prolonged disturbance. Maximum amplitude on trace 1.0 mm.

8. 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.											SCOTLAND N. :—DEERNESS.																												
Height of Head above—Roof 8·8 m., Ground 13·7 m., M.S.L. 19·2 m. Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.											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.				Max. in a Gust.	Time of Gust.	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.				S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.			S.	N.
m/s.				m/s.				m/s.				m/s.				m/s.	h	m	m/s.				m/s.				m/s.				m/s.				m/s.	hrs.			
1	9·0	...	6·0	...	6·9	...	6·9	...	5·4	...	8·1	...	...	1·5	7·7	...	18·5	14	45	1	5·9	...	...	...	4·0	...	6·0	...	3·9	9·4	...	...	4·2	6·2	...	11·1	13		
2	...	3·1	7·6	...	1·3	6·8	...	1·9	...	4·5	...	...	2·7	4·1	...	14·3	13	25	2	...	5·7	8·5	...	...	7·5	11·1	...	7·3	10·9	...	...	8·1	8·1	...	14·4	12			
3	...	8·1	5·4	...	...	4·2	4·2	...	2·6	...	6·4	...	2·3	...	2·3	...	15·4	1	45	3	...	6·0	6·0	...	...	4·2	4·2	...	2·3	0·4	...	4·9	...	...	...	9·8	4		
4	...	4·7	...	4·7	...	8·1	...	5·4	...	0·9	...	4·5	...	2·4	...	5·7	...	18·7	7	0	4	...	4·8	...	1·0	6·5	...	...	6·5	4·6	...	6·8	...	2·1	...	11·5	13		
5	...	...	11·1	...	...	4·5	10·9	...	...	4·0	9·7	...	...	4·6	6·8	...	18·3	8	35	5	...	6·5	...	6·5	...	11·6	...	4·8	...	15·4	...	...	10·9	10·9	...	18·0	20		
6	...	5·8	8·7	...	...	4·4	6·6	...	2·8	...	6·7	...	0·8	...	3·8	...	13·9	2	25	6	...	6·7	...	2·8	...	9·0	1·8	...	7·7	...	1·5	...	7·9	...	3·3	...	10·5	1	
7	...	5·8	5·8	...	...	1·8	9·0	...	1·5	...	7·4	...	...	1·4	3·3	...	...	...	...	7	...	6·5	...	1·3	...	...	9·2	...	...	8·2	...	...	6·6	...	...	9·2	6, 8, 9, 13		
8	...	4·2	4·2	...	...	4·0	4·0	...	...	0·8	3·8	...	...	...	...	...	9·3	1	0	8	...	7·6	...	3·1	...	...	7·6	...	3·1	...	4·9	...	5·2	...	3·4	...	9·2	5, 11, 16	
9	...	2·3	5·5	...	...	4·0	4·0	...	...	3·7	3·7	...	...	3·7	3·7	...	9·3	6	15	9	...	7·1	...	1·4	...	...	6·2	...	...	6·5	1·3	...	4·5	0·9	...	7·9	2		
10	...	6·7	2·8	...	...	5·7	3·8	...	...	2·8	2·8	...	...	1·8	1·8	...	11·8	7	0	10	...	2·1	0·9	...	...	4·6	...	...	6·4	2·6	...	5·7	2·4	...	7·9	14			
11	...	5·8	5·8	...	...	5·8	1·2	...	...	5·6	...	...	...	8·7	1·7	...	14·4	23	10	11	...	8·3	1·7	...	...	10·3	2·0	...	9·4	3·9	...	11·6	4·8	...	13·8	24			
12	...	10·6	2·1	...	...	9·0	1·8	...	...	7·6	5·1	...	...	10·3	2·0	...	17·7	6	10	12	...	14·0	5·8	...	...	16·3	...	...	15·1	...	...	12·9	...	2·6	...	16·1	9, 16		
13	...	10·1	...	6·7	...	...	9·8	...	6·6	...	7·2	...	7·2	...	4·0	...	18·5	3	55	13	...	10·3	...	4·3	...	...	10·0	...	2·0	...	12·1	...	8·5	...	12·1	15, 16			
14	...	4·4	...	4·4	...	...	3·7	...	3·7	...	4·2	...	0·8	...	2·4	1·0	10·7	4	45	14	...	5·2	...	2·1	...	...	6·9	6·9	...	8·3	8·3	...	...	10·5	...	12·1	17, 18		
15	...	0·4	2·0	...	...	1·9	1·3	...	...	3·8	...	5·7	...	...	6·0	12·2	19	50	15	...	8·9	...	...	...	...	7·9	...	...	8·3	...	1·7	...	5·2	...	8·9	2, 3			
16	...	...	...	6·6	...	...	1·9	...	9·3	...	3·6	...	8·8	...	2·4	3·6	15·2	9	55	16	...	4·3	...	...	...	...	4·5	1·9	...	4·7	7·1	...	3·8	5·7	...	9·2	18		
17	...	1·8	...	4·3	...	...	3·1	...	4·7	...	2·6	...	8·8	...	3·0	...	9·7	23	55	17	...	3·8	5·7	...	...	5·2	3·4	...	5·1	5·1	...	3·7	3·7	...	8·2	1			
18	...	8·2	...	...	...	8·2	...	...	...	5·2	...	...	...	...	4·6	13·3	22	15	18	...	2·0	4·8	...	...	5·1	7·6	...	6·0	6·0	...	7·6	5·1	...	10·2	11, 17, 18				
19	...	10·1	6·7	...	...	9·1	3·8	...	...	4·5	0·9	...	...	1·8	2·7	17·2	6	45	19	...	...	...	...	...	No record	...	...	Clocks stopped	...	...	...	...	...	...	...	...	...		
20	...	3·3	3·3	...	...	5·3	5·3	...	...	1·2	6·1	...	0·8	...	3·8	...	11·3	7	0	20	...	0·7	0·7	...	...	1·1	1·7	...	1·0	...	...	0·8	4·2	...	4·6	23, 24			
21	...	...	...	...	...	3·7	...	3·7	...	7·6	...	3·1	...	4·3	...	14·0	15	20	21	...	...	4·9	...	...	1·5	7·4	...	...	4·9	...	...	2·1	...	0·9	...	7·9	11, 12		
22	...	6·9	...	...	...	8·7	...	1·7	7·4	...	1·1	1·5	7·2	...	...	16·7	9	15	22	...	3·0	...	1·3	5·1	...	...	1·0	5·7	...	2·4	3·6	...	...	...	7·2	16			
23	...	3·2	...	0·6	...	6·2	...	...	...	1·1	...	...	2·8	...	0·3	1·6	10·0	13	35	23	...	3·0	...	2·0	4·9	...	...	4·3	...	...	1·8	1·1	...	1·1	...	6·2	11		
24	...	0·3	...	1·6	...	2·5	1·7	...	...	2·3	2·3	...	2·5	...	6·1	...	10·7	20	40	24	...	1·1	...	...	1·7	1·8	...	...	2·7	...	1·9	...	4·5	...	5·8	...	9·2	23	
25	...	...	7·9	...	...	...	5·9	...	5·2	...	3·4	...	4·3	...	2·9	...	11·6	2	40	25	...	...	...	6·6	...	3·0	...	7·3	...	3·3	...	3·3	...	1·1	5·5	...	9·2	6, 8	
26	...	4·8	...	2·0	...	8·5	...	...	...	3·9	...	...	...	4·2	...	14·9	10	25	26	...	1·3	...	6·5	...	3·3	...	4·9	...	0·8	...	4·2	...	...	2·0	...	6·6	1, 2, 3		
27	...	6·1	...	1·2	...	7·4	1·5	...	...	6·1	1·2	...	...	7·1	1·4	12·3	9	50	27	...	...	...	...	...	...	0·3	...	...	1·0	...	...	...	...	1·6	1, 24				
28	...	6·9	2·9	...	...	8·2	3·4	...	...	1·8	4·3	...	...	2·9	...	13·6	5	50	28	...	...	...	...	...	...	3·5	...	0·7	...	7·6	3·1	...	5·8	5·8	...	9·5	20		
29	...	1·5	...	7·7	...	...	2·0	...	4·8	...	4·8	...	...	1·0	...	12·5	1	45	29	...	...	...	...	...	...	3·8	2·6	...	...	2·1	0·9	...	1·2	0·5	...	8·5	1		
30	...	4·2	0·8	...	...	1·3	...	6·5	...	4·0	...	4·0	...	5·5	...	13·1	19	50	30	...	...	...	...	...	...	3·2	...	...	0·6	...	0·8	...	0·6	...	0·2	0·2	...	3·9	11, 12, 13
S+N & W+E -78·1 138·3 131·4 151·2 128·5 118·1 125·6 103·3 94·7											S+N & W+E -93·5 131·7 86·8 167·6 90·5 166·2 96·6 145·6 93·7																												
S-N & W-E -78·1 81·8 -60·4 76·5 -15·9 54·4 -36·9 54·7											S-N & W-E -93·5 13·0 -116·4 33·1 -135·4 41·6 -122·2 38·3																												

ENGLAND S.W. :—SCILLY.											ENGLAND E. :—GREAT YARMOUTH.																													
Height of Head above—Ground 9·8 m., M.S.L. 49·7 m. Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.											Height of Head above—Roof 10·7 m., Ground 12·8 m., M.S.L. 15·9 m. Height of Cups above—Roof 3·7 m., Ground 18·3 m., M.S.L. 22·3 m.																													
Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.	Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust. (Gorleston.)	Time of Gust.			
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.				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.	h	m	m/s.				m/s.				m/s.				m/s.				m/s.	h	m			
1	3·9	...	5·9	...	4·9	...	7·3	...	...	9·6	...	...	...	4·1	4·1	...	13·1	12	56	1	1·8	...	1·8	...	4·3	...	2·9	...	3·7	...	3·7	...	4·0	...	4·0	...	13·5	22	45	
2	...	5·3	1·1	...	...	3·2	0·6	...	...	5·0	5·0	...	...	7·3	4·9	...	12·5	18	14	2	...	...	3·3	...	...	1·1	2·8	...	...	0·7	3·5	...	4·0	...	2·3	...	13·0	20	35	
3	...	9·0	1·8	...	...	5·8	...	...	4·5	4·5	...	2·4	5·8	...	14·2	1	26	3	...	...	0·4	2·3	...	...	4·0	1·6	...	...	3·3	2·8	...	1·1	...	...	...	11·0	13	0		
4	...	2·7	...	6·6	...	2·3	...	11·5	...	2·1	...	10·6	...	5·3	12·8	...	19·1	22	0	4	...	0·8	...	1·8	...	3·1	...	4·7	...	6·8	...	1·3	...	5·5	...	1·1	...	18·5	16	25
5	...	4·8	11·5	...	...	8·8	8·8	...	...	7·0	10·4	...	9·8	9·8	...	21·1	1	40	5	...	...	3·6	2·4	...	...	4·9	...	4·9	...	2·6	...	3·8	...	1·3	...	3·0	...	15·0	12	25
6	...	5·6	8·3	...	...	5·6	5·6	...	2·2	5·4	...	...	2·7	6·6	...	19·0	2	35	6	...	0·8	...	3·8	...	...	...	6·2	...	1·3	3·0	...	1·4	...	2·2	...	9·5	15	55		
7	...	2·7	6·6	...	...	2·3	2·3	...	3·5	3·5	...	...	4·1	4·1	...	12·7	14	44	7	...	0·5	...	2·6	...	3·6	...	2·4	...	4·8	...	1·0	...	...	...	1·0	...	15·0	15	30	
8	...	1·5	3·5	...	...	3·5	3·5	...	2·3	3·5	...	...	5·0	2·1	...	8·7	22	50	8	...	2·0	3·0	...	...	...	...	...	...	7·9	...	2·2	...	1·4	...	0·9	0·9	...	12·0		

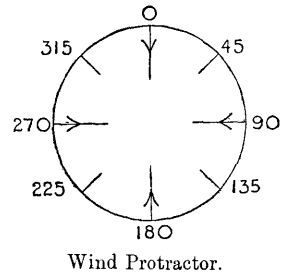
9. SOUNDINGS WITH PILOT BALLOONS.

Day.	Station.	Time of Start, G.M.T.	Horizontal Velocity of Wind.																Cloud Observations.		
			Geostrophic.		By Anemometer.		At Heights above M. S. L.												Type.	From N.	mr/s.
			From N.	m/s.	From N.	m/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.				
							From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.
2	S. Farnboro'	h. m.	310	8	315	1'0	315	5'0	300	6'0	295	11'5	...	...	...	...	...	...	Ci.	270	...
2	Falmouth	7 15	330	13	360	4'0	345	6'0	330	6'5	325	10'5	...	...	...	...	...	...	...	...	...
7	S. Farnboro'	6 35	270	10	250	4'5	250	8'5	250	9'5	255	9'0	...	...	...	...	...	...	Ci.	225	...
8	"	6 35	...	...	250	2'0	275	5'0	255	6'5	290	4'0	270	4'0	250	7'5	...	...	...	...	...
10	"	6 35	330	6	310	light	330	7'0	320	6'5	335	6'0	...	...	...	...	...	...	A.-Cu.	325	...
14	Eskdalemuir	7 30	10	8	20	6'5	20	4'8	35	6'5	45	8'0	...	...	...	...	...	...	Ci.-St.	55	3'0
16	"	12 55	80	4	20	5'0	40	3'0	25	3'5	40	8'5	40	8'5	...	...	...	...	Ci.	340	2'6
17	S. Farnboro'	6 25	90	12	...	...	75	7'5	70	10'0	80	12'5	...	...	...	...	...	...	Ci.	260	...
17	Eskdalemuir	7 25	...	...	135	0'6	305	4'3	330	5'0	340	7'0	355	8'0	10	7'5	...	...	...	...	...
17	Benson	7 30	90	12	40	4'5	75	6'0	65	9'5	70	12'5	...	...	...	...	...	...	Fr.-Cu.	90	...
18	Falmouth	7 20	60	8	10	2'5	85	4'7	5	10'0	25	15'5	...	...	...	...	...	...	...	...	...
19	S. Farnboro'	6 35	360	6	315	4'5	335	9'5	340	7'0	310	8'5	...	...	...	...	...	...	St.-Cu.	340	...
20	"	6 20	280	8	...	0'0	320	4'5	300	5'5	245	8'0	...	...	...	...	...	...	...	...	...
20	Benson	7 20	290	8	290	1'0	305	3'8	315	7'0	305	9'0	...	...	...	...	...	...	...	...	...
22	S. Farnboro'	7 30	200	8	125	0'5	205	6'5	220	9'5	235	10'0	...	...	...	...	...	...	...	...	...
29	"	6 25	280	10	250	4'0	280	11'0	275	8'5	280	8'5	...	...	...	...	...	...	...	...	...
30	"	18 10	290	11	250	8'0	270	8'0	280	13'5	280	14'0	280	19'0	...	...	...	...	...	...	...

Notes on Pressure Distribution.

- June 2 7 h. Depression over Southern Norway. Anticyclone over North-eastern Atlantic.
- 7 7 h. Depression over Northern North Sea.
- 8 7 h. Depression over Northern North Sea. Secondary over Bay of Biscay.
- 10 7 h. Anticyclone S.W. of British Isles. Depression over Scandinavia.
- 14 7 h. Anticyclone S.W. of Iceland. Lower pressure over Continent.
- 16 7 h. Anticyclone over North Scotland.
- 17 7 h. Anticyclone Westward of Scotland. Shallow depression over Bay of Biscay.
- 18 7 h. Anticyclone Westward of British Isles. Shallow depression over Western Mediterranean.
- 19 7 h. Anticyclone Westward of British Isles. Depression over Scandinavia and North Italy.
- 20 7 h. Anticyclone stretching from S.W. coasts to Azores. Depression over Scandinavia and Baltic.
- 22 7 h. Depression Westward of British Isles. Anticyclone over Germany.
- 29 7 h. Depression over North Sea. Secondary Westward of Ireland.
- 30 18 h. Trough of low pressure running W.S.W. and E.N.E. across Scotland.

Height of Station above M.S.L. = H.  
 Height of Anemometer above ground = h.  
 Benson . . . . . 57 m. 25 m.  
 Eskdalemuir . . . . . 242 m. 15 m.  
 Falmouth (Pendennis) 51 m. 12 m.  
 S. Farnborough . . . . . 70 m. 31 m.



10. NEPHOSCOPE OBSERVATIONS. May 1916.\*

ABERDEEN. Taken at 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
1	Cu.	5	mr/s. 5'0	mr/s. -0'4	mr/s. -5'0	Cu. to Cu.-Nb. Really Cu., with few spots rain. Transition type between Cu. and St.-Cu.  Relatively high velocity for Cirrus.  Ci.-Cu. to A.-Cu. Ci.-Cu. to A.-Cu. ; mainly the latter. A.-Cu. to St.-Cu. in lenticular masses. A.-Cu. to high St.-Cu.  True Ci., rather coarse and moving fast, with structureless and almost invisible Cirro-Nebula above. A finely-coloured elliptical solar halo was visible.
2	Fr.-St.	203	12'0	+4'7	+11'0	
4	Cu.-Nb.	264	3'0	+3'0	+0'3	
9	Nb.-Cuf.	341	6'3	+2'1	-6'0	
10	Cu.	272	3'7	+3'7	-0'1	
16	Ci.	263	4'6	+4'6	+0'6	
		274	8'3	+8'3	-0'6	
18	Ci.-Cu.	310	3'0	+2'3	+1'9	
20	A.-Cu.	223	5'0	+3'4	+3'7	
23	A.-Cu.	244	3'6	+3'2	+1'6	
26	St.-Cu.	151	6'0	-2'9	+5'2	
27	Ci.	175	5'0	-0'4	+5'0	
29	St.-Cu.	243	2'3	+2'0	+1'0	

\* For June, see p. 55.

METEOROLOGICAL OFFICE OBSERVATORIES—GEOPHYSICAL JOURNAL.

DAILY VALUES.—Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology.  
 Sixth Year.—No. 7. JULY 1916.] Units based on the C.G.S. System. [Price 1s.

1. SUNSHINE AND SOLAR RADIATION.

Day.	SOUTH KENSINGTON.—Lat. 51° 30' N. Long. 0° 10' W.								RICHMOND.—Lat. 51° 28' N. Long. 0° 19' W.					ESKDALEMUIR.—Lat. 55° 19' N. Long. 3° 12' W.					CAHIRCIVEEN.	
	Bright Sunshine.		Radiation received on Horizontal Surface by Callendar Radiograph.						Bright Sunshine.		Radiation at Noon by Ångström Pyrheliometer.			Bright Sunshine.		Radiation by Ångström Pyrheliometer.			Bright Sunshine.	
	Total.	Per cent. of Possible.	Daily Total.	Per cent. of Planetary.	Maximum.			Total.	Per cent. of Possible.	Intensity.	Vertical Component.	Sky.	Total.	Per cent. of Possible.	Time.	Sky.	p. sec Z.	Intensity.	Total.	Per cent. of Possible.
					For Day.	11.30 h. to 12.30 h.	Amount.													
1	5 <sup>8</sup>	35	1740	42	85	12 13	85	4 <sup>9</sup>	30	...	...	...	0 <sup>3</sup>	2	...	...	...	4 <sup>8</sup>	29	
2	7 <sup>7</sup>	47	1547	38	85	13 10	81	7 <sup>1</sup>	43	...	...	...	0 <sup>1</sup>	1	...	...	...	5 <sup>2</sup>	31	
3	0 <sup>4</sup>	2	1088	27	53	11 50	53	0 <sup>3</sup>	2	...	...	...	0 <sup>5</sup>	3	...	...	...	4 <sup>3</sup>	26	
4	5 <sup>8</sup>	35	1296	32	84	11 10	76	7 <sup>3</sup>	45	73	65	Clear	3 <sup>8</sup>	22	...	...	...	10 <sup>9</sup>	66	
5	5 <sup>3</sup>	32	1313	32	82	12 0	82	5 <sup>3</sup>	32	...	...	...	0 <sup>8</sup>	5	...	...	...	0 <sup>6</sup>	4	
6	0 <sup>7</sup>	4	1028	25	39	8 11	31	0 <sup>7</sup>	4	...	...	...	2 <sup>9</sup>	17	...	...	...	1 <sup>9</sup>	12	
7	2 <sup>9</sup>	18	1056	26	89	12 55	88	2 <sup>5</sup>	15	79	70	Clear	0 <sup>0</sup>	0	...	...	...	10 <sup>3</sup>	62	
8	7 <sup>4</sup>	45	1602	40	95	12 36	85	7 <sup>9</sup>	48	...	...	...	0 <sup>1</sup>	1	...	...	...	6 <sup>2</sup>	38	
9	6 <sup>4</sup>	39	1496	37	86	9 46	74	5 <sup>2</sup>	32	...	...	...	0 <sup>2</sup>	1	...	...	...	7 <sup>7</sup>	47	
10	4 <sup>8</sup>	29	1484	37	96	11 37	96	4 <sup>3</sup>	26	84	74	Clear	0 <sup>1</sup>	1	...	...	...	6 <sup>4</sup>	39	
11	1 <sup>4</sup>	9	1043	26	83	13 34	59	0 <sup>8</sup>	5	...	...	...	0 <sup>0</sup>	0	...	...	...	1 <sup>3</sup>	8	
12	2 <sup>1</sup>	13	1039	26	81	9 30	42	2 <sup>2</sup>	14	...	...	...	0 <sup>0</sup>	0	...	...	...	0 <sup>3</sup>	2	
13	0 <sup>0</sup>	0	653	16	47	11 47	47	0 <sup>0</sup>	0	...	...	...	3 <sup>9</sup>	23	...	...	...	4 <sup>7</sup>	29	
14	1 <sup>7</sup>	10	804	20	75	11 21	31	1 <sup>3</sup>	8	...	...	...	3 <sup>8</sup>	22	...	...	...	11 <sup>4</sup>	70	
15	1 <sup>9</sup>	12	1121	28	48	11 3	33	1 <sup>9</sup>	12	...	...	...	4 <sup>2</sup>	25	...	...	...	0 <sup>6</sup>	4	
16	0 <sup>5</sup>	3	579	15	30	9 25	16	0 <sup>9</sup>	6	...	...	...	0 <sup>1</sup>	1	...	...	...	0 <sup>0</sup>	0	
17	0 <sup>0</sup>	0	483	12	38	15 53	23	0 <sup>0</sup>	0	...	...	...	0 <sup>0</sup>	0	...	...	...	12 <sup>8</sup>	79	
18	6 <sup>1</sup>	38	1698	43	80	12 40	74	6 <sup>2</sup>	39	...	...	...	2 <sup>8</sup>	17	...	...	...	10 <sup>6</sup>	65	
19	11 <sup>2</sup>	70	1788	46	86	11 55	86	11 <sup>3</sup>	71	...	...	...	9 <sup>9</sup>	59	...	...	...	10 <sup>0</sup>	62	
20	7 <sup>6</sup>	48	1458	37	56	12 30	56	8 <sup>2</sup>	51	29	25	Ci.	0 <sup>9</sup>	5	...	...	...	10 <sup>9</sup>	68	
21	1 <sup>1</sup>	7	985	25	63	10 50	52	4 <sup>3</sup>	27	...	...	...	1 <sup>7</sup>	10	...	...	...	13 <sup>7</sup>	86	
22	7 <sup>4</sup>	47	1456	38	86	12 8	86	7 <sup>2</sup>	45	...	...	...	4 <sup>8</sup>	29	...	...	...	14 <sup>0</sup>	88	
23	0 <sup>0</sup>	0	443	12	23	11 33	23	0 <sup>0</sup>	0	...	...	...	8 <sup>7</sup>	53	...	...	...	10 <sup>3</sup>	64	
24	0 <sup>0</sup>	0	n 414	11	n 20	13 45	16	0 <sup>0</sup>	0	...	...	...	12 <sup>6</sup>	77	...	...	...	8 <sup>1</sup>	51	
25	7 <sup>1</sup>	45	1690	44	76	11 39	76	6 <sup>2</sup>	39	...	...	...	12 <sup>2</sup>	74	...	...	...	3 <sup>7</sup>	23	
26	8 <sup>5</sup>	54	1575	41	62	12 5	62	9 <sup>6</sup>	61	...	...	...	9 <sup>5</sup>	58	12 15	Hazy	1 <sup>22</sup>	69	0 <sup>0</sup>	
27	7 <sup>0</sup>	45	1465	39	72	13 25	63	7 <sup>4</sup>	47	...	...	...	8 <sup>8</sup>	54	...	...	...	11 <sup>3</sup>	72	
28	6 <sup>3</sup>	40	1489	39	60	12 42	58	7 <sup>7</sup>	49	32	27	Hazy	13 <sup>1</sup>	81	12 5	Ci.-haze	1 <sup>22</sup>	63	2 <sup>4</sup>	
29	13 <sup>2</sup>	85	1978	53	69	11 38	69	13 <sup>7</sup>	88	66	55	Ci.	5 <sup>6</sup>	35	...	...	...	1 <sup>6</sup>	10	
30	14 <sup>0</sup>	90	2192	59	73	12 1	73	13 <sup>6</sup>	88	...	...	...	3 <sup>9</sup>	24	...	...	...	0 <sup>5</sup>	3	
31	11 <sup>5</sup>	75	1700	46	72	11 1	68	11 <sup>6</sup>	75	66	55	Clear	9 <sup>3</sup>	58	...	...	...	1 <sup>3</sup>	8	
Means	5 <sup>03</sup>	32	1281	33	68	—	60	5 <sup>16</sup>	33	—	—	—	4 <sup>03</sup>	24	—	—	—	6 <sup>06</sup>	38	
Normal	5 <sup>65</sup>	36	—	—	—	—	—	6 <sup>48</sup>	41	—	—	—	5 <sup>00</sup>	30	—	—	—	5 <sup>13</sup>	32	

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

Heights above M. S. L. :—H=12.5 m. H<sub>b</sub>=13.7 m. H<sub>a</sub>=26.4 m. Above Ground: h<sub>t</sub>=1.2 m. h<sub>r</sub>=0.56 m. h<sub>a</sub>=13.9 m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind Direction in Points (S=E, 16=S) with Speed in metres per second.				Cloud Amount (0-10) and Weather.		Rain 24 hours beginning 9 h.	Remarks.	Magnetism.		
	9 h.	21 h.	9 h.	21 h.	Max.	Min.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.			Horiz- ical Force.	Declina- tion West.	Inclina- tion.
	mb.	mb.	a.	a.	a.	a.	millibar.	%	%	Dir.	m/s.	Dir.	m/s.	Tenths of Sky covered.	mm.						
1	1008.0	1008.7	87.0	85.9	89	83	13.6	13.4	86	91	23	6	21	4	7	9	0.6	● <sup>0</sup> 0 h.—3 h. 30 m. Fine midday.	...	...	...
2	1006.0	1007.7	86.9	86.5	90	85	14.5	12.6	92	82	23	5	32	3	7	8	1.5	Clear a. to c. ● <sup>0</sup> 18 h. Fine sunset.	...	...	...
3	1007.8	1007.8	85.8	85.1	n 88	85	13.2	12.8	90	91	30	5	28	5	10	10	0.2	● showers.	...	...	...
4	1008.9	1011.4	86.8	85.9	89	83	12.5	12.8	80	87	32	2	28	3	7	1	0.2	Fine. ☽ n.	...	...	...
5	1013.9	1013.6	87.6	86.6	90	n 82	12.4	12.1	75	78	—	1	15	2	10	8	1.7	● <sup>0</sup> 5 h. Mostly o.	...	...	...
6	1005.4	1001.6	88.5	87.5	91	85	14.3	15.2	82	93	—	1	—	0	10	0	2.0	● n. d. and ≡ <sup>0</sup> a. c. p.	...	...	...
7	1001.8	1005.8	87.2	85.6	89	85	12.1	11.0	75	76	2	7	32	6	4	0	0.2	Fine and sunny.	...	...	...
8	1008.5	1010.0	84.5	85.6	n 88	84	12.0	11.3	89	78	27	5	25	4	8	9	0.7	● showers. c. to o.	17863	19 50.2	68 56
9	1010.9	1012.9	87.0	85.9	90	84	12.4	11.8	78	80	24	3	26	4	10	4	2.4	Fine to c.	...	...	...
10	1015.7	1018.7	85.4	86.4	89	84	11.8	11.3	83	74	26	5	24	6	9	10	—	● showers till 9 h. Fine 10 h.—15 h.	...	...	...
11	1019.1	1017.1	88.0	87.6	91	86	13.3	14.8	79	90	21	7	15	4	10	10	n 14.6	● showers 10 h.—12 h. Fair to c.	...	...	...
12	1010.1	1012.4	88.2	86.6	89	86	16.3	13.7	95	89	21	9	24	8	10	0	0.2	● <sup>2</sup> 1 h.—2 h. Mostly o. ● <sup>0</sup> showers p.	...	...	...
13	1014.9	1019.0	86.7	86.1	89	86	14.4	12.6	93	84	26	5	29	2	10	4	—	d. a., then fine to c.	...	...	...
14	1021.3	1022.6	87.5	86.0	90	84	12.0	13.2	73	89	32	3	—	0	8	00	3.00	Fine. Fine sunset.	...	...	...
15	1022.2	1020.6	88.4	88.1	91	85	14.2	16.2	82	95	14	4	15	4	10	10	1.2	Mostly o. d. from 22 h.	...	...	...
16	1019.7	1020.7	88.8	86.9	91	86	17.1	14.8	96	94	—	1	29	6	10	8	0.1	d. n. Sultry a. o. ≡ <sup>0</sup> p.	...	...	...
17	1023.2	1024.3	87.1	85.6	89	84	11.7	10.8	73	75	2	4	32	5	8	2	—	Fine.	...	...	...
18	1023.6	1022.5	87.2	86.8	91	n 82	12.4	13.9	77	89	29	3	27	2	6	6	—	Fine. ⊕ <sup>0</sup> a.	...	...	...
19	1021.7	1022.4	88.6	88.2	92	85	13.3	14.7	76	86	27	3	—	1	8	8	—	Fine. c. evening. o. n.	...	...	...
20	1023.3	1023.9	89.1	87.7	92	84	16.0	14.9	88	90	—	0	—	0	9	00	6.00	Fine. Pretty sunset.	...	...	...
21	1023.8	1023.2	90.7	88.5	94	84	16.5	15.5	82	89	—	1	—	0	5	2	—	p early. Fine. Fine sunset.	...	...	...
22	1022.6	1023.0	91.8	89.6	x 95	85	17.9	16.9	83	90	—	1	—	0	5	2	—	p early. Fine, hot, and close.	17870	19 48.6	68 6.4
23	1023.3	1022.7	92.0	90.1	x 95	87	18.5	17.4	85	90	—	1	—	0	4	00	7.00	a. Fine, hot, and close.	...	...	...
24	1021.2	1020.2	91.3	88.4	94	87	17.7	15.6	85	90	—	0	—	0	9	00	5.00	Fine and sultry. Fine sunset.	...	...	...
25	1019.2	1018.9	90.5	89.3	94	85	16.7	16.5	84	90	—	1	15	2	10						

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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., and Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes).

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<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity, Wind Direction in Points (8=E, 16=S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., and Height above M.S.L. of Surface of Underground Water. Includes a 'REMARKS' column with weather descriptions and a 'Normal' row at the bottom.

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



5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 29 days; they are computed from the data for those days on which values at each of the four hours, 3h, 9h, 15h, 21h, are given in the table. A similar note applies to the values in Table 6.
x denotes the maximum and n the minimum value in the column.

= Indeterminate.

Table with columns: Day, Remarks, Potential Gradient (Volts per metre, Factor 1.90), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, Horizontal Force (Mean Time), Declination (West), Inclination (North).

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—ESKDALEMUIR.

Table with columns: Day, Potential Gradient (Volts per metre, Factor 5.73), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, North Component (Maximum, Minimum), West Component (Maximum, Minimum), Vertical Component (Maximum, Minimum).

\* 18 days. See note above.

† Insulation bad.

‡ Instrument being adjusted.

7. SEISMOLOGICAL DIARY.

EARTHQUAKES :—ESKDALEMUIR.								MICROSEISMS OF N. COMPONENT :—ESKDALEMUIR.											
Day.	Phase.	Time, G.M.T.			Period.	Amplitudes.			Δ.	Remarks.	Day.	0 h.		6 h.		12 h.		18 h.	
		h	m	s		A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>				A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
3	L	4	1	to	18 to 20	μ	μ	μ	km.		1	0.3	4.5	0.2	4	0.1	4	0.1	3
3	Pi PR S M M M F	9 52 51 9 56 5 10 2 7 10 14 3 10 14 5 10 17 45 11 39			...	...	...	...	7800	Epicentre in Mexico. L not prominent, but a few well-marked waves of 32 secs. period at 10 h. 53 m.	6	0.0	...	0.0	...	0.1	4.5	0.1	3
9		12			...	...	...	...		Long waves.	7	0.1	3	0.0	...	0.0	...	0.1	3
13		15 20 to 16 20			...	...	...	...		Slight disturbance without definitely marked phases. Long waves of 18 secs. period and low amplitude.	8	0.1	3	0.1	3	0.0	...	0.1	3
14		15 43 to 15 56			...	...	...	...		Long waves.	9	0.0	...	0.0	...	0.0	...	0.1	4.5
14	e M M F	14 30 (?) 14 36 2 14 36 2 ...			16 16 ...	8 ...	7 ...	...			10	0.3	4	0.2	5	0.5	4.5	0.3	4
15	e F	8 (?) 8 35			...	...	...	...		Slight disturbance. Record of initial phases lost while changing sheets.	11	0.3	5	0.5	5	0.2	4	0.1	4.5
16	Pe S (?) SR (?) L M M F	18 27 0 18 37 10 18 42 30 18 53 19 3 19 4 19 30			...	...	...	...		P faint and doubtful. Motion N.W.-S.E. from 18 h. 58 m. to 19 h. 7 m., N.E.-S.W. from 19 h. 7 m. to 19 h. 10 m.	12	0.1	5	0.0	...	0.0	...	0.1	4
17	Pe M M	1 8 34 1 30 4 1 33 44			...	...	...	...		P prominent on vertical instrument.	13	0.1	5	0.6	7	0.9	7.5	1.2	6.5
21	L	22 40 to 23 9			18 to 22	...	...	...			14	0.5	3.5	0.5	4	0.1	4	0.0	...
22		6 15 to 7 10			...	...	...	...		Faint disturbance. No definite phases.	15	0.0	...	0.0	...	0.0	...	0.1	4
23	L	11 12 to 11 35			...	...	...	...			16	0.1	4.5	0.1	5	0.1	5	0.1	5
27		12 17 to 13 50			...	...	...	...		Prolonged slight disturbance. No definite phases.	17	0.1	5	0.6	7	0.9	7.5	1.2	6.5
28		17 59 to 18 43			...	...	...	...		Prolonged slight disturbance. No definite phases.	18	1.2	6.5	0.8	6	0.8	5.5	0.6	5.5
31		0 13 to 0 40			...	...	...	...		Prolonged slight disturbance. No definite phases.	19	0.7	5.5	0.6	5	0.5	5	0.5	5
					...	...	...	...			20	...	...	...	...	0.2	5	0.1	5
					...	...	...	...			21	0.1	4.5	0.1	5	0.1	5	0.1	5
					...	...	...	...			22	0.0	...	0.2	5	0.0	...	0.0	...
					...	...	...	...			23	0.0	...	0.1	5	0.0	...	0.0	...
					...	...	...	...			24	0.0	...	0.0	...	0.0	...	0.0	...
					...	...	...	...			25	0.0	...	0.0	...	...	...	...	...
					...	...	...	...			26	...	...	...	...	...	...	...	...
					...	...	...	...			27	0.4	5	0.3	5	0.2	5	0.1	4.5
					...	...	...	...			28	0.2	5	0.2	5	0.1	5	...	...
					...	...	...	...			29	0.1	5	0.3	4.5	0.2	4.5	0.3	5
					...	...	...	...			30	0.3	5	0.5	4	0.4	5	0.4	5
					...	...	...	...			31	0.2	4.5	0.1	4.5	0.3	5	0.3	4.5

EARTHQUAKES :—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of		Remarks.
	Commencement.	Max. Phase.	
8	h m ...	h m 10 1	Very small.
13	...	16 5	Very small disturbance visible from 16 <sup>h</sup> 2 <sup>m</sup> to 16 <sup>h</sup> 13 <sup>m</sup> .
15	...	8 13	Very small.
16	19 5	19 10	Disturbance visible from 19 <sup>h</sup> 5 <sup>m</sup> to 19 <sup>h</sup> 27 <sup>m</sup> .
31	0 14	0 26	Very small.

8. 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.

Height of Head above—Roof 8.8 m., Ground 13.7 m., M.S.L. 19.2 m.  
Height of Cups above—Roof 4.6 m., Ground 7.6 m., M.S.L. 15.2 m.

SCOTLAND N. :—DEERNESS.

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.				Max. in a Gust.	Time of Gust.		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.		S.	N.		W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.			W.	E.	m/s.	hrs.
	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.	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.			m/s.	m/s.		
1	4.1	...	2.7	...	6.6	...	...	...	6.0	...	9.0	...	5.8	...	5.8	...	23.7	14	5	1	1.3	...	...	...	1.3	...	...	...	1.0	...	...	...	4.8	...	0.7	...	3.5	4.9	14, 15, 16, 17, 24			
2	1.2	...	6.1	...	...	...	2.3	...	1.6	...	1.6	...	0.8	...	0.6	...	11.6	1	10	2	...	2.3	...	...	...	3.9	...	...	...	2.3	...	...	...	...	5.9	3						
3	0.6	...	0.4	...	1.1	...	...	1.7	...	3.3	...	1.4	...	1.8	...	0.8	6.8	13	35	3	...	0.6	0.3	...	...	2.5	...	2.5	...	3.6	...	1.5	...	2.8	...	1.1	4.6	13, 24				
4	...	1.2	...	0.5	...	1.1	1.1	...	1.6	1.6	...	...	...	0.5	0.5	...	6.9	11	35	4	...	6.2	...	...	...	5.6	...	...	...	5.5	1.1	...	1.8	0.8	...	6.2	3, 6					
5	...	4.6	...	...	...	2.3	...	...	0.7	...	...	...	1.7	...	1.1	...	7.2	5	10	5	...	1.8	0.8	...	...	1.8	0.8	...	...	0.7	1.1	...	1.1	1.1	...	3.0	12					
6	2.9	...	0.6	...	3.8	...	0.8	...	1.2	...	...	5.8	3.6	...	...	...	10.8	11	55	6	...	0.2	0.2	...	1.3	...	3.0	...	2.3	...	...	0.4	0.7	...	...	3.3	9					
7	2.3	...	0.4	...	2.0	...	0.4	...	...	4.9	3.3	...	...	5.1	5.1	...	15.1	23	0	7	1.0	...	...	0.2	2.3	...	...	2.3	0.8	...	3.8	...	...	...	3.5	4.9	12					
8	...	4.6	0.8	...	...	3.4	8.2	...	...	5.3	...	...	2.4	...	3.6	...	14.3	0	20	8	...	2.0	...	3.0	...	2.7	...	4.1	...	6.6	...	...	4.3	...	...	6.6	13, 14, 15					
9	1.5	...	7.4	...	4.6	...	6.8	...	6.9	...	2.9	...	2.9	...	4.3	...	13.3	14	45	9	...	1.6	...	...	...	2.3	...	...	5.1	...	...	1.0	2.8	...	1.1	5.2	15					
10	2.6	...	6.4	...	2.8	...	6.7	...	3.3	...	4.9	...	4.4	...	6.6	...	14.3	18	30	10	2.1	...	...	0.9	3.3	...	...	1.4	2.8	...	...	1.1	0.9	...	...	0.4	4.3	16				
11	1.5	...	7.4	...	3.0	...	7.3	...	3.3	...	4.9	...	3.3	...	3.3	...	14.4	0	5	11	...	...	2.4	...	...	1.5	3.6	...	...	2.8	6.7	...	...	0.9	4.5	...	7.5	16				
12	5.5	...	3.7	...	7.4	...	...	...	1.5	...	5.6	...	3.8	...	9.1	...	16.0	19	50	12	0.8	...	3.8	...	...	3.6	1.5	...	...	4.9	...	...	3.8	0.8	...	6.2	17					
13	...	1.2	6.1	...	...	4.9	3.3	...	...	2.0	4.8	...	...	5.5	3.7	...	11.5	22	25	13	...	4.9	3.3	...	...	4.2	6.2	...	...	6.5	6.5	...	...	5.7	3.8	...	9.8	16				
14	...	6.3	6.3	...	...	6.1	2.5	...	...	3.5	3.5	...	...	0.9	1.3	...	13.7	3	40	14	...	4.3	2.9	...	...	4.0	6.0	...	...	6.3	6.3	...	...	5.4	8.1	...	10.2	20				
15	0.6	...	2.9	...	1.0	...	4.8	...	3.5	...	3.5	...	4.2	...	0.8	...	10.4	11	40	15	...	4.9	7.4	...	...	1.5	7.4	...	...	1.2	6.1	...	...	0.2	1.0	...	9.2	1, 2				
16	5.8	...	1.2	...	4.0	...	...	...	1.2	6.1	...	...	...	0.9	2.1	...	10.1	10	5	16	2.0	...	...	1.3	...	...	0.8	...	4.2	...	...	2.6	6.4	...	...	7.5	24					
17	...	4.9	3.3	...	...	5.7	3.8	...	...	7.9	3.3	...	...	0.6	1.9	...	14.7	20	40	17	...	4.9	4.9	...	...	5.3	7.9	...	...	4.2	6.2	...	...	0.8	3.8	...	10.5	10				
18	...	7.7	1.5	...	...	3.2	0.6	...	...	1.1	2.8	...	...	0.3	3.0	...	12.1	0	20	18	1.0	...	...	4.8	...	2.6	...	3.8	...	2.0	...	...	0.9	...	...	2.1	...	6.2	5			
19	...	7.9	...	...	...	1.3	6.8	...	...	1.4	...	...	...	3.0	3.3	...	11.6	2	5	19	...	0.5	1.2	...	...	1.8	...	...	...	5.6	...	...	2.6	...	0.5	...	7.2	13				
20	2.0	...	0.4	...	2.2	...	1.4	...	1.0	...	2.4	...	...	0.6	1.5	...	5.9	7	30	20	1.7	...	0.3	...	...	...	3.9	...	...	2.6	3.8	...	...	0.5	0.5	...	5.2	8				
21	...	0.1	0.3	...	...	0.6	0.8	...	...	2.3	2.3	...	...	0.6	0.3	...	6.2	12	55	21	1.3	...	0.3	...	...	2.9	...	0.6	...	3.6	...	...	1.5	1.6	...	...	3.9	15				
22	...	1.2	0.5	...	...	0.9	0.4	...	...	1.8	0.8	...	...	0.3	0.1	...	4.6	18	35	22	2.0	...	...	...	...	4.8	...	...	2.0	3.5	...	...	2.9	...	...	0.6	5.2	9				
23	...	0.6	0.3	...	...	1.5	0.6	...	...	3.0	1.3	...	...	0.4	0.6	...	5.8	15	35	23	1.0	...	...	0.2	...	2.0	...	0.4	...	...	1.3	...	...	...	0.3	3.3	...	7				
24	...	0.9	0.9	...	...	0.7	0.7	...	...	1.5	2.2	...	0.3	...	1.6	...	6.4	14	30	24	0.2	...	...	1.0	0.6	...	...	3.2	2.0	...	...	4.8	4.0	...	...	4.0	5.6	17, 21, 24				
25	1.7	...	1.1	...	5.2	...	...	...	5.8	...	1.2	...	2.8	...	1.1	...	10.4	9	40	25	3.6	...	...	2.4	2.5	...	2.5	3.7	...	...	3.7	3.0	...	...	1.3	5.6	2					
26	2.3	...	0.4	...	3.2	...	0.6	...	4.5	...	1.9	...	0.9	...	0.9	...	8.9	16	45	26	1.6	...	...	1.6	...	...	0.5	1.9	...	...	1.3	...	...	0.7	...	1.1	3.0	18, 19				
27	2.8	...	1.1	...	1.8	...	2.7	...	...	4.5	0.9	...	...	1.8	0.8	...	8.7	13	15	27	...	1.0	2.4	...	...	1.6	4.0	...	...	2.7	4.1	...	...	1.1	1.7	...	5.9	13				
28	...	2.6	0.5	...	...	1.6	0.3	...	...	2.2	1.4	...	...	0.6	0.4	...	7.0	1	10	28	1.2	...	1.7	...	1.6	...	1.6	...	2.5	...	...	4.2	...	...	0.8	...	4.3	20, 21				
29	1.8	...	4.3	...	...	...	4.6	...	4.3	...	2.9	...	3.8	...	2.6	...	10.0	3	25	29	4.6	...	...	...	...	5.8	...	...	3.6	...	...	8.8	...	4.2	...	4.2	...	11.5	12, 24			
30	3.0	...	2.0	...	...	3.3	...	3.8	...	2.6	...	4.1	...	2.7	...	10.7	11	45	30	...	...	10.8	...	...	1.0	4.8	...	...	2.6	6.4	...	...	2.1	5.2	...	10.8	3					
31	2.4	...	1.0	...	...	2.8	1.1	...	...	1.8	0.8	...	...	0.8	0.6	...	8.1	5	30	31	...	0.9	4.5	...	...	...	4.6	...	...	2.4	5.7	...	1.1	...	1.1	...	7.2	13				
S+N & W+E	80.5	...	84.4	...	84.8	...	83.5	...	100.8	...	94.3	...	80.2	...	68.4	...	...	...	...	S+N & W+E	61.5	...	67.2	...	75.4	...	90.3	...	92.1	...	105.0	...	66.4	...	64.5	...	...	...				
S-N & W-E	8.7	...	83.4	...	12.6	...	71.3	...	14.2	...	79.9	...	21.4	...	66.8	...	...	...	...	S-N & W-E	-10.7	...	37.6	...	-10.2	...	44.3	...	-20.9	...	53.2	...	-8.6	...	30.5	...	...	...				

ENGLAND S.W. :—SCILLY.

Height of Head above—Ground 9.8 m., M.S.L. 49.7 m.  
Height of Cups above—Ground 5.8 m., M.S.L. 45.7 m.

ENGLAND E. :—GREAT YARMOUTH.

Height of Head above—Roof 10.7 m., Ground 12.8 m., M.S.L. 15.9 m.  
Height of Cups above—Roof 3.7 m., Ground 13.3 m., M.S.L. 22.3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.		Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust. (Gorleston.)	Time of Gust.				
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.		S.	N.		W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.			W.	E.	m/s.	h m
	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.	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.			m/s.	m/s.		
1	6.9	...	4.6	...	2.0	...	10.2	...	...	3.4	8.1	...	...	1.4	7.0	...	16.8	11	50	1	1.1	...	2.8	...	3.2	...	2.2	...	...	1.5	3.5	...	...	0.7	...	...	15.1	15	0			
2	...	...	6.3	...	...	...	5.8	...	1.1	...	5.3	...	...	...	3.3	...	8.4	0	5	2	1.3	...	1.9	...	2.6	...	3.8	...	...	3.3	...	3.0	...	...	1.3	10.5	19	30				
3	...	...	2.1	...	...	...	2.1	...	0.8	...	1.9	...	...	1.2	1.2	...	2.8	20	4	3	0.9	...	0.4	...	...	1.3	...	...	1.8	...	...	2.7	...	...	2.1	5.0	15	5				
4	...	1.2	1.2	...	...	1.4	0.9	...	...	2.3	1.0	...	...	3.1	1.3	...	6.8	23	35	4	0.1	...	...	0.3	1.1	...	...	1.7	...	...	0.7	...	...	3.5	0.6	...	3.2	6.4	16	10		
5	...	2.8	4.2	...	...	2.2	5.4	...	...	...	3.8	...	1.3	...	3.1	...	8.4	8	55	5	...	2.7	...	1.8	...	1.7	...	1.1	...	0.6	...	2.9	2.0	...	...	...	6.4	1	45			
6	6.3	...	...	...	8.3	...	...	...	4.6	...	1.9	...	2.1	...	2.1	...	12.7	6	43	6	0.1	...	0.7	...	...	0.9	0.9	...	...	3.6	...	1.7	...	1.1	...	...	7.5	13	45			
7	...	...	4.2	...	...	3.0	3.0	...	...	2.1	2.1	...	...	2.8	...	0.6	6.4	4	57	7	5.5	...	...	1																		

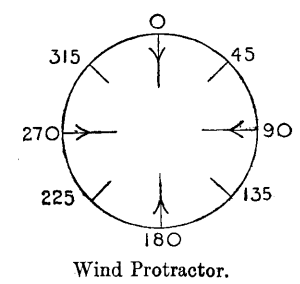
9. SOUNDINGS WITH PILOT BALLOONS.

Day.	Station.	Time of Start, G.M.T.	Horizontal Velocity of Wind.																Cloud Observations.			
			Geostrophic.		By Anemometer.		At Heights above M.S.L.												Type.	From N.	mr/s.	
			From N.	m/s.	From N.	m/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.					
							From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.				
4	S. Farnboro'	6 25	...	0	...	0	0'0	...	1'0	195	0'5	190	5'0	...	...	...	...	...	...	A.-Cu.	190	...
5	"	6 30	300	5	...	...	...	320	5'0	310	2'5	305	4'5	270	5'0	...	...	...	...	...	...	...
11	"	6 15	290	11	225	4'0	290	10'5	285	13'5	270	14'5	...	...	...	...	...	...	...	*	*	*
12	"	6 15	260	15	215	6'0	240	10'5	250	12'5	245	9'0	260	11'0	275	13'5	285	11'0	...	...	...	...
12	Benson	7 15	260	16	220	6'0	230	11'5	245	14'5	260	9'5	270	7'5	...	...	...	...	...	...	...	...
15	Eskdalemuir.	7 30	300	7	280	7'5	295	6'0	265	6'0	310	4'2	...	...	...	...	...	...	...	Ci.	335	3'0
16	"	7 45	290	6	215	2'7	255	2'7	315	4'3	305	9'5	295	8'0	...	...	...	...	...	A.-Cu.	310	3'1
19	Benson	7 15	360?	3	315	1'8	335	5'5	335	5'0	330	11'5	...	...	...	...	...	...	...	...	...	...
20	S. Farnboro'	6 5	30	3	290	light	355	4'5	345	3'5	350	4'5	...	...	...	...	...	...	...	...	...	...
21	"	6 15	...	0	...	0'0	340	2'5	5	2'5	50	5'5	45	8'5	...	...	...	...	...	Ci.	340	...
21	Benson	7 15	...	0	...	0'0	345	1'5	60	1'6	60	5'0	50	6'5	...	...	...	...	...	...	...	...
21	S. Farnboro'	17 20	70	7	...	light	55	5'0	20	3'0	45	6'5	...	...	...	...	...	...	...	...	...	...
24	Eskdalemuir	7 20	140	3	0	1'4	55	3'1	40	1'8	45	4'5	30	3'0	80	1'9	65	0'9	...	A.-Cu.	135	...
25	Benson	11 50	...	0	0	0'4	20	1'9	25	7'5	30	5'0	45	6'0	...	...	...	...	...	Cu.	35	...
26	"	11 45	...	0	135	2'0	85	1'8	105	5'0	70	3'0	...	...	...	...	...	...	...	...	...	...
27	S. Farnboro'	9 40	...	...	...	0'0	60	3'5	50	5'0	60	4'0	35	4'0	...	...	...	...	...	...	...	...
27	Benson	11 50	...	0	40	2'0	10	2'0	15	0'9	35	4'9	35	4'8	5	2'8	...	...	...	Cu.	45	...
27	Eskdalemuir	13 15	340	7	215	5'0	230	3'9	280	0'9	215	4'5	...	...	...	...	...	...	...	Ci.	200	...
28	S. Farnboro'	6 25	50	5	...	0'0	10	3'5	30	2'0	5	6'5	...	...	...	...	...	...	...	...	...	...
28	"	10 25	20	6	10	light	345	4'0	360	4'0	5	6'0	...	...	...	...	...	...	...	...	...	...
29	"	6 5	30	5	...	0'0	335	5'0	280	4'5	340	1'5	...	...	...	...	...	...	...	Ci.	360	...
29	Benson	7 0	30	5	...	0'0	340	5'5	320	5'0	5	3'0	345	4'6	...	...	...	...	...	Ci.	Stationary.	...
31	S. Farnboro'	6 30	330?	4	...	0'0	20	3'0	340	3'5	275	5'5	...	...	...	...	...	...	...	...	...	...
31	Benson	11 50	...	...	30	1'5	345	3'1	320	2'1	285	4'2	295	6'0	...	...	...	...	...	Cu.	315	...
24	Eskdalemuir	7 20	(For observations at lower levels, see above.)						6000 m.		7000 m.		8000 m.		9000 m.		10,000 m.					
							230	3'5	215	4'0	225	5'5	...	...	...	...	...	...	...	...	...	...

Height of Station above M.S.L. = H.  
 Height of Anemometer above ground = h.  
 H. h.  
 Benson . . . . . 57 m. 25 m.  
 Eskdalemuir . . . . . 242 m. 15 m.  
 S. Farnborough . . . . . 70 m. 31 m.

*Notes on Pressure Distribution.*

July 4 7 h. Uniform pressure over British Isles, France, and Germany.  
 5 7 h. Shallow depression over Germany. Anticyclone from the Azores to Spain.  
 11 7 h. Depression over N. Scotland. Anticyclone from the Azores to the Bay of Biscay.  
 12 7 h. Depression off the N.W. of Ireland; trough of low pressure stretching to Norway.  
 15 7 h. Ridge of high pressure from the Azores to the Mouth of the English Channel. Depressions over Iceland and Scandinavia.  
 18 7 h. Anticyclone over N.E. France. Shallow depression over Iceland.  
 19 7 h. Anticyclone over the N.E. Atlantic.  
 20 7 h. Anticyclone over the Azores and extending to the British Isles.  
 21 7 h. and 18 h. Anticyclone over the British Isles.  
 24 7 h. Anticyclone over the British Isles.  
 25 7 h. Anticyclone over the British Isles. Depression beyond Iceland.  
 26 7 h. Anticyclone over the British Isles. Depression beyond Iceland.  
 27 7 h. Anticyclone over the N.E. Atlantic. Rather uniform pressure over the British Isles.  
 28 7 h. Anticyclone over the N.E. Atlantic and the British Isles.  
 29 7 h. Anticyclone extending from the Azores to England.  
 31 7 h. Anticyclone extending from the Azores to England.



\* S. Farnboro', July 11. Balloon lost in St.-Cu. at 2000 m.

10. NEPHOSCOPE OBSERVATIONS AT ABERDEEN.

See page 55.

METEOROLOGICAL OFFICE OBSERVATORIES—GEOPHYSICAL JOURNAL.

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

Sixth Year.—No. 8. AUGUST 1916].

Units based on the C.G.S. System.

[Price 1s.

I. SUNSHINE AND SOLAR RADIATION.

Table I: Sunshine and Solar Radiation. Columns include Day, South Kensington (Lat. 51° 30' N. Long. 0° 10' W.), Richmond (Lat. 51° 28' N. Long. 0° 19' W.), Eskdalemuir (Lat. 55° 19' N. Long. 3° 12' W.), and Cahirciveen. Sub-headers include Bright Sunshine, Radiation received on Horizontal Surface by Callendar Radiograph, and Radiation at Noon by Angstrom Pyrheliometer. Data includes Total, Per cent. of Possible, Daily Total, Per cent. of Planetary, Maximum (Amount, Time, 11.30 h. to 12.30 h.), Intensity, Vertical Component, Sky, Time, Sky, p sec Z, Intensity, Total, and Per cent. of Possible.

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

Heights above M. S. L.:—H=12.5 m. H<sub>1</sub>=13.7 m. H<sub>2</sub>=26.4 m. Above Ground: h<sub>1</sub>=1.2 m. h<sub>2</sub>=0.56 m. h<sub>3</sub>=13.9 m.

Table II: Meteorology and Magnetism. Columns include Day, Air Pressure at Station Level (9 h., 21 h.), Air Temperature in Degrees Absolute (9 h., 21 h., Max., Min.), Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=S, 16=W) with Speed in metres per second (9 h., 21 h.), Cloud Amount (0-10) and Weather (Tenths of Sky covered), Rain 24 hours beginning 9 h., Remarks, Magnetism (Horizontal Force, Declination West, Inclination). Data includes numerical values for pressure, temperature, humidity, wind, clouds, rain, and magnetism, along with descriptive remarks.

a 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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m. Heights above Ground:—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with columns: Day, Air Pressure at Station Level (9 h, 21 h), Air Temperature in Degrees Absolute (9 h, 21 h, Max., Min.), Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8 = E, 16 = S) with Speed in metres per second (9 h, 21 h), Cloud Amount and Weather (9 h, 21 h), Rain 24 hours beginning 9 h (mm), Min. Temp. on Grass (200+), Earth Temperature at 9 h (0.3 m, 1.2 m), Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes).

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<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m. Heights above Ground:—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with columns: Day, Air Pressure at Station Level (9 h, 21 h), Air Temperature in Degrees Absolute (9 h, 21 h, Max., Min.), Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8 = E, 16 = S) with Speed in metres per second (9 h, 21 h), Cloud Amount and Weather (9 h, 21 h), Rain 24 hours beginning 9 h (mm), Min. Temp. on Grass (200+), Earth Temperature at 9 h (0.3 m, 1.2 m), Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes), REMARKS.

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

5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 17 days ; they are computed from the data for those days on which values at each of the four hours, 3<sup>h</sup>, 9<sup>h</sup>, 15<sup>h</sup>, 21<sup>h</sup>, are given in the table. A similar note applies to the values in Table 6. z denotes the maximum and n the minimum value in the column.

z Indeterminate.

Table with columns: Day, Remarks, Potential Gradient (Volts per metre, Factor 2.03), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, Horizontal Force, Declination (West), Inclination (North). Rows 1-31 and M.

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—ESKDALEMUIR.

Table with columns: Day, Potential Gradient (Volts per metre, Factor 5.70), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, North Component (Maximum, Minimum), West Component (Maximum, Minimum), Vertical Component (Maximum, Minimum). Rows 1-31 and M.

\* 22 days. See note above.

† Electrograph earthed.

‡ Instrument out of order.

§ 28 days.

¶ 30 days.

8\*

7. SEISMOLOGICAL DIARY.

EARTHQUAKES :—ESKDALEMUIR.

MICROSEISMS OF N. COMPONENT :—ESKDALEMUIR.

Day.	Phase.	Time, G.M.T.			Period.	Amplitudes.			Δ.	Remarks.
		h	m	s		A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>		
3	Pe PR S SR M M F	1	50	34	...	...	...	...	9450	
1		54	21	...	...	...	...			
2		1	7	...	...	...	...	...		
2		8	3	...	...	...	...	...		
		2	32	3	...	53	...	...		
		2	32	13	29	39	...	...		
		4	...	...	...	...	...	...		
3		15	1	to	...	...	...	...		Faint disturbance.
		15	10	...	...	...	...	...		
5		4	35	to	...	...	...	...		''
		4	44	...	...	...	...	...		
6	L	23	24	to	19	...	...	...		Long waves.
		24	20	...	...	...	...	...		
8	P PR S SR L M M M F i i i L M M	4	37	3	...	...	...	...	9230	Slight earthquake.
		4	40	39	...	...	...	...		
		4	47	25	...	...	...	...		
		4	53	29	...	...	...	...		
		5	4	...	...	...	...	...		
		5	9	39	28	8	...	...		
		5	18	4	18	7	...	...		
8		19	6	16	...	...	...	...		Preliminary phases very faint.
		19	10	0	...	...	...	...		
		19	16	50	...	...	...	...		
		19	41	...	...	...	...	...		
		19	43	31	26	7	...	...		
		19	43	42	25	6	...	...		
14		7	31	to	...	...	...	...		Faint disturbance.
		7	45	...	...	...	...	...		
14		21	50	to	...	...	...	...		''
		22	6	...	...	...	...	...		
15	L	0	41	...	...	...	...	...		
15			9	25	to	...	...	...		
			9	41	...	...	...	...		
15		14	7	to	...	...	...	...		
		14	22	...	...	...	...	...		
15		16	46	to	...	...	...	...		
		16	54	...	...	...	...	...		
16	P S (?) M F	7	9	57	...	...	...	...	2350	''
		7	13	50	...	...	...	...		
		7	16	35	14	19	...	...		
16		8	5	...	...	...	...	...		''
		8	21	to	...	...	...	...		
		8	48	...	...	...	...	...		
16		9	52	to	...	...	...	...		
		10	...	...	...	...	...	...		
16	L	13	30	14	2	...	...	...		Long waves.
17	L	11	9	to	18	...	...	...		''
		11	18	...	...	...	...	...		
18	Pi S	0	25	24	...	...	...	...		Distant slight earthquake. Steep emergence. L inconspicuous.
		0	36	3	...	...	...	...		
18		16	39	to	...	...	...	...		
		16	44	...	...	...	...	...		
25	Pe PR S SR L M M M F	9	57	44	...	...	...	...		
		10	1	35	...	...	...	...		
		10	8	23	...	...	...	...		
		10	14	56	...	...	...	...		
		10	20	...	...	...	...	...		
		10	26	13	...	...	...	...		
		10	34	33	28	28	...	...		
	10	35	3	26	20	...	...			
		12	40	...	...	...	...			
26		11	14 1/2	to	...	...	...	...		Slight disturbance. No definitely marked phases.
		12	0	...	...	...	...	...		
27	Pe S (?) L L M F	22	55	1	...	...	...	...	9000	
		23	5	12	...	...	...	...		
		23	21	...	...	...	...	...		
		23	27	32	16	...	...	...		
		23	36	35	18	17	...	...		
		24	...	...	...	...	...			
28		o	*	*	*	*	*	*		
30		16	20	to	...	...	...	...		Prolonged faint disturbance.
		17	0	...	...	...	...	...		

Day.	o h.		6 h.		12 h.		18 h.	
	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
1	μ	s	μ	s	μ	s	μ	s
2	0.5	4	0.8	4	0.8	4	0.7	4.5
1	0.8	5	0.8	4.5	0.7	5	0.8	5
2	0.6	4.5	0.4	4.5	0.8	5	0.7	5
3	0.6	5	0.5	6	0.5	5	0.6	5
4	0.7	4.5	0.5	5	0.5	5	0.6	5
5	0.5	5	0.5	5	0.6	5	0.6	5
6	0.5	5	0.5	5	0.6	5	0.6	5
7	0.0	...	0.2	4	0.2	4.5	0.2	4
8	0.0	...	0.0	...	0.0	...	0.0	...
9	0.0	...	0.0	...	0.0	...	0.0	...
10	0.0	...	0.0	...	0.0	...	0.0	...
11	0.0	...	0.0	...	0.3	4.5	0.5	5
12	0.7	5.5	0.7	5.5	0.9	6	0.8	6
13	0.9	5.5	0.8	6	0.7	5.5	0.8	5.5
14	0.7	6	0.7	5.5	0.8	5.5	0.6	6
15	0.8	5	0.7	5	0.7	4	0.4	4.5
16	0.5	4.5	0.4	5	0.3	4	0.2	4
17	0.0	...	0.0	...	0.0	...	0.0	...
18	0.0	...	0.0	...	0.0	...	0.0	...
19	0.0	...	0.0	...	0.0	...	0.0	...
20	0.0	...	0.0	...	0.0	...	0.0	...
21	0.0	...	0.0	...	*	*	*	*
22	0.3	4	0.2	4	0.3	5	0.5	4
23	0.6	4.5	0.6	5.5	0.8	6	0.7	6
24	0.7	6.5	†	†	0.5	5	0.4	5
25	0.6	5	0.7	5.5	Earthquake		0.8	6
26	0.8	5	†	†	0.8	5	0.9	4
27	†	†	†	†	0.6	4.5	0.6	4.5
28	?0.3	4	? Earthquake		0.6	4	0.3	4
29	0.3	4	0.3	4	0.7	4	0.8	4.5
30	0.7	4.5	0.3	4	0.2	4	0.1	4
31	0.3	4	0.6	4	0.7	4.5	1.0	5

\* Instrument under adjustment. † Clock stopped.

EARTHQUAKES :—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of		Remarks.
	Commencement.	Max. Phase.	
3	h m 2 2	h m 2 52	Continued until at least 3 <sup>h</sup> 52 <sup>m</sup> .
6	...	23 45	Very small.
8	...	5 22	Several nearly equal very small maxima from 5 <sup>h</sup> 12 <sup>m</sup> to 5 <sup>h</sup> 25 <sup>m</sup> .
8	...	19 53	Very small.
15	...	9 26	''
18	...	16 40	''
25	...	...	Visible from 10 <sup>h</sup> 0 <sup>m</sup> to 11 <sup>h</sup> 30 <sup>m</sup> , maximum probably during changing time.
26	...	11 16	Very small.
27	...	23 38	Small.
28	6 50	7 21	Amplitude on trace 5.0 mm.
28	...	8 21	Amplitude on trace 3.5 mm. May be part of earthquake commencing at 6 <sup>h</sup> 50 <sup>m</sup> .
30	...	16 30	Very small and somewhat doubtful.

<sup>6</sup> The traversing clock of the horizontal Galitzin seismograph stopped during the passage of the large earthquake on 28th August. P was recorded on the vertical Galitzin instrument at 6<sup>h</sup> 50<sup>m</sup> 5<sup>s</sup>, and on the Milne-Shaw instrument at 6<sup>h</sup> 50<sup>m</sup> 4<sup>s</sup>. The maximum vertical displacement was recorded at 7<sup>h</sup> 19<sup>m</sup> 37<sup>s</sup>.



8. 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.

Height of Head above—Roof 8.8 m., Ground 13.7 m., M.S.L. 19.2 m.  
 Height of Cups above—Roof 4.6 m., Ground 7.6 m., M.S.L. 15.2 m.

SCOTLAND N.:—DUBERNES.

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.				Max. in a Gust.	Time of Gust.	Date.	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.				S.	N.	W.	E.	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.	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.	m/s.	m/s.
1	3.8	0.8	0.8	0.8	7.3	3.0	...	...	6.7	2.8	...	...	5.2	2.1	2.1	...	14.2	11 30	1	8.2	...	3.4	10.0	...	...	2.0	3.4	...	8.2	...	4.6	...	11.2	...	12.8	23					
2	0.6	2.9	...	...	0.2	1.0	...	...	0.5	1.2	...	...	1.8	2.7	...	...	10.0	0 50	2	...	...	10.2	...	...	2.0	3.3	...	4.9	...	4.3	...	10.3	...	13.8	24						
3	...	3.9	...	...	1.0	5.1	...	...	0.8	3.8	...	3.3	...	3.3	...	10.2	1 10	3	...	...	13.4	...	...	2.9	14.5	...	3.6	8.8	...	2.1	5.2	...	14.8	9							
4	0.7	0.1	...	...	3.3	3.3	...	...	4.0	1.6	...	...	0.9	0.4	...	...	8.8	7 45	4	...	...	2.7	4.1	...	...	5.2	3.4	...	...	1.2	0.5	...	...	7.5	7						
5	...	2.4	1.0	...	...	1.2	0.5	...	2.3	2.3	...	...	1.7	1.1	...	...	5.6	15 15	5	...	...	6.2	...	...	2.8	6.7	...	...	5.1	7.6	...	...	5.1	5.1	...	11.8	16				
6	...	1.1	0.7	...	...	1.9	1.3	...	4.8	...	2.0	...	4.1	...	10.0	...	16.0	20 35	6	...	...	4.7	3.1	...	...	3.5	0.7	...	2.6	0.5	...	0.7	...	7.5	1						
7	...	2.8	...	6.7	...	0.2	...	1.0	...	3.0	1.3	...	1.0	...	2.4	...	11.8	4 15	7	...	...	0.9	1.3	...	...	1.9	3.8	...	...	2.6	3.6	...	...	2.4	...	4.6	14, 15, 16, 19				
8	0.2	...	0.2	0.5	...	0.5	...	...	...	...	4.3	...	...	...	...	1.0	...	6.8	14 55	8	4.3	...	...	1.8	2.1	...	...	0.9	2.1	...	0.9	1.2	...	0.5	...	4.6	3				
9	...	0.1	0.7	...	...	0.1	0.7	...	...	0.9	2.1	...	...	0.4	0.9	...	5.7	12 0	9	0.6	...	...	0.3	2.1	...	...	0.9	1.8	...	0.8	...	1.8	...	2.6	22						
10	...	1.6	...	...	...	1.8	2.7	...	...	...	3.6	...	4.1	...	2.7	...	8.2	18 20	10	...	0.1	...	0.3	0.4	...	...	0.9	1.0	...	0.2	...	2.0	...	0.4	...	2.3	18				
11	3.5	...	0.7	...	4.9	...	...	...	5.2	...	...	...	4.3	...	...	...	10.5	16 55	11	...	1.3	...	0.3	3.8	...	...	2.6	6.2	...	...	4.2	5.6	...	...	5.6	20, 22					
12	6.1	...	...	1.2	7.4	...	...	1.5	6.6	...	...	6.1	...	1.2	...	15.9	14 25	12	6.1	...	...	2.5	6.6	...	...	4.4	5.6	...	...	5.6	5.5	...	...	3.7	...	8.9	19				
13	5.7	...	2.4	...	7.6	...	3.1	...	7.6	...	3.1	...	8.7	...	1.7	...	15.4	14 0	13	4.5	...	...	1.9	4.2	...	...	0.8	5.5	...	...	1.1	1.5	...	...	0.6	...	6.2	1			
14	3.5	...	3.5	...	4.7	...	4.7	...	6.0	...	4.0	...	3.7	...	3.7	...	13.4	12 45	14	1.4	...	...	3.8	...	...	5.7	1.4	...	...	3.3	...	...	...	5.9	...	6.9	9				
15	3.7	...	5.5	...	0.9	...	...	...	...	5.9	...	...	0.5	...	2.6	...	12.4	5 5	15	1.0	...	...	5.1	...	...	4.9	...	1.5	...	7.4	...	1.3	...	6.8	...	8.2	18				
16	...	...	5.6	...	...	...	4.5	...	...	1.8	2.7	...	2.3	2.3	...	...	8.1	2 45	16	...	2.5	...	6.1	...	...	3.4	...	5.2	...	4.7	...	3.1	...	2.3	...	7.5	1, 2				
17	...	5.6	...	...	6.5	1.3	...	...	6.7	2.8	...	...	4.8	2.0	...	...	10.7	14 45	17	...	4.3	...	...	2.9	...	...	3.6	...	1.5	...	2.6	...	2.6	...	2.6	...	5.2	2, 3			
18	...	1.3	0.9	...	...	1.4	3.3	...	...	2.7	1.8	...	...	2.5	2.5	...	7.4	7 50	18	...	3.3	...	...	...	...	...	...	...	...	3.3	...	...	...	3.6	...	4.9	12, 15				
19	...	2.5	2.5	...	...	5.5	3.7	...	0.9	...	4.5	...	2.4	...	5.7	...	10.9	23 55	19	...	3.0	1.3	...	...	3.3	1.4	...	...	4.5	1.9	...	1.8	0.8	...	...	4.9	4, 15				
20	...	5.9	...	...	...	1.5	7.7	...	2.0	...	4.8	...	...	1.7	2.5	...	11.9	5 35	20	...	0.6	0.3	...	...	3.0	2.0	...	...	4.9	3.3	...	4.9	3.3	...	...	5.9	15, 16, 21, 22				
21	...	...	1.6	...	...	0.6	1.5	...	3.0	...	2.0	...	2.2	...	1.4	...	7.0	18 45	21	...	4.9	4.9	...	...	5.2	3.4	...	...	6.9	2.9	...	...	3.2	2.2	...	7.5	15				
22	1.3	...	...	0.9	4.5	...	0.9	...	3.6	...	2.4	...	1.1	...	0.7	...	8.4	12 40	22	...	3.3	1.4	...	...	3.8	0.8	...	...	3.8	...	0.8	...	0.9	...	0.4	...	4.9	14			
23	2.9	...	...	0.6	4.0	...	...	1.6	...	3.7	...	2.4	3.3	...	1.4	...	11.6	10 50	23	...	0.6	...	0.3	1.6	...	...	1.6	1.0	...	...	2.4	0.3	...	...	0.6	...	3.3	13			
24	5.6	...	...	...	5.2	...	2.1	...	7.1	...	1.4	6.1	...	1.2	...	13.4	18 55	24	...	0.7	...	...	1.1	...	1.2	...	0.5	...	1.3	...	3.0	...	0.5	...	3.3	...	6.2	15			
25	5.2	...	...	...	6.6	...	...	4.4	...	4.2	...	0.8	4.5	...	1.9	...	13.3	15 20	25	...	...	3.3	1.0	...	...	5.1	1.2	...	...	5.1	1.0	...	...	5.8	1.0	...	6.2	13			
26	3.6	...	2.4	...	...	1.7	...	2.5	...	4.4	...	4.4	...	4.4	...	13.0	15 5	26	...	1.0	...	...	5.1	...	3.0	...	...	7.3	...	4.4	...	4.4	...	2.3	...	2.3	...	7.9	7, 8, 9, 10		
27	3.7	...	3.7	...	3.5	...	3.5	...	4.1	...	2.7	...	3.3	...	3.3	...	10.9	16 45	27	...	0.6	...	0.8	...	1.4	...	1.4	...	1.4	...	1.4	...	1.3	...	0.9	...	3.0	23			
28	...	6.0	6.0	...	...	6.0	6.0	...	...	4.2	4.2	...	...	1.7	1.1	...	14.7	7 10	28	...	1.1	0.7	...	...	4.1	2.7	...	...	3.7	3.7	...	0.8	4.2	...	...	5.6	12, 16				
29	0.2	...	...	0.9	...	4.2	...	4.2	...	6.0	...	4.0	...	8.3	...	12.5	22 10	29	...	0.6	...	3.2	...	2.0	...	4.8	...	...	1.9	4.5	...	0.5	1.2	...	...	6.6	11				
30	...	0.5	...	0.5	...	6.8	4.6	...	...	2.7	4.1	...	2.2	...	3.2	...	11.5	7 45	30	...	0.5	1.2	...	...	0.4	0.9	...	3.2	...	0.6	...	2.9	...	0.6	...	4.3	24				
31	3.0	...	2.0	...	6.9	...	2.9	...	10.0	...	4.1	...	...	5.6	...	18.3	14 0	31	4.8	...	...	1.0	6.8	...	...	1.4	9.0	...	...	1.8	5.2	...	...	...	...	9.2	15				
S+N & W+E	77.2	63.8	107.9	86.4	117.5	87.1	102.2	76.7					S+N & W+E	67.6	90.4	97.8	100.3	111.4	100.1	73.6	87.2																				
S-N & W-E	30.0	38.6	27.1	60.0	36.7	65.9	45.4	45.7					S-N & W-E	-4.6	9.6	-3.2	2.3	-16.4	2.5	-2.2	2.0																				

ENGLAND S.W.:—SCILLY.

Height of Head above—Ground 9.8 m., M.S.L. 49.7 m.  
 Height of Cups above—Ground 5.8 m., M.S.L. 45.7 m.

ENGLAND E.:—GREAT YARMOUTH.

Height of Head above—Roof 10.7 m., Ground 12.8 m., M.S.L. 15.9 m.  
 Height of Cups above—Roof 3.7 m., Ground 18.3 m., M.S.L. 22.3 m.

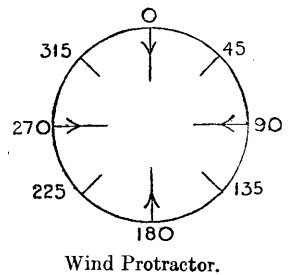
Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.	Date.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust. (Aurlestion).	Time of Gust.	
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.				S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.			
	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.				m/s.	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.			
1	...	1.7	...	...	...	1.3	...	...	...	1.4	2.1	...	...	2.1	2.1	...	4.3	17 50	1	0.5	...	...	2.6	3.3	...	...	1.4	6.1	...	...	2.5	3.5	...	0.7	9.3	15 35		
2	...	0.9	0.9	...	...	1.5	1.5	...	...	2.1	2.9	...	...	0.5	1.2	...	3.8	0 25	2	...	0.6	...	2.9	...	...	...	0.1	0.7	...	...	1.8	...	0.5	...	0.5	6.9	0 45	
3	...	0.2	0.4	...	...	1.2	0.5	...	...	3.5	...	1.5	...	1.8	1.8	...	5.6	18 55	3	...	...	1.1	2.8	...	...	...	2.6	3.8	...	...	1.2	...	0.5	1.1	1.7	...	10.7	12 5
4	...	4.1	...	4.1	...	3.0	...	3.0	...	4.2	...	2.8	...	1.3	3.1	...	9.8	11 35	4	...	...	3.8	2.6	...	...	...	5.2	2.1	...	...	5.8	1.2	...	4.5	0.9	...	13.3	10 30
5	...	...	1.7	2.2	...	5.4	1.5	...	...	1.5	...	3.5	...	0.2	...	0.4	...	7.1	9 35	5	...	...	2.6	0.5	...	...	...	3.0	1.3	...	...	4.1	...	...	2.7	...	10.7	0 10
6	0.7	...	1.6	0.4	...	0.7	...	...	...	3.5	...	2.3	...	...	1.6	...	4.0	14 25	6	...	...	2.6	2.0															

9. SOUNDINGS WITH PILOT BALLOONS.

Day.	Station.	Time of Start, G.M.T.	Horizontal Velocity of Wind.																Cloud Observations.		
			Geostrophic.		By Anemometer.		At Heights above M.S.L.														
			From N.	m/s.	From N.	m/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.		Type.	From N.	nr/s.
							From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.			
2	S. Farnboro'	6 10	310	6	...	0'0	300	4'0	260	6'0	300	7'5	275	12'0	275	11'5	...	...	...		
3	"	6 15	360 ?	4 ?	325	light	5	7'5	320	7'0	310	7'5	335	8'0	...	...	...	...	...		
3	Benson	7 15	360 ?	4 ?	?	?	335	6'5	345	6'0	345	6'5	...	...	...	...	...	...	...		
4	S. Farnboro'	6 20	360	6	35	light	15	10'5	5	13'5	350	15'5	...	...	...	...	...	...	...		
4	Eskdalemuir	7 10	360	4	...	0'0	285	3'8	340	4'6	350	10'5	340	14'5	...	...	...	Ci.	30		
5	Benson	7 15	40	4	?	?	25	6'5	20	11'0	30	13'0	...	...	...	...	...	Fr.-Cu.	45		
5	S. Farnboro'	9 0	40	4	45	light	15	1'5	30	12'5	35	13'5	25	16'5	...	...	...	...	...		
7	Eskdalemuir	12 50	140	7	45	2'5	75	2'8	90	2'6	60	2'4	55	3'0	75	4'8	...	...	...		
7	S. Farnboro'	13 25	100	6	55	3'0	55	6'5	55	4'5	85	8'5	...	...	...	...	...	...	...		
8	Eskdalemuir	7 20	...	...	...	0'0	235	1'9	160	2'9	280	1'2	165	2'1	...	...	...	Ci.	220		
8	S. Farnboro'	14 40	90	6	55	4'5	125	3'5	130	3'0	125	6'5	145	5'5	180	5'5	...	...	...		
9	Eskdalemuir	7 20	...	...	...	0'0	...	0'0	125	1'9	165	2'3	145	3'3	...	...	...	Ci.	210		
10	S. Farnboro'	6 15	350	4 ?	...	0'0	15	1'5	70	1'5	15	3'5	...	...	...	...	...	...	...		
10	"	10 45	350	4	325	light	55	0'5	40	1'5	340	2'5	...	...	...	...	...	...	...		
11	"	6 20	...	0	...	0'0	30	4'5	5	1'5	280	3'0	280	4'5	...	...	...	Ci.	315		
11	Benson	7 20	...	0	?	?	10	2'5	250	2'1	250	3'1	...	...	...	...	...	A.-Cu.	340		
12	S. Farnboro'	6 15	180	8	170	3'0	180	10'0	190	10'0	190	8'5	210	8'0	...	...	...	A.-Cu.	170		
15	"	6 10	240	14	235	6'5	255	14'0	250	15'5	240	10'0	...	...	...	...	...	Ci.	225		
16	"	6 15	250	10	235	5'0	235	10'0	240	10'5	245	7'0	230	13'0	...	...	...	...	...		
21	"	6 55	330	6	305	light	335	11'5	335	11'0	325	11'5	...	...	...	...	...	...	...		
21	Eskdalemuir	7 15	340	5	155	0'2	325	1'4	25	1'3	330	10'0	320	14'0	...	...	...	Cu.	5		
22	S. Farnboro'	6 10	...	0	...	0'0	15	5'0	335	5'5	315	6'5	...	...	...	...	...	Ci.	315		
23	"	6 10	180	5	190	light	190	8'5	185	8'5	280	3'5	245	7'5	...	...	...	...	...		
24	"	6 30	250	6	280	light	285	5'5	280	7'5	280	9'0	...	...	...	...	...	Ci.	340		
28	"	13 30	280	4	235	4'5	260	5'5	280	9'0	265	10'5	...	...	...	...	...	...	...		
31	"	6 15	270	6	...	0'0	265	5'5	285	9'5	305	9'5	310	8'0	...	...	...	...	...		

Notes on Pressure Distribution.

- August 2 7 h. Anticyclone from Azores to S.W. England. Depression N. of Farøe.
- 3 7 h. Anticyclone W. of Ireland. Depression off Norwegian coast.
- 4 7 h. Anticyclone W. of Ireland, extending over British Isles.
- 5 7 h. Anticyclone W. of Scotland, extending over British Isles.
- 7 7 h. and 18 h. Anticyclone over British Isles.
- 8 7 h. and 18 h. Anticyclone over British Isles.
- 9 7 h. Uniform high pressure over British Isles and surrounding areas.
- 10 7 h. Anticyclone over Bay of Biscay, extending over British Isles.
- 11 7 h. Anticyclone over France, England, and North Sea.
- 12 7 h. Anticyclone over Germany. Depression S. of Iceland.
- 15 7 h. Depression over N. England and Scotland.
- 16 7 h. Depression centred over N. England.
- 21 7 h. } Anticyclone British Isles to Madeira. Depressions over Atlantic and Russia.
- 22 7 h. }
- 23 7 h. Anticyclone over Germany. Secondary depression W. of Ireland.
- 24 7 h. Col. Depressions W. of Ireland and over Gulf of Bothnia.
- 28 7 h. Shallow depression over Denmark. High pressure over Atlantic.
- 31 7 h. Depressions S. of Iceland and over Denmark. Anticyclone Bay of Biscay to Azores.



Wind Protractor.

Height of Station above M.S.L. = H.  
 Height of Anemometer above ground = h.  
 Benson . . . . . 57 m. 25 m.  
 Eskdalemuir . . . . . 242 m. 15 m.  
 S. Farnborough . . . . . 70 m. 31 m.

10. NEPHOSCOPE OBSERVATIONS AT ABERDEEN.

See page 56.

# METEOROLOGICAL OFFICE OBSERVATORIES—GEOPHYSICAL JOURNAL.

DAILY VALUES.—*Solar Radiation, Meteorology, Atmospheric Electricity, Terrestrial Magnetism, and Seismology.*  
 Sixth Year.—No. 9. SEPTEMBER 1916.] Units based on the C.G.S. System. [Price 1s.]

## I. SUNSHINE AND SOLAR RADIATION.

Day.	SOUTH KENSINGTON.—Lat. 51° 30' N. Long. 0° 10' W.								RICHMOND.—Lat. 51° 28' N. Long. 0° 19' W.					ESKDALEMUR.—Lat. 55° 19' N. Long. 3° 12' W.					CAHIRCIVEEN.	
	Bright Sunshine.		Radiation received on Horizontal Surface by Callendar Radiograph.						Bright Sunshine.		Radiation at Noon by Ångström Pyrheliometer.			Bright Sunshine.		Radiation by Ångström Pyrheliometer.			Bright Sunshine.	
	Total.	Per cent. of Possible.	Daily Total.	Per cent. of Planetary.	Maximum. For Day.		11.30 h. to 12.30 h.	Total.	Per cent. of Possible.	Intensity.	Vertical Component.	Sky.	Total.	Per cent. of Possible.	Time.	Sky.	$\frac{p}{\rho}$ sec Z.	Intensity.	Total.	Per cent. of Possible.
	hr.	%	j/cm <sup>2</sup> .	%	mw/cm <sup>2</sup> .	h. m.	mw/cm <sup>2</sup> .	hr.	%	mw/cm <sup>2</sup> .	mw/cm <sup>2</sup> .		hr.	%	h. m.			mw/cm <sup>2</sup> .	hr.	%
					Amount.	Time.														
1	6.2	46	122.8	42	65	13 22	59	5.5	41	...	...	8.9	64	...	...	...	...	8.2	60	
2	0.0	0	427	15	30	14 28	18	0.0	0	...	...	3.4	25	...	...	...	...	6.1	45	
3	4.0	30	820	28	65	13 15	37	3.1	23	...	...	0.0	0	...	...	...	...	9.8	73	
4	2.7	20	850	30	67	11 5	35	3.5	26	...	...	7.5	55	...	...	...	...	0.2	1	
5	4.4	33	811	29	53	9 55	42	3.0	23	...	...	5.1	38	...	...	...	...	0.0	0	
6	5.2	39	1080	39	71	12 22	71	7.0	53	...	...	0.0	0	...	...	...	...	0.0	0	
7	6.5	49	1147	41	61	11 40	61	6.9	52	40	28	3.5	26	...	...	...	...	4.2	32	
8	1.9	15	834	30	57	13 25	30	2.4	18	...	...	6.4	48	...	...	...	...	3.6	27	
9	2.6	20	764	28	63	13 58	21	2.7	21	...	...	6.6	50	...	...	...	...	21.5	88	
10	0.0	0	329	12	17	13 0	13	0.0	0	...	...	7.7	59	...	...	...	...	7.9	61	
11	0.2	2	682	26	51	11 35	51	0.2	2	...	...	0.7	5	...	...	...	...	0.4	3	
12	0.0	0	409	16	23	12 45	18	0.0	0	...	...	1.2	9	...	...	...	...	0.7	5	
13	4.5	35	925	36	66	13 58	65	4.4	34	71	48	9.4	73	12 10	Clear	1.58	87	5.1	40	
14	9.7	76	1512	59	66	12 45	64	10.0	79	69	46	8.5	66	...	...	...	...	4.5	35	
15	3.4	27	1036	41	68	11 7	67	3.7	29	72	48	2.2	17	...	...	...	...	0.0	0	
16	6.7	53	1009	40	65	12 5	65	7.7	61	57	38	8.1	64	...	...	...	...	8.9	71	
17	1.1	9	848	34	52	10 27	30	1.1	9	...	...	0.0	0	...	...	...	...	0.0	0	
18	5.8	46	1076	44	71	12 10	71	5.6	45	77	50	3.9	31	...	...	...	...	5.6	45	
19	3.5	28	676	28	65	12 8	65	2.4	19	...	...	5.2	42	...	...	...	...	2.1	17	
20	0.7	6	574	24	35	15 50	24	0.8	7	...	...	6.7	54	...	...	...	...	0.8	6	
21	8.7	71	1247	53	60	11 21	59	8.4	69	47	30	1.6	13	...	...	...	...	0.0	0	
22	1.2	10	726	31	46	10 35	28	2.1	17	...	...	0.0	0	...	...	...	...	0.1	1	
23	3.5	29	845	37	56	12 39	52	4.4	36	...	...	0.9	7	...	...	...	...	0.3	2	
24	1.5	12	610	27	48	12 45	47	2.5	21	...	...	3.0	25	...	...	...	...	0.7	6	
25	6.0	50	908	41	40	12 12	40	7.0	58	...	...	4.6	38	...	...	...	...	0.0	0	
26	0.7	6	423	19	33	14 30	19	0.8	7	...	...	0.7	6	...	...	...	...	6.8	57	
27	0.9	8	448	20	44	11 27	19	0.8	7	...	...	0.0	0	...	...	...	...	5.2	44	
28	1.0	8	509	24	42	12 55	40	2.1	18	14	9	4.1	35	...	...	...	...	4.6	39	
29	0.0	0	280	13	19	13 20	16	0.0	0	...	...	0.2	2	...	...	...	...	5.6	48	
30	2.7	23	759	36	50	12 20	50	3.2	27	...	...	0.1	1	...	...	...	...	0.3	3	
Means	3.17	25	793	31	52	—	43	3.37	27	—	—	3.67	29	—	—	—	—	3.43	28	
Normal	5.30	43	—	—	—	—	—	4.83	39	—	—	4.30	34	—	—	—	—	4.43	36	
	←5 years→							←35 years→					←5 years→						←35 years→	

## 2. METEOROLOGY AND MAGNETISM :—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56' N. Long. 10° 15' W. Heights above M. S. L. :—H=12.5 m. H<sub>p</sub>=13.7 m. H<sub>a</sub>=26.4 m. Above Ground : h<sub>t</sub>=1.2 m. h<sub>r</sub>=0.56 m. h<sub>a</sub>=13.9 m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind Direction in Points (8=E, 16=S) with Speed in metres per second.				Cloud Amount (0-10) and Weather.		Rain 24 hours beginning 9 h.	Remarks.	Magnetism.		
	9 h.	21 h.	9 h.	21 h.	Max.	Min.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	Horizontal Force.	Declination West.			Inclination.		
	mb.	mb.	a.	a.	200+	200+	millibar.	%	Dir.	m/s.	Dir.	m/s.	Tenths of Sky covered.	mm.							
	1015.1	1017.6	89.0	84.8	91	83	13.2	12.1	73	88	22	5	21	2	3	2					
1	1015.1	1017.6	89.0	84.8	91	83	13.2	12.1	73	88	22	5	21	2	3	2	Fine to c.	...	...	...	
2	1016.9	1014.4	87.4	87.4	91	83	13.7	14.8	84	91	—	0	—	0	7	8	a. Fine to c.	17867	19 56.1	68 70	
3	1012.3	1015.7	87.6	86.8	89	85	13.8	12.2	84	78	26	5	27	6	7	8	a. 9 h. Fine to c.	...	...	...	
4	1013.8	1018.9	88.3	88.3	90	86	15.5	14.8	90	86	24	9	26	4	10	10	o., with showers.	...	...	...	
5	1019.7	1022.8	88.5	88.7	90	88	16.8	17.7	96	100	—	1	25	3	10	10	o., with <sup>o</sup> at times. <sup>o</sup> from 15 h.	...	...	...	
6	1024.6	1026.8	89.9	90.0	91	88	17.8	18.6	93	97	—	0	—	0	10	10	o., with low misty clouds.	...	...	...	
7	1028.0	1027.1	89.1	89.4	93	86	17.8	17.2	98	93	—	1	14	3	7	10	Fine to c. Fine sunset.	...	...	...	
8	1026.0	1027.5	89.5	89.0	92	88	17.4	16.8	93	93	14	4	26	3	9	10	o. to c. a. Fine afternoon.	...	...	...	
9	1029.4	1029.8	86.9	87.4	89	86	11.5	12.3	73	76	4	6	32	6	3	2	Fine. Fine sunset.	...	...	...	
10	1028.7	1025.2	86.5	86.5	89	84	11.1	12.0	72	78	1	5	—	1	2	10	Fine.	...	...	...	
11	1018.7	1020.7	87.6	87.2	90	86	16.0	15.1	97	94	23	7	26	5	10	10	<sup>o</sup> 2 h.-9 h. o., with low clouds.	...	...	...	
12	1021.9	1024.0	87.9	87.5	90	87	15.6	15.2	93	93	27	5	25	2	7	10	Fair to o. Low clouds.	...	...	...	
13	1022.2	1025.1	88.2	86.5	90	86	16.4	10.8	96	70	27	5	31	5	10	7	d. and <sup>o</sup> early. Fine to c.	...	...	...	
14	1026.9	1027.5	85.8	85.6	88	84	12.6	10.3	86	71	—	1	32	3	8	7	<sup>o</sup> 7 h. Fine to c.	...	...	...	
15	1026.2	1025.6	85.9	87.1	87	83	10.8	13.7	73	86	27	3	29	3	10	10	<sup>o</sup> 5 h. o. Low misty clouds p.	...	...	...	
16	1025.9	1026.4	86.7	85.7	90	84	13.7	13.1	88	90	—	0	—	1	5	7	a. Fine to c.	...	...	...	
17	1022.7	1017.6	87.9	88.7	89	86	15.3	16.8	91	95	19	5	21	12	10	10	o., with showers. Low clouds.	...	...	...	
18	1014.6	1014.3	85.8	85.7	88	84	10.2	10.1	69	69	28	8	28	10	7	4	A few <sup>o</sup> showers.	...	...	...	
19	1016.7	1021.5	86.1	85.6	87	84	11.2	10.6	75	73	31	9	32	6	7	1	<sup>o</sup> showers 1 h.-2 h. Fair to c.	...	...	...	
20	1022.7	1022.4	85.4	85.3	88	84	11.1	11.2	78	79	—	1	—	1	8	7	Fair to c.	...	...	...	
21	1019.7	1017.2	85.5	85.6	87	83	11.0	12.3	76	85	11	4	13	7	10	3	Fair to c. <sup>o</sup> shower 23 h. 30 m.	...	...	...	
22	1014.9	1013.3	86.4	86.6	89	85	14.5	13.9	95	90	15	5	13	4	10	100	<sup>o</sup> shower 9 h. Fair to c. Fine sunset.	...	...	...	
23	1010.8	1011.2	88.0	86.2	90	84	16.1	14.5	95	96	14	5	14	2	10	3	d. 8 h.-9 h. <sup>o</sup> 12 h.-13 h.	...	...	...	
24	1006.9	1004.3	88.4	88.9	90	84	16.3	15.2	94	85	14	8	12	10	7	10	<sup>o</sup> showers a. and p.	...	...	...	
25	1002.8	991.3	89.1	88.7	90	87	14.5	12.8	80	72	11	9	11	16	10	8	<sup>o</sup> showers a. and p. <sup>o</sup> 22 h.-23 h.	17867	19 52.0	68 58	
26	1005.9	1003.8	87.9	88.4	90	86	13.6	12.8	81	74	13	9	8	7	6	4	Fine.	...	...	...	
27	999.3	997.9	88.0	88.7	91	87	13.5	13.4	80	76	8	3	8	5	10	7	<sup>o</sup> shower 2 h. c. <sup>o</sup> 13 h.	...	...	...	
28	1001.1	1004.3	88.0	88.0	91	86	14.0	13.8	83	82	11	3	—	1	6	4	<sup>o</sup> shower 5 h. Fine to c.	...	...	...	
29	1006.4	1011.2	88.1	87.4	91	85	14.3	14.3	84	88	—	1	—	1	7	100	Fine to c. <sup>o</sup>	...	...	...	
30	1015.2	1016.4	86.8	86.2	89	86	12.0	10.7	77	71	6	6	8	7	10	100	c. to o. <sup>o</sup>	...	...	...	
Means	1017.2	1017.4	87.5	87.3	89.6	85.2	14.0	13.6	85	84	4.4	—	4.5	—	7.9	7.1	46.9	Monthly Totals or Means.			
Normal	1014.3	1014.5	86.6	86.2	89.6	83.8	13.4	13.2	85	86	4.7	—	4.3	—	—	—	113.3	Normals.			
	←45 years→							←30 years→					←35 years→						←45 yrs→		

a 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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m. Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with 20 columns: Day, Air Pressure at Station Level (9h, 21h), Air Temperature in Degrees Absolute (9h, 21h, Max, Min), Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second (9h, 21h), Cloud Amount and Weather (9h, 21h), Rain 24 hours beginning 9 h (mm), Min. Temp. on Grass (a, 200+), Earth Temperature at 9 h (0.3 m, 1.2 m), Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes).

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

Heights above Mean Sea Level :—Rain-gauge Site, H = 242 m. Barometer, H<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m. Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with 20 columns: Day, Air Pressure at Station Level (9h, 21h), Air Temperature in Degrees Absolute (9h, 21h, Max, Min), Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second (9h, 21h), Cloud Amount and Weather (9h, 21h), Rain 24 hours beginning 9 h (mm), Min. Temp. on Grass (a, 200+), Earth Temperature at 9 h (0.3 m, 1.2 m), Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes), REMARKS.

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

5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 26 days; they are computed from the data for those days on which values at each of the four hours, 3<sup>h</sup>, 9<sup>h</sup>, 15<sup>h</sup>, 21<sup>h</sup>, are given in the table. A similar note applies to the values in Table 6. z denotes the maximum and n the minimum value in the column.

z Indeterminate.

Table with columns: Day, Remarks, Potential Gradient (Volts per metre. Factor 2.13), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, Horizontal Force (Mean Time, h m, gamma), Declination (West, Mean Time, h m, o), Inclination (North, Mean Time, h m, o).

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—ESKDALEMUIR.

Table with columns: Day, Potential Gradient (Volts per metre. Factor 5.68), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, North Component (Maximum, Minimum, 15000 gamma+), West Component (Maximum, Minimum, 4000 gamma+), Vertical Component (Maximum, Minimum, 45000 gamma+).

\* 27 days. See note above.

7. SEISMOLOGICAL DIARY.

EARTHQUAKES :—ESKDALEMUIR.								MICROSEISMS OF N. COMPONENT :—ESKDALEMUIR.									
Day.	Phase.	Time, G.M.T.	Period.	Amplitudes.			Δ.	Remarks.	Day.	0 h.		6 h.		12 h.		18 h.	
				A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>				A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
3		h m s 0 2 to 0 25	s ... ...	μ ... ...	μ ... ...	μ ... ...	km. ... ...		Faint disturbance.	1	μ 1'2 s 5'5	μ 1'3 s 7	μ 1'7 s 7	μ 1'6 s 5	μ 1'6 s 4	μ 1'6 s 5	μ 1'6 s 5
3	Pe Pi M M M	7 34 36 7 36 6 8 15 8 18 8 32	... ... 35 28 21	... ... ... 9 6	... ... ... 9 ...	... ... ... ... ...	... ... ... ... ...		S doubtful. Prominent feature was the occurrence of groups of long waves separated by periods of comparative quiescence. Early phases ill-defined.	2 3 4 5 6 7 8 9 10	1'0 5 0'7 5'5 0'3 4 0'6 4	0'8 6 0'5 5 0'3 4 0'9 4	0'7 7 0'5 5 0'4 5 0'8 3'5 0'3 4	0'6 6 0'4 5 0'6 6 0'8 4 0'8 6	0'5 5 0'5 6 0'8 4 0'6 6 0'8 6	0'5 5 0'5 6 0'8 5'5 0'8 6 0'8 6	0'6 6 0'3 4 0'6 6 0'6 6 0'8 6
5	Pe S(?) L L L L F	22 34 32 22 49 4 23 15 23 22 23 34 0 23 0 45	... ... ... 22 20 17 ...	... ... ... ... ... ... ...	... ... ... ... ... ... ...	... ... ... ... ... ... ...	... ... ... ... ... ... ...		Distant earthquake.	11 12 13 14 15	0'8 5'5 0'9 6 1'1 5'5 1'6 6 0'9 5	0'8 5'5 0'8 6 1'9 6 1'6 5'5 0'8 4'5	0'7 6'5 0'8 5'5 1'9 6 1'3 5 0'9 5	0'6 6 0'8 6 1'5 6 0'4 5 0'8 6	0'5 5 0'5 6 1'5 6 0'4 5 0'8 6	1'0 6 0'9 6 1'9 6 0'8 5 0'7 5	6 5 5 5 5
9		13 28 to 13 52	... ...	... ...	... ...	... ...	... ...		Faint disturbance.	16 17 18 19 20	0'7 5 0'3 4 0'9 5 1'9 6'5 0'7 5'5	0'9 4 0'3 4 1'1 6 2'1 6'5 0'6 4'5	0'7 4'5 0'6 4 2'3 6 1'5 6 0'4 5	4'5 4 1'0 4 2'7 6 1'3 5 0'5 4	0'4 4'5 1'0 4 2'7 6 1'3 5 0'5 4	4'5 4 4 4 6 4 5 4 0'5 4	4'5 4 4 4 6 4 5 4 4 4
11	Pe(?) Pi S M M M F	6 49 44 6 55 31 6 58 55 7 28 44 7 33 34 7 38 24 8 15	... ... ... 36 33 21 ...	... ... ... 21 29 15 ...	... ... ... ... ... ... ...	... ... ... ... ... ... ...	7820 ... ... ... ... ... ...		Large vertical displacement at 6 h. 59 m.	21 22 23 24 25	0'8 4 0'3 5 0'5 4 0'2 4 0'4 4'5	0'3 4 0'3 4 0'2 4'5 0'1 3'5 0'3 4	0'4 5 0'3 4 0'2 4'5 0'2 4 0'5 5	5 4 4 4 4'5 4 4 4 5 5	0'3 4 0'3 4 0'2 4 0'3 4 0'8 5'5	4 4 4'5 4 4 4 5 5 5'5 5	
15	P PR <sub>1</sub> S SR <sub>1</sub> L M M	7 13 49 7 17 22 7 23 57 7 29 52 7 44 7 47 5 7 57 35	... ... ... ... ... 33 18	... ... ... ... ... 30 18'5	... ... ... ... ... ... ...	... ... ... ... ... ... ...	8950 ... ... ... ... ... ...		F obscured by wind effects.	26 27 28 29 30	2'5 6 0'7 5 0'9 4 0'4 3 0'2 5	1'9 5 0'6 5 0'5 4'5 0'2 4'5 0'4 5'5	1'3 5 0'7 4'5 0'7 4 0'1 3 0'5 6	5 5'5 4'5 5 4 3'5 3 6 0'7 5'5	0'8 5'5 0'5 5 0'3 3'5 0'2 6 0'7 5'5	5'5 5 5 5 3'5 5 6 6 5'5 5	
21	Pe F	19 25 34 19 42	... ...	... ...	... ...	... ...	... ...		Faint disturbance.	EARTHQUAKES :—RICHMOND (KEW OBSERVATORY).							
23	Pe S SR L M M M M F	5 54 47 6 4 57 6 10 33 6 18 6 23 33 6 24 38 6 29 43 6 30 7 50	... ... ... ... 20 20 18 18 ...	... ... ... ... 8'6 16'5 ... ... ...	... ... ... ... ... ... ... ... ...	... ... ... ... ... ... ... ... ...	9000 ... ... ... ... ... ... ... ...			Day.	Times, G.M.T. of		Remarks.				
24	L L	18 20 20 16	... ...	... ...	... ...	... ...	... ...		Groups of clearly marked long waves of low amplitude.	3	h m 0 7	h m ...	Very small, doubtful.				
25	Pe L	2 39 2 47	... 17	... ...	... ...	... ...	... ...			3	...	8 41	Very small; continued until at least 9 <sup>h</sup> 30 <sup>m</sup> .				
27	P S L M M F	15 7 31 15 11 47 15 14 55 15 16 27 15 17 15 50	... ... ... 23 19 ...	... ... ... 19'5 12'5 ...	... ... ... ... ... ...	... ... ... ... ... ...	... ... ... ... ... ...			5	23 30'5	23 52	Very small.				
27		23 35 to 23 50	... ...	... ...	... ...	... ...	... ...		Faint disturbance.	11	6 55'0	7 41	Small.				
28		12 23 to 12 40	... ...	... ...	... ...	... ...	... ...		Faint disturbance.	15	7 24'5	7 57					
29	Pe S L M M M F	19 7 49 19 18 20 19 33 19 36 19 42 19 46 20 30	... ... ... 35 25 19 ...	... ... ... 6 5'8 7'5 ...	... ... ... ... ... ... ...	... ... ... ... ... ... ...	... ... ... ... ... ... ...			23	6 18	6 28'5	Amplitude on trace 1'4 mm.				
										27	15 11	15 17	Small.				
										27	...	23 39	Very small.				
										29	...	19 49	Small. Time somewhat uncertain owing to jamming of paper.				

### 8. 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.

Height of Head above—Roof 8·8 m., Ground 13·7 m., M.S.L. 19·2 m.  
Height of Cups above—Roof 4·6 m., Ground 7·6 m., M.S.L. 15·2 m.

#### SCOTLAND N. :—DEERNESS.

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.				Max. in a Gust.	Time of Gust.	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.				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	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	3·3	...	4·9	...	3·3	...	7·9	...	6·0	...	4·0	...	2·9	...	4·3	...	13·6	8	35	6·4	...	2·6	...	7·3	...	3·0	...	5·6	...	5·6	...	4·2	...	4·2	...	8·9		6
2	0·5	...	2·6	...	1·5	...	0·6	...	0·4	...	2·0	...	0·5	...	2·6	...	8·4	0	15	4·0	...	4·0	...	3·7	...	5·5	...	...	...	5·6	...	1·1	...	1·1	...	8·5	1,	13
3	...	5·1	...	5·1	...	11·1	...	7·5	...	13·0	5·4	...	11·7	7·8	...	22·1	15	40	0·4	...	0·6	...	2·1	...	0·9	2·2	...	1·4	2·1	...	2·1	...	3·9		11			
4	...	6·4	9·6	...	3·6	8·8	...	...	...	7·5	...	0·6	6·4	...	17·0	21	45	1·4	...	...	2·2	...	0·5	...	2·6	...	9·3	1·9	...	8·5	...	10·8		17				
5	...	9·2	6·2	...	5·7	3·8	...	0·9	2·1	...	0·6	1·5	...	17·8	2	15	...	...	...	...	...	...	...	...	2·8	...	...	1·1	3·6	...	...	...	7·2		1			
6	...	2·0	...	...	3·3	1·4	...	3·6	...	1·5	...	1·3	0·9	...	8·2	7	50	2·0	...	0·4	...	4·5	...	0·9	2·1	...	5·2	...	2·5	2·5	...	6·2		16				
7	...	1·1	...	0·7	...	1·5	...	0·6	...	0·7	1·1	...	0·4	0·6	...	5·4	13	30	...	0·5	0·5	...	...	0·9	0·9	...	3·3	...	3·3	3·8	...	2·6	4·9	16,	17			
8	...	0·7	1·1	...	0·4	0·6	...	0·4	0·9	...	0·4	0·9	...	...	...	...	...	...	...	...	...	...	7·2	...	...	...	1·5	...	7·7	...	8·5		22					
9	...	1·8	1·8	...	...	6·6	...	...	7·1	1·4	...	...	10·0	2·0	...	13·2	21	25	2·4	...	5·7	...	...	4·6	...	2·6	...	6·4	...	3·0	...	7·2		14				
10	...	8·2	...	...	...	6·6	...	...	4·8	2·0	...	...	1·8	0·8	...	11·5	0	10	...	3·6	...	1·3	...	6·8	...	1·4	...	7·1	...	0·9	...	2·1	...	8·2		11		
11	...	1·8	2·7	...	3·1	7·6	...	1·3	6·8	...	3·1	4·7	...	14·1	10	50	...	4·9	...	6·9	...	...	2·9	...	...	2·3	...	0·6	...	3·2	...	7·9		8				
12	...	3·9	9·4	...	3·1	7·6	...	2·8	6·7	...	1·2	5·8	...	16·7	5	50	...	4·2	...	4·2	...	...	...	9·8	...	...	12·5	...	...	13·4	...	14·1		24				
13	...	2·8	6·7	...	4·7	7·1	...	5·1	5·1	...	10·9	4·5	...	17·0	21	5	...	2·7	13·5	...	...	6·6	9·8	...	...	8·8	8·8	...	10·6	7·1	...	14·4		1				
14	...	12·3	...	2·4	...	10·3	...	2·0	...	7·5	...	...	2·6	3·8	...	18·2	7	55	...	9·8	6·6	...	6·8	4·6	...	4·6	6·8	...	0·7	3·5	...	11·8	1,	3				
15	...	4·7	7·1	...	4·5	10·9	...	2·8	9·1	...	...	5·7	8·5	...	17·7	9	30	...	1·5	...	3·6	...	3·1	4·7	...	4·4	4·4	...	3·2	2·2	...	7·5		22				
16	...	5·7	8·5	...	4·2	0·8	...	2·2	1·4	...	0·9	0·4	...	14·7	3	35	...	4·3	2·9	...	...	0·6	1·5	...	2·7	...	1·8	2·0	...	3·0	...	6·6		2				
17	...	1·8	...	2·7	...	4·4	...	4·4	...	7·4	...	7·4	...	19·6	15	20	...	4·3	...	1·8	...	3·7	...	1·7	...	...	10·8	...	1·7	8·7	...	14·1		11				
18	...	6·2	9·2	...	4·9	11·8	...	4·8	11·6	...	11·8	11·8	...	27·1	23	5	...	1·4	7·1	...	...	13·4	...	...	11·3	...	2·2	...	10·3	2·0	...	17·4		17				
19	...	17·1	3·4	...	13·8	...	2·7	...	11·3	2·2	...	9·2	...	...	25·8	2	35	...	5·9	...	...	10·9	2·2	...	...	8·8	3·6	...	5·7	3·8	...	11·8		11				
20	...	8·5	...	...	6·1	1·2	...	5·8	1·2	...	...	3·2	0·6	...	12·6	0	10	...	3·8	2·6	...	...	5·2	3·4	...	...	5·5	2·3	...	...	2·9	0·6	...	8·2		11		
21	...	2·6	0·5	...	1·2	0·5	...	1·8	0·8	...	...	3·0	1·3	...	5·7	4	45	...	2·6	...	...	1·0	2·4	...	3·3	...	3·3	5·7	...	3·8	...	8·2		24				
22	...	4·2	...	0·8	...	7·7	...	1·5	...	5·7	...	2·4	...	14·2	9	10	...	6·6	...	...	4·5	...	0·9	...	4·5	...	0·9	...	4·3	...	7·9		1					
23	...	7·1	...	1·4	...	4·8	...	1·0	...	4·3	...	1·8	...	12·4	2	55	...	4·2	...	0·8	...	3·5	...	0·7	...	3·8	...	0·8	...	2·0	0·4	...	5·2		2			
24	...	3·0	...	1·3	...	4·2	...	0·8	...	2·4	...	1·0	...	7·5	10	5	...	0·4	...	0·9	...	1·4	...	1·4	...	1·6	...	1·6	...	1·6	...	2·6		24				
25	...	2·8	...	...	1·1	1·3	...	1·9	1·5	...	...	7·7	4·0	...	13·0	19	10	...	2·3	...	...	2·3	3·7	...	3·7	3·4	...	5·2	3·7	...	5·5	6·9	20					
26	...	4·5	...	...	0·9	2·4	...	...	2·2	...	3·2	...	...	11·9	22	25	...	4·0	...	6·0	5·6	...	...	5·6	4·7	...	4·7	3·8	...	5·7	8·5	6,	8					
27	...	...	...	10·2	...	...	...	14·4	...	...	...	12·5	4·0	...	20·0	9	30	...	3·4	...	...	5·2	3·8	...	...	5·7	2·6	...	...	6·4	...	8·2		24				
28	...	3·5	...	0·7	3·3	...	...	4·9	1·6	1·6	...	2·1	5·2	...	10·0	9	40	...	2·5	...	6·1	...	...	5·6	...	...	6·6	...	6·9	...	7·2		1					
29	...	2·9	...	6·9	...	4·0	9·7	...	3·4	8·2	...	5·4	8·1	...	15·5	21	10	...	...	...	6·2	2·6	...	6·4	4·7	...	4·7	4·8	...	2·0	7·2		13					
30	...	1·0	...	5·1	...	1·0	5·1	...	2·4	5·7	...	...	6·2	...	12·5	1	5	...	...	4·3	...	1·8	...	4·2	...	0·8	2·2	1·4	...	0·2	5·6	...	4		4			
	S+N&W+E S-N&W-E	134·7 -67·1	113·0 48·2	132·6 -51·0	128·1 28·5	114·2 -49·8	124·3 45·7	117·5 -69·5	118·3 48·9									S+N&W+E S-N&W-E	99·4 17·4	94·3 33·3	108·6 16·6	113·9 35·5	114·6 -4·6	128·0 45·6	94·6 -4·2	105·3 27·7												

#### ENGLAND S.W. :—SCILLY.

Height of Head above—Ground 9·8 m., M.S.L. 49·7 m.  
Height of Cups above—Ground 5·8 m., M.S.L. 45·7 m.

#### ENGLAND E. :—GREAT YARMOUTH.

Height of Head above—Roof 10·7 m., Ground 12·8 m., M.S.L. 15·9 m.  
Height of Cups above—Roof 8·7 m., Ground 18·8 m., M.S.L. 22·3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.	Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust. (Gorleston.)	Time of Gust.	
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.				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	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	...	0·4	2·1	...	0·0	0·0	0·0	...	0·7	1·6	...	0·0	0·0	0·0	...	8·7	3	55	2·3	...	2·3	...	0·6	...	3·2	...	1·3	...	3·0	1·7	...	1·1	...	8·6		6	15	
2	...	0·0	0·0	0·0	...	2·1	...	3·2	4·7	...	4·7	4·2	...	9·7	14	40	...	0·3	...	1·6	...	0·1	0·3	...	3·3	...	...	2·1	...	2·1	...	6·8		14	30			
3	...	11·1	7·4	...	6·8	6·8	...	5·0	5·0	...	6·2	6·2	...	19·5	2	30	...	4·0	...	4·0	3·8	...	...	0·8	6·6	...	4·4	3·2	...	2·2	...	13·7		17	10			
4	...	8·0	5·0	...	2·6	6·2	...	9·1	9·1	...	8·8	8·8	...	19·0	20	20	...	3·3	...	1·4	...	1·3	6·8	...	...	1·1	5·5	...	0·5	2·6	...	14·7	10	30				
5	...	9·6	4·3	...	4·3	1·8	...	3·8	2·6	...	3·1	1·3	...	16·0	1	45	...	...	2·1	5·2	...	...	4·3	2·9	...	4·1	2·7	...	2·8	1·1	...	16·0	12	45				
6	...	3·1	...	1·3	...	0·7	0·3	1·9	...	0·0	0·0	0·0	...	6·6	0	35	...	...	3·6	...	...	1·9	...	1·3	...	1·8	...	0·3	0·1	...	8·3	14	10					
7	...	...	...	...	1·3	...	1·0	...	1·5	...	1·5	...	4·0	10	10	...	...	...	1·2	0·5	...	...	2·1	0·9	...	4·3	...	1·8	...	2·1	5·2	...	7·4	19	45			
8	...	0·9	...	0·9	...	0·3	...	0·7	0·7	...	1·1	0·3	...	5·4	10	35	...	...	...	2·0	...	4·8	...	2·6	3·8	...	4·4	...	4·4	...	3·1	4·7	...	7·0	22	30		
9	...	1·6	...	2·4	...	1·8	...	4·3	...	5·8	...	2·4	...	11·9	21	25	...	...	...	3·8	...	5·7	...	4·2	4·2	...	4·9	...	3·3	...	4·7	...	9·0	15	40			
10	...	5·2	...	3·5	...	6·2	...	2·6	...	5·4	...	2·2	...	10·8	17	55	...	...	...	4·2	...	6·2	...	3·4	5													

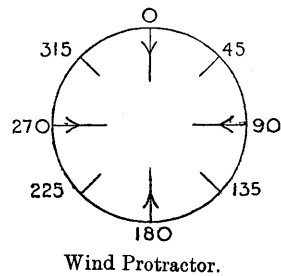
9. SOUNDINGS WITH PILOT BALLOONS.

Day.	Station.	Time of Start, G.M.T.	Horizontal Velocity of Wind.																Cloud Observations.		
			Geostrophic.		By Anemometer.		At Heights above M.S.L.														
			From N.	m/s.	From N.	m/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.		Type.	From N.	m/s.
							From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.			
1	S. Farnboro'	h. m. 12 55	270	7	270	5.0	265	7.5	265	9.0	265	11.5	...	...	...	...	...	...	Ci.	250	...
5	Eskdalemuir	7 20	360	9	330	0.9	340	3.3	40	1.5	340	11.5	345	15.5	...	...	...	...	Ci.	360	4.2
6	Aberdeen	7 45	240	13	180	2.0	215	12.5	225	5.5	275	4.5	280	8.0	...	...	...	...	Ci.-Cu.*	280	4.0
6	S. Farnboro'	18 15	...	0	...	0.0	40	4.0	90	2.0	55	5.5	60	6.0	...	...	...	...	...	...	...
11	„	15 0	250	10	270	light	265	9.0	255	7.5	280	8.0	315	12.5	...	...	...	...	...	...	...
14	Eskdalemuir	7 25	350	10	335	9.5	340	11.0	5	11.0	330	12.5	...	...	...	...	...	...	Ci.	320	5.7
15	S. Farnboro'	11 15	290	9	290	6.0	270	10.5	285	6.5	345	11.0	...	...	...	...	...	...	...	...	...
21	„	6 20	...	0	...	0.0	30	7.0	30	8.0	15	10.5	...	...	...	...	...	...	...	...	...
22	„	6 45	140	8	...	0.0	145	4.5	170	5.0	200	1.0	15	3.0	300	3.5	...	...	Ci.	260	...
23	„	6 25	140	4	...	0.0	145	3.5	140	2.0	160	5.5	205	7.0	...	...	...	...	...	...	...
23	„	10 30	...	0	...	0.0	140	3.0	145	4.5	210	6.0	...	...	...	...	...	...	Ci.	250	...
25	„	14 50	150	16	90	4.0	120	5.5	165	10.0	175	5.0	...	...	...	...	...	...	...	...	...
26	„	13 45	130	8	125	3.0	125	7.0	130	6.5	150	6.5	180	8.5	170	10.5	...	...	...	...	...
28	Benson	11 50	120	9	70	3.0	95	3.6	105	3.3	130	4.6	155	4.9	...	...	...	...	Cu.	110	...

Notes on Pressure Distribution.

- September 1 7 h. Anticyclone over France. Depression between the Faroes and Iceland.
- 5 7 h. Anticyclone covering the Azores and the Bay of Biscay. Shallow depression over the North Sea. Depression W. of Iceland.
- 6 7 h. and 18 h. Anticyclone over England. Depression beyond Iceland.
- 11 18 h. Anticyclone S.W. of Ireland. Depression near Iceland. V-shaped secondary over the N.E. coast of England.
- 14 7 h. Anticyclone W. of Ireland. Deep depression over Finland.
- 15 7 h. Anticyclone to the S.W. of the British Isles.
- 21 7 h. Anticyclone over the British Isles.
- 22 7 h. Anticyclone covering S.E. England and Denmark. Depression W. of Iceland.
- 23 7 h. Anticyclone over Germany. Depression over the Atlantic. Anticyclone forming near Corunna.
- 25 18 h. Depression off S.W. Ireland.
- 26 18 h. Depression off S.W. Ireland.
- 28 7 h. Depression off the W. of Ireland, and extending to the Bay of Biscay.

Height of Station above M.S.L. = H.  
 Height of Anemometer above ground = h.  
 H. h.  
 Aberdeen . . . 14 m. 32 m.  
 Benson . . . 57 m. 25 m.  
 Eskdalemuir . . 242 m. 15 m.  
 S. Farnborough . . 70 m. 31 m.



\* At 13 h.



## 10. NEPHOSCOPE OBSERVATIONS. June 1916.

ABERDEEN. Taken at 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
2	Ci. Cu.	290 315	mr/s. 1'4 10'0	mr/s. +1'3 +7'1	mr/s. -0'5 -7'1	Ci., becoming Ci.-St. later.
4	Cu.-Nb.	305	4'0	+3'3	-2'3	Base of cloud measured.
7	Ci.-Cu. Cu.-Nb. (a). ,, (b).	346 335 328	2'5 8'0 16'0	+0'6 +3'5 +8'5	-2'4 -7'5 -13'6	Observation at 12 h. 30 m. Fine Ci.-Cu. with $\odot$ . (a) is apical part of Cu.-Nb., and (b) is basal portion. Note great differences in the apparent velocities due probably to considerable vertical depth of cloud.
8	Cu.-Nb.	356	12'0	+0'8	-12'0	Actually Nb.-Cuf. at base of Cu.-Nb.
12	Fr.-Cu.	349	30'0	+6'0	-29'0	Approximate velocities.
15	Cu.	345	14'0	+3'6	-13'6	Inclined to Fr.-Cu. type.
17	A.-Cu.	333	3'0	+1'4	-2'7	Fine, small, flat cloudlets, with very slight shadows.
19	Cu.	334	10'0	+4'4	-9'0	
20	Cu.	295	8'0	+7'3	-3'4	Cu. to Cu.-Nb.
21	Cu.	265	3'6	+3'6	+0'3	Cu. in a closed sheet.
22	St.-Cu.	192	4'3	+0'9	+4'2	Diffuse, thin St.-Cu.
26	A.-Cu.	235	1'0	+0'8	+0'6	Thin, flat, shadowless A.-Cu.
27	A.-Cu.	85	0'5	-0'5	0'0	Thin, flat A.-Cu.; no shadows.

## 10. NEPHOSCOPE OBSERVATIONS. July 1916.

ABERDEEN. Taken 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
1	Ci.	210	mr/s. 1'5	mr/s. +0'8	mr/s. +1'3	False Ci., in heavy sheets.
6	St.-Cu.	215	2'8	+1'6	+3'3	Thin, flat type of St.-Cu.
8	A.-Cu.	100	1'5	-1'5	+0'3	A.-Cu. to thin, high St.-Cu.
11	Cu.-Nb.	280	3'3	+3'2	-0'6	Base measured.
12	Cu.-Nb.	280	3'3	+3'2	-0'6	Base measured. Note the equality of the apparent velocities on the 11th and 12th.
14	Cu.	307	15'0	+12'0	-9'0	There was some fine small A.-Cu. above, moving from about 360°. The speed could not be measured on account of the lower cloud.
17	Cu.	334	8'0	+3'5	-7'2	
24	Ci.-Cu.	?	<0'1	—	—	Excessively slow; direction varying, but probably there was a general trend from S.W., as some observations of direction gave S. and others nearly W.
28	Cu.	254	4'0	+3'8	+1'1	
29	Cu.	275	8'0	+8'0	-0'7	
31	St.-Cu.	292	6'6	+6'1	-2'5	

## 10. NEPHOSCOPE OBSERVATIONS. August 1916.

ABERDEEN. Taken at 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
1	Fr.-Cu.	225	mr/s. 19.0	mr/s. +13.5	mr/s. +13.5	
2	A.-Cu.	300	4.0	+ 3.5	- 2.0	A.-Cu. to St.-Cu. in sheets.
3	A.-Cu.	285	6.3	+ 6.1	- 1.6	A.-Cu. to St.-Cu. in large lenticular sheets.
5	Cu.	315	9.3	+ 6.6	- 6.6	
21	Cu.	320	12.5	+ 8.0	- 9.6	Cu. of degraded type in fused sheet.
23	Ci.	323	1.9	+ 1.1	- 1.5	Observation at 12 h. Patches of Ci. ; no definite radiant-point.
28	Cu.	308	5.0	+ 3.9	- 3.1	Transition type between Cu. and St.-Cu.
30	Cu.	315	5.7	+ 4.0	- 4.0	

Note.—Between the 5th and 21st there was blue sky, fog, mist, or uniform stratus cloud at 13 h., and no instrumental observations were possible.

## 10. NEPHOSCOPE OBSERVATIONS. September 1916.

ABERDEEN. Taken at 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity-height-ratio.				Remarks.
		Degrees from N.	Milliradians per second.	Components.		
				W.-E.	S.-N.	
1	Cu.	252	mr/s. 8.0	mr/s. + 7.6	mr/s. + 2.5	
4	Cu.	346	20.0	+ 4.8	- 19.4	Some A.-Cu. moving from 315°, occasionally visible above the lower Cu.
6	Ci.-Cu.	279	4.0	+ 4.0	- 0.6	Lenticular masses of Ci.-Cu.
8	Ci.	225	1.6	+ 1.1	+ 1.1	Ci. of diffuse type, slight in quantity.
9	Ci.-Cu.	235	4.2	+ 3.4	+ 2.4	Fine Ci.-Cu. in long straight bands, with radiant-point about 230°.
11	St.-Cu.	270	2.8	+ 2.8	0.0	
12	{ Ci.-Cu. Cu.	310 288	2.9 10.4	+ 2.2 + 9.9	- 1.9 - 3.2	Observation at 12 h. Ci. to Ci.-Cu. gathering into large irregular lenticular masses.
14	Cu.-Nb.	325	10.0	+ 5.7	- 8.2	Observation at 12 h.
15	Cu.	315	12.5	+ 8.8	- 8.8	Observation at 12 h.
16	St.-Cu.	330	4.5	+ 2.3	- 3.9	Observation at 12 h. Closed sheet of St.-Cu.
19	Fr.-Cu.	360	8.3	0.0	- 8.3	Degraded Fr.-Cu. or Nb.-Cuf.
20	Fr.-Cu.	335	8.3	+ 3.5	- 7.5	
21	{ Ci. Cu.	315 180	2.1 1.7	+ 1.5 0.0	- 1.5 + 1.7	Observation at 12 h. Ci., slight traces only.
23	Ci.-Cu.	250	1.4	+ 1.3	+ 0.5	Observation at 12 h. Ci.-Cu. to A.-Cu.
24	St.-Cu.	225	2.0	+ 1.4	+ 1.4	
30	Cu.-Nb.	20	4.2	- 1.4	- 3.9	Observation at 12 h. Degraded type of small Cu.-Nb.

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## I. SUNSHINE AND SOLAR RADIATION.

Day.	SOUTH KENSINGTON.—Lat. 51° 30' N. Long. 0° 10' W.							RICHMOND.—Lat. 51° 28' N. Long. 0° 19' W.					ESKDALEMUIR.—Lat. 55° 19' N. Long. 3° 12' W.					CAHIRCIVEEN.		
	Bright Sunshine.		Radiation received on Horizontal Surface by Calendar Radiograph.					Bright Sunshine.		Radiation at Noon by Ångström Pyrheliometer.			Bright Sunshine.		Radiation by Ångström Pyrheliometer.			Bright Sunshine.		
	Total.	Per cent. of Possible.	Daily Total.	Per cent. of Planetary.	Maximum.			Total.	Per cent. of Possible.	Intensity.	Vertical Component.	Sky.	Total.	Per cent. of Possible.	Time.	Sky.	p sec Z.	Intensity.	Total.	Per cent. of Possible.
	hr.	%			For Day.	11.30 h. to 12.30 h.	Amount.													
			j/cm <sup>2</sup> .	%	mw/cm <sup>2</sup> .	h. m.	mw/cm <sup>2</sup> .	hr.	%	mw/cm <sup>2</sup> .	mw/cm <sup>2</sup> .		hr.	%	h. m.			mw/cm <sup>2</sup> .	hr.	%
1	2 3	20	682	33	46	12 20	46	3 3	28	44	26	Hazy	0 3	3	...	...	...	0 1	1	
2	0 0	0	188	9	11	13 0	8	0 0	0	...	...	...	4 8	42	...	...	...	0 0	0	
3	0 1	1	326	16	39	11 39	39	0 2	2	...	...	...	0 0	0	...	...	...	1 6	14	
4	2 6	23	601	30	40	12 42	35	2 5	22	...	...	...	0 0	0	...	...	...	3 3	29	
5	5 9	52	691	35	54	12 28	54	6 1	54	...	...	...	1 1	10	...	...	...	0 0	0	
6	0 0	0	206	11	28	12 10	28	0 0	0	...	...	...	0 0	0	...	...	...	2 7	24	
7	6 5	58	864	46	51	11 24	48	5 6	50	65	36	Clear	1 6	14	...	...	...	3 3	30	
8	2 6	23	438	23	40	12 10	40	3 1	28	...	...	...	1 3	12	...	...	...	2 1	19	
9	3 9	35	664	36	55	12 20	55	3 4	31	...	...	...	8 6	78	12 46	Clear	2 12	79	6 1	55
10	1 3	12	472	26	43	11 31	43	1 5	14	...	...	...	0 1	1	...	...	...	0 0	0	
11	0 1	1	490	28	34	13 30	22	0 2	2	...	...	...	0 8	7	...	...	...	0 1	1	
12	1 6	15	456	26	36	12 27	36	2 1	19	...	...	...	0 1	1	...	...	...	0 0	0	
13	0 0	0	262	15	23	14 50	11	0 0	0	...	...	...	1 7	16	...	...	...	0 0	0	
14	0 4	4	490	29	50	13 20	31	0 9	8	...	...	...	0 0	0	...	...	...	0 0	0	
15	7 2	67	832	50	52	11 17	48	7 5	70	...	...	...	3 4	32	...	...	...	6 9	65	
16	5 3	50	671	41	42	12 2	42	5 5	52	62	31	Clear	3 9	37	...	...	...	1 4	13	
17	0 0	0	314	20	22	9 48	19	0 0	0	...	...	...	0 0	0	...	...	...	0 4	4	
18	1 3	12	411	26	36	10 18	11	0 6	6	...	...	...	1 7	17	...	...	...	0 0	0	
19	5 8	55	674	43	42	10 50	41	6 6	63	52	25	Clear	8 8	86	...	...	...	0 0	0	
20	0 2	2	318	21	20	11 33	20	0 4	4	...	...	...	2 5	25	...	...	...	0 0	0	
21	5 7	55	658	44	40	11 54	38	6 8	66	60	28	Clear	5 3	52	12 7	Cl.	2 43	70	0 0	0
22	1 3	13	547	37	45	12 15	45	1 6	16	...	...	...	3 8	38	...	...	...	0 1	1	
23	5 0	49	696	48	42	11 2	40	5 0	49	62	28	Clear	0 0	0	...	...	...	0 5	5	
24	0 3	3	...	...	...	...	...	1 5	15	...	...	...	6 4	65	...	...	...	0 0	0	
25	1 7	17	416	30	31	14 20	30	1 7	17	...	...	...	0 6	6	...	...	...	2 4	24	
26	7 0	70	660	47	39	12 40	36	6 9	69	63	28	Clear	4 9	51	...	...	...	5 9	59	
27	1 0	10	291	21	36	13 35	34	2 2	22	64	28	Clear	0 0	0	...	...	...	0 0	0	
28	5 5	56	574	43	43	12 15	43	4 9	49	...	...	...	0 0	0	...	...	...	4 1	42	
29	0 6	6	244	18	27	14 35	13	0 7	7	...	...	...	0 0	0	...	...	...	2 1	21	
30	4 0	41	493	38	33	12 25	33	3 7	38	51	21	Clear	0 0	0	...	...	...	2 6	27	
31	7 0	72	621	49	38	13 10	36	6 9	71	...	...	...	3 0	32	...	...	...	4 0	41	
Means	2 77	27	508	31	38	—	34	2 94	28	—	—	—	2 10	20	—	—	—	1 61	15	
Normal	2 13	20	—	—	—	—	—	2 97	28	—	—	—	2 48	24	—	—	—	3 26	31	
	← 5 years →							← 35 years →					← 5 years →					← 35 years →		

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

Heights above M. S. L.—H=12.5 m. H<sub>b</sub>=13.7 m. H<sub>a</sub>=26.4 m. Above Ground: h<sub>1</sub>=1.2 m. h<sub>r</sub>=0.56 m. h<sub>a</sub>=13.9 m.

Day.	Air Pressure at Station Level.		Air Temperature in Degrees Absolute.				Humidity.				Wind Direction in Points (8=E, 16=S) with Speed in metres per second.				Cloud Amount (0-10) and Weather.		Rain 24 hours beginning 9 h.	Remarks.	Magnetism.		
	9 h.	21 h.	9 h.	21 h.	Max.	Min.	Vapour Pressure.	Percentage.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.	9 h.	21 h.			Horizontal Force.	Declination West.	Inclination.
	mb.	mb.	a.	a.	a.	a.	millibar.	%	Dir.	m/s.	Dir.	m/s.	Tenths of Sky covered.	mm.		γ	°	°			
1	1013.2	1010.0	200+	200+	200+	200+	13.6	17.0	79	92	9	5	12	4	1000	10	21.3	...	...	...	
2	1007.7	1005.0	88.3	89.4	90	88	17.9	17.8	99	99	15	4	15	6	100	10	6.3	...	...	...	
3	1008.2	1007.0	88.9	88.5	89	88	16.5	17.2	92	98	16	4	14	6	10	8	6.2	...	...	...	
4	1002.5	1005.6	88.8	88.7	89	88	16.6	16.3	93	92	19	7	21	8	10	8	—	...	...	...	
5	1006.8	1007.0	89.3	90.0	90	88	16.9	18.6	92	97	17	4	17	9	10	10.0	38.2	...	...	...	
6	992.9	1001.1	88.3	85.1	90	84	16.4	10.5	95	75	21	7	20	7	8	5	8.4	...	...	...	
7	1005.0	1011.5	85.2	87.8	88	84	13.6	15.5	96	93	23	11	21	10	9	10	0.1	...	...	...	
8	1015.1	1012.0	88.2	88.3	90	88	15.2	15.3	89	89	20	4	19	9	9	10	0.8	...	...	...	
9	1015.5	1015.0	86.0	85.6	89	84	13.5	13.0	91	90	22	4	16	4	7	10	—	...	17851	19 52'6	68 7'7
10	1010.0	1014.9	89.3	87.4	89	86	16.0	14.2	87	87	20	12	21	9	10	5	3.0	...	...	...	
11	1017.4	1018.7	88.4	88.3	89	87	16.1	15.3	93	89	20	7	20	6	8	10	0.3	...	...	...	
12	1015.5	1019.3	88.8	85.4	90	85	17.1	12.6	96	88	20	9	—	1	10	7	3.7	...	...	...	
13	1016.9	1014.3	88.6	88.6	90	85	17.3	17.3	98	98	17	5	20	8	10	10	7.1	...	...	...	
14	1003.8	1008.5	89.4	85.3	90	84	17.4	9.5	94	n 67	17	10	26	12	10	7	3.3	...	...	...	
15	1018.0	1024.9	83.2	82.4	85	81	8.4	9.5	68	81	28	11	31	4	7	10	4.3	...	...	...	
16	1024.3	1016.7	81.9	83.0	85	81	10.8	11.6	96	95	—	0	15	5	5	10.0	9.7	...	...	...	
17	1009.2	1013.4	86.0	85.0	87	84	14.6	11.0	98	79	24	4	27	6	10.0	9	0.7	...	...	...	
18	1018.0	1019.4	86.0	86.5	87	85	13.2	13.2	89	86	22	6	25	8	10	7	0.7	...	...	...	
19	1022.1	1022.9	87.2	85.9	87	85	15.1	14.3	94	97	26	5	—	1	10	10	0.3	...	...	...	
20	1019.5	1011.6	85.7	86.2	87	85	12.6	13.6	86	90	15	5	15	7	10	8	13.9	...	...	...	
21	1005.9	1002.2	84.0	82.0	86	82	12.6	10.4	97	91	—	0	32	5	10	10.0	9.8	...	...	...	
22	998.0	1002.1	82.0	80.6	84	80	11.1	8.2	92	79	3	2	2	6	7	9	9.8	...	...	...	
23	1003.5	1004.0	82.0	80.9	84	80	8.7	8.6	76	81	31	3	—	1	900	3	0.2	...	...	68 7'1	
24	992.7	966.2	83.9	84.0	85	n 79	9.9	10.9	77	84	15	11	12	14	9	10.0	17.6	...	17870	19 49'6	...
25	977.9	993.8	81.9	80.3	n 83	n 79	9.1	8.3	81	81	23	14	23	12	10.0	10	5.8	...	...	...	
26	1003.7	993.1	81.3	82.7	84	n 79	8.7	8.8	80	74	20	4	7	5	7	10	23.3	...	...	...	
27	977.3	989.2	80.6	82.1	n 83	n 79	8.9	8.5	85	74	32	13	27	13	10.0	8	10.9	...	...	...	
28	995.5	989.7	82.3	80.8	84	80	9.3	9.8	80	93	25	9	16	5	8	10.0	9.6	...	...	...	
29	987.8	992.4	81.0	81.9	84	81	8.5	10.1	80	89	31	6	16	4	6	9	—	...	...	...	
30	971.8	988.1	83.6	81.0	85	81	11.7	9.4	92	88	21	20	21	7	10	10.0	3.6	...	...	...	
31	996.5	1000.2	82.4	81.1	84	80	9.1	9.8	78	91	21	13	20	4	7	4	6.3	...	...	...	
Means	1004.9	1005.5	85.6	85.0	87.0	83.4	13.1	12.5	88	87	—	—	—	—	—	—	272.6	Monthly Totals or Means.	17861	19 51'1	68 7'4
Normal	1010.7	1010.9	83.7	83.6	86.6	81.1	11.1	11.0	86	86	5.2	—	—	—	—	—	144.5	Normals.	—	—	—
	← 45 years →		← 30 years →				← 35 years →				← 35 years →		← 5 years →		← 45 yrs. →						

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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8 = E, 16 = S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., and Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes).

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<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity, Wind Direction in Points, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., and Height above M.S.L. of Surface of Underground Water. Includes a REMARKS column with detailed weather observations.

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

5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 25 days; they are computed from the data for those days on which values at each of the four hours, 3<sup>h</sup>, 9<sup>h</sup>, 15<sup>h</sup>, 21<sup>h</sup>, are given in the table. A similar note applies to the values in Table 6. z denotes the maximum and z the minimum value in the column.

z Indeterminate.

Table with columns: Day, Remarks, Potential Gradient (Volts per metre, Factor 2.09), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, Horizontal Force (Mean Time, h m, gamma), Declination (West) (Mean Time, h m, degrees), Inclination (North) (Mean Time, h m, degrees).

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—ESKDALEMUIR.

Table with columns: Day, Potential Gradient (Volts per metre, Factor 5.57), Charge per cc. (x 10^16), Air-Earth Current (x 10^16), Electric Character of Day, Magnetic Character of Day, North Component (Maximum, Minimum, 15000 gamma+), West Component (Maximum, Minimum, 4000 gamma+), Vertical Component (Maximum, Minimum, 45000 gamma+).

\* 21 days. See note above.

† Insulation bad.

‡ Air in pipe.

§ 30 days.

10\*

7. SEISMOLOGICAL DIARY.

EARTHQUAKES:—ESKDALEMUIR.

Day.	Phase.	Time, G.M.T.	Period.	Amplitudes.			Δ.	Remarks.
				A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>		
1	Pe L F	h m s 2 36 36 3 26 4 42	s ... 25 ...	μ ... ... ...	μ ... ... ...	μ ... ... ...	km. ... ... ...	Prolonged slight disturbance.
2		2 7 to 2 30	... ...	... ...	... ...	... ...	... ...	Faint disturbance.
3	Pi PR S M M L M L F	1 39 32 1 43 16 1 56 16 1 57 23 1 57 28 2 4 2 6 25 2 22 5 40	... ... ... 29 29 ... 29 ... ...	... ... ... ... ... ... 45.5 ... ...	... ... ... ... 33.3 ... ... ... ...	... ... ... ... ... ... ... ? ...	9610 ... ... ... ... ... ... ... ...	There was apparently a second disturbance in the afternoon; its phases cannot be separated from those of the principal one.
3	Pe (?) S (?) L	13 42 22 13 51 14 14 5	... ... ...	... ... ...	... ... ...	... ... ...	... ... ...	
11	M	18 18 47 10	... 22	... ...	... 21	... ...	... ...	Moderate disturbance. Phases masked by wind effects and microseisms. Prominent displacement at 18 h. 47 m. 10 s. on E.-W.
20	P M L F	17 27 12 18 23 6 18 38 19 45	... 19 ... ...	... 6.3 ? ...	... ... ? ...	... ... ... ...	... ... ... ...	Prolonged irregular disturbance. Phases masked by microseisms. Displacement N.E.-S.W. at 18 h. 38 m. during passage of well-marked L waves.
21		10 48 to 11 12	... ...	... ...	... ...	... ...	... ...	Faint disturbance, with maximum about 10 h. 56 m.
21	P (?) L	19 48 34 20 16	... 24	... ...	... ...	... ...	... ...	Slight disturbance.
21		22 25 to 23 40	... ...	... ...	... ...	... ...	... ...	Slight disturbance, with no prominent feature except a few well-marked L waves on E.-W. about 23 h. 24 m.
23	L	11 22 to 11 43	... ...	... ...	... ...	... ...	... ...	
25		0 19 to 0 34	... ...	... ...	... ...	... ...	... ...	Faint disturbance.
31	Pi PR <sub>1</sub> PR <sub>2</sub> S SR <sub>1</sub> SR <sub>2</sub> L M M M	15 42 38 15 45 54 15 47 35 15 52 14 15 57 13 16 1 5 16 7 5 16 10 39 16 13 55 16 14 15	... ... ... ... ... ... ... 23 20 21	... ... ... ... ... ... ... 30.4 40.8 54.7	... ... ... ... ... ... ... ... ... ... ...	... ... ... ... ... ... ... ... ... ... ...	8320 ... ... ... ... ... ... ... ... ... ...	Epicentre 46° N. lat. 163° W. long. Large earthquake, with well-marked phases. F masked by wind effects. Oppositely travelling waves observed at 18 h. 10 m.

MICROSEISMS OF N. COMPONENT:—ESKDALEMUIR.

Day.	0 h.		6 h.		12 h.		18 h.	
	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
	μ	s	μ	s	μ	s	μ	s
1	0.7	6	0.7	5.5	0.7	5.5	0.5	6
2	0.6	5	0.7	6	0.7	5.5	0.7	5
3	0.8	5	0.9	4.5	0.7	5	1.1	4
4	0.7	4	0.5	4	0.3	4	0.9	4
5	1.1	4	1.0	4	1.0	4.5	1.2	4
6	1.1	4	1.9	4.5	2.1	4	1.8	4.5
7	1.9	4.5	2.0	4.5	1.8	5	1.8	5.5
8	3.3	5	3.6	5.5	3.1	5.5	2.7	5
9	2.3	6	2.2	5.5	1.5	7	1.6	6
10	1.3	6	1.2	6	1.4	6	1.2	5
11	2.0	5	1.7	6	1.6	6	1.6	6
12	1.6	6	1.7	6	2.5	5.5	1.8	6
13	2.3	6	3.4	6	3.0	6	2.3	6
14	1.7	6	1.6	5.5	1.9	6	2.1	6
15	4.7	6	5.4	6	6.2	6	5.5	6
16	4.9	6.5	3.7	6	2.8	6	1.6	6
17	1.5	6	1.8	6	1.2	6	1.7	5.5
18	1.8	5	1.4	6.5	1.6	6	1.0	6
19	1.4	5.5	1.4	6.5	1.4	7	1.4	6.5
20	1.3	6	1.2	6	1.4	6.5	Earthquake.	
21	1.3	7	1.7	6	1.9	6	1.9	6
22	1.6	6	1.6	6	1.3	6	1.0	6
23	0.9	6	0.8	5.5	0.8	5	0.7	5.5
24	0.7	5	*	*	0.9	5	0.9	5.5
25	1.8	5	1.8	5	2.7	6	3.7	6.5
26	4.4	6.5	4.8	6	4.1	6.5	3.1	6
27	3.3	5	2.5	5.5	2.1	5	1.8	5
28	1.7	5	1.5	4.5	1.2	5	1.1	6
29	1.0	5.5	1.1	5	1.5	5	0.9	6
30	0.9	6	0.9	6	1.4	6.5	1.6	6
31	1.7	5.5	1.2	6	1.8	5	1.1	4.5

\* Clock under repair.

EARTHQUAKES:—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of		Remarks.
	Commence-ment.	Max. Phase.	
1	h m ...	h m 3 46	Very small.
3	1 48.5	2 22.2	Lasted several hours.
11	...	18 48	Small.
20	17 33	18 35.8	
21	...	20 19.5	Very small.
23	...	11 43	Very small.
25	...	0 28	Very small.
31	15 46	16 25.5	Amplitude on trace 3.0 mm.

8. 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.

Height of Head above—Roof 88 m., Ground 13.7 m., M.S.L. 19.2 m.  
Height of Cups above—Roof 4.6 m., Ground 7.6 m., M.S.L. 15.2 m.

SCOTLAND N. :—DHERNESS.

Height of Cups above—Roof 1.5 m., Ground 4.9 m., M.S.L. 57.3 m.

Date.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.	Date.	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.				S.	N.	W.	E.	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.	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.	m/s.	m/s.
1	0.6	...	...	2.9	0.4	...	...	2.0	...	...	...	3.0	...	...	...	3.5	7.0	5	45	1	0.5	...	0.5	...	3.3	...	...	0.4	...	2.3	...	...	0.6	...	1.5	...	7.2	24			
2	...	...	...	2.2	...	...	5.1	...	...	1.6	...	3.0	...	...	1.0	...	5.1	11.2	12	20	2	6.7	2.8	...	3.8	...	0.8	...	2.9	...	0.6	1.9	...	1.3	...	7.2	2, 3				
3	5.7	...	...	3.8	6.5	...	1.3	6.7	...	2.8	...	5.5	...	2.3	...	...	13.5	16	50	3	3.6	...	...	2.4	7.1	...	...	4.7	9.1	...	...	3.8	4.0	...	...	1.6	10.8	11			
4	5.5	...	1.1	...	7.2	...	7.2	6.7	...	6.7	...	6.7	...	6.7	...	...	17.0	9	10	4	2.3	...	...	...	3.3	...	...	1.3	...	...	...	2.1	...	5.2	6.9	23					
5	2.2	...	11.3	...	1.2	...	5.8	6.9	...	2.9	...	10.2	...	...	...	...	19.0	22	10	5	5.6	...	5.6	...	3.3	...	3.3	...	1.4	...	2.2	...	...	4.9	8.2	4, 5					
6	10.1	...	6.7	...	10.6	...	4.4	8.3	...	8.3	...	5.5	...	3.7	...	...	20.4	8	0	6	...	...	...	7.2	...	3.4	...	5.2	...	6.1	...	2.5	...	4.7	3.1	...	9.5	6			
7	6.0	...	9.0	...	8.8	...	8.8	2.0	...	10.0	...	...	...	10.2	...	...	23.8	11	30	7	...	1.1	0.7	...	...	4.8	...	1.0	...	5.5	2.3	...	4.4	4.4	...	7.2	17, 18				
8	3.0	...	7.3	...	1.4	...	7.1	4.0	...	6.0	...	4.6	...	6.8	...	...	17.0	23	50	8	...	3.8	5.7	...	...	0.6	1.5	...	2.5	...	6.1	...	7.9	...	...	9.2	22				
9	3.9	...	9.4	...	...	...	8.5	2.1	...	5.2	...	1.4	...	3.3	...	...	18.0	1	35	9	1.6	...	4.0	...	1.8	...	9.0	...	5.3	12.8	...	4.8	...	11.6	...	13.8	14, 15, 19				
10	3.7	...	5.5	...	7.8	...	7.8	6.6	...	9.8	...	4.0	...	9.7	...	...	20.8	14	30	10	5.7	...	2.4	...	8.5	...	3.5	10.7	...	16.0	...	...	7.9	...	...	19.7	16				
11	3.0	...	7.3	...	3.8	...	9.1	4.7	...	7.1	...	4.7	...	7.1	...	...	17.9	9	10	11	2.8	...	14.1	...	2.2	...	10.9	...	1.3	6.8	...	7.2	...	...	14.4	3					
12	7.4	...	7.4	...	8.8	...	8.8	5.4	...	8.1	...	...	4.4	6.6	...	...	20.6	7	50	12	7.6	...	3.1	...	6.8	...	4.6	...	5.9	...	14.2	...	3.5	...	17.7	...	19.0	23			
13	...	1.7	2.5	...	3.3	...	3.3	5.8	...	5.8	...	4.7	...	7.1	...	...	15.7	23	50	13	...	...	13.1	...	2.7	...	4.1	...	1.8	...	4.3	...	...	5.9	...	15.7	1				
14	6.9	...	6.9	...	11.7	...	7.8	13.0	...	8.7	...	...	3.3	16.7	...	...	27.3	20	15	14	3.6	...	1.5	...	7.2	...	7.2	6.9	...	...	10.5	...	...	18.4	11						
15	...	5.9	14.2	...	...	6.0	14.5	...	12.0	8.0	...	...	11.6	4.8	...	...	24.3	14	40	15	...	...	15.7	...	...	8.6	12.8	...	10.9	10.9	...	7.3	10.9	...	20.3	4					
16	...	7.6	5.1	...	...	7.9	5.3	...	5.1	5.1	...	...	1.6	1.6	...	...	16.0	10	25	16	...	5.3	7.9	...	...	6.0	6.0	...	5.3	5.3	...	0.6	2.9	...	11.8	1					
17	3.5	...	0.7	...	6.6	...	...	5.8	...	...	...	1.2	2.3	...	2.3	...	13.1	10	5	17	1.4	...	3.3	...	2.3	...	0.4	...	6.7	...	2.8	9.4	...	3.9	...	10.8	22				
18	...	7.2	7.2	...	...	5.3	5.3	...	2.3	...	5.5	...	...	1.9	9.3	...	17.4	21	15	18	6.2	...	...	...	3.3	...	...	5.2	...	...	...	0.5	2.6	...	7.5	1					
19	...	7.4	7.4	...	...	8.2	3.4	...	...	4.6	...	...	0.3	...	...	15.0	3	30	19	...	0.4	2.0	...	0.5	...	1.2	...	5.1	...	1.0	8.3	...	1.7	...	9.5	23					
20	2.0	...	...	0.4	2.6	...	...	0.5	4.8	...	...	1.0	6.1	...	...	12.6	20	10	20	9.4	...	...	3.9	9.1	...	...	3.8	7.6	...	3.1	9.6	...	...	1.9	...	11.1	24				
21	6.2	...	...	0.4	8.0	...	...	1.6	6.9	...	...	...	8.0	...	...	14.2	12	15	21	11.2	...	...	4.6	10.9	...	...	4.5	11.6	...	4.8	7.9	...	...	5.3	...	14.1	11				
22	5.1	...	...	5.1	0.8	...	...	3.8	2.9	...	...	6.9	2.2	...	...	14.6	20	35	22	6.2	...	...	...	5.8	...	...	1.2	3.8	...	0.8	...	5.6	...	...	7.5	2					
23	1.4	...	...	7.1	6.9	...	...	10.3	...	4.3	...	1.8	...	4.3	...	...	19.4	13	45	23	5.2	...	...	5.7	...	...	3.8	3.1	...	7.6	6.6	...	4.4	...	9.8	8					
24	1.4	...	3.3	...	6.4	...	...	2.6	8.8	...	...	3.6	5.1	...	...	16.7	18	5	24	4.6	...	...	7.4	...	...	1.5	9.4	...	3.9	7.9	...	...	5.3	...	11.5	24					
25	8.6	...	...	8.6	7.9	...	...	6.5	...	6.5	...	3.8	...	5.7	...	...	19.1	4	0	25	5.0	...	...	12.1	5.4	...	...	13.0	6.3	...	15.2	6.3	...	15.2	...	18.0	17				
26	3.3	...	4.9	...	3.7	...	5.5	2.2	...	3.2	...	3.3	...	4.9	...	...	13.2	5	30	26	7.6	...	...	7.6	9.6	...	...	6.4	7.6	...	3.1	2.1	...	...	0.9	11.8	1				
27	...	...	12.5	...	...	12.5	5.0	...	...	12.1	...	...	...	10.5	...	...	29.0	5	30	27	1.6	...	...	1.6	...	0.3	...	1.6	1.8	...	1.8	1.8	...	...	9.0	12.5	24				
28	...	6.4	2.6	...	...	13.4	...	...	13.1	...	3.3	...	7.9	...	...	21.8	15	15	28	2.3	...	...	11.6	3.6	...	...	8.8	...	...	9.5	...	...	4.3	...	12.5	1, 2					
29	6.5	...	...	1.3	1.2	...	...	...	...	1.3	...	7.9	5.3	...	...	16.2	21	25	29	6.1	...	1.2	...	6.1	...	...	2.5	7.9	...	3.3	6.0	...	6.0	...	9.5	11					
30	2.6	...	3.8	...	6.7	...	6.7	10.7	...	16.0	...	2.4	...	11.9	...	...	35.7	15	15	30	3.4	...	...	8.2	4.3	...	...	10.3	3.8	...	9.1	2.5	...	6.1	...	12.5	12				
31	...	10.5	...	4.8	...	11.6	...	5.7	...	13.7	...	4.2	...	6.2	...	...	24.0	13	50	31	0.3	...	...	1.3	3.1	...	...	4.7	...	5.8	...	...	3.7	...	10.5	12					
S+N & W+E	134.8	178.0	154.5	179.5	167.4	193.9	121.8	184.0			S+N & W+E	121.1	144.1	150.8	138.3	163.0	161.9	139.5	149.2			S+N & W+E	74.3	10.9	82.6	-27.9	98.8	13.3	100.3	-4.8											
S-N & W-E	62.4	90.2	99.7	111.7	120.8	119.7	58.4	104.8			S-N & W-E												S-N & W-E																		

ENGLAND S.W. :—SCILLY.

Height of Head above—Ground 9.8 m., M.S.L. 49.7 m.  
Height of Cups above—Ground 5.8 m., M.S.L. 45.7 m.

ENGLAND E. :—GREAT YARMOUTH.

Height of Head above—Roof 10.7 m., Ground 12.8 m., M.S.L. 15.9 m.  
Height of Cups above—Roof 3.7 m., Ground 18.3 m., M.S.L. 22.3 m.

Date.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.	Date.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust (Gorleston).	Time of Gust.		
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.				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.	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.
1	5.0	...	...	5.0	6.2	...	...	2.6	7.7	...	...	5.1	1.1	...	2.7	...	11.8	14	35	1	...	1.7	1.1	...	...	1.7	1.1	...	...	0.6	...	1.5	1.0	...	...	7.1	10		
2	1.8	...	2.7	...	3.0	...	4.5	...	4.8	...	3.2	...	5.4	...	2.2	...	9.5	11	40	2	1.6	...	1.6	...	1.3	...	3.0	...	0.8	...	1.8	...	...	2.7	...	1.8	7.5	23	
3	5.8	...	2.4	...	3.5	...	3.5	...	1.8	...	1.8	...	5.4	...	...	...	11.2	23	30	3	1.2	...	...	6.1	6.8	...	...	1.3	1.2	...	...	5.8	1.8	...	1.8	...	12.8	10	
4	3.0	...	7.3	...	1.6	...	8.1	...	...	8.8	...	1.4	...	7.0	...	...	11.9	8	55	4	2.0	...	3.0	...	5.5	...	1.1	...	4.7	...	3.1	...	4.0	...	6.0	...	12.8	9	
5	...	...	7.9	...	1.5	...	3.5	...	5.0	...	5.0	...	6.3	...	9.4	...	15.5	23	0	5	3.3	...	4.9	...	1.7	...	8.7	...	...	0.9	4.5	...	2.1	...	2.1	...	15.7	8	
6	8.3	...	8.3	...	11.1	...	7.4	...	3.8	...	9.2	...	2.2	...	11.1	...	20.3	23	45	6	5.5	...	3.7	...	4.7	...	...	4.7	...	6.6	...	4.4	...	3.8	...	5.7	...	18.0	13
7	...	...	11.7	...	...	...	14.6	...	...	2.7	13.5	...	...	10.0	...	...	22.0	12	15	7	2.7	...	4.1	...	3.3	...	7.9	...	4.7	...	7.1	...	...	7.9	...	18.1	12		

## 9. SOUNDINGS WITH PILOT BALLOONS.

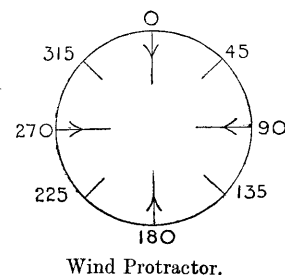
Day.	Station.	Time of Start, G.M.T.	Horizontal Velocity of Wind.																Cloud Observations.		
			Geostrophic.		By Anemometer.		At Heights above M.S.L.												Type.	From N.	nr/s.
			From N.	m/s.	From N.	nr/s.	500 m.		1000 m.		2000 m.		3000 m.		4000 m.		5000 m.				
							From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.	From N.	m/s.			
2	Eskdalemuir .	7 15	...	...	...	0'0	65	9'0	60	14'0	335	6'0	310	10'0	310	12'0	...	...	Ci.	280	4'6
11	Aberdeen .	8 20	290	17	250	7'5	285	22'0	285	20'5	290	14'5	...	...	...	...	...	...	...	...	...
16	S. Farnboro' .	7 5	320	8	280	2'0	330	8'5	340	11'0	340	14'5	...	...	...	...	...	...	...	...	...
17	Aberdeen .	8 15	...	...	225	2'0	195	10'5	200	10'0	145	4'0	295	5'5	...	...	...	...	...	...	...
19	Eskdalemuir .	7 20	350	9	315	5'5	330	9'5	335	15'5	355	11'5	...	...	...	...	...	...	...	...	...
21	"	7 35	180	14	...	0'0	...	...	170	8'5	165	5'0	160	6'0	...	...	...	...	Ci.-Cu.	270	0'5
21	S. Farnboro' .	9 25	...	...	110	3'0	130	7'0	115	6'5	105	6'5	55	5'0	25	5'5	...	...	Ci.	350	...
21	"	11 40	150	18	90	4'5	145	8'5	130	5'5	145	2'5	75	3'0	45	4'5	...	...	Ci.	330	...
24	"	7 10	...	...	...	0'0	145	3'5	175	3'0	175	6'5	...	...	...	...	...	...	Ci.	190	...
25	"	9 25	200	19	200	4'5	220	12'5	215	14'0	210	10'5	195	14'0	...	...	...	...	...	...	...
25	"	12 10	220	14	200	5'5	215	11'0	215	11'5	210	11'0	205	13'5	...	...	...	...	...	...	...
26	"	7 10	...	...	270	...	300	9'0	295	9'5	285	4'5	275	7'5	240	5'0	...	...	Ci.	150	...
26	"	11 35	280	6	290	4'0	270	4'0	280	9'0	270	9'0	260	8'0	...	...	...	...	...	...	...
28	"	7 15	250	25	225	12'5	235	20'5	245	22'5	240	22'0	...	...	...	...	...	...	...	...	...
31	"	7 10	250	23	250	10'0	270	16'5	275	24'5	275	22'5	...	...	...	...	...	...	...	...	...

## Notes on Pressure Distribution.

- October 2 7 h. Depressions over N.E. Atlantic and Northern Scandinavia.  
 11 7 h. Anticyclone France to Azores Depression over Northern Norway.  
 16 7 h. Anticyclone over Azores. Deep depression over Finland.  
 17 7 h. Depression S. of Iceland. High pressure ridge stretching from France up East Coast of England.  
 19 7 h. Depression beyond Iceland. Well-marked secondary over North Sea.  
 21 7 h. Shallow depression W. of Ireland. High pressure ridge over North Sea.  
 24 7 h. Depression off N.W. of Ireland. Secondary over N.E. France.  
 25 7 h. Deep depression off N.W. Ireland.  
 26 7 h. Depression S. of Iceland. Secondary over Holland.  
 28 7 h. Deep depression over N. of England.  
 31 7 h. Depression centred near the Shetlands and covering the British Isles.

Height of Station above M.S.L. = H.  
 Height of Anemometer above ground = h.

Aberdeen . . .	14 m.	32 m.
Eskdalemuir . . .	242 m.	15 m.
S. Farnborough . . .	70 m.	31 m.



## 10. NEPHOSCOPE OBSERVATIONS.

ABERDEEN. Taken at 13 h. (1 p.m.) G.M.T.

Day.	Type of Cloud.	Velocity-height-ratio.				Remarks
		Degrees from N.	Milliradians per Second.	Components.		
				W.-E.	S.-N.	
4	A.-Cu.	245	nr/s. 2'3	nr/s. + 2'1	nr/s. + 1'0	Ci.-Cu. to A.-Cu. in lenticular masses, fusing into sheets.
9	Ci.-Cu.	269	5'0	+ 5'0	+ 0'2	Long, lenticular bands of Ci.-Cu. to A.-Cu., major axes W. by S.
10	Fr.-Cu.	262	18	+ 18	+ 2'5	Measurement approximate.
12	A.-Cu.	258	5'2	+ 5'1	+ 1'1	Large lenticular masses of Ci.-Cu. to high A.-Cu.
13	Ci.	268	7'1	+ 7'1	+ 0'2	Observation at 12 h. Coarse type of Ci., but showing a solar halo.
	St.-Cu.	273	9'6	+ 9'6	- 0'5	Observation at 12 h. Thin, diffuse St.-Cu.
16	Cu.-Nb.	337	5'0	+ 4'6	- 2'0	Central part of mass measured.
18	Ci.-Cu.	225	1'2	+ 0'8	+ 0'8	Ci.-Cu. fusing into uniform A.-St. sheet.
19	Ci.	345	4'0	+ 1'0	- 3'9	True Ci., rather hazy and indefinite.
20	Fr.-Cu.	195	25	+ 6	+ 24	Measurement approximate.
21	Ci.-Cu.	345	0'7	+ 0'2	- 0'7	False Ci. changing into Ci.-Cu.
24	Ci.-St.	188	1'0	+ 0'1	+ 1'0	Coarse Ci.-St. in warped sheet.
26	Ci.-Cu.	165	4'2	- 1'1	+ 4'1	Ci. to fine high Ci.-Cu., much internal change.
27	Ci.	155	1'7	- 0'7	+ 1'5	Ci. changing to Ci.-St.



I. SUNSHINE AND SOLAR RADIATION.

Table with columns for location (South Kensington, Richmond, Eskdalemuir, Cahirciveen), date, and various radiation measurements including bright sunshine, solar radiation, and sky conditions.

2. METEOROLOGY AND MAGNETISM:—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56' N. Long. 10° 15' W. Heights above M. S. L.:—H=12.5 m. H<sub>b</sub>=13.7 m. H<sub>a</sub>=26.4 m. Above Ground: h<sub>t</sub>=1.2 m. h<sub>r</sub>=0.56 m. h<sub>a</sub>=13.9 m.

Table with columns for date, air pressure, air temperature, humidity, wind, cloud amount, rain, and magnetism. Includes detailed daily observations and monthly/normal means.

α denotes the maximum and η 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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with 22 columns: Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., Height above M.S.L. of Surface of Underground Water. Includes means and normals for 45 years, 30 years, and 35 years.

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

Heights above Mean Sea Level :—Rain-gauge Site, H = 242 m. Barometer, H<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with 22 columns: Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity, Wind Direction, Cloud Amount, Rain, Min. Temp. on Grass, Earth Temperature, Height above M.S.L. of Surface of Underground Water. Includes remarks on showers, squalls, and sun. Includes means and normals for 1911-15.

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

5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 20 days; they are computed from the data for those days on which values at each of the four hours, 3<sup>h</sup>, 9<sup>h</sup>, 15<sup>h</sup>, 21<sup>h</sup>, are given in the table. A similar note applies to the values in Table 6.  
 x denotes the maximum and n the minimum value in the column.

z Indeterminate.

Day.	Remarks.	Potential Gradient, Volts per metre. Factor 2.90.				Charge per cc. × 10 <sup>16</sup> .		Air-Earth Current. × 10 <sup>16</sup> .	Electric Character of Day.	Magnetic Character of Day.	Horizontal Force.		Declination (West).			Inclination (North).				
		3 h.	9 h.	15 h.	21 h.	+	-				Mean Time.	γ	Mean Time.	h	m	°	'	h	m	°
1	Fair to fine till 10 h., then dull.	v/m. 275	v/m. 385	v/m. z-	v/m. 610	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...
2	≡ till 9 h. ● <sup>o</sup> 12 h. † 12 h. and 14 h.	725	775	420	530	*38	*27	0.45	1	1	11 9	18441	14 23	15 10.7	14 24	66 56.7	...	...	...	
3	☉ early. Dull and o. ● p.	580	435	z±	z±	...	...	...	2	1	...	...	...	...	...	...	...	...	...	
4	Fine till 10 h. and from 13 h. ● n.	210	385	385	-320	...	...	...	1	2	...	...	...	...	...	...	...	...	...	
5	Dull, with ● all day.	130	50	-115	175	...	...	...	2	2	...	...	...	...	...	...	...	...	...	
6	Fine to fair. ☉ 14 h.	145	355	275	515	*42	*49	1.20	1	2	...	...	...	...	...	...	...	...	...	
7	● at times. † 16 h.	-80	115	515	130	*42	*04	...	2	1	...	...	...	...	...	...	...	...	...	
8	● early. Fine to fair from 9 h.	145	305	340	485	*87	*38	0.80	1	1	...	...	...	...	...	...	...	...	...	
9	Fine.	290	485	275	385	*51	*65	0.80	0	1	11 7	18424	14 23	15 9.2	14 24	66 58.1	...	...	...	
10	☉ early. Mostly dull and o.	370	405	160	95	*51	*09	0.30	0	0	...	...	...	...	...	...	...	...	...	
11	Dull and o. till 14 h., then fine.	50	95	145	195	...	...	...	0	1	...	...	...	...	...	...	...	...	...	
12	Dull. ≡ 18 h. ≡ <sup>2</sup> 21 h.	210	130	290	225	...	...	...	1	2	...	...	...	...	...	...	...	...	...	
13	≡ till 14 h. ≡ <sup>2</sup> n.	565	545	275	515	*57	*59	0.15	0	1	...	...	...	...	...	...	...	...	...	
14	≡ till 11 h. Dull all day.	80	65	...	610	*44	*32	...	1	0	...	...	...	...	...	...	...	...	...	
15	≡ 8 h.-9 h. Fine from 9 h. 30 m.	595	465	595	500	*36	*49	0.95	0	0	...	...	...	...	...	14 26	66 57.4	...	...	
16	Dull till 13 h.; fine later.	385	340	500	580	*57	*17	0.70	0	1	11 17	18442	14 24	15 8.2	...	...	...	...	...	
17	Fine till 15 h. Cold wind.	210	435	565	580	*44	*27	0.95	0	1	...	...	...	...	...	...	...	...	...	
18	●* at times. Dull.	450	530	-275	195	...	...	...	1	1	...	...	...	...	...	...	...	...	...	
19	Dull, with ●. * <sup>o</sup> 15 h.	0	115	15	130	...	...	...	2	1	...	...	...	...	...	...	...	...	...	
20	● till 6 h. and 9 h. Dull.	30	...	...	130	...	...	...	1	0	...	...	...	...	...	...	...	...	...	
21	☉ early. Fine to fair. ≡ n.	175	z±	240	15	*21	*68	0.20	2	0	...	...	...	...	...	...	...	...	...	
22	☉ early. Fine from 9 h.	175	130	130	210	*34	*51	0.15	0	1	...	...	...	...	...	...	...	...	...	
23	Mostly dull. ● <sup>o</sup> n.	160	130	...	...	...	...	...	0	1	11 9	18445	14 25	15 10.7	14 26	66 57.3	...	...	...	
24	Dull and o. till 16 h. Fine n.	...	...	...	...	*53	*21	...	0	0	...	...	...	...	...	...	...	...	...	
25	● early. Fair to fine 10 h.-17 h.	...	...	225	355	...	...	...	1	2	...	...	...	...	...	...	...	...	...	
26	Mostly fine.	195	530	305	405	...	...	...	0	1	...	...	...	...	...	...	...	...	...	
27	☉ a. and n. Fine.	340	405	645	405	*38	*53	0.75	0	2	...	...	...	...	...	...	...	...	...	
28	☉☉☉ a. Fine from 11 h. ⊕ 12 h.	...	...	340	...	*25	*38	0.30	0	1	...	...	...	...	...	...	...	...	...	
29	Dull and o.	...	...	...	500	*49	*15	...	0	1	...	...	...	...	...	...	...	...	...	
30	Mostly o., with ☉ <sup>o</sup> .	290	370	465	435	*34	*21	0.85	0	2	11 14	18414	14 28	15 7.7	14 25	67 1.3	...	...	...	
M.		270*	348*	296*	319*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM:—ESKDALEMUIR.

Day.	Potential Gradient, Volts per metre.* Factor 5.36.				Charge per cc. × 10 <sup>16</sup> .		Air-Earth Current. × 10 <sup>16</sup> .	Electric Character of Day.	Magnetic Character of Day.	North Component.				West Component.				Vertical Component.			
	3 h.	9 h.	15 h.	21 h.	+	-				Maximum. 15000 γ+.		Minimum. 15000 γ+.		Maximum. 4000 γ+.		Minimum. 4000 γ+.		Maximum. 45000 γ+.		Minimum. 45000 γ+.	
1	v/m. 120	v/m. 158	v/m. z	v/m. 225	...	...	...	1 c	0	h m	γ	γ	h m	h m	γ	γ	h m	γ	γ	h m	γ
2	150	248	158	578	...	...	...	1 b	1	20 22	1037	966	11 31	13 15	1040	929	20 16	22 32	131	103	11 40
3	23	150	z	285	...	...	...	2 c	1	22 26	1022	903	11 47	13 33	1083	937	23 41	14 21	166	81	24 0
4	z	-45	120	495	...	...	...	1 c	2	19 27	1063	n 869	22 34	11 54	1042	887	22 37	19 8	137	n 4	22 52
5	-150	180	-300	300	...	...	...	2 b	2	18 38	x 1091	882	11 55	23 17	1041	874	18 30	16 8	147	59	24 0
6	68	-233	-143	150	...	...	...	2 b	2	16 24	1045	920	16 2	20 22	1034	885	16 14	16 18	167	73	21 2
7	-548	83	z	135	...	...	...	2 c	1	20 40	1001	915	10 23	13 4	1034	977	16 57	15 16	142	86	0 13
8	383	390	-8	-68	...	...	...	2 c	1	17 37	1035	948	11 25	{11 30} 1034	939	17 54	15 38	136	85	1 37	
9	113	68	173	225	...	...	...	2 b	1	22 46	1072	945	11 6	{13 57} 1037	934	22 40	18 1	130	80	23 15	
10	90	68	683	98	...	...	...	1 a	1	3 31	1000	939	14 26	13 17	1039	960	0 0	15 7	123	74	3 50
11	98	270	158	135	...	...	...	0 a	1	19 5	1032	933	10 57	13 51	1028	933	18 57	18 55	123	77	24 0
12	75	135	150	308	...	...	...	0 a	2	19 6	1087	881	13 50	19 7	x 1092	946	0 28	20 26	x 175	67	5 27
13	285	195	420	608	...	...	...	0 a	0	0 3	1020	950	1 40	17 24	1027	964	0 0	{0 40} 120	102	9 56	
14	300	30	465	480	...	...	...	1 a	0	19 22	1028	957	14 6	13 13	1028	985	{19 35} 116	{13 57} 116	104	19 56	
15	345	23	308	278	...	...	...	1 a	0	23 3	1030	925	12 45	1 46	1038	985	{23 25} 113	{19 35} 113	86	2 20	
16	398	203	150	150	...	...	...	0 a	0	20 7	1047	958	15 57	15 37	1035	956	19 58	19 52	117	98	10 0
17	143	188	225	225	...	...	...	0 a	0	23 39	1015	969	12 17	{12 54} 1031	950	23 30	22 51	108	95	9 50	
18	105	143	z	195	...	...	...	1 c	1	22 31	1043	934	11 14	12 56	1027	919	22 21	22 40	110	88	7 45
19	-390	-495	-23	-68	...	...	...	2 c	1	19 40	1048	954	{18 35} 944	{14 33} 1027	963	20 3	19 24	116	91	4 58	
20	-315	150	210	53	...	...	...	2 b	0	{4 8} 23 16	995	948	11 12	12 40	1022	980	20 12	20 14	111	94	5 20
21	488	-495	375	1125	...	...	...	1 b	0	23 24	1007	968	17 6	14 17	1015	966	23 39	17 30	105	86	2 5
22	300	293	233	45	...	...	...	1 a	0	0 30	1006	931	8 42	8 59	1030	947	0 58	15 50	102	87	2 0
23	23	38	75	8	...	...	...	2 b	1	3 47	996	951	19 54	13 52	1042	962	23 25	19 4	119	80	3 52
24	†	z	z	...	...	...	...	1 b	0	22 53	993	968	11 30	13 56	1022	964	{0 30} 22 35	101	88	1 50	
25	...	...	-188	488	...	...	...	...	1	22 6	1079	949	18 37	16 32	1022	n 854	22 0	21 27	120	86	11 30
26	135	218	285	510	...	...	...	0 a	1	22 37	1033	959	13 35	{13 23} 1030	946	19 51	17 50	102	86	22 40	
27	248	248	420	525	...	...	...	0 a	1	18 44	1033	958	1 13	1 0	1053	898	23 29	18 18	111	36	1 14
28	300	75	143	150	...	...	...	1 a	1	22 2	1033	927	1 14	12 3	1025	935	0 3	15 10	104	46	1 6
29	68	53	-1058	135	...	...	...	2 b	1	20 10	1029	922	13 57	19 48	1035	935	20 22	16 48	122	65	24 0
30	23	128	255	315	...	...	...	2 b	1	21 37	1024	922	15 25	15 12	1031	898	21 30	16 7	147	65	0 8
M.	138*	86*	146*	272*	—	—	—	—	—	—	1032	937	—	—	1036	939	—	—	125	79	—

## 7. SEISMOLOGICAL DIARY.

EARTHQUAKES:—ESKDALEMUIR.								MICROSEISMS OF N. COMPONENT:—ESKDALEMUIR.											
Day.	Phase.	Time, G.M.T.			Period.	Amplitudes.			Δ.	Remarks.	Day.	0 h.		6 h.		12 h.		18 h.	
		h	m	s		A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>				A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
		h	m	s	s	μ	μ	μ	km.		μ	s	μ	s	μ	s	μ	s	
		22	31	to	...	...	...	...	...	Slight disturbance; features masked by large microseisms. Maximum displacement at 22 h. 45 m. 44 s. on N.-S. instrument.	1	1'0	4'5	0'8	5'5	0'8	5'5	0'7	6
		22	54		...	...	...	...	...		2	0'8	5'5	0'8	5	0'8	6	0'9	5
					...	...	...	...	...		3	0'8	5'5	1'8	6	*	*	*	*
					...	...	...	...	...		4	2'5	6	3'4	5'5	3'1	6	3'5	6
					...	...	...	...	...		5	5'1	5'5	3'6	5'5	2'4	6	1'8	6'5
8		13	5	to	...	...	...	...	...	Prolonged faint disturbance.	6	2'3	6	2'6	6	4'7	6	3'3	5'5
		13	49		...	...	...	...	...		7	3'6	6	4'2	5'5	4'3	6	3'0	6'5
					...	...	...	...	...		8	3'3	7	3'4	6	3'0	6'5	2'9	6'5
					...	...	...	...	...		9	3'0	6	2'4	6'5	2'2	6'5	2'3	6
					...	...	...	...	...		10	2'0	7	2'5	7'5	3'0	6'5	2'2	6'5
10		9	30	to	...	...	...	...	...	Slight disturbance masked by wind effects and large microseisms.	11	2'3	6	2'4	6	2'7	5'5	2'2	6'5
		10			...	...	...	...	...		12	2'3	6'5	1'9	6	2'0	5	1'7	5
					...	...	...	...	...		13	1'3	5	1'0	5	1'7	5'5	1'9	5
					...	...	...	...	...		14	1'6	5'5	1'4	5'5	1'2	6	0'7	6'5
					...	...	...	...	...		15	0'8	4'5	0'7	6	0'7	7	0'7	5
14		14	7	to	...	...	...	...	...	Prolonged faint disturbance. L of period 19 secs. at 14 h. 16 m.	16	0'8	5'5	1'0	4'5	1'5	6	1'7	6
		14	26		...	...	...	...	...		17	2'7	6	2'4	6'5	5'5	6	4'7	6
					...	...	...	...	...		18	5'3	6'5	5'3	6'5	*	*	2'5	6
					...	...	...	...	...		19	2'4	6'5	2'2	6'5	1'9	7	2'7	7'5
					...	...	...	...	...		20	1'6	6	2'3	6	...	...	2'5	5
14	Pe	22	55	3	...	...	...	...	6700	From 23 h. 14 m. to 23 h. 22 m. displacements were N.W.-S.E.; afterwards direction changed until at 23 h. 27 m. they were N.E.-S.W. Maxima too faint on photographic trace for accurate measurement; observed on N.-S. about 23 h. 28 m. Large vertical maximum of 16 secs. period at same time.	21	1'9	5'5	1'9	6	2'3	6	1'8	6
	S(?)	23	5		...	...	...	...	...		22	0'9	5	0'9	4'5	0'8	6	0'7	6
	L	23	14		...	...	...	...	...		23	0'6	5'5	0'7	5'5	1'2	7'5	1'5	6
	M	23	19	43	24	17	...	...	...		24	1'2	5'5	0'9	5	1'4	6'5	1'2	5'5
	M	23	19	43	24	17	...	...	...		25	2'4	4	1'3	4'5	1'8	5	1'4	5'5
					...	...	...	...	...		26	1'2	5'5	1'3	5'5	1'4	6	2'5	5'5
					...	...	...	...	...		27	2'7	6	2'5	6	2'3	6	1'6	5'5
					...	...	...	...	...		28	1'6	6	1'7	5'5	1'7	6	1'8	5'5
					...	...	...	...	...		29	1'7	5'5	2'2	6	1'5	7	1'5	6'5
					...	...	...	...	...		30	1'6	6	1'5	6	1'5	6	2'8	6'5
15	L	23	23	to	...	...	...	...	...		* No trace.								
		23	30		...	...	...	...	...		EARTHQUAKES:—RICHMOND (KEW OBSERVATORY).								
16		0	10	to	...	...	...	...	...	Faint disturbance.	Times, G.M.T. of		Remarks.						
		0	22		...	...	...	...	...	Day.	Commence-ment.	Max. Phase.							
21	P	6	37	44	...	...	...	...	8900	P inconspicuous on horizontal traces, and masked by microseisms. Time of P taken from vertical instrument.			h	m	h	m			
	S	6	47	45	...	...	...	...	...		3	...	22	45	Very small.				
	SR <sub>1</sub> (?)	6	53	31	...	...	...	...	...		8	...	12	40	Very small.				
	L	7	4	49	...	...	...	...	...		10	...	9	39	Very small; doubtful.				
	M	7	6	39	25	23	...	...	...		14	23	20'4	23	25'2				
	M	7	13	10	...	...	...	...	...		15	...	23	35	Very small.				
	F	8	15		...	...	...	...	...		16	...	0	16	Very small.				
24	L	4	47	to	...	...	...	...	...	Part of slight disturbance, earlier phases of which were masked by wind effects.	21	6	47'5	7	20'5	Amplitude on trace 1 2 mm.			
		4	58		...	...	...	...	...		24	4	51	5	1	Very small.			
24	L	12	36	to	...	...	...	...	...	Do., but disturbance larger.	„	12	28	12	36'2				
		12	50		...	...	...	...	...		30	3	46	3	59'0	Amplitude on trace 1'9 mm.			
30		...	...	...	...	...	...	...	...	The time marking arrangements failed to act properly from 3 h. to 4 h. on 30th, and in consequence no entries have been made regarding the slight earthquake recorded. M is, however, estimated to have occurred about 3 h. 52 m., with a period of 19 secs. and an amplitude of 13 μ.									

8. 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.

Height of Head above—Roof 8.8 m., Ground 13.7 m., M.S.L. 19.2 m.  
Height of Cups above—Roof 4.6 m., Ground 7.6 m., M.S.L. 15.2 m.

SCOTLAND N.:—DEBRNESS.

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.				Max. in a Gust.	Time of Gust.	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.				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.	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.																		
1	5.1	...	7.6	...	6.2	...	4.2	...	7.9	...	5.3	...	4.9	...	7.4	...	16.6	1	35	1	7.4	...	7.4	...	8.1	...	5.4	...	8.0	...	1.6	...	8.3	...	1.7	...	10.5	...	3														
2	2.5	...	6.1	...	3.3	...	2.5	...	2.9	...	1.7	...	4.7	...	3.1	...	13.0	2	10	2	3.2	...	0.6	...	3.3	...	1.4	...	4.1	...	2.7	...	2.2	...	3.2	...	5.6	...	1, 2														
3	7.4	...	...	...	7.1	...	...	...	10.6	...	12.9	...	2.6	...	13.7	...	30.9	3	11	3	1.6	...	1.6	...	3.3	...	1.4	...	4.9	...	7.4	...	3.1	...	15.4	...	16.7	...	23														
4	12.8	...	8.6	...	8.1	...	8.1	...	6.2	...	...	...	...	...	12.5	...	26.3	4	5	4	7.4	...	...	...	7.4	...	9.8	...	12.1	...	5.0	...	12.1	...	15.1	...	11																
5	...	...	6.9	...	...	...	8.2	...	5.1	...	5.1	...	4.9	...	11.8	...	21.3	5	22	5	7.3	...	...	...	3.0	...	3.9	...	9.4	...	6.5	...	3.1	...	7.6	...	11.8	...	10														
6	...	...	14.8	...	2.7	...	13.8	...	6.6	...	9.8	...	4.0	...	6.0	...	23.4	6	5	6	...	...	...	8.2	...	7.3	...	3.0	...	9.7	...	...	...	4.0	...	6.4	...	11.1	...	1													
7	9.0	...	...	...	6.0	...	7.9	...	5.3	...	4.4	...	4.4	...	2.1	...	19.9	7	3	7	10.3	...	2.0	...	11.9	...	...	...	2.4	...	2.4	...	3.6	...	1.1	...	1.1	...	12.5	...	10												
8	...	5.1	7.6	...	...	1.9	9.3	...	2.7	13.5	...	...	2.8	14.1	...	22.2	8	18	40	8	...	0.1	0.3	...	0.3	1.3	...	...	0.2	1.0	...	...	0.2	1.0	...	0.4	0.6	...	1.6	...	11, 12, 20, 23												
9	...	...	15.1	...	...	...	14.1	...	...	12.8	...	...	...	7.9	...	23.9	9	6	45	9	...	0.4	2.0	...	0.4	2.3	...	...	0.6	0.8	...	...	0.4	0.6	...	0.4	0.6	...	2.6	...	10, 12												
10	3.3	...	4.9	...	9.0	...	1.8	...	6.2	...	4.2	...	7.3	...	3.0	...	16.4	10	6	30	10	1.9	...	1.3	...	3.5	...	0.7	...	1.0	...	0.2	...	1.5	...	0.6	...	4.9	...	7													
11	5.2	...	2.1	...	7.9	...	5.3	...	7.9	...	3.3	...	6.6	...	4.4	...	15.4	11	9	40	11	4.8	...	1.0	...	3.4	...	5.2	...	5.6	...	5.6	...	5.7	...	13.7	...	13.8	...	23, 24													
12	4.9	...	4.9	...	6.4	...	2.6	...	6.6	...	4.4	...	6.2	...	4.2	...	12.1	12	21	30	12	...	2.6	13.1	...	...	10.5	...	1.4	...	7.2	...	1.0	5.1	...	1.0	5.1	...	14.8	...	1												
13	7.3	...	3.0	...	3.6	...	2.4	...	3.2	...	0.6	...	2.3	...	...	...	12.3	13	1	50	13	...	4.0	4.0	...	...	2.1	2.1	...	...	2.4	1.0	...	...	0.6	...	0.8	...	5.6	...	3												
14	1.0	...	...	...	1.0	...	...	...	0.7	...	...	...	0.7	...	...	...	8.5	14	23	30	14	...	0.6	...	0.8	3.0	...	...	3.0	3.7	...	...	3.7	7.6	...	...	5.1	...	9.8	...	22, 23, 24												
15	2.6	...	...	...	0.9	...	0.4	7.1	...	1.4	8.8	...	...	3.6	14.2	...	21	15	20	15	9.1	...	...	...	3.8	8.8	...	...	3.6	10.6	...	...	4.4	11.8	...	...	4.9	...	14.4	...	24												
16	6.8	...	...	4.6	4.2	...	...	6.2	9.1	...	...	3.8	1.3	...	...	6.5	17.5	16	23	0	16	14.0	...	...	5.8	14.0	...	...	5.8	12.4	...	...	5.1	13.6	...	...	9.1	...	17.4	...	20												
17	5.8	...	...	8.7	3.1	...	...	7.6	5.7	...	...	13.7	3.1	...	...	15.4	23.7	17	22	35	17	12.3	...	...	12.3	10.2	...	...	10.2	10.2	...	...	10.2	5.3	...	...	12.8	...	17.4	...	1, 3												
18	2.9	...	...	14.5	...	...	14.8	...	1.9	...	9.6	...	2.8	...	6.7	...	26.2	18	5	0	18	4.5	...	...	10.9	2.6	...	...	12.9	...	...	13.8	...	...	14.1	...	15.1	...	22, 23, 24														
19	...	2.6	...	6.4	...	4.1	...	10.0	...	3.5	...	8.5	...	4.0	...	6.0	13.9	19	10	5	19	...	...	...	14.8	...	...	16.1	3.0	...	...	15.1	...	...	15.7	...	19.0	...	11														
20	...	1.5	...	3.6	...	1.3	...	3.0	...	1.5	3.6	...	...	6.2	...	12.7	20	16	0	20	...	...	...	12.1	...	...	...	12.8	2.1	...	...	10.6	...	...	14.4	...	16.1	...	24														
21	2.3	...	5.5	...	1.9	...	4.6	...	1.1	...	5.5	...	...	4.4	6.6	...	12.3	21	18	15	21	1.9	...	...	9.6	9.3	...	...	1.9	10.2	...	...	2.0	8.2	...	...	17.0	...	1														
22	...	1.4	2.2	...	2.0	...	4.8	...	5.6	...	5.6	...	5.8	...	5.8	...	18.0	22	18	30	22	3.6	...	1.5	...	4.1	...	2.7	...	6.4	...	...	2.6	...	9.3	...	1.9	...	10.2	...	20												
23	7.1	...	4.7	...	7.1	...	4.7	...	10.2	...	...	...	12.4	...	5.1	...	22.5	23	19	15	23	5.2	...	3.4	...	2.8	...	6.7	...	...	3.0	...	1.6	...	7.5	...	...	10.2	...	24													
24	9.2	...	6.2	...	9.8	...	6.6	...	2.0	...	10.0	...	...	5.5	...	3.7	23.9	24	12	55	24	9.6	...	...	1.9	9.2	...	...	...	4.0	9.7	...	5.2	...	3.4	...	12.8	...	13														
25	7.8	...	7.8	...	10.4	...	7.0	...	2.0	...	10.0	...	...	4.8	11.6	...	20.7	25	24	0	25	9.5	...	...	5.3	...	...	5.3	...	...	4.3	...	...	1.7	8.7	...	11.1	...	5														
26	...	7.3	10.9	...	...	4.5	10.9	...	...	8.3	8.3	...	...	10.6	4.4	...	18.8	26	1	25	26	...	6.7	6.7	...	...	10.9	7.3	...	...	9.6	6.4	...	...	9.8	9.8	...	14.8	...	18, 19, 20													
27	...	9.7	...	4.0	...	7.5	...	...	4.2	4.2	...	...	1.0	4.4	...	16.9	27	1	0	27	...	7.8	7.8	...	...	2.9	6.9	...	...	0.9	0.4	...	9.0	...	1.8	...	12.1	...	1														
28	5.3	...	5.3	...	6.9	...	6.9	...	3.4	...	5.2	...	5.8	...	5.8	...	17.0	28	8	30	28	10.8	...	...	9.6	...	1.9	...	8.8	...	3.6	...	1.7	...	8.7	...	12.1	...	17, 18														
29	6.5	...	6.5	...	7.6	...	5.1	...	6.7	...	6.7	...	7.9	...	5.3	...	18.3	29	10	30	29	3.6	...	2.4	...	3.6	...	1.5	...	1.9	...	4.5	...	2.3	...	2.3	...	5.9	...	12													
30	6.5	...	6.5	...	7.9	...	5.3	...	3.7	...	5.5	...	2.8	...	2.8	...	17.5	30	0	50	30	5.2	...	...	...	7.7	...	...	1.5	...	7.9	...	3.3	...	4.7	...	3.1	...	9.8	...	11												
S+N & W+E	148.9	...	189.9	...	144.3	...	186.9	...	148.9	...	169.3	...	141.2	...	183.2	...		S+N & W+E	155.4	...	145.7	...	161.3	...	155.0	...	158.6	...	147.9	...	143.4	...	169.2	...		S+N & W+E	111.0	...	-35.5	...	120.3	...	-23.8	...	123.2	...	-34.9	...	113.8	...	-34.0	...	
S-N & W-E	93.7	...	70.7	...	105.7	...	65.3	...	94.5	...	95.3	...	66.4	...	81.8	...		S-N & W-E	111.0	...	-35.5	...	120.3	...	-23.8	...	123.2	...	-34.9	...	113.8	...	-34.0	...		S-N & W-E	111.0	...	-35.5	...	120.3	...	-23.8	...	123.2	...	-34.9	...	113.8	...	-34.0	...	

ENGLAND S.W.:—SCILLY.

Height of Head above—Ground 9.8 m., M.S.L. 49.7 m.  
Height of Cups above—Ground 5.8 m., M.S.L. 45.7 m.

ENGLAND E.:—GREAT YARMOUTH.

Height of Head above—Roof 10.7 m., Ground 12.8 m., M.S.L. 15.9 m.  
Height of Cups above—Roof 3.7 m., Ground 18.3 m., M.S.L. 22.3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.	Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust. (Gorleston.)	Time of Gust.				
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.				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.	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.						
1	5.4	...	2.2	...	2.2	...	5.4	...	2.1	...	5.0	...	3.0	...	...	...	14.5	1	7	35	1	3.7	...	...	3.7	...	4.8	...	2.0	...	7.2	...	...	5.7	...	2.4	...	17.5	...	12 55	
2	3.0	...	3.0	...	...	6.7	...	2.6	...	3.8	6.3	...	...	5.0	...	...	14.0	2	24	0	2	1.7	...	1.1	...	1.4	...	1.4	...	0.9	...	1.3	...	1.8	...	1.8	...	4.8	...	19 45	
3	16.2	...	...	6.7	...	5.3	...	4.8	...	11.6	...	9.7	...	5.0	...	...	30.3	3	6	25	3	1.1	...	1.1	...	6.1	...	...	1.2	8.7	...	...	5.8	8.7	...	...	1.7	...	19.2	...	18 0
4	...	...	10.0	...	5.8	...	...	2.4	8.6	...	...	12.8	13.6	...	9.1	...	23.5	4	16	35	4	3.2	...	0.6	...	4.0	...	1.6	...	3.9	...	...	7.4	...	...	7.4	...	18.3	...	22 35	
5	4.6	...	...	...	...	15.6	...	...	7.4	17.7	...	...	9.7	14.6	...	...	29.0	5	12	20	5	5.9	...	...	...	12.6	...	2.5	14.8	...	2.9	7.4	...	4.9	...	3.1	5.5	...	31.5	...	15 15



METEOROLOGICAL OFFICE OBSERVATORIES—GEOPHYSICAL JOURNAL.

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

Sixth Year.—No. 12. DECEMBER 1916]. Units based on the C.G.S. System. [Price 1s.

1. SUNSHINE AND SOLAR RADIATION.

Table with columns for SOUTH KENSINGTON, RICHMOND, ESKDALEMUIR, and CAHIRCIVEEN. Sub-columns include Bright Sunshine (Total, Per cent. of Possible), Radiation received on Horizontal Surface by Callendar Radiograph (Daily Total, Per cent. of Planetary, Maximum For Day, 11.30 h. to 12.30 h.), Radiation at Noon by Ångström Pyrheliometer (Intensity, Vertical Component, Sky), Radiation by Ångström Pyrheliometer (Time, Sky, p sec Z, Intensity), and Bright Sunshine (Total, Per cent. of Possible).

2. METEOROLOGY AND MAGNETISM :—CAHIRCIVEEN (VALENCIA OBSERVATORY).—Lat. 51° 56' N. Long. 10° 15' W. Heights above M. S. L. :—H = 12.5 m. H<sub>b</sub> = 13.7 m. H<sub>a</sub> = 26.4 m. Above Ground: h<sub>1</sub> = 1.2 m. h<sub>r</sub> = 0.56 m. h<sub>2</sub> = 13.9 m.

Table with columns for Day, Air Pressure at Station Level (9 h., 21 h.), Air Temperature in Degrees Absolute (9 h., 21 h., Max., Min.), Humidity (Vapour Pressure, Percentage), Wind Direction in Points (S = E, 16 = S) with Speed in metres per second (9 h., 21 h.), Cloud Amount (0-10) and Weather (9 h., 21 h.), Rain 24 hours beginning 9 h., Remarks, Magnetism (Horizontal Force, Declination West, Inclination).

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<sub>b</sub> = 10.4 m. Cups of Anemometer, H<sub>a</sub> = 25 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 3.0 m. Rain-gauge, h<sub>r</sub> = 0.53 m. Cups of Anemometer, h<sub>a</sub> = 20 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity (Vapour Pressure, Percentage), Wind Direction in Points (8=E, 16=S) with Speed in metres per second, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., and Height above M.S.L. of Surface of Underground Water (Daily Mean, Extremes).

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<sub>b</sub> = 237.3 m. Vane of Anemometer, H<sub>a</sub> = 250 m.

Heights above Ground :—Thermometers, h<sub>t</sub> = 0.9 m. Rain-gauge, h<sub>r</sub> = 0.38 m. Vane of Anemometer, h<sub>a</sub> = 15 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Humidity, Wind Direction and Speed, Cloud Amount and Weather, Rain 24 hours beginning 9 h., Min. Temp. on Grass, Earth Temperature at 9 h., and Height above M.S.L. of Surface of Underground Water. Includes a REMARKS column with weather observations and a Normal 1911-15 row.

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



5. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—RICHMOND (KEW OBSERVATORY).

\* The mean values of the Potential gradient in Table 5 are for 25 days ; they are computed from the data for those days on which values at each of the four hours, 3h, 9h, 15h, 21h, are given in the table. A similar note applies to the values in Table 6. z denotes the maximum and n the minimum value in the column.

z Indeterminate.

Table with columns: Day, Remarks, Potential Gradient (Volts per metre), Charge per cc., Air-Earth Current, Electric Character of Day, Magnetic Character of Day, Horizontal Force, Declination (West), Inclination (North). Rows 1-31 and M.

6. ATMOSPHERIC ELECTRICITY AND TERRESTRIAL MAGNETISM :—ESKDALEMUIR.

Table with columns: Day, Potential Gradient, Charge per cc., Air-Earth Current, Electric Character of Day, Magnetic Character of Day, North Component, West Component, Vertical Component. Rows 1-31 and M.

\* 24 days. See note above.

† 28 days.

## 7. SEISMOLOGICAL DIARY.

## EARTHQUAKES:—ESKDALEMUIR.

Day.	Phase.	Time, G.M.T.	Period.	Amplitudes.			Δ.	Remarks.
				A <sub>N.</sub>	A <sub>E.</sub>	A <sub>Z.</sub>		
2		h m s 12 50 to 14 50	s ... ...	μ ... ...	μ ... ...	μ ... ...	km. ... ...	Prolonged slight disturbance.
2	L	0 0 to 0 15	... 22	... ...	... ...	... ...	... ...	
5	L	22 24 to 22 48	... ...	... ...	... ...	... ...	... ...	
6	L	22 29 to 23 22 41	... ... ...	... ... ...	... ... ...	... ... ...	... ... ...	Slight disturbance. No well-marked phases, except a few long waves about 22 h. 41 m.
14	P S M F	17 4 9 17 13 40 17 18 56 18 45	... ... ... ...	... ... ... ?	... ... ... ...	... ... ... ...	... ... ... ...	No well-marked long waves.
23	P PR <sub>1</sub> S SR <sub>1</sub> L M M F	9 37 49 9 41 51 9 49 25 9 55 55 10 12½ 10 17 18 10 19 23 11 40	... ... ... ... ... 19 16 ...	... ... ... ... ... 11 ... ...	... ... ... ... ... ... 10 ...	... ... ... ... ... ... ... ...	10870 ... ... ... ... ... ... ...	
24		8 25 to 8 40	... ...	... ...	... ...	... ...	... ...	Faint disturbance.
26	L	5 4 to 5 17	... ...	... ...	... ...	... ...	... ...	Part of slight disturbance. Preliminary phases masked by wind effects.
26	L	21 21 to 21 28	... ...	... ...	... ...	... ...	... ...	
27	L	22 10 to 23 15 22 56	... ... 19	... ... ...	... ... ...	... ... ...	... ... ...	Slight disturbance. Preliminary phases inconspicuous.

## MICROSEISMS OF N. COMPONENT:—ESKDALEMUIR.

Day.	0 h.		6 h.		12 h.		18 h.	
	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.	A <sub>N.</sub>	T.
1	μ	s	μ	s	μ	s	μ	s
1	1·6	6·5	2·2	6·5	2·2	6·5	1·5	7
2	1·6	6	1·7	6	1·1	6	0·9	5·5
3	1·3	5·5	0·9	5	1·1	5	1·1	5
4	0·9	5	0·9	5	0·7	4·5	0·5	5
5	0·8	4·5	0·6	5·5	0·8	5	0·4	5·5
6	0·6	5	0·5	6	0·8	5	0·8	5·5
7	0·8	5	0·9	5	0·9	5	0·7	5·5
8	*	*	*	*	0·9	5	0·9	5·5
9	0·8	6	0·8	5·5	1·2	5·5	1·0	5
10	1·3	5	1·8	5	1·5	6	1·0	5·5
11	1·2	5	0·9	6	0·8	6·5	0·9	6
12	0·9	6	0·9	6	1·1	6	0·9	6·5
13	1·1	6	0·8	5·5	0·8	6	0·8	5·5
14	0·9	5	0·7	6	1·0	6·5	?	Earthquake.
15	1·5	7	1·5	6	1·2	6	1·0	6
16	0·9	5·5	0·9	5	0·8	5	0·7	6
17	0·5	5	0·5	5	0·6	5·5	0·4	6
18	0·5	5	0·6	6	0·7	5·5	0·5	6
19	0·9	5·5	1·2	5·5	1·5	6	2·5	5
20	2·3	6	2·1	5·5	1·8	6	1·9	6
21	2·2	5	2·5	5·5	2·0	6	1·8	5·5
22	2·0	6	2·2	6	2·1	5·5	1·5	6·5
23	1·8	5	1·0	6	2·2	5·5	2·3	6
24	2·3	6	2·2	6	1·7	5·5	1·1	6·5
25	1·1	6·5	0·9	6	1·0	5	1·4	5
26	1·4	5	1·0	5	*	*	*	*
27	*	*	*	*	0·4	4·5	0·3	4·5
28	0·7	4·5	0·7	5	0·9	4·5	0·8	6
29	1·4	6	1·1	6	1·2	6	1·1	5·5
30	1·0	6	1·7	6·5	2·2	5·5	1·0	6
31	1·7	5·5	1·7	5·5	1·2	5	0·9	5·5

\* No trace.

## EARTHQUAKES:—RICHMOND (KEW OBSERVATORY).

Day.	Times, G.M.T. of		Remarks.
	Commencement.	Max. Phase.	
2	h m ...	h m 13 42	All the disturbances of the month were very small, with the exception of that on the 23rd.
5	...	22 45	
14	...	17 48	
23	9 49	10 20	
24	...	8 33	
26	5 5	5 11	
"	...	21 31	
27	...	22 59	

8. 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.

Height of Head above—Roof 8.3 m., Ground 13.7 m., M.S.L. 19.2 m.  
Height of Cups above—Roof 4.6 m., Ground 7.6 m., M.S.L. 15.2 m.

SCOTLAND N.:—DREERNES.

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.				Max. in a Gust.	Time of Gust.	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.				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.	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.																																				
1	6.6	...	...	...	5.5	...	1.1	...	2.0	...	0.4	...	0.9	...	0.4	...	12.2	2	45	1	5.5	...	2.3	...	4.8	...	2.0	...	6.4	...	2.6	...	8.3	...	1.7	...	9.8																																		
2	0.6	...	...	0.3	1.5	...	0.6	...	0.4	2.0	...	0.8	...	1.8	...	...	7.5	24	0	2	8.7	...	1.7	...	4.5	...	1.9	...	...	...	1.6	...	1.0	...	2.4	...	8.9	1, 2, 3, 4																																	
3	...	4.3	...	...	7.1	4.7	...	...	7.4	7.4	...	...	9.0	6.0	...	...	16.8	17	45	3	3.7	...	...	...	2.5	6.1	...	...	2.5	6.1	...	...	12.1	5.0	...	13.1	21																																		
4	...	10.9	4.5	...	...	9.6	...	1.9	...	8.5	...	3.5	...	7.7	1.5	...	17.1	4	30	4	...	12.4	5.1	...	...	11.6	4.8	...	...	7.3	3.0	...	...	3.6	2.4	...	14.8	2																																	
5	...	6.4	2.6	...	...	1.6	...	1.6	...	...	...	2.3	...	...	...	2.3	12.0	1	25	5	...	0.6	0.4	...	...	6.9	...	...	7.2	...	...	7.7	...	1.5	...	10.2	13																																		
6	1.3	...	...	1.9	1.8	...	...	1.8	3.2	...	0.6	...	3.2	...	0.6	...	7.6	22	45	6	6.1	...	1.2	...	5.5	...	2.3	...	2.4	...	1.0	...	4.5	...	1.9	...	7.2	4																																	
7	3.6	...	1.5	...	2.1	...	0.9	...	2.9	...	4.3	...	...	6.3	6.3	...	12.5	21	15	7	...	...	2.3	...	1.0	...	2.4	...	...	...	1.3	...	...	...	0.7	...	3.9	19																																	
8	...	4.7	4.7	...	...	4.0	4.0	...	...	0.3	1.6	...	...	4.8	...	...	11.7	7	10	8	...	0.2	1.0	...	0.8	...	1.8	...	0.6	...	1.5	...	0.5	...	1.1	...	4.6	11																																	
9	4.0	...	...	6.0	2.3	...	...	11.6	5.6	...	...	...	4.6	...	...	6.8	15.8	17	55	9	0.3	...	0.6	...	1.1	...	...	2.8	...	4.4	...	6.6	...	6.0	...	6.0	...	8.5	21																																
10	...	...	...	9.8	...	1.7	...	8.3	...	2.6	...	6.4	...	...	...	1.3	15.2	11	35	10	...	4.9	...	7.4	...	3.5	...	8.5	...	5.1	...	5.1	...	4.7	...	3.1	...	10.5	6																																
11	...	...	...	1.6	...	...	...	2.3	0.6	...	...	3.2	0.7	...	...	3.5	10.5	23	40	11	...	4.2	...	6.2	3.3	...	...	3.3	2.8	...	...	2.8	1.7	...	...	1.1	...	9.2	5																																
12	...	1.2	...	6.1	...	0.8	...	4.2	...	...	...	0.7	...	0.8	...	1.8	11.2	5	30	12	...	0.6	...	3.2	...	2.0	...	4.8	...	3.2	...	2.2	...	7.4	...	1.5	...	9.5	24																																
13	...	1.7	1.1	...	...	...	3.9	0.4	...	...	0.9	0.5	...	...	1.2	8.0	8	30	13	...	11.3	2.2	...	...	11.9	2.4	...	...	9.7	4.0	...	...	11.6	2.3	...	...	13.4	11																																	
14	...	...	...	3.3	...	10.0	...	2.0	...	11.2	...	4.6	...	9.1	...	3.8	16.2	14	10	14	...	6.7	2.8	...	...	7.6	3.1	...	...	3.8	2.6	...	...	2.1	2.1	...	...	8.5	5, 8																																
15	...	5.5	...	3.7	...	4.0	...	1.6	...	1.0	...	0.2	...	0.9	2.1	...	9.8	10	5	15	...	1.3	1.9	...	...	0.4	0.9	...	...	0.6	...	1.5	2.7	...	...	1.8	...	4.6	24																																
16	...	0.5	1.2	...	1.6	...	...	...	1.8	...	0.8	...	1.6	...	...	0.3	5.5	11	50	16	2.4	...	...	3.6	...	1.1	...	5.5	0.4	...	...	2.3	...	0.3	1.6	...	...	6.2	10																																
17	2.0	...	...	0.4	2.0	...	...	0.4	1.3	...	...	0.3	1.9	...	1.3	...	6.5	19	40	17	...	1.6	1.6	...	...	3.0	1.3	...	0.5	...	2.6	...	0.5	...	0.5	...	4.9	7, 8																																	
18	1.7	...	2.5	...	3.5	...	3.5	...	6.8	...	...	1.3	...	...	...	4.6	13.7	12	45	18	0.9	...	...	0.9	...	1.0	...	5.1	4.9	...	...	3.3	2.1	...	...	2.1	...	6.2	19																																
19	...	3.3	7.9	...	...	3.6	...	1.6	...	4.0	...	...	1.1	...	2.8	...	12.1	2	5	19	1.4	...	...	2.2	2.1	...	...	5.2	0.3	...	...	1.3	...	...	...	4.9	...	9.5	24																																
20	5.2	...	...	2.1	9.2	...	6.2	11.8	...	4.9	5.4	...	8.1	...	...	22.8	12	20	20	20	3.3	...	...	3.3	4.1	...	...	3.3	6.3	...	...	6.3	5.4	...	...	13.0	...	17.7	23																																
21	4.7	...	4.7	...	0.9	...	1.3	...	1.2	6.1	...	...	1.1	...	...	13.2	2	20	21	21	9.1	...	...	13.6	12.0	...	...	8.0	11.6	...	...	4.8	4.3	...	...	2.9	...	16.4	3																																
22	2.6	...	6.4	...	1.3	...	6.5	...	3.5	...	3.5	...	7.1	...	1.4	...	15.3	20	5	22	1.1	...	0.7	...	2.0	...	3.0	...	3.5	...	8.5	...	4.7	...	7.1	...	13.4	19																																	
23	4.8	...	...	1.0	1.0	...	...	0.2	...	3.1	15.4	...	...	3.9	19.6	...	27.7	20	5	23	10.6	...	...	2.1	9.0	...	...	1.8	6.9	...	...	6.5	...	1.3	...	1.3	...	12.1	5																																
24	1.2	...	5.8	...	4.9	...	7.4	...	4.0	...	...	...	7.9	...	...	18.0	0	5	24	24	3.5	...	3.5	...	4.1	...	...	2.7	...	...	8.5	...	...	7.1	...	1.4	...	8.5	15, 17																																
25	7.2	...	...	...	6.6	...	...	...	...	13.1	...	2.0	...	10.3	...	19.9	17	20	25	25	7.9	...	...	...	10.0	...	...	2.0	10.9	...	...	2.2	2.6	...	3.8	...	11.1	...	10.5, 16, 17																																
26	1.5	...	7.7	...	...	2.0	4.8	...	1.4	2.2	...	...	0.3	0.3	...	15.2	3	45	26	26	1.1	...	2.8	...	...	3.3	...	...	1.9	4.5	...	...	1.9	4.5	...	...	7.2	11, 12																																	
27	...	1.6	0.3	...	...	1.6	0.3	...	4.3	...	...	...	7.2	...	...	14.0	21	55	27	27	2.1	...	5.2	...	...	0.3	1.6	...	0.7	...	1.1	...	6.9	...	...	...	8.2	22																																	
28	9.2	...	...	...	9.3	...	1.9	...	9.4	...	3.9	...	6.0	...	6.0	...	18.3	9	25	28	8.3	...	...	1.7	11.2	...	...	4.6	9.2	...	...	3.8	...	...	2.6	...	12.1	9																																	
29	6.0	...	6.0	...	5.1	...	5.1	...	2.9	...	4.3	...	4.7	...	4.7	...	15.5	11	0	29	5.5	...	2.3	...	3.0	...	...	6.8	...	...	1.3	...	4.9	...	4.9	...	7.5	4, 18, 22																																	
30	4.2	...	4.2	...	2.0	...	10.0	...	3.0	...	7.3	...	5.3	...	5.3	...	19.0	7	25	30	5.5	...	2.3	...	4.9	...	...	8.3	...	...	8.3	...	2.2	...	10.9	...	14.4	16																																	
31	5.1	...	7.6	...	4.0	...	6.0	...	4.0	...	6.0	...	4.4	...	6.6	...	15.4	2	30	31	2.4	...	...	5.7	...	...	1.1	5.6	...	...	1.3	6.5	...	1.7	...	2.5	...	7.5	13, 14																																
S+N & W+E		111.6				104.9				107.0				107.7				106.2				122.8				109.2				118.2						S+N & W+E		133.2				93.5				137.1				104.9				138.0				94.9				128.8				98.6					
S-N & W-E		31.4				32.5				22.2				14.5				32.0				54.2				33.2				62.2						S-N & W-E		45.6				1.7				45.1				-4.9				58.4				12.9				29.4				22.4					

ENGLAND S.W.:—SCILLY.

Height of Head above—Ground 9.8 m., M.S.L. 49.7 m.  
Height of Cups above—Ground 5.8 m., M.S.L. 45.7 m.

ENGLAND E.:—GREAT YARMOUTH.

Height of Head above—Roof 10.7 m., Ground 12.8 m., M.S.L. 15.9 m.  
Height of Cups above—Roof 3.7 m., Ground 18.3 m., M.S.L. 22.3 m.

Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust.	Time of Gust.	Day.	3 h.				9 h.				15 h.				21 h.				Max. in a Gust (Gorleston).	Time of Gust.	
	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.	S.	N.	W.	E.				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.	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.			
1	4.1	...	...	0.8	3.5	...	...	3.5	6.2	...	...	6.2	4.5	...	...	4.5	11.0	15	40	1	1.1	...	1.1	...	4.4	...	...	4.4	2.0	...	3.0	2.3	...	...	5.5	...	...	
2	3.7	...	...	5.6	2.2	...	...	5.4	3.4	...	...	8.1	2.3	...	...	3.5	11.0	15	40	2	...	...	...	8.9	...	...	6.9	...	1.3	...	6.8	1.2	...	...	6.1	...	6.1	...
3	...	...	...	2.1	...	...	6.2	...	2.6	...	7.7	...	3.2	...	6.3	...	12.6	6	50	3	0.4	...	...	2.0	...	1.9	1.3	...	...	0.8	3.8	...	...	...	...	2.6	...	
4	...	4.5	...	0.9	...	7.0	...	1.4	...	6.7	...	...	5.0	...	...	13.8	6	50	4	...	...	3.9	...	...	2.4	3.6	...	...	3.3	4.9	...	...	4.3	2.9	...	...	10.6	...
5	...	6.3	...	...	...	4.6	1.9	...	...	3.1	1.3	...	...	...	4.2	9.0	22	5	5	...	5.5	2.3	...	...	6.0	...	6.0	...	3.9	...	9.4	...	2.1	...	...	...	10.6	...
6	1.0	...	...	2.3	0.5	...	...	1.2	...	0.8	...	1.9	...	1.5	...	5.2	0	25	6	...	...	4.2	...	4.2	...	6.1	...	2.5	...	4.7	...	3.1	...	2.5	...	6.1	...	
7	...	0.6	...	0.6	...	0.3	...	0.3	1.3	...	...	3.1	...	...	5.0	...	10.6	23	50	7	...	2.7	...	4.1	...	2.1	...	1.1	1.1	...	...	0.6	1.5	...	...	...	...	



METEOROLOGICAL OFFICE OBSERVATORIES.

## G E O P H Y S I C A L J O U R N A L , 1 9 1 6 .

## A N N U A L S U P P L E M E N T .

**Summary of the Records of Registering Balloons in 1916.**

TEN balloons were sent up during the year, and nine were found. This is a very good proportion; it is partly fortuitous and partly due to the fact that no ascents were made on days when the conditions rendered it likely that the balloon might reach the sea. This policy was necessary owing to the scarcity of meteorographs and the impossibility of getting more made at that time.

All the ascents were from Benson, Oxfordshire. Latitude  $51^{\circ} 37' N.$ , longitude  $1^{\circ} 7' W.$ , height above M.S.L. 57 m. The station is close to the river Thames and at the foot of the Chiltern Hills.

The average height reached, 11.5 km., is very poor owing to the low quality of the balloons. Many attempts have been made to obtain better balloons, but without success. The average height reached in previous years was 16 km.

The ascents are fairly well distributed throughout the year, but their paucity renders the values of the average temperatures less reliable than in former years. The average height of the stratopause was 9.8 km.

## MEAN TEMPERATURES, 1916.

Height in km.	10	9	8	7	6	5	4	3	2	1	Gd.
Temperature abs.	221.1	223.7	228.5	235.7	242.9	250.6	257.7	265.6	271.3	277.1	281.2

## SOUNDINGS WITH REGISTERING BALLOONS, 1916.

No.	316.	317.	318.	319.	320.	321.	323.	324.	325.
Day.	March 1.	April 6.	May 4.	June 8.	July 6.	Sept. 6.	Nov. 7.	Nov. 10.	Dec. 7.
Start G.M.T.	16 h. 55 m.	18 h. 20 m.	18 h. 55 m.	19 h. 25 m.	19 h. 40 m.	18 h. 0 m.	15 h. 45 m.	13 h. 35 m.	15 h. 5 m.
H <sub>t</sub> = Greatest Height	13.2 km.	7.0 km.	15.7 km.	10.0 km.	11.7 km.	13.3 km.	11.6 km.	10.9 km.	10.0 km.
T <sub>r</sub> = Corresponding Temp.	212 a.	230 a.	217 a.	227 a.	225 a.	213 a.	223 a.	218 a.	212 a.
Place of Fall	Cirencester.	Church Broughton.	Spalding.	Dunstable.	Nordelph.	Wareham.	Brandon.	Oakley.	Petsworth.
Distance	56 km.	148 km.	136 km.	48 km.	145 km.	76 km.	148 km.	72 km.	77 km.
Bearing	280°	346°	30°	34°	40°	137°	53°	136°	117°
Geo-strophic Wind.	Time	18 h. G.M.T.	18 h.	18 h.	18 h.	18 h.	18 h.	13 h.	18 h.
	Speed	9 m/s.	3 m/s.	3 m/s.	3 m/s.	10 m/s.	} indeterminate.	15 m/s.	} indeterminate.
	Direction	130°	135°	135°	270°	200°		220°	
Wind.	Speed	0	1 m/s.	2 m/s.	0	7 m/s.	2 m/s.	6 m/s.	7 m/s.
	Direction	—	60°	45°	—	160°	45°	190°	190°
Upper Wind ( <i>vide Geophysical Journal</i> ).	p. 18.	...	...	...	...	...	p. 68.	...	...
Stratopause Type	III.	...	I.	III.	I.	I.	I.	I.	?
H <sub>c</sub> = Height	9.6 km.	...	10.6 km.	8.5 km.	9.4 km.	12.0 km.	7.8 km.	10.6 km.	9.8 km.
P <sub>c</sub> = Pressure	262 mb.	...	233 mb.	367 mb.	285 mb.	203 mb.	342 mb.	246 mb.	260 mb.
T <sub>c</sub> = Temp.	213° a.	...	208 a.	227 a.	221 a.	212 a.	223 a.	218 a.	212 a.
(P <sub>9</sub> ) Pressure at 9 km.	278 mb.	...	303 mb.	294 mb.	303 mb.	318 mb.	284 mb.	311 mb.	294 mb.
(P <sub>s</sub> ) Pressure at M.S.L.	993 mb.	1017 mb.	998 mb.	1007 mb.	1009 mb.	1026 mb.	980 mb.	1024 mb.	1015 mb.
(T <sub>m</sub> ) Mean Temp. 1 to 9 km.	238 a.	...	256 a.	248 a.	254 a.	261 a.	247 a.	256 a.	246 a.

## NOTES.

316. Value of H<sub>c</sub> indefinite. Unusual case of E. wind strengthening above.  
*Pressure Distribution.*—Shallow depression at the mouth of the Channel. A low pressure trough extending over to Norway. (18 h.)
317. Sky overcast. Light E. wind. Isothermal at 263 a. from 2.0 to 2.6 km.  
*Pressure Distribution.*—Col over south of England. Lows over Iceland and the Mediterranean. Highs north of Azores and over the Baltic. (18 h.)
318. Overcast. Light S.E. wind. Signs of thunder in afternoon. Upper inversion unusually sharp, 5° in 100 m. and 11° in all.  
*Pressure Distribution.*—Shallow depression over Bay of Biscay. Secondary over Shetlands. (18 h.)
319. Overcast. Clouds at 2 km. Very little wind. Very good trace, the lines crossing here and there.  
*Pressure Distribution.*—Low over North Sea and Scandinavia, with a trough of nearly uniform depth extending to Algeria. (18 h.)
320. Overcast, rain in afternoon. Clouds at 0.5 km. Heavy rain at night. Very unusual differences between the up and down traces. The traces are quite distinct, and the difference is certainly genuine.  
*Pressure Distribution.*—Low developing over south of Ireland. (18 h.)
321. Inversion 281 a. at 1.32 km. to 282 a. at 1.55 km. Clear, with light N.E. wind.  
*Pressure Distribution.*—Anticyclonic ridge from the Azores to Denmark. (18 h.)
323. Clear in N.W. Shower in S. Heavy thunder shower at 13 h. 40 m. End of period of bad weather.  
*Pressure Distribution.*—Cyclone centre to N. of Scotland and moving slowly eastward. Pressure differences within the 980 mb. isobar slight. (18 h.)
324. Inversion 279 a. at 1.0 km. to 280 a. at 1.5 km. Overcast, low clouds, wind S.  
*Pressure Distribution.*—Anticyclonic ridge covering Spain and Central Europe. (18 h.)
325. *Pressure Distribution.*—Anticyclonic ridge extending from Central Europe to the Azores.

Soundings with Registering Balloons, 1916.

No.	316.		317.		318.		319.		320.		321.		323.		324.		325.	
DAY.	March 1.		April 6.		May 4.		June 8.		July 6.		Sept. 6.		Nov. 7.		Nov. 10.		Dec. 7.	
HEIGHTS AND TEMPERATURES CORRESPONDING WITH ISOBARIC SURFACES.																		
PRESSURE.	H.		T.		H.		T.		H.		T.		H.		T.		H.	
Millibars.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.	km.	a.
100	—	—	—	—	16'02	217	—	—	—	—	—	—	—	—	—	—	—	—
200	11'14	214	—	—	11'60	216	—	—	11'72	225	12'04	212	11'30	223	—	—	—	—
300	8'53	215	—	—	9'05	223	8'86	227	9'07	224, 222	9'39	230	8'63	224	9'24	227	8'81	218
400	6'67	226	6'92	231	7'12	240	6'94	232	7'12	242, 238	7'40	245	6'74	232	7'27	243	6'93	232
500	5'13	236	5'38	242	5'52	254	5'39	242	5'53	254, 249	5'76	258	5'19	245	5'64	254	5'38	243
600	3'83	247	4'05	250	4'13	263	4'06	253	4'15	264, 258	4'37	268	3'83	256	4'25	264	4'07	254
700	2'72	257	2'91	260	2'93	272	2'90	262	2'95	272, 266	3'13	275	2'68	263	3'05	273	2'90	263
800	1'70	266	1'88	264	1'85	280	1'85	270	1'90	279, 274	2'06	280	1'64	269	1'97	278	1'87	268
900	0'79	271	0'97	271	0'87	287	0'93	277	0'93	284, 280	1'09	281	0'70	278	1'04	279	0'95	272
1000	0'06	—	0'13	277	—	—	0'06	283	0'07	287	0'22	288	—	—	0'20	282	0'12	275
H. = Height in kilometres above M.S.L. T. = Temperature on the absolute scale.																		
PRESSURES AND TEMPERATURES AT GIVEN HEIGHTS.																		
HEIGHTS.	P.		T.		P.		T.		P.		T.		P.		T.		P.	
Kilometres.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.	mb.	a.
13	149	212	—	—	160	219	—	—	—	—	172	213	—	—	—	—	—	—
12	174	213	—	—	188	219	—	—	—	—	202	212	—	—	—	—	—	—
11	204	214	—	—	220	213	—	—	223	226	236	219	209	224	—	—	—	—
10	238	214	—	—	258	216	253	227	260	226	274	227	243	225	269	222	251	212
9	278	214	—	—	303	223	294	227	303	225, 222	318	234	284	226	311	228	294	216
8	324	216, 217	—	—	352	231	342	228	352	234, 230	367	240	330	223	360	234	342	224
7	379	222, 224	396	230	407	241	397	232	407	243, 239	422	248	385	230	416	244	398	232
6	441	228, 232	468	237	468	250	458	238	469	250, 245	484	256	446	239	477	250	459	239
5	511	235, 239	527	244	536	258	528	246	537	258, 252	552	263	513	247	547	257	530	247
4	587	244, 247	605	251	611	264	605	253	612	265, 259	628	270	587	255	624	265	608	255
3	673	253, 256	692	260	693	272	691	261	697	272, 266	712	276	670	261	708	273	692	262
2.5	720	259	738	263	737	275	738	265	742	274, 269	757	278	715	264	754	278	738	265
2	770	262, 264	788	263	785	279	786	269	790	278, 273	806	280	763	267	802	276	789	268
1.5	821	266	841	267	834	283	837	273	841	281, 277	857	282	814	271	853	280	840	270
1	877	268, 270	897	271	886	286	891	276	894	283, 280	909	282	867	276	905	279	895	272
0.5	933	273	955	274	940	290	948	280	950	286, 282	967	285	922	280	965	279	953	273
G.L. 0'057	986	278	1008	277	990	288	1000	283	1002	287	1019	279	973	284	1017	283	1008	275
P. = Pressure in millibars. T. = Temperature on the absolute scale.																		
LAPSE RATES OF TEMPERATURE BETWEEN GIVEN HEIGHTS.																		
Degrees Absolute per kilometre.																		
KILOMETRES.	A.		D.		B.		B.		B.		A.		D.		B.		B.	
12 to 13	—	+ 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11 to 12	—	+ 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10 to 11	—	0	—	—	—	+ 3	—	—	—	—	—	—	—	—	—	—	—	—
9 to 10	—	0	—	—	—	+ 7	—	—	—	—	—	—	—	—	—	—	—	—
8 to 9	—	+ 2	+ 3	—	—	—	+ 8	—	+ 1	—	+ 9	+ 8	—	+ 6	—	+ 6	—	+ 8
7 to 8	—	+ 6	+ 7	—	—	—	+ 10	—	+ 4	—	+ 9	+ 9	—	+ 8	—	+ 10	—	+ 8
6 to 7	—	+ 6	+ 8	—	+ 7	—	+ 9	—	+ 6	—	+ 7	+ 6	—	+ 8	—	+ 6	—	+ 7
5 to 6	—	+ 7	+ 7	—	+ 7	—	+ 8	—	+ 8	—	+ 8	+ 7	—	+ 7	—	+ 7	—	+ 8
4 to 5	—	+ 9	+ 8	—	+ 7	—	+ 6	—	+ 7	—	+ 7	+ 7	—	+ 7	—	+ 8	—	+ 8
3 to 4	—	+ 9	+ 9	—	+ 9	—	+ 8	—	+ 8	—	+ 7	+ 7	—	+ 6	—	+ 8	—	+ 7
2.5 to 3	—	+ 12	+ 6	—	+ 6	—	+ 6	—	+ 8	—	+ 4	+ 6	—	+ 4	—	+ 6	—	+ 6
2 to 2.5	—	+ 6	+ 10	—	0	—	+ 8	—	+ 8	—	+ 8	+ 8	—	+ 4	—	+ 6	—	+ 6
1.5 to 2	—	+ 8	+ 4	—	+ 8	—	+ 8	—	+ 8	—	+ 8	+ 8	—	+ 4	—	+ 8	—	+ 4
1 to 1.5	—	+ 4	+ 8	—	+ 8	—	+ 6	—	+ 6	—	+ 4	+ 6	—	0	—	+ 10	—	+ 4
.5 to 1	—	+ 10	+ 6	—	+ 6	—	+ 8	—	+ 8	—	+ 6	+ 4	—	+ 8	—	+ 8	—	+ 2
G.L. 0'057 to .5	—	+ 11	—	—	+ 7	—	—	—	+ 7	—	+ 2	+ 11	—	—	—	+ 9	—	+ 4

A. = Ascent. D. = Descent. B. = Ascent and Descent.

### Notes on Seismological Work at Eskdalemuir Observatory during 1916.

*Equipment.*—The instrumental equipment remained the same as that detailed in previous issues of the Journal—viz., two horizontal Galitzin pendulums, one vertical Galitzin pendulum, and a Milne seismograph as arranged by Mr. J. J. Shaw. In addition to these there is also an Omori instrument and a Wiechert inverted pendulum; the former was in use throughout the year, but the latter was not in operation. The Galitzin instruments are those chiefly relied upon to give accurate results, the Milne-Shaw pendulum records being examined when necessary for special purposes.

The two horizontal Galitzin instruments were re-standardised in April 1916. The constants thus obtained show only inappreciable or negligible changes since the last standardisation. In consequence the tables for magnification and lag which were published in the Supplement for 1915 also hold good for 1916.

*Earthquakes.*—Excluding cases in which the displacement was very small, the total number of disturbances recorded during the year was 166. In 24 of these the epicentral distance was determined, and in five cases the geographical position of the epicentre was found from the indications of the Galitzin instruments alone.\*

*Microseisms of North Component.*—The *Geophysical Journal* has published since January 1911 the amplitude and period of microseismic movements. For 1911 and 1912 the figures published are the mean of several readings during each day. For the remaining years they are given for 0 h., 6 h., 12 h., and 18 h. The mean values for each month of the amplitude (A.) and period (T.) are shown in the subjoined table. A. is given in terms of  $\mu = .001$  mm., and T. in seconds.

	1911.		1912.		1913.		1914.		1915.		1916.		Mean.	
	A.	T.	A.	T.	A.	T.	A.	T.	A.	T.	A.	T.	A.	T.
January . . .	2.1	6.3	2.0	5.2	3.7	6.5	2.3	6.4	2.4	6.0	3.1	6.5	2.6	6.2
February . . .	2.1	6.0	1.6	5.1	3.1	6.7	3.2	6.2	2.8	5.7	2.3	6.4	2.5	6.0
March . . .	1.2	5.5	1.4	5.2	3.0	6.3	2.1	5.7	1.6	5.5	1.2	5.3	1.8	5.6
April . . .	1.1	5.5	0.7	4.8	1.1	5.4	1.4	5.6	2.0	5.9	1.4	5.6	1.3	5.5
May . . .	0.6	5.3	0.4	4.5	0.9	4.8	0.9	5.2	0.8	4.6	0.6	4.7	0.7	4.9
June . . .	0.4	4.5	0.4	4.1	0.7	4.9	0.4	4.4	0.3	4.6	0.4	4.3	0.4	4.5
July . . .	0.3	4.5	0.3	4.3	0.2	4.1	0.4	4.6	0.4	4.6	0.2	4.7	0.3	4.5
August . . .	0.3	4.0	0.5	4.2	0.4	4.6	0.4	4.6	0.3	4.6	0.4	4.7	0.4	4.5
September . . .	0.6	5.5	0.6	4.9	0.7	4.6	0.8	4.8	0.7	4.9	0.8	4.8	0.7	4.9
October . . .	0.8	4.9	1.6	5.6	1.1	5.1	1.0	5.3	1.0	5.2	1.8	5.5	1.2	5.3
November . . .	1.5	5.4	1.6	6.1	2.6	6.5	2.0	5.8	1.3	5.4	2.0	5.8	1.8	5.8
December . . .	1.8	5.3	2.0	6.3	2.1	5.9	3.9	6.2	2.0	5.5	1.2	5.6	2.2	5.8
Means . . .	1.1	5.2	1.1	5.0	1.6	5.5	1.6	5.4	1.3	5.2	1.1	5.3	1.3	5.3

The results shown above confirm conclusions which are already well known. The microseismic activity is greatest in winter, and becomes very small in summer. Also the amplitude and period increase together. The relationship is not a linear one, for the amplitude increases at a rate greater than that of proportionality to the first power of the period.

Investigation of the possible connection between microseismic amplitude and the "state of the sea" at different points of the British coasts yields results of an inconclusive kind. For example, the correlation between the state of the sea at Lerwick

\* The determination of the locality of the epicentre can only be made in favourable circumstances, that is, with sufficiently well-marked primary waves and at times when the wind does not produce tremors in the building which mask the true seismic effect.



and the microseismal amplitude (N. component) at Eskdalemuir gives coefficients which are as high as 0·7 and 0·8 in winter, but which fall very low in summer. Closer inquiry in this direction, as also the investigation of the connection with the intensity and *rate of passage* of depressions north of the British Isles, seems desirable.

It may be mentioned that the published results from 1911 to 1916 yield no evidence of a diurnal period. The means at the bottom of the columns of amplitude in the above table show, however, that microseismic activity varies appreciably from year to year.

### The Water-Level Recorder at Kew Observatory, Richmond.

A description of this apparatus will be found in the Annual Supplement for 1914.

Regular observations commenced in July 1914. The values of the mean height— $\frac{1}{2}$  (maximum + minimum)—for each day have appeared in the monthly numbers of the Journal, along with 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 (Plate I.). The larger fluctuations are governed by rainfall, and by the flooding of the Old Deer Park by the Thames. The well also responds, however, to variations in the height of the barometer, and to the tides in the neighbouring river. The phenomena have been discussed\* by Mr. E. G. Bilham. The effect of the alternation of spring and neap tides can be recognised in the diagram.

### Table of Monthly Means of Electrical Data for Richmond and Eskdalemuir, 1916.

The following table gives mean monthly values of positive and negative electrical charges in the atmosphere as observed with the Ebert apparatus at Richmond and at Eskdalemuir. A popular account of the method will be found in a recent paper on "Atmospheric Electricity," by Lieut. C. D. Stewart.† For the number of days utilised each month reference may be made to the monthly tables, and for a comparison of the units used in corresponding tables elsewhere, to the Introduction. Mean values of potential gradient at Richmond and Eskdalemuir will be printed in *Hourly Values*.

Charge per c.c.  $\times 10^{16}$  at about 15 h.

		Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Year.
Richmond	+	Coulomb. '40	Coulomb. '47	Coulomb. '34 <sub>n</sub>	Coulomb. '39	...	Coulomb. '61 <sub>x</sub>	Coulomb. '49	Coulomb. '56	Coulomb. '42	Coulomb. '59	Coulomb. '45	Coulomb. '49	Coulomb. '47
	-	'42	'34	'20	'18 <sub>n</sub>	...	'53 <sub>x</sub>	'24	'42	'23	'33	'36	'41	'33
Eskdalemuir	+	...	'45	'42	'31 <sub>n</sub>	'43	'58 <sub>x</sub>	...	...	...	...	...	...	'44
	-	...	'64 <sub>x</sub>	'55	'30 <sub>n</sub>	'37	'35	...	...	...	...	...	...	'44

### Table of Monthly Means of Magnetic Data for Eskdalemuir.

The following table gives the mean monthly values of the daily maximum and minimum and of the corresponding daily range of the magnetic elements at Eskdalemuir Observatory. The corresponding data published for Kew Observatory in previous years are no longer available. It should be mentioned, however, that the magnetograms for "international quiet days" have been tabulated at that Observatory, and that a summary of the results will be printed in *Hourly Values*.

\* *Roy. Soc. Proc.*, A94, 1918, p. 165; and *Q. J. R. Met. Soc.*, vol. xlv., 1918, p. 171.

† *Q. J. R. Met. Soc.*, vol. xliii., 1917, p. 409.

Month.	North Component.			West Component			Vertical Component.		
	Max. 15000 $\gamma$ +.	Min. 15000 $\gamma$ +.	Range.	Max. 4000 $\gamma$ +.	Min. 4000 $\gamma$ +.	Range.	Max. 45000 $\gamma$ +.	Min. 45000 $\gamma$ +.	Range.
January .	$\gamma$ 1024	$\gamma$ 965	$\gamma$ 59	$\gamma$ 1067	$\gamma$ 1007	$\gamma$ 60 <i>n</i>	$\gamma$ 149	$\gamma$ 121	$\gamma$ 28
February	1020	962	58 <i>n</i>	1068	1004	64	138	113	25 <i>n</i>
March	1040	933	107	1084 <i>x</i>	967	117 <i>x</i>	188 + <i>x</i>	104	84 +
April .	1043	928 -	110 +	1081	983	98	175	105	70 <i>x</i>
May	1052 <i>x</i>	940	112 <i>x</i>	1070	982	88	145	93	52
June	1043	941	102	1071	976	95	117	76	41
July	1036	935	101	1059	970	89	123	68 <i>n</i>	55
August .	1044	925 -	111 +	1054	958	96	139	69 -	59 +
September	1041	935	106	1051	959	92	150	89	61
October .	1037	929 <i>n</i>	108	1051	950	101	157 +	84	66 +
November	1032	937	95	1036	939 <i>n</i>	97	125	79	46
December	1012	943	69	1021	948	73	109	80	29
Year . . .	1035	939 -	95 +	1059	970	89	143 +	90 -	50 +

As usual, *x* and *n* denote the highest and lowest of the monthly means in the table. The traces passed the limits of registration on five occasions; 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 each month, but are used in obtaining the figures entered in the table above. The mean values of the daily range for the months affected are thus under-estimated, but the differences from the true values are probably small.

The extreme values for the year and the corresponding annual ranges were as follows:—

	Maximum.	Minimum.	Range.
North Component . . .	16275 $\gamma$ (August 22)	< 15660 $\gamma$ (August 27)	> 615 $\gamma$
West . . . . .	5184 $\gamma$ (April 25)	4764 $\gamma$ (March 9)	420 $\gamma$
Vertical . . . . .	45397 $\gamma$ (April 25)	< 44733 $\gamma$ (August 27)	> 664 $\gamma$

### Analysis of Clouds observed at Aberdeen Observatory during the five years 1912-1916.

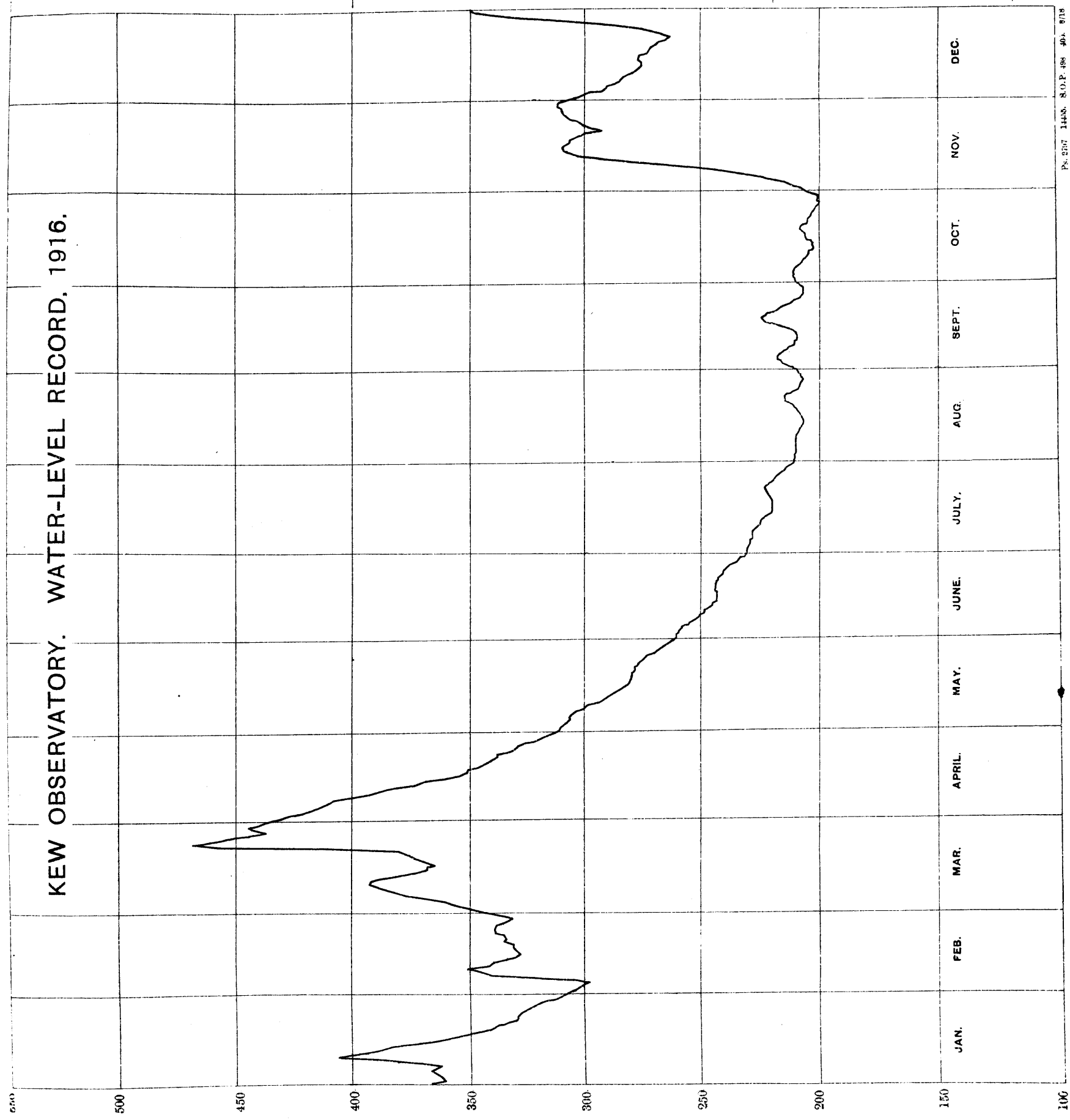
Observations were taken every day, except Sundays, when the clouds were sufficiently well defined to give points on which the observations could be made. The time of observation was between 12 and 1 P.M. The results have been published month by month in the *Geophysical Journal*.

Table I. shows the variation in the frequency of clouds of various types throughout

TABLE I.  
FREQUENCY OF CLOUDS OF VARIOUS TYPES AT DIFFERENT TIMES OF THE YEAR.

Cloud Types.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
Cu.-Nb. . . . .	4	11	12	15	12	9	9	3	8	14	5	6	108
Cu. . . . .	5	10	27	33	13	17	23	20	29	11	13	4	205
St.-Cu. . . . .	23	20	13	15	18	10	12	12	19	20	22	18	202
Al.-St. . . . .	4	1	1	...	...	1	1	...	...	3	2	4	17
Al.-Cu. . . . .	3	3	6	3	8	7	3	5	7	4	7	4	60
Ci.-Cu. . . . .	7	6	2	4	2	5	3	1	8	9	8	12	67
Ci.-St. . . . .	1	1	2	2	2	2	1	1	3	2	2	1	20
Ci. . . . .	5	2	6	2	5	5	4	7	8	10	9	8	71

# KEW OBSERVATORY. WATER-LEVEL RECORD, 1916.



{ Ground Level Site of Rain Gauge.

{ Mean High Water below Richmond Lock.

{ Low Water above Richmond Lock. Mean Height of River below Richmond Lock.

{ Mean Low Water below Richmond Lock.

HEIGHT OF WATER IN CM. ABOVE MEAN SEA LEVEL.

**Errata for 1916.**

Page 1, 7, 13, 19, 25, 31, 37, 43, 49, 57, 63, 69: Table 2, for "H = 12.5 m." read "H = 9.1 m."

Page 6, 12, 18: Table 9, South Farnborough, Height of Anemometer above Ground, for "35 m." read "31 m."

Page 22: 21st, delete last line and Remarks.

Page 17: Table 8. By an inadvertence the values printed for Scilly are those for 1917; the correct values for 1916 are as given below:—

S. 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.

ENGLAND S.W.:—SCILLY. MARCH 1916.																			
Height of Head above—Ground 9.8 m., M.S.L. 49.7 m.																			
Height of Cups above—Ground 5.8 m., M.S.L. 45.7 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.	m/s.	
1	...	5.4	...	2.2	...	13.1	5.4	...	...	2.4	...	1.6	...	...	...	7.1	21.0	9 20	
2	...	4.3	...	1.8	...	10.0	...	...	...	9.4	9.4	...	...	8.3	...	...	19.2	14 15	
3	...	11.6	...	4.8	...	11.5	...	7.7	...	9.6	...	...	...	10.2	...	2.0	19.0	6 50	
4	...	3.8	...	3.8	...	5.2	...	3.5	...	3.5	...	1.5	...	5.0	...	2.1	14.0	20 50	
5	...	...	...	2.5	...	...	...	2.9	...	2.9	...	...	...	3.8	...	2.6	10.2	...	
6	...	6.2	...	2.6	...	10.8	...	...	...	8.1	...	3.4	...	8.9	...	3.7	18.7	21 50	
7	...	8.3	...	...	...	8.3	...	8.3	...	8.3	...	5.6	...	8.8	...	8.8	21.2	19 10	
8	...	7.4	...	7.4	...	5.3	...	5.3	...	7.3	...	3.0	...	2.7	...	6.6	16.1	1 20	
9	...	2.8	...	4.2	...	...	...	9.6	1.9	...	...	9.4	...	2.2	...	11.1	17.0	11 20	
10	...	2.0	...	10.2	...	2.2	...	11.1	...	3.7	...	8.9	...	3.7	...	8.9	16.9	2 20	
11	...	3.4	...	8.1	...	2.7	...	6.6	...	2.1	...	5.0	...	1.6	...	3.9	14.0	1 50	
12	...	2.1	...	5.0	...	2.1	...	5.0	...	2.8	...	4.2	1.5	...	...	7.4	12.0	21 55	
13	3.7	...	...	8.9	6.1	...	...	14.6	3.1	...	...	15.5	5.8	...	...	2.4	19.8	10 5	
14	4.9	...	...	7.3	8.3	...	...	8.3	7.6	...	...	7.6	5.9	...	...	3.9	16.2	7 40	
15	1.8	...	...	4.3	0.9	...	...	4.5	...	...	...	1.7	0.8	...	...	1.9	8.0	0 5	
16	1.3	...	0.3	...	2.5	...	...	...	3.8	...	...	...	2.9	...	...	...	4.1	14 30	
17	2.9	...	...	...	4.2	...	...	6.2	3.7	...	...	8.9	2.5	...	...	12.7	17.4	22 25	
18	2.4	...	...	12.3	3.2	...	...	7.7	2.7	...	...	6.6	...	...	...	10.4	17.2	2 15	
19	2.0	...	...	9.8	3.4	...	...	8.1	4.2	...	...	6.2	7.4	...	...	7.4	15.7	6 10	
20	7.3	...	...	3.0	4.5	...	...	4.5	1.8	...	...	2.7	...	...	...	1.7	13.6	0 10	
21	...	5.2	3.5	...	...	6.6	1.3	...	...	6.6	2.7	...	...	4.1	0.8	...	14.0	7 5	
22	...	2.3	...	2.3	...	2.1	...	5.0	...	0.8	...	4.1	...	1.2	...	6.2	8.1	19 15	
23	...	1.9	...	4.6	...	1.0	...	4.9	...	3.5	...	1.5	...	4.2	...	...	10.1	21 50	
24	...	3.8	3.8	...	...	6.9	2.9	...	...	5.6	5.6	...	...	1.2	6.2	...	14.2	4 20	
25	...	...	7.1	...	...	...	8.3	...	4.9	...	11.9	...	...	...	14.2	...	24.6	20 25	
26	...	6.2	15.1	...	...	2.7	13.5	...	...	5.6	13.5	...	...	...	12.5	...	24.6	14 40	
27	...	1.5	7.8	...	0.6	...	...	3.2	...	4.8	...	11.6	...	16.3	16.3	...	32.9	21 50	
28	...	10.6	10.6	...	...	10.4	4.3	...	...	9.2	...	...	...	7.3	...	3.0	28.8	1 50	
29	...	0.9	...	0.9	...	...	7.5	...	...	...	9.2	...	...	2.4	12.3	...	18.5	11 40	
30	...	2.9	6.9	...	...	3.0	7.3	...	...	2.7	6.6	...	...	...	3.8	...	14.4	8 50	
31	...	...	3.8	...	...	...	2.1	...	...	0.5	1.2	...	...	...	Calm.	...	5.5	0 35	
S. + N. and W. + E	118.9		164.9		137.6		179.6		133.1		169.1		118.7		179.9				
S. - N. and W. - E.	-66.3		-47.1		-70.2		-74.4		-65.7		-48.9		-65.1		-47.7				

## GEOPHYSICAL JOURNAL, 1916.

## SPECIAL SUPPLEMENT.

**Meteorological Observations at St Louis Observatory, Jersey,  
during the Years 1914-1916.**

ST. LOUIS Observatory was organised by the Rev. Marc Dechevrens of the Society of Jesus in 1893 and 1894. It is still under the same direction.

The following description of the site is translated from the *Bulletin des Observations Météorologiques* for the year 1894:—

“St. Louis Observatory has been built at 54 metres above mean sea-level, on the south-west edge of the central plateau of the island of Jersey. It overlooks the town of St. Helier and St. Aubin’s Bay, the view to the south and west being unrestricted. A considerably wider outlook may be obtained from the tower, 50 m. high, erected near the Observatory for the special observations of wind and atmospheric electricity. From this standpoint, 104 m. above the sea, the whole island can be surveyed with its well-cultivated fields, numerous belfries, tiny valleys, and rocky shores. The sea to the north of the island is out of sight, evidence of the inclination of the plateau towards the south. The cliffs which face the French coast to the north-east are 120 to 140 m. in height.”

The Observatory is provided with a water-barograph,\* Richard barograph, hygrograph and thermograph, Dechevrens and Robinson anemographs, and a Jordan sunshine recorder.

The Meteorological Office telegraphic reporting station at St. Aubin’s is 5·5 km. W.S.W. from St. Louis. The office sunshine recorder is at Fort Regent, 1·2 km. from the Observatory.

The observations at St. Louis have been published in the *Bulletin des Observations Météorologiques* for the years 1894–1913. In the present volume the data for the years 1914–1916 are given. Those for 1917 are being included in the monthly issues of the *Geophysical Journal*.

## NOTES ON THE TABLES.

*Air Temperature.*—The temperatures at fixed hours are obtained from a mercurial thermometer, and refer to a large louvered screen in the open. The maximum and minimum for the 24 hours are obtained from registering thermometers in conjunction with the Richard thermograph in the same screen.

*Grass Minimum.*—The bulb of the thermometer is cylindrical, 6 mm. in diameter and 45 mm. in length.

*Humidity.*—Humidities are derived from psychrometer readings, and are computed by the tables in Angot’s *Instructions Météorologiques*, not by Glaisher’s tables, which are in use at most British stations (see *Computer’s Handbook*, section i. p. 13).

*Rainfall.*—The rainfall for the calendar day is determined from the amounts measured at the fixed observation hours and at 4 h., the division of the fall during the night between two calendar days being estimated.

*Wind Strength.*—The estimates of wind strength are based on general observations, in accordance with Angot’s *Instructions Météorologiques*. The Observatory is surrounded by trees and on the summit of a steep hill.

*Normals.*—The normals used in the tables are averages for the twenty-three years 1894–1916.

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\* In the water-barograph a float is controlled by the difference in pressure between the free atmosphere and the air in an underground vessel.

JANUARY 1914.—METEOROLOGY.—JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L.:—H=54 m. H<sub>b</sub>=55 m. Above Ground:—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Detailed cloud and wind data table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (Upper/Lower), and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Day.	Air Pressure at Station Level.				Air Temperature in Degrees Absolute						Min. Temp. on Grass.	Percentage of Humidity.				Rain 0 h. to 24 h.	REMARKS.
	7 h.	14 h.	21 h.	Mean of 3 Readings.	7 h.	14 h.	21 h.	Max.	Min.	Mean of 5 Readings.		7 h.	14 h.	21 h.	Mean.		
1	mb. 16.2	mb. 16.8	mb. 17.5	mb. 16.8	200+	200+	200+	200+	200+	200+	200+	% 91	% 79	% 84	% 85	mm. —	
2	16.0	14.6	14.6	15.1	77.9	80.7	80.1	81.4	77.7	79.6	81.2	92	80	91	88	—	
3	14.3	14.0	14.3	14.2	78.2	82.9	80.1	83.6	78.0	80.6	73.7	92	71	88	84	—	
4	14.3	14.7	15.0	14.7	79.0	82.5	80.3	82.9	78.6	80.7	74.1	92	80	84	85	—	
5	13.4	11.8	10.8	12.0	78.3	82.4	80.9	83.0	78.1	80.5	72.6	86	73	77	79	—	
6	06.8	05.2	04.6	05.5	78.8	81.2	81.0	81.9	78.6	80.3	73.2	88	87	94	90	1.3	● 13 h. 40 m.
7	03.5	09.6	08.0	00.4	79.6	81.5	81.2	81.9	79.5	80.7	76.9	97	80	84	87	1.5	● 11 h. 15 m. ● 12 h.
8	05.6	06.8	09.1	07.2	81.6	82.2	81.1	82.7	81.0	81.7	79.4	91	93	92	92	15.1	
9	01.4	01.4	02.4	01.7	81.2	82.8	82.6	83.5	81.1	82.2	78.9	90	76	78	81	—	
10	05.2	07.1	07.9	06.7	80.3	83.8	81.0	84.3	80.1	81.9	75.4	93	82	91	89	0.2	● 19 h. ⊙ 21 h.
11	00.8	08.3	05.2	08.1	80.4	81.9	82.4	83.0	80.3	81.6	78.0	91	93	98	94	9.6	● 2 h. 30 m.—14 h. ● 20 h. 30 m.
12	00.6	07.8	05.0	07.8	80.8	83.1	79.6	83.5	77.0	80.8	77.3	81	73	80	78	2.7	● 18 h.
13	09.5	11.5	08.3	09.8	80.3	82.1	81.6	82.2	77.5	80.7	73.8	82	80	98	87	4.6	▲ n. ● until 7 h. ● after 16 h.
14	09.6	11.8	10.4	10.6	82.5	83.8	83.6	84.2	81.7	83.2	80.6	100	93	91	95	4.9	≡ 6 h. 30 m.—8 h. 30 m.
15	06.0	07.9	10.6	08.2	83.3	81.6	81.1	83.7	81.0	82.1	81.7	93	92	91	92	3.5	● 9 h.—14 h.
16	09.2	07.6	11.6	09.5	80.2	79.0	78.0	80.9	78.0	79.2	76.2	89	90	92	90	9.3	Continuous ● from 10 h.
17	15.5	14.7	10.4	13.5	76.5	81.0	80.2	81.4	75.7	79.0	69.0	95	72	81	83	—	⊖ 7 h. ⊕ 16 h.
18	06.8	07.2	09.1	07.7	79.2	79.7	78.0	80.2	76.8	78.8	75.4	98	76	72	82	11.3	● almost continuous. Squall with ▲
19	06.6	09.1	07.0	09.0	79.9	82.5	81.8	82.7	78.1	81.0	71.9	87	98	74	86	2.4	● 6 h.—13 h. [15 h. 45 m.]
20	09.9	02.6	06.6	03.0	79.5	81.1	82.5	82.7	78.8	80.9	70.3	90	93	93	92	6.7	⊕ 9 h. Continuous ● from 16 h.
21	05.8	05.4	07.4	02.9	80.2	81.7	80.1	81.9	77.7	80.3	77.0	78	71	86	78	4.6	● frequently. ▲ 14 h. 45 m. ●
22	04.7	06.8	07.4	06.0	80.1	81.5	78.8	82.7	78.5	80.3	77.1	88	70	81	80	1.4	▲ 16 h. 7 m. ● 21 h. [squall 21 h.]
23	06.8	08.4	08.4	08.0	77.8	81.6	79.8	82.0	77.5	79.7	71.0	91	72	91	85	—	
24	04.7	08.8	04.3	09.3	77.3	81.3	77.0	81.9	76.9	78.9	70.8	97	75	88	87	—	
25	01.4	04.7	07.5	04.5	78.6	81.9	78.1	82.0	78.0	79.7	69.7	94	63	91	83	—	
26	07.9	08.8	11.5	09.4	77.3	81.0	79.0	81.9	76.5	79.1	69.6	87	86	94	89	0.9	● 12 h. 30 m.
27	13.8	16.0	17.5	15.8	78.0	83.4	78.9	83.9	77.9	80.4	70.8	98	n 56	66	73	—	
28	17.0	15.2	14.4	15.5	78.1	83.1	81.3	84.0	77.1	80.7	n 68.4	92	72	82	82	—	
Means	03.0	02.9	03.1	03.0	79.5	81.9	80.4	82.6	78.5	80.6	74.3	91	80	86	86	80.0	
Normal	09.1	08.8	09.5	09.1	78.0	80.1	78.7	80.9	77.1	79.0	73.6	84	74	81	80	59.9	

JERSEY (ST LOUIS OBSERVATORY).

Day.	Wind Direction and Force (0-12 on the Beaufort Scale).			Mean.	Sunshine.		Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming.														Mean Amount.						
					Total.	Per cent. of Possible.	Upper.				Lower.				Tenths.	Upper.				Lower.							
	7 h.	14 h.	21 h.	hr.	%	Type.	Direction.	Type.	Direction.	Type.	Direction.	Type.	Direction.	Type.		Direction.	Type.	Direction.									
	7 h.	14 h.	21 h.	7 h.	7 h.	7 h.	7 h.	7 h.	14 h.	14 h.	14 h.	14 h.	14 h.	21 h.	21 h.	21 h.	21 h.										
1	Dir. (0-12) SSW 4	Dir. (12) S 4	Dir. (12) S 4	5	4.3	8.7	94	1	..	SSW	..	..	..	5	A.-Cu.	SW	..	..	..	..	0	..	..	..	..	2.0	
2	S 4	S 4	S 4	4	4.0	7.9	85	2	..	..	..	..	..	8	..	..	..	..	..	..	3	..	..	..	..	4.3	
3	SSE 3	SSE 3	SE 3	4	3.3	9.4	100	3	Ci.	S	..	..	..	5	Ci.	SSW	..	..	..	..	0	..	..	..	..	2.7	
4	S 3	SSE 4	SSE 4	4	3.7	9.4	99	4	..	..	..	..	..	0	..	..	..	..	..	..	0	..	..	..	..	1.3	
5	S 4	SSE 4	SSE 4	5	4.3	9.5	100	0	..	..	..	..	..	0	..	..	..	..	..	..	0	..	..	..	..	0.0	
6	SSE 4	SSE 3	S 3	4	3.7	3.4	34	1	..	..	..	..	..	8	A.-Cu.	SSW	Nb.	..	..	..	10	..	..	Nb.	..	6.3	
7	S 4	SSW 5	S 5	5	4.7	2.6	26	2	Cu.-Nb.	SSW	..	..	..	10	..	..	Nb.	..	..	..	10	..	..	..	..	7.3	
8	S 5	SSW 6	S 6	5	5.3	0.0	0	10	..	..	Nb.	SSW	..	10	..	..	Nb.	..	..	..	10	..	..	..	..	10.0	
9	ESE 4	SSE 4	S 4	5	4.3	0.2	2	8	A.-Cu.	S	St.-Cu.	SSW	..	10	..	..	..	..	..	..	6	Ci., Ci.-Cu.	SSW	..	..	8.0	
10	SSE 3	S 4	SSW 5	5	4.0	7.1	72	2	A.-Cu.	SSW	..	..	..	3	..	..	Cu.	SSW	..	..	6	A.-Cu.	S	..	..	3.7	
11	S 6	S 5	SSW 6	6	5.7	0.0	0	10	..	..	Nb.	..	..	10	..	..	..	..	..	..	10	..	..	..	..	10.0	
12	SSW 5	SSW 5	SSW 6	5	5.3	4.7	48	9	..	..	Nb.	SW	..	8	..	..	..	..	..	..	10	..	..	..	..	9.0	
13	SW 5	SSW 5	SSW 6	5	5.3	2.1	21	7	A.-Cu.	W	Cu.-Nb.	W	..	10	..	..	..	..	..	..	10	..	..	..	Nb.	..	9.0
14	WSW 5	SSW 5	SSW 6	5	5.3	0.7	7	10	..	..	Nb. ≡	WSW	..	10	..	..	Nb.	SW	..	..	10	..	..	..	..	10.0	
15	SSW 6	SW 5	WSW 3	4	4.7	0.0	0	10	..	..	..	..	..	10	..	..	Nb.	WSW	..	..	8	..	..	..	..	9.3	
16	SE 2	NNE 3	NE 3	4	3.0	0.2	2	10	..	..	..	..	..	10	..	..	Nb.	..	..	..	10	..	..	Nb.	..	10.0	
17	ENE 2	SSW 4	SW 5	5	3.7	9.3	91	2	..	..	St.-Cu.	SW	..	2	Ci.	NW	..	..	..	..	5	..	..	..	..	3.0	
18	SW 5	WSW 4	W 4	4	4.3	2.2	21	10	..	..	Nb.	SSW	..	4	Ci.	W	Cu.-Nb.	NNW	..	..	2	..	..	..	..	5.3	
19	SW 5	WSW 5	W 5	5	5.0	0.0	0	10	..	..	Nb.	..	..	10	..	..	Nb.	W	..	..	2	..	..	St.-Cu.	WNW	7.3	
20	SSW 4	SSE 4	S 4	5	4.3	3.3	32	3	..	..	..	..	..	10	..	..	..	..	..	..	10	..	..	Nb.	..	7.7	
21	SSW 5	WSW 6	S 6	6	5.7	4.3	41	10	..	..	Nb.	SW	..	5	..	..	Cu.-Nb.	..	..	..	10	..	..	Nb.	..	8.3	
22	SSW 5	SW 4	WSW 4	4	4.3	3.1	29	5	Ci.-Cu.	..	Nb.	WSW	..	3	..	..	..	..	..	..	7	..	..	..	..	5.0	
23	ESE 3	SSW 3	SE 3	3	3.0	7.1	69	1	..	..	..	..	..	2	..	..	Cu.	WSW	..	..	6	..	..	..	..	3.0	
24	SE 2	N 3	NE 3	3	2.7	3.3	31	7	A.-Cu.	SSW	Cu.	SE.	..	7	A.-Cu.	N	St.-Cu.	N	..	..	0	..	..	..	..	4.7	
25	N 3	NNW 3	NNW 3	3	3.0	10.7	100	0	..	..	..	..	..	0	..	..	..	..	..	..	0	..	..	..	..	0.0	
26	W 2	NNW 2	SE 2	3	2.3	1.0	10	3	Ci.-Cu.	..	..	..	..	10	..	..	Nb.	..	..	..	0	..	..	..	..	4.3	
27	E 2	SSE 3	ENE 3	3	2.7	10.8	100	1	..	..	..	..	..	0	..	..	..	..	..	..	0	..	..	..	..	0.3	
28	SSE 2	SSE 3	SW 3	3	2.7	10.3	95	1	..	..	..	..	..	1	..	..	..	..	..	..	10						

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS. Includes daily data from 1 to 31 and mean/normal values.

JERSEY (ST LOUIS OBSERVATORY).

Cloud amount and wind data table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (tenths of sky covered), Type of Cloud, and Direction whence coming, and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.



JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain 0 h. to 24 h., and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Cloud and wind data table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming, and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W. Heights above M.S.L. :—H=54 m. H<sub>0</sub>=55 m. Above Ground :—h<sub>1</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max, Min, Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0 h. to 24 h., and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale) (7h, 14h, 21h), Mean, Sunshine (Total, Percent. of Possible), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower), and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>p</sub>=55 m. Above Ground :—h<sub>i</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Cloud amount and wind data table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0h to 24h, and REMARKS. Includes data for days 1-31 and means/normal values.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale), Sunshine (Total, Per cent. of Possible), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming. Includes data for days 1-31 and means/normal values.

In the column for air pressure the initial 9 or 10 is omitted.



JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W. Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max, Min, Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0 h. to 24 h., and REMARKS. Includes data for days 1-30 and means/normal values.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale) (7h, 14h, 21h), Mean, Sunshine (Total, Percent of Possible), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower, Upper, Lower), and Mean Amount. Includes data for days 1-30 and means/normal values.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS. Includes data for days 1-31 and Means/Normal values.

JERSEY (ST LOUIS OBSERVATORY).

Cloud Amount and Wind Direction table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (Upper/Lower), and Mean Amount. Includes data for days 1-31 and Means/Normal values.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L.:—H=54 m. H<sub>b</sub>=55 m. Above Ground:—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS. Rows 1-30 and Means/Normal.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming, Mean Amount. Rows 1-30 and Means/Normal.

In the column for air pressure the initial 9 or 10 is omitted.



JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns for Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0h to 24h, and REMARKS. Includes daily data from 1 to 31 and Means/Normal rows.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns for Day, Wind Direction and Force (0-12 on the Beaufort Scale), Sunshine (Total, Percent of Possible, Tenth), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower), and Mean Amount. Includes daily data from 1 to 31 and Means/Normal rows.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>c</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0 h. to 24 h., and REMARKS. Includes data for days 1-31 and means/normal values.

JERSEY (ST LOUIS OBSERVATORY.)

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale) (7h, 14h, 21h, Mean), Sunshine (Total, Per cent. of Possible), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower, Upper, Lower, Upper, Lower), and Mean Amount. Includes data for days 1-31 and means/normal values.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.  
Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS. Rows include data for days 1 through 28, means, and normal values.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force, Sunshine, Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming, and Mean Amount. Rows include data for days 1 through 28, means, and normal values.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS. Rows include daily data from 1 to 31 and summary rows for Means and Normal.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming, and Mean Amount. Rows include daily data from 1 to 31 and summary rows for Means and Normal.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>0</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS. Rows include daily data from 1 to 30 and summary rows for Means and Normal.

JERSEY (ST LOUIS OBSERVATORY).

Cloud and wind data table with columns for Wind Direction and Force, Sunshine, Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming. Includes sub-columns for Upper and Lower cloud layers and a Mean Amount column.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>p</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0 h. to 24 h., and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale), Mean, Sunshine (Total, Per cent. of Possible, Tenth), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower, Tenth), and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 3 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0 h. to 24 h., and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12) on the Beaufort Scale (7h, 14h, 21h), Mean, Sunshine (Total, Per cent of Possible), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower), and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>0</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Percentage of Humidity, Rain, and REMARKS. Includes data for days 1-31 and means/normal values.

JERSEY (ST LOUIS OBSERVATORY).

Cloud and wind data table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming, and Mean Amount. Includes data for days 1-31 and means/normal values.

In the column for air pressure the initial 9 or 10 is omitted.



JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>0</sub>=55 m. Above Ground :—h<sub>1</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>2</sub>=8 m.

Day.	Air Pressure at Station Level.				Air Temperature in Degrees Absolute.						Min. Temp. on Grass.	Percentage of Humidity.				Rain 0 h. to 24 h.	REMARKS.
	7 h.	14 h.	21 h.	Mean of 3 Readings.	7 h.	14 h.	21 h.	Max.	Min.	Mean of 3 Readings.		7 h.	14 h.	21 h.	Mean.		
1	mb. 00.3	mb. 00.4	mb. 09.5	mb. 00.0	200+	200+	200+	200+	200+	200+	200+	%	%	%	%	mm.	● 6 h. 30 m. ● 21 h. 20 m.
2	06.2	05.6	09.5	07.1	89.1	93.1	90.1	94.9	88.6	91.2	85.3	n 55	77	76	1.2	● 1 h. ● 14 h.	
3	02.4	06.4	07.9	05.6	89.1	91.0	88.3	92.2	88.3	89.8	86.1	84	74	88	2.2	● 0 6 h. ● 7 h. and 22 h.	
4	08.8	11.2	12.2	10.7	88.2	91.1	86.9	91.9	86.4	88.9	85.1	87	69	84	—	● in afternoon	
5	10.4	08.7	07.4	08.8	88.0	88.4	89.9	90.3	85.1	88.3	78.8	89	96	97	x 9.6	≡ 5 h., 7 h., 10 h. d.	
6	08.0	11.8	14.2	11.4	89.0	91.9	88.9	93.0	88.0	90.2	87.3	96	82	98	3.2	≡ 5 h. 15 m.-6 h.	
7	14.4	15.4	15.6	15.1	89.3	90.9	90.5	94.8	88.6	90.8	88.4	100	98	91	0.2	● 7 h. 45 m.	
8	14.6	13.8	12.7	13.6	89.9	93.4	90.7	96.0	89.3	91.9	89.0	98	84	89	—	≡ over sea a.	
9	09.9	09.9	10.6	10.2	91.3	94.1	91.2	x 96.9	x 89.5	x 92.6	87.2	93	83	93	1.1	● 8 h. 45 m.	
10	11.2	12.4	13.0	12.2	90.5	93.0	90.3	94.1	89.0	91.4	87.4	93	72	91	—	—	
11	12.0	13.6	14.0	13.2	90.6	94.9	89.7	95.0	89.0	91.8	87.9	92	57	93	—	—	
12	11.9	10.7	09.9	10.4	89.2	91.0	88.6	92.2	87.8	89.8	86.2	94	80	92	—	● 0 13 h.	
13	08.2	07.5	09.5	08.4	88.1	90.2	86.7	91.5	86.3	88.6	79.6	96	70	87	4.9	● 8 h. 20 m.	
14	10.6	11.5	11.4	11.1	89.1	92.1	88.3	92.6	86.4	89.7	80.3	87	66	86	—	● showers after 6 h.	
15	10.2	10.3	10.4	10.3	87.7	91.0	87.8	92.0	87.2	89.1	84.5	90	70	89	0.4	—	
16	10.2	11.2	11.4	03.0	89.0	92.3	87.3	93.6	86.8	89.8	82.5	82	65	85	—	—	
17	11.5	12.0	13.2	12.3	88.6	91.3	87.0	93.0	89.0	91.8	78.5	76	72	92	—	—	
18	11.9	11.8	11.6	11.8	88.1	89.6	87.5	93.0	85.4	88.7	77.3	94	83	86	—	—	
19	12.4	13.2	14.4	13.4	88.3	93.0	88.1	94.3	84.7	89.7	77.7	90	61	89	—	—	
20	16.0	16.3	17.0	16.4	87.2	93.6	86.9	94.6	85.1	89.5	77.8	98	59	93	—	—	
21	17.2	18.2	18.7	18.0	88.1	91.1	88.1	91.9	85.9	89.0	77.8	88	66	83	—	—	
22	19.6	21.4	21.8	21.0	88.1	91.1	87.4	92.4	86.5	89.1	81.3	83	70	88	—	—	
23	21.6	21.0	20.0	21.0	87.5	93.4	88.0	94.6	85.0	89.7	78.9	94	62	88	—	—	
24	18.3	17.4	17.1	17.5	88.7	94.1	88.5	94.8	86.0	90.4	79.5	85	58	90	—	—	
25	16.2	15.6	15.5	15.8	87.8	95.2	89.1	96.2	84.9	90.6	76.7	97	59	79	—	d. 7 h.	
26	13.8	12.0	11.5	12.4	89.5	95.2	90.0	95.9	88.2	91.8	84.3	90	56	82	—	—	
27	10.6	09.0	08.7	09.4	89.0	95.7	89.8	96.3	88.7	91.9	85.4	93	59	81	—	—	
28	06.8	05.5	04.6	05.6	89.0	91.1	89.2	92.9	88.2	90.1	85.2	87	77	74	—	● 0 8 h. 45 m. Dull with T in afternoon.	
29	03.5	05.1	08.0	05.5	87.7	90.0	86.9	93.0	85.4	88.6	76.8	84	93	91	4.5	● 12 h.	
30	12.4	15.9	17.0	15.1	86.0	89.0	85.4	n 90.0	84.8	n 87.0	80.5	66	n 55	76	—	—	
31	16.8	17.0	15.8	16.6	86.4	89.1	85.0	91.8	n 83.5	87.2	n 75.8	83	69	81	—	—	
Means	11.2	11.7	12.1	11.7	88.6	92.0	88.4	93.4	86.8	89.8	82.4	89	71	87	28.1	—	
Normal	10.3	10.3	10.6	10.4	89.0	92.4	88.8	93.3	87.1	90.1	83.9	83	66	82	56.9	—	

JERSEY (ST LOUIS OBSERVATORY).

Day.	Wind Direction and Force (0-12 on the Beaufort Scale).			Mean.	Sunshine.		Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming.												Mean Amount.				
					Total.	Per cent. of Possible.	Upper.				Lower.				Tenths.	Upper.		Lower.					
							Type.	Direction.	Type.	Direction.	Type.	Direction.	Type.	Direction.									
1	Dir. (12)	Dir. (12)	Dir. (12)	hr.	%	Tenths.	Type.	Direction.	Type.	Direction.	Tenths.	Type.	Direction.	Type.	Direction.	Type.	Direction.	Type.	Direction.	6.7			
2	SSW	SSE	SSW	4	3.0	9.9	66	10	..	..	Nb.	SSW	4	..	..	Fr.-Cu.	SSW	6	..	..	6.7		
3	SSW	SW	WSW	6	6.0	5.8	39	8	..	..	Cu.-Nb.	SW	8	..	..	Cu.-Nb.	SW	5	..	..	7.0		
4	W	WNW	WSW	5	5.7	4.6	30	10	..	..	Nb.	W	7	..	..	Cu.-Nb.	WNW	10	..	..	9.0		
5	W	W	—	0	2.7	9.6	64	7	..	..	Cu.	W	7	A.-Cu.	W	Cu.	W	8	A.-Cu.	..	..	7.3	
6	SSE	S	S	3	2.3	1.0	7	10	..	..	..	..	10	..	..	Nb.	..	..	10	..	..	10.0	
7	WSW	WSW	W	3	3.3	2.6	17	10	..	..	Nb.	W	7	..	..	Cu.-Nb.	WNW	10	..	..	9.0		
8	WSW	WSW	W	3	3.0	3.3	22	10	..	..	Nb.≡	..	10	..	..	Nb.≡	..	8	..	..	9.3		
9	WSW	ENE	NE	3	2.3	10.6	72	10	..	..	≡	..	5	A.-Cu.	SW	Cu.-Nb.	SW	5	Ci.-Cu.	..	..	6.7	
10	NE	ENE	NE	2	2.0	6.6	45	9	A.-Cu.	WSW	Cu.-Nb.	WSW	7	Ci.	..	Cu.-Nb.	..	0	..	..	..	5.3	
11	NW	SW	WSW	2	2.0	5.7	39	8	..	..	Cu.	NW	10	..	..	..	..	10	..	..	..	9.3	
12	W	WSW	WSW	2	2.3	9.7	66	6	..	..	Cu.	WSW	1	..	..	..	..	7	..	..	..	4.7	
13	SW	SW	WSW	2	2.7	2.8	20	10	..	..	Cu.-Nb.	WSW	10	..	..	Nb.	..	..	..	..	..	9.0	
14	—	NNE	NW	2	1.3	5.4	37	10	..	..	Nb.	..	6	A.-Cu.	W	..	..	0	..	..	..	5.3	
15	WSW	WSW	WSW	3	3.0	13.2	91	5	..	..	Cu.	W	4	Ci.	W	..	..	0	..	..	..	3.0	
16	WSW	WSW	W	3	3.7	9.4	65	7	..	..	Cu.-Nb., Nb.	WNW	6	..	..	Cu.	W	1	..	..	..	4.7	
17	WNW	W	W	2	3.0	13.1	91	6	..	..	Cu.	NW	5	A.-Cu.	NW	Cu.	WNW	0	..	..	..	3.7	
18	W	WSW	NW	1	2.7	11.7	81	4	..	..	Cu.	WNW	6	..	..	Cu.	WNW	0	..	..	..	3.3	
19	—	NW	NE	2	1.0	8.4	60	7	..	..	Cu.	WSW	6	A.-Cu.	..	Cu.-Nb.	..	0	..	..	..	4.3	
20	NE	NNE	NNE	2	1.7	12.9	91	0	..	..	..	..	1	..	..	Cu.	..	0	..	..	..	0.3	
21	—	WSW	—	0	1.0	13.9	99	0	..	..	..	..	1	..	..	Cu.	..	0	..	..	..	0.3	
22	NNW	NW	NNW	4	3.7	7.8	56	7	..	..	Cu.-Nb.	NNW	10	..	..	St.-Cu.	NW	5	Ci.	..	..	..	7.3
23	NNW	N	NNE	3	3.0	11.6	83	6	Ci.	..	Cu.	N	5	Ci.	WSW	Cu.	N	0	..	..	..	3.7	
24	—	SW	NE	3	1.7	12.7	91	5	..	..	Cu.	SW	4	..	..	Cu.	WNW	0	..	..	..	3.0	
25	NE	NE	NE	3	2.3	13.1	94	6	Ci.	W	..	..	0	..	..	..	..	1	Ci.	..	..	..	2.3
26	NE	NE	NE	3	2.7	11.1	80	10	..	..	..	..	4	..	..	Cu.	SE	2	Ci.	..	..	..	5.3
27	NE	NE	NE	4	3.7	13.8	100	3	Ci.	W	..	..	0	..	..	..	..	0	..	..	..	..	1.0
28	NE	ENE	NE	4	4.0	13.8	100	2	..	..	Cu.	ENE	0	..	..	..	..	2	Ci.	..	..	..	1.3
29	NNE	N	N	2	3.0	0.4	3	6	Ci., A.-Cu.	SSW	..	..	9	..	..	Cu.	SW	10	..	..	..	..	8.3
30	NW	W	NNE	3	2.7	1.9	14	8	..	..	Cu.	NW	10	..	..	Nb.	NW	10	..	..	..	..	9.3
31	NNW	NNW	WNW	2	3.0	11.9	88	3	..	..	Cu.	NNW	3	..	..	Cu.	NW	0	..	..	..	..	2.0
Means	2.5	3.2	2.6	2.8	266.6	60	6.6	—	—	—	—	5.6	—	—	—	—	—	3.8	—	—	—	—	5.4
Normal	3.3	3.8	3.2	3.4	249.9	56	6.3	—	—	—	—	5.2	—	—	—	—	—	4.5	—	—	—	—	

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

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Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max, Min, Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0h to 24h, and REMARKS. Includes data for days 1-30 and Means/Normal values.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale) (7h, 14h, 21h), Mean, Sunshine (Total, Per cent. of Possible), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower), and Mean Amount. Includes data for days 1-30 and Means/Normal values.

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Table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS. Includes data for days 1-31 and Means/Normal values.

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In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6 W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Day.	Air Pressure at Station Level.				Air Temperature in Degrees Absolute.						Min. Temp. on Grass.	Percentage of Humidity.				Rain 0 h. to 24 h.	REMARKS.
	7 h.	14 h.	21 h.	Mean of 3 Readings.	7 h.	14 h.	21 h.	Max.	Min.	Mean of 3 Readings.		7 h.	14 h.	21 h.	Mean.		
1	mb. 85.8	mb. 86.3	mb. 92.8	mb. 88.3	200+	200+	200+	200+	200+	200+	200+	84	75	84	81	3.0	< ● 6 h. 30 m. ● squalls afternoon.
2	98.7	99.2	96.8	98.3	82.8	82.0	84.9	85.3	81.5	83.3	79.9	94	97	100	97	26.2	≡ ● 14 h.
3	95.4	99.4	90.0	98.3	84.1	85.1	83.4	86.0	82.6	84.2	81.1	100	86	90	92	8.2	≡ until 12 h.
4	94.0	90.4	92.0	92.2	85.3	85.9	85.0	86.5	82.7	85.1	79.2	98	90	76	88	3.2	≡ 12 h.—15 h. ● 13 h.
5	96.6	91.9	83.9	90.8	82.2	83.9	84.1	85.6	81.9	83.5	78.5	93	100	88	94	5.0	≡ 12 h.—15 h. ● 13 h.
6	81.9	84.3	91.5	85.9	83.4	83.1	83.4	83.9	82.4	83.2	79.9	81	97	75	84	10.5	● 10 h. 30 m. ≡ till 15 h.
7	97.4	90.4	90.6	92.8	82.7	83.0	85.2	85.6	82.4	83.8	78.7	88	98	90	92	8.0	≡ 7 h.—12 h.
8	98.0	90.8	93.0	90.6	82.6	84.0	81.5	84.3	80.0	82.5	77.3	90	64	81	78	—	≡ 7 h.—12 h.
9	99.2	95.5	94.6	96.4	82.1	85.2	85.3	85.5	81.8	84.0	73.7	100	97	96	98	16.8	≡ 7 h.—12 h.
10	94.0	97.5	96.6	96.0	85.3	85.1	83.4	86.0	82.7	84.5	83.6	95	80	96	90	18.1	≡ 7 h.—12 h.
11	93.2	98.2	99.0	96.8	81.0	83.5	81.1	85.5	80.4	82.3	79.2	89	81	96	89	17.6	≡ 7 h.—12 h.
12	96.8	94.3	15.2	95.5	76.8	77.2	77.2	80.0	73.5	76.9	71.6	91	65	52	69	12.5	Much * till 11 h.
13	22.8	24.8	25.6	24.4	77.6	78.4	78.6	80.4	77.0	78.4	71.8	51	65	61	59	0.5	● 13 h. and 14 h. 30 m.
14	21.9	16.6	11.9	16.8	79.4	80.9	80.1	81.5	76.6	79.7	70.1	65	75	88	76	3.0	● began 15 h.
15	00.2	94.8	95.2	96.7	79.6	81.3	81.6	82.3	79.4	80.8	78.3	90	90	85	88	6.0	Frequent ●.
16	94.3	94.3	93.2	93.9	80.1	81.8	79.8	82.2	79.6	80.7	75.5	93	n42	93	76	—	● 18 h. 30 m.
17	97.1	99.0	92.8	99.6	79.6	80.6	79.7	81.0	78.5	79.9	76.3	88	73	94	85	0.8	● 16 h.
18	97.2	10.2	14.3	10.6	79.1	79.9	80.4	80.8	79.0	79.8	72.3	82	72	92	82	0.9	● 22 h. ● shower 20 h.
19	10.6	21.1	21.9	20.8	79.6	79.1	78.6	80.7	78.4	79.3	75.7	80	80	83	81	0.3	● 22 h. ● shower 20 h.
20	21.2	19.8	19.4	20.2	77.9	80.1	79.5	80.5	77.5	79.1	73.0	92	68	70	77	—	● 14 h. and 21 h.
21	15.5	12.0	10.7	12.7	81.0	82.1	82.5	82.7	78.9	81.4	74.0	87	88	93	89	2.5	● 15 h. 30 m. q. n.
22	09.8	07.1	07.5	08.0	82.8	83.3	81.9	84.4	80.7	82.6	79.1	91	83	89	88	4.2	● 15 h. 30 m. q. n.
23	94.4	92.0	85.0	90.4	82.1	83.1	83.7	83.9	80.2	82.6	75.6	73	77	100	83	16.0	● all day.
24	79.5	78.4	79.4	79.1	83.6	84.1	83.1	84.6	80.7	83.2	79.8	89	74	79	81	6.4	● all day.
25	75.4	76.2	82.2	77.9	81.8	83.1	83.0	83.5	80.5	82.4	77.8	89	73	73	78	2.4	● all day.
26	96.7	91.8	98.3	99.0	82.2	82.1	82.5	83.6	80.6	82.2	77.8	80	85	95	87	6.5	● all day.
27	95.5	90.4	95.2	90.4	86.3	84.1	82.7	86.3	82.5	84.4	79.3	74	61	74	70	—	● 11 h. 15 m.
28	96.0	94.0	91.4	93.8	82.1	82.0	82.5	82.7	81.1	82.1	78.2	85	95	86	89	—	● 11 h. 15 m.
29	92.8	95.5	99.6	96.0	82.5	83.9	81.8	84.5	81.7	82.9	78.3	77	80	84	80	0.2	● 11 h. 15 m.
30	90.7	91.8	93.9	92.2	81.9	82.3	82.6	84.0	81.1	82.4	77.0	89	95	94	93	0.4	● 11 h. 15 m.
31	97.1	98.8	95.5	96.4	83.6	84.0	82.7	84.2	80.8	83.1	78.6	73	77	80	77	0.2	● 11 h. 15 m.
Means	99.3	99.6	99.8	99.8	81.7	82.5	82.1	83.6	80.2	82.0	77.0	86	80	85	84	179.4	● 8 h. 30 m. ● 2 shower 10 h.
Normal	96.3	96.3	97.0	96.6	80.0	81.1	80.3	82.0	78.6	80.4	75.3	84	80	82	82	100.7	

JERSEY (ST LOUIS OBSERVATORY).

Day.	Wind Direction and Force (0-12 on the Beaufort Scale).			Mean.	Sunshine.																Mean Amount.	
					Total.		Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming.															
	Per cent. of Possible.		Upper.				Lower.				Upper.				Lower.							
	7 h.	14 h.	21 h.	7 h.	14 h.	21 h.	7 h.	14 h.	21 h.	7 h.	14 h.	21 h.	7 h.	14 h.	21 h.	7 h.	14 h.	21 h.				
1	Dir. (12)	Dir. (12)	Dir. (12)	hr.	%	8	..	..	Cu.-Nb., Nb.	SW	6	..	..	Cu.-Nb.	W	1	..	..	..	..	5.0	
2	SSW 6	SSW 6	SSW 6	1.4	17	8	..	..	Nb.	..	10	..	..	Nb.	SSW	10	..	..	Nb.	..	10.0	
3	SSW 4	SSW 4	SSW 4	3.7	0.0	0	10	..	Nb. ≡	..	6	Ci.	WNW	Cu.-Nb.	W	7	..	..	..	..	7.7	
4	SSW 5	SSW 5	SSW 5	6.0	0.3	3	10	..	Nb.	..	10	..	..	St.-Cu.	SW	10	..	..	..	..	10.0	
5	SSW 4	SSE 3	SSE 4	3.7	0.0	0	6	A.-Cu.	SW	..	10	..	..	Nb. ≡	..	9	..	..	..	..	8.3	
6	WSW 7	SW 5	SW 6	6.0	1.4	17	8	..	..	Cu.-Nb.	SW	8	A.-Cu.	..	Nb.	SW	2	..	..	..	6.0	
7	SSW 5	S 4	WSW 7	5.3	0.0	0	7	..	..	St.-Cu.	SW	10	..	..	Nb. ≡	..	10	..	..	Nb.	9.0	
8	WSW 4	NW 3	ENE 2	3.0	3.8	46	2	..	..	Cu.	WSW	3	Ci.	..	Cu.	..	10	..	..	..	5.0	
9	ESE 2	SW 6	SW 5	4.3	0.0	0	10	..	..	Nb. ≡	..	10	..	..	Nb.	SW	10	..	..	..	10.0	
10	SSW 6	SW 5	S 1	4.0	1.0	12	10	..	..	..	7	Ci.-Cu.	..	Cu.-Nb.	WSW	10	..	..	Nb.	9.0		
11	NW 4	SSW 5	WNW 2	3.7	3.7	46	10	..	..	Nb.	..	4	..	..	..	..	10	..	..	Nb.	8.0	
12	NW 1	N 4	N 4	3.0	0.5	4	10	..	..	Nb.	..	9	..	..	Cu.-Nb.	N.	3	A.-Cu.	..	Cu.	7.3	
13	NNW 3	NNW 3	NW 3	2.7	3.1	38	3	..	..	Cu.-Nb.	NW	9	..	..	..	..	8	..	..	..	6.7	
14	SW 4	SSW 6	SSW 5	5.0	0.2	2	6	Ci.-Cu.	SW	..	10	..	..	Nb.	SW	10	..	..	..	Nb.	8.7	
15	S 6	S 5	S 5	3.5	0.0	0	10	..	..	Nb.	SSW	10	..	..	Nb.	..	3	..	..	..	7.7	
16	SSW 3	SSW 4	S 4	3.7	5.5	67	1	..	..	..	3	Ci.	..	..	..	..	6	..	..	Cu.-Nb.	S	3.3
17	..	NE 1	NNE 2	1.0	3.1	38	10	..	..	..	6	Ci., A.-Cu.	..	..	..	..	8	..	..	Nb.	NE	3.0
18	NE 4	NNE 4	NNE 4	4.0	0.0	0	7	..	..	..	10	..	..	..	..	..	10	..	..	Nb.	9.0	
19	ENE 5	NE 4	NE 4	4.3	3.1	38	5	..	..	Cu.	NE	3	..	..	..	..	9	..	..	Cu.-Nb.	NE	5.7
20	ENE 1	NNW 3	N 2	2.0	2.8	34	10	..	..	..	4	Ci.-Cu.	NE	Cu.	N	8	A.-Cu.	N	..	..	7.3	
21	NW 3	W 4	WNW 4	3.7	0.0	0	10	..	..	..	10	..	..	Nb.	WNW	10	..	..	..	..	10.0	
22	W 3	WSW 4	SW 5	4.0	0.3	4	8	..	..	Nb.	WNW	9	A.-Cu.	W	Nb.	..	10	..	..	Nb.	SW	9.0
23	WSW 5	WSW 5	SW 5	6.5	1.4	17	5	A.-Cu.	W	Cu.-Nb.	NW	10	..	..	Nb.	W	10	..	..	Nb.	..	8.3
24	WSW 4	SW 6	SW 6	5.3	3.0	37	1	..	..	Cu.	..	6	..	..	Cu.	W	5	..	..	..	4.0	
25	SSW 5	SSW 3	W 3	6.4	5.1	63	10	..	..	Nb.	..	2	..	..	..	..	9	..	..	..	7.0	
26	WSW 6	SW 4	SW 4	6.5	4.8	21	9	A.-Cu.	..	Nb.	WSW	10	A.-Cu.	..	Nb.	..	10	..	..	..	Nb.	9.7
27	SW 7	WSW 7	SW 7	6.7	5.1	62	10	..	..	..	3	..	..	Fr.-Cu.	WSW	3	..	..	..	..	5.3	
28	SSW 4	SE 3	ESE 2	3.9	0.0	0	10	..	..	..	10	..	..	..	..	..	8	..	..	..	9.3	
29	ESE 3	S 3	SW 4	3.3	1.6	19	10	..	..	..	7	..	..	..	..	..	10	..	..	..	6.0	
30	SSW 4	S 3	S 3	4.3	2.5	30	8	..	..	..	10	..	..	..	Nb.	SSW	10	..	..	..	9.3	
31	S 6																					

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming. Table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (Upper/Lower), and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L.:—H=54 m. H<sub>b</sub>=55 m. Above Ground:—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0 h. to 24 h., and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale), Sunshine (Total, Percent. of Possible, Tenth.), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower, Tenth.), and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain, and REMARKS. Includes daily observations from 1 to 31 and mean/normal values.

JERSEY (ST LOUIS OBSERVATORY).

Cloud and wind data table with columns for Day, Wind Direction and Force, Sunshine, Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming, and Mean Amount. Includes daily observations from 1 to 31 and mean/normal values.

In the column for air pressure the initial 9 or 10 is omitted.



JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>1</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Day.	Air Pressure at Station Level.				Air Temperature in Degrees Absolute.						Min. Temp. on Grass.	Percentage of Humidity.				Rain 0 h. to 24 h.	REMARKS.	
	7 h.	14 h.	21 h.	Mean of 3 Readings.	7 h.	14 h.	21 h.	Max.	Min.	Mean of 3 Readings.		7 h.	14 h.	21 h.	Mean.			
	mb.	mb.	mb.	mb.	a.	a.	a.	a.	a.	a.	a.	%	%	%	%	mm.		
1	21.2	18.2	16.8	18.7	200+	200+	200+	200+	200+	200+	200+	89	61	76	75	—	Very fine.	
2	13.8	13.1	13.6	13.5	79.2	85.3	80.6	85.5	79.0	82.0	82.0	75.3	91	72	72	78	—	Very fine.
3	12.3	11.8	10.6	11.6	80.8	83.7	79.6	85.0	78.9	81.6	69.6	90	73	91	85	—	Very fine.	
4	10.8	11.4	10.6	11.0	80.3	81.7	79.5	82.6	79.3	80.7	73.2	82	63	75	73	—		
5	10.4	11.2	13.2	11.6	79.7	80.5	79.7	81.9	78.8	80.1	73.5	77	65	77	73	1.9	● 20 h. 15 m.	
6	13.0	10.0	06.4	09.8	78.5	80.3	78.3	82.0	77.2	79.3	75.1	77	77	89	81	—	● 0 18 h.	
7	06.6	08.4	13.1	09.4	78.1	82.0	79.1	83.0	75.6	79.6	70.3	92	67	83	81	—	Fine.	
8	14.0	14.4	15.0	14.4	80.0	83.1	79.9	84.8	79.2	81.4	75.0	83	52	77	71	—	Cloudless sky.	
9	15.4	16.8	17.6	16.6	81.0	83.5	80.4	85.2	78.0	81.6	72.8	82	81	77	80	—		
10	19.2	17.2	13.5	16.7	81.1	83.4	80.0	84.4	78.9	81.6	75.2	58	46	81	62	—	Very fine.	
11	07.1	07.9	10.6	08.4	81.4	83.0	80.6	84.6	78.9	81.7	71.5	94	58	74	75	0.1	d. 6 h. 30 m.	
12	06.2	00.8	00.8	02.7	80.6	82.9	82.5	83.1	79.8	81.8	74.5	89	98	92	93	3.1	● 6 h. 15 m.      ● 9 h. 45 m.      ≡ from	
13	99.2	99.4	01.5	00.0	82.0	83.5	80.6	84.6	77.8	81.7	79.1	78	64	64	69	—	● 11 h. 40 m.      [13 h.      ≡ 16 h.	
14	07.0	09.1	11.6	09.2	81.1	82.1	80.5	84.5	78.4	81.3	74.9	63	68	72	68	2.1	● 5 h. 45 m.      ● 7 h. 10 m.	
15	14.4	16.3	18.2	16.3	80.1	83.2	80.7	84.5	79.0	81.5	75.6	70	63	76	70	0.5	● 12 h. 15 m.      ⊓ 20 h. 30 m.	
16	17.0	14.6	10.3	13.9	80.0	81.0	82.2	83.1	77.4	80.7	70.7	85	86	100	90	3.9	● 11 h. 45 m.      ≡ ● from 15 h. 30 m.	
17	03.2	00.6	98.2	00.7	82.3	82.7	81.3	84.6	80.8	82.3	81.3	83	91	78	84	2.4	Frequent ● showers.	
18	95.4	96.0	95.5	95.6	81.2	83.3	80.4	84.1	79.0	81.6	77.2	72	61	75	69	x 4.4	● shower 11 h. 45 m.      ● 21 h.	
19	92.0	92.3	90.7	91.6	80.0	81.0	79.6	83.0	77.4	80.2	75.0	70	75	79	75	1.7	● 4 h. and 14 h.      ● showers 20 h. 45 m.	
20	89.2	91.9	92.6	91.2	79.6	83.1	81.1	84.0	78.1	81.2	74.3	66	61	73	67	0.3	● shower 11 h. 15 m.	
21	92.8	90.6	89.0	90.7	80.4	80.4	79.8	82.1	79.6	80.5	76.4	77	91	92	87	2.4	Continuous ●.	
22	89.8	96.4	03.8	96.7	80.6	83.2	80.4	84.4	79.0	81.5	77.2	91	69	70	77	1.6	● in morning.	
23	10.2	12.8	14.8	12.7	81.4	85.3	82.0	86.0	79.0	82.7	73.1	83	69	85	79	—	● shower 5 h. 15 m.	
24	14.4	14.7	15.4	14.8	81.4	86.3	84.4	88.0	81.0	84.2	77.3	93	66	71	77	—	● 6 h. 45 m.	
25	15.8	15.0	14.6	15.1	83.2	91.1	85.0	92.1	81.2	86.5	75.8	82	46	69	66	—	Fine.	
26	12.8	12.2	12.2	12.4	86.1	93.5	87.1	x 94.8	x 83.6	x 89.0	78.8	74	n 42	79	65	—	⊕ 14 h.	
27	12.7	12.7	12.8	12.8	85.1	88.0	83.6	89.6	83.1	85.9	77.9	78	65	80	74	—	⊕ 17 h.	
28	11.2	09.5	09.2	09.9	85.0	92.3	86.3	93.5	82.5	87.9	79.0	71	60	66	66	—	⊓ in distance between 9 h. and 12 h.	
29	08.8	06.6	06.7	07.4	85.3	91.6	85.3	92.0	83.3	87.5	79.2	71	48	64	61	—	Fine. [S.E. sky overcast 11 h. 45 m.]	
30	04.7	03.4	02.6	03.5	85.9	90.5	85.7	92.0	82.6	87.3	79.9	72	60	78	70	—	Fine.	
Means	08.0	07.8	08.0	08.0	81.4	84.6	81.6	85.9	79.5	82.6	75.4	79	67	78	75	24.4		
Normal	08.7	08.7	09.1	08.8	81.1	84.3	81.4	85.2	79.6	82.3	75.9	82	66	81	76	45.7		

JERSEY (ST LOUIS OBSERVATORY).

Day.	Wind Direction and Force (0-12 on the Beaufort Scale).			Mean.	Sunshine.		Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming.														Mean Amount.
					Total.	Per cent. of Possible.	Upper.		Lower.		Tenths.	Upper.		Lower.		Tenths.	Upper.		Lower.		
	7 h.	14 h.	21 h.	hr.	%	Type.	Direction.	Type.	Direction.	7 h.	14 h.	14 h.	14 h.	14 h.	14 h.	21 h.	21 h.	21 h.	21 h.		
1	Dir. (0-12)	Dir. (0-12)	Dir. (0-12)	hr.	%	..	..	..	..	0	..	..	..	..	..	0	..	..	..	0.0	
2	NNE	NE	NE	4	3.7	12.8	100	0	..	..	0	..	..	..	..	0	..	..	..	0.0	
3	NE	S	N	3	2.3	12.9	100	0	..	..	0	..	..	..	..	0	..	..	..	0.7	
4	N	SW	W	1	1.3	11.2	87	0	..	..	0	..	..	..	..	0	..	..	..	4.3	
4	NW	NNW	NW	3	4.0	8.9	69	10	..	..	3	..	..	Cu.-Nb.	N	0	..	..	..	7.0	
5	N	N	NNE	4	4.0	9.8	75	7	..	..	4	Ci.	ENE	..	..	10	..	..	Nb.	..	
6	NNE	N	N	2	3.3	3.4	26	8	..	..	8	A.-Cu.	ENE	Cu.	NE	6	..	..	..	7.3	
7	NNE	NE	NE	3	2.7	12.0	91	1	..	..	3	..	..	Cu.	ENE	4	..	..	..	2.7	
8	NNE	N	NW	3	3.3	13.2	100	0	..	..	0	..	..	..	..	0	..	..	..	0.0	
9	NNW	NNE	NNW	2	2.3	8.4	63	2	Ci.-Cu.	NE	6	Ci.	NW	Cu.	NW	0	..	..	..	2.7	
10	NE	NNW	N	2	3.0	13.3	100	1	..	..	0	..	..	..	..	0	..	..	..	0.3	
11	WSW	WNW	WNW	3	4.3	9.5	71	10	..	..	3	..	..	Cu.	NW	2	Ci.	..	..	5.0	
12	SW	WSW	WSW	6	5.3	0.0	0	10	..	..	10	..	..	Nb. ≡	WSW	6	..	..	Cu.-Nb.	WNW	8.7
13	WSW	WSW	W	7	6.3	10.6	79	6	A.-Cu.	W	1	..	..	Nb.	..	4	..	..	Cu.	..	3.7
14	W	W	WNW	4	5.0	11.4	84	6	A.-Cu.	NW	8	..	..	Nb.	WNW	3	Ci.	..	..	..	5.7
15	WNW	W	WNW	2	3.0	8.1	58	3	St.	..	7	A.-Cu.	NNW	Cu.-Nb.	NW	5	A.-Cu.	NNW	..	..	5.0
16	SSW	S	WSW	4	2.7	0.2	1	7	A.-Cu.	..	10	..	..	Nb.	..	10	..	..	≡	..	9.0
17	WSW	WSW	W	6	5.3	1.7	12	7	..	Nb.	6	..	..	Cu.-Nb.	W	8	..	..	Cu.-Nb.	..	7.0
18	WNW	W	W	5	5.7	9.2	67	6	..	Cu.-Nb., Nb.	6	A.-Cu.	WNW	..	WNW	9	..	..	..	..	7.0
19	W	WSW	WSW	4	5.7	7.4	53	5	..	..	9	..	..	Nb.	..	5	..	..	Cu.-Nb.	..	6.3
20	WSW	WSW	SW	3	3.7	11.6	84	3	Ci.-Cu., A.-Cu.	W	2	..	..	Cu.	WSW	2	..	..	..	..	4.7
21	SW	S	NE	3	3.0	1.4	10	7	..	..	10	..	..	Nb.	S	10	..	..	..	..	9.0
22	NW	NW	NW	4	4.0	8.8	63	10	..	..	5	..	..	Cu.	N	0	..	..	..	..	5.0
23	W	WSW	SW	1	2.3	8.7	61	4	..	Cu.	6	..	..	Fr.-Cu.	WSW	8	..	..	..	..	0.0
24	SSW	SSW	SSW	3	3.3	3.7	26	10	A.-Cu.	..	6	Ci.	SW	..	..	3	..	..	..	..	6.3
25	SE	S	ENE	4	3.0	14.2	100	2	..	..	3	Ci.	WNW	..	..	1	..	..	..	..	2.0
26	ENE	SSW	NE	3	2.7	12.0	84	5	A.-Cu.	SW	6	Ci.-St.	..	..	..	2	..	..	..	..	4.3
27	N	NNW	N	3	3.3	14.3	100	2	..	..	3	Ci.	SW	..	..	0	..	..	..	..	1.7
28	NNE	NE	NE	5	4.3	11.6	80	2	A.-Cu.	..	7	A.-Cu.	E	..	..	2	..	..	..	..	3.7
29	NE	E	NE	6	5.7	14.3	99	2	..	..	0	..	..	..	..	2	..	..	..	..	1.3
30	ENE	ENE	ENE	4	4.7	13.9	96	1	..	..	3	..	..	..	..	3	..	..	..	..	2.3
Means	3.5	4.3	3.6	3.8	278.5	68	4.6	—	—	—	4.5	—	—	—	—	3.8	—	—	—	—	4.3
Normal	3.6	4.0	3.6	3.7	216.8	53	5.9	—													

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0 h. to 24 h., and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale), Sunshine (Total, Per cent. of Possible), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming, and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>0</sub>=55 m. Above Ground :—h<sub>1</sub>=1.48 m. h<sub>2</sub>=1.72 m. h<sub>a</sub>=8 m.

Day.	Air Pressure at Station Level.				Air Temperature in Degrees Absolute.						Min. Temp. on Grass.	Percentage of Humidity.				Rain 0 h. to 24 h.	REMARKS.
	7 h.	14 h.	21 h.	Mean of 3 Readings.	7 h.	14 h.	21 h.	Max.	Min.	Mean of 5 Readings.		7 h.	14 h.	21 h.	Mean.		
1	mb. 14.7	mb. 13.9	mb. 12.4	mb. 13.8	200+	200+	200+	200+	200+	200+	200+	88	62	94	81	mm. 0.4	⊕ 12 h. ● 18 h. 50 m.
2	12.6	12.8	11.9	12.4	85.1	89.9	85.5	91.0	82.1	86.7	73.7	81	64	80	75	—	—
3	11.5	12.8	12.4	12.3	84.5	86.4	83.3	88.0	81.8	84.8	77.6	n 50	73	65	—	—	—
4	07.6	02.4	06.2	02.2	84.3	84.8	85.3	n 85.8	81.4	84.3	75.1	71	87	94	85	2.6	● 4 h. 15 m. ● 11 h. 40 m., 13 h. 30 m., [and 21 h.
5	94.2	96.6	00.0	97.0	84.1	86.7	84.3	88.0	83.0	85.2	80.9	89	70	84	81	0.7	● 6 h. 45 m.
6	01.0	02.4	03.1	02.2	84.1	87.0	84.2	88.6	82.0	85.1	80.5	75	57	81	71	2.9	● 7 h. 10 m. and 10 h.
7	01.5	01.6	02.4	01.9	84.2	86.2	83.7	88.4	82.0	84.9	78.7	81	54	69	68	—	● 7 h.
8	02.3	02.6	02.7	02.6	84.6	85.6	82.0	87.4	79.5	83.8	n 71.8	61	59	78	66	—	Ci. radiating from W. and S.W. 7 h.
9	05.0	08.2	10.7	08.0	84.2	88.2	83.4	88.5	79.8	84.8	72.1	75	53	73	67	0.2	● 4 h. Ci. radiating from W. and [S.S.W. 21 h.
10	14.3	17.0	18.8	16.7	85.2	88.4	84.9	89.3	81.2	85.8	76.2	73	65	72	70	—	—
11	18.2	16.0	15.6	16.6	85.1	87.9	83.6	89.5	82.0	85.6	76.5	76	60	86	74	—	—
12	13.0	10.7	08.2	10.6	84.6	85.7	82.9	87.6	82.3	84.6	77.4	74	60	79	71	—	—
13	05.5	06.6	08.3	06.8	82.8	87.2	85.5	88.5	82.6	85.3	75.7	90	59	75	75	—	—
14	11.0	13.0	14.2	12.7	84.4	85.0	82.5	86.5	79.6	n 83.6	77.6	71	74	85	77	—	—
15	13.6	13.6	14.4	13.9	85.0	89.4	84.4	91.7	n 79.2	85.9	73.2	77	64	83	75	—	—
16	14.6	14.7	12.8	14.0	84.6	88.0	84.9	88.5	82.6	85.7	77.7	68	57	81	69	—	—
17	11.6	09.6	09.4	10.2	85.0	88.0	85.1	89.7	84.3	86.4	82.0	77	68	83	76	—	—
18	08.2	08.6	08.6	08.4	84.1	88.3	83.3	89.0	82.2	85.4	82.1	86	67	91	81	—	—
19	08.3	11.8	13.9	11.2	85.4	87.5	84.3	88.3	82.3	85.6	74.9	83	62	84	76	—	—
20	15.9	17.4	18.0	17.1	86.0	90.2	84.7	91.0	82.7	86.9	76.3	61	52	86	66	—	—
21	17.8	17.4	15.6	17.0	85.5	88.5	85.7	89.5	82.3	86.3	73.1	82	63	82	76	—	—
22	10.7	07.2	06.4	08.2	87.1	90.9	89.3	x 92.5	83.2	x 88.6	78.5	77	66	68	70	0.2	⊕ 9 h. 30 m. ● 17 h. 15 m.
23	06.2	06.3	07.2	06.6	87.6	89.1	86.8	91.9	x 85.8	88.2	84.8	96	80	95	90	x 4.2	⊕ 6 h. 30 m. ● 11 h. 50 m. and 13 h.
24	07.6	10.4	10.4	09.5	85.4	87.5	85.9	90.3	84.7	86.8	81.9	95	79	90	88	1.0	● 4 h. ● 13 h. 45 m. ● 16 h. 45 m. ● began 4 h. 40 m. and continued during [morning.
25	10.6	10.6	10.3	10.4	86.7	89.8	87.1	91.0	84.0	87.7	78.9	89	68	89	82	—	● shower 15 h. 40 m.
26	06.4	03.5	02.7	04.3	86.3	87.2	86.0	89.4	85.5	86.9	84.9	92	89	93	91	0.7	Rainy day.
27	01.9	02.4	02.2	02.2	86.1	86.4	86.1	88.0	85.3	86.4	82.4	96	96	93	95	1.5	● 4 h. 15 m.
28	03.2	06.2	08.4	05.9	85.8	88.9	85.8	90.5	84.8	87.2	84.0	93	74	83	83	0.3	Continuous ● from 4 h.
29	09.8	09.6	09.9	09.8	85.7	88.8	86.6	90.6	84.0	87.1	79.6	86	63	87	79	0.8	● 16 h. 30 m.
30	07.8	12.2	13.6	11.2	86.4	89.1	85.0	90.0	83.1	86.7	84.1	87	60	90	79	—	—
Means	08.9	09.3	09.4	09.2	85.2	87.8	84.9	89.3	82.6	86.0	78.4	81	66	83	77	15.5	—
Normal	10.4	10.6	10.7	10.6	86.6	89.9	86.2	91.1	84.5	87.7	81.5	84	67	83	78	48.8	—

JERSEY (ST LOUIS OBSERVATORY).

Day.	Wind Direction and Force (0-12 on the Beaufort Scale).			Mean.	Sunshine.		Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming.												Mean Amount.								
					Total.	Per cent. of Possible.	Upper.				Lower.				Upper.					Lower.							
	7 h.	14 h.	21 h.	hr.	%	Tenths.	Type.	Direction.	Type.	Direction.	Tenths.	Type.	Direction.	Type.	Direction.	Type.	Direction.	Type.	Direction.	Tenths.	Type.	Direction.	Type.	Direction.			
	Dir. (0-12)	Dir. (0-12)	Dir. (0-12)			7 h.	7 h.	7 h.	7 h.	7 h.	14 h.	14 h.	14 h.	14 h.	14 h.	21 h.	21 h.	21 h.	21 h.	21 h.	21 h.	21 h.	21 h.	21 h.	21 h.		
1	SW 3	W 3	WSW 4	3.3	13.1	82	3	6	Ci.-Cu.	W	Fr.-Cu.	SW	5	5	Ci.	WSW	..	..	..	..	10	..	..	..	..	6.0	
2	N 3	NW 3	NW 3	3.0	11.7	73	6	3	A.-Cu.	W	..	..	7	2	Ci., A.-Cu.	WSW	Cu.	WSW	..	2	..	..	..	..	5.0		
3	NW 3	NW 5	NW 3	3.7	12.6	79	7	7	..	..	Cu.	NNW	2	..	..	Cu.	NNW	..	2	..	..	..	..	3.7			
4	SW 4	SSW 5	SSW 5	5.0	1.8	1	8	10	A.-Cu.	SW	Cu.-Nb.	WSW	10	..	..	..	Nb.	SSW	..	10	..	..	..	..	9.3		
5	WSW 6	WSW 6	W 6	6.0	10.6	66	8	6	..	..	Cu.-Nb.	W	6	..	..	Cu.	W	..	7	..	..	..	Cu.-Nb.	W	7.0		
6	SW 5	W 5	WSW 4	4.7	7.9	49	10	3	..	..	Cu.-Nb.	W	3	..	..	Cu.	WSW	..	6	..	..	..	Cu.	WSW	6.3		
7	SW 4	WSW 4	WSW 3	3.7	7.0	44	6	7	A.-Cu.	SW	Cu.-Nb.	WSW	7	A.-Cu.	WSW	Fr.-Cu.	WSW	6	A.-Cu.	SW	6	A.-Cu.	SW	Cu.	WSW	6.3	
8	SW 2	N 2	NW 1	1.7	8.4	53	6	9	Ci.-Cu.	SW	Cu.	WSW	9	..	..	Cu.-Nb.	SW	6	Ci.	SW	6	Ci.	SW	Fr.-Cu	NW	7.0	
9	NW 3	WSW 4	NW 1	3.0	12.6	78	3	3	..	..	Cu.	NW	3	Ci.	NW	Cu.	NNW	4	Ci.	WNW	4	..	..	..	..	3.3	
10	NW 4	WNW 5	WNW 2	4.3	15.1	94	4	7	..	..	Cu.	NW	3	..	..	Cu.	WNW	8	..	..	8	..	..	Cu.-Nb.	NW	6.3	
11	WSW 3	WSW 3	NW 4	2.7	5.7	36	6	6	(Ci.-Cu. A.-Cu.)	(WNW)	Cu.	NW	6	A.-Cu.	..	Cu.	..	5	..	..	5	Ci.-St., A.-Cu.	N	..	..	5.7	
12	N 4	WNW 4	N 2	3.3	4.8	30	6	7	Ci.	NE	Cu.	N	7	..	..	Cu.	..	4	..	..	10	Ci., A.-Cu.	..	..	..	5.7	
13	N 3	N 4	WNW 2	3.3	6.4	40	10	1	..	..	Nb.	N	1	..	..	Cu.	..	10	..	..	..	A.-Cu.	..	Cu.-Nb.	..	7.0	
14	NNE 2	N 3	N 3	2.3	2.4	15	8	10	..	..	Cu.	NNE	10	..	..	..	..	0	..	..	..	..	..	..	..	6.0	
15	—	0 NW 1	NE 2	1.7	13.2	18	0	10	..	..	..	..	10	..	..	..	..	0	..	..	..	..	..	..	..	3.3	
16	ENE 5	ENE 6	ENE 4	5.7	9.9	61	6	4	..	..	Cu.	E	4	Ci.	W	..	..	5	A.-Cu.	..	..	..	..	..	..	..	5.0
17	ENE 6	ENE 5	ENE 6	5.3	7.1	46	10	8	..	..	..	..	8	..	..	..	..	7	..	..	..	..	..	..	..	8.3	
18	NE 5	NE 4	NE 5	4.0	5.3	33	10	7	..	..	Nb.	NE	7	..	..	Cu.	NE	0	..	..	..	..	..	..	..	5.7	
19	NW 3	NW 4	NNE 3	3.0	8.3	51	7	8	..	..	Cu.	NNW	8	..	..	(Cu.-Nb. NW)	..	1	..	..	..	..	..	..	..	5.3	
20	NW 3	WNW 4	WNW 2	3.3	14.7	91	0	6	..	..	..	..	6	A.-Cu.	WNW	Cu.	W	4	A.-Cu.	WNW	4	A.-Cu.	WNW	..	..	3.3	
21	WSW 2	SW 1	NW 3	1.0	7.4	46	8	7	..	..	Cu.-Nb.	W	7	A.-Cu.	..	..	..	8	A.-Cu.	..	..	..	..	..	..	..	7.7
22	S 4	SSW 1	—	0.3	5.4	33	4	10	Ci.-St.	..	..	..	10	A.-Cu.	SW	..	..	10	..	..	..	..	..	..	..	8.0	
23	SSW 3	SSW 3	SW 4	2.0	3.2	20	10	10	..	..	Nb.	SW	10	..	..	..	..	9	A.-Cu.	..	..	..	..	..	Nb.	SW	9.7
24	WSW 4	WSW 4	—	0.3	2.7	17	10	10	..	..	Nb.	WSW	10	..	..	..	..	7	A.-Cu.	SW	7	A.-Cu.	SW	Cu.-Nb.	SSW	9.0	
25	SW 3	WSW 3	WSW 2	2.3	2.9	18	10	7	..	..	..	..	7	..	..	St.-Cu.	WSW	10	..	..	..	..	..	..	..	9.0	
26	WSW 2	WSW 3	SW 1	3.3	1.3	8	10																				

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>0</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 3 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0h. to 24h., and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale) (7h, 14h, 21h), Mean, Sunshine (Total, Per cent. of Possible, Tenths), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower), and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Day.	Air Pressure at Station Level.				Air Temperature in Degrees Absolute.						Min. Temp. on Grass.	Percentage of Humidity.				Rain 0 h. to 24 h.	REMARKS.
	7 h.	14 h.	21 h.	Mean of 3 Readings.	7 h.	14 h.	21 h.	Max.	Min.	Mean of 5 Readings.		7 h.	14 h.	21 h.	Mean.		
1	mb. 15.9	mb. 15.4	mb. 15.9	mb. 15.8	200+	200+	200+	200+	200+	200+	200+	79	57	75	70	mm. —	≡ 0 4 h. ≡ over town and sea 7 h. Wind veered to W. 7 h. 15 m., then [returned to N.
2	18.4	19.5	20.8	19.6	91.9	97.8	91.9	2100.3	86.5	93.7	80.9	86	56	88	77	—	
3	21.5	21.4	20.0	21.0	90.6	96.1	89.7	96.6	86.8	92.0	82.5	82	59	65	69	—	
4	18.8	18.6	19.5	19.0	92.7	96.1	90.8	97.3	88.7	93.1	85.0	—	52	68	—	—	≡ 2 3 h.-5 h.
5	20.8	19.8	18.7	19.8	88.3	93.4	88.1	94.3	86.6	90.1	82.9	73	48	67	63	—	
6	17.6	16.0	15.1	16.3	90.6	95.0	90.7	96.2	84.4	91.4	77.5	67	47	60	61	—	
7	15.8	15.6	16.0	15.8	88.1	92.6	87.5	93.2	87.2	89.7	85.0	79	52	88	73	—	
8	16.0	15.8	15.2	15.6	88.4	94.5	88.6	95.6	86.5	90.7	83.4	82	51	87	73	—	
9	14.8	15.2	16.0	15.4	88.6	93.5	89.4	96.2	87.0	90.9	83.4	97	65	87	83	—	
10	17.0	17.9	17.5	17.5	90.3	95.1	90.0	96.4	87.4	91.8	82.3	82	57	90	76	—	
11	15.6	14.4	12.0	14.0	91.1	92.8	91.0	94.6	87.8	91.5	81.7	79	75	74	76	—	
12	07.9	05.6	06.3	06.6	92.8	96.8	90.8	99.1	89.7	93.8	87.7	75	59	85	73	0.6	
13	06.0	05.5	05.5	05.6	90.3	93.0	90.7	95.4	89.3	91.7	86.3	88	76	90	85	—	
14	02.3	02.6	02.8	02.6	91.0	93.2	90.3	94.1	89.0	91.7	88.5	82	77	82	80	0.2	
15	01.5	01.8	02.4	01.9	88.9	92.7	89.0	93.5	87.6	90.3	87.1	89	68	85	81	2.6	
16	03.2	03.1	02.0	02.8	89.0	89.8	87.7	94.2	87.5	89.6	84.5	85	81	93	86	—	
17	01.1	01.8	03.4	02.0	89.1	91.0	88.4	92.5	88.8	90.0	84.6	83	68	87	79	—	
18	05.4	05.6	04.4	05.1	88.3	92.8	88.6	93.5	87.1	90.1	84.5	87	65	92	81	—	
19	05.0	08.3	09.9	07.8	88.0	91.1	87.9	92.7	86.6	89.3	83.8	79	65	89	78	—	
20	11.2	11.5	11.1	11.2	89.0	92.8	88.1	94.0	85.3	89.8	77.9	81	65	92	79	—	
21	11.5	12.0	12.8	12.2	88.6	94.0	88.1	95.0	85.3	90.2	78.2	80	49	79	69	—	
22	12.3	11.9	11.1	11.8	89.9	95.2	91.1	96.6	85.0	91.6	78.2	76	48	73	66	—	
23	08.6	06.6	06.2	07.1	90.9	94.2	90.8	96.2	89.5	92.3	87.8	81	56	94	77	0.9	
24	06.2	06.0	04.4	05.6	89.9	93.9	92.2	94.9	88.8	91.9	86.5	92	66	80	79	—	
25	09.2	06.0	06.2	07.1	89.9	91.3	90.1	92.9	89.6	90.8	87.6	96	94	92	94	3.8	
26	07.1	08.8	00.4	08.8	90.0	93.3	90.4	95.0	89.4	91.6	87.2	89	71	86	82	2.9	
27	09.9	09.5	09.5	09.6	90.3	92.2	90.3	93.1	89.1	91.0	86.8	87	78	88	84	9.7	
28	00.4	01.6	00.8	01.0	89.6	93.5	89.9	94.6	89.0	91.3	87.8	94	68	93	85	0.8	
29	03.8	05.2	09.2	08.0	89.5	91.9	89.9	92.8	89.0	90.6	88.5	97	89	97	94	22.4	
30	05.5	04.0	09.0	02.8	85.0	90.4	87.2	91.0	84.1	87.6	84.1	89	67	70	75	14.7	
31	12.4	14.0	14.0	13.5	88.0	92.9	89.8	93.2	85.0	89.8	79.1	85	65	88	79	—	
Means	08.8	08.7	08.6	08.7	89.7	93.6	89.7	95.0	87.5	91.1	84.1	84	64	84	77	58.6	
Normal	10.3	10.3	10.6	10.4	89.0	92.4	88.8	93.3	87.1	90.1	83.9	83	66	82	77	56.9	

JERSEY (ST LOUIS OBSERVATORY).

Day.	Wind Direction and Force (0-12 on the Beaufort Scale).			Mean.	Sunshine.		Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming.																Mean Amount.		
					Total.	Per cent. of Possible.	Upper.				Lower.				Tenths.	Upper.				Lower.					
	7 h.	14 h.	21 h.	hr.	%	Tenths.	Type.	Direction.	Type.	Direction.	Tenths.	Type.	Direction.	Type.		Direction.	Tenths.	Type.	Direction.	Type.	Direction.				
	Dir. (0-12)	Dir. (0-12)	Dir. (0-12)			7 h.	7 h.	7 h.	7 h.	7 h.	14 h.	14 h.	14 h.	14 h.	14 h.	21 h.	21 h.	21 h.	21 h.						
1	E	WSW	NNE	4	2.7	15.1	100	1	Ci.	..	..	..	..	0	..	..	..	..	0	..	..	..	..	0.3	
2	ENE	NNE	N	2	2.0	14.9	99	1	A.-Cu.	..	..	..	..	4	Ci.	..	..	..	..	0	..	..	..	..	1.7
3	NE	N	NE	2	2.7	15.0	100	0	..	..	..	..	0	..	..	..	..	..	0	..	..	..	..	0.0	
4	NE	ENE	ENE	3	3.7	15.0	100	0	..	..	..	..	0	..	..	..	..	..	0	..	..	..	..	1.7	
5	ENE	ENE	ENE	4	4.0	13.4	90	5	..	..	..	..	0	..	..	..	..	..	0	..	..	..	..	1.7	
6	NE	NNE	ENE	3	3.3	14.9	100	0	..	..	..	..	2	Ci.-Cu.	..	..	..	..	3	Ci.-Cu.	..	..	..	..	2.0
7	ENE	ENE	ENE	4	4.7	11.6	80	6	..	..	..	..	0	..	..	..	..	..	5	Ci.	..	..	..	..	2.0
8	ENE	ENE	NE	3	3.3	14.8	100	1	..	..	..	..	0	..	..	..	..	..	0	..	..	..	..	9.0	
9	NE	SSW	NWN	2	1.3	5.5	37	7	Ci., Ci.-Cu.	SW	..	..	..	10	..	..	..	..	10	..	..	..	..	..	2.7
10	NW	WNW	NW	3	3.0	14.0	96	0	..	..	..	..	5	..	..	..	..	..	6	Ci., Ci.-Cu.	..	..	..	..	5.3
11	NW	SSW	ENE	4	2.3	7.8	53	3	Ci.	NW	..	..	..	7	A.-Cu.	NW	..	..	10	..	..	..	..	..	8.0
12	S	SW	SSW	1	3.0	5.4	37	6	Ci., Ci.-Cu.	W	..	..	..	8	A.-Cu.	..	..	..	10	..	..	..	..	..	9.0
13	SSW	SW	SW	3	3.7	4.2	28	10	..	..	..	..	7	..	..	..	..	10	A.-Cu.	..	Cu.-Nb.	SW	..	..	
14	SW	WSW	WSW	5	5.3	4.3	29	10	..	..	..	..	6	A.-Cu.	WSW	Fr.-Cu.	W	9	..	..	..	..	..	8.3	
15	WSW	WSW	WSW	4	4.3	4.8	33	10	A.-Cu.	..	..	..	4	A.-Cu.	..	Fr.-Cu.	WSW	1	A.-Cu.	..	..	..	..	5.0	
16	SW	WSW	SW	1	3.0	4.7	32	8	A.-Cu.	SW	..	..	10	..	..	Cu.-Nb.	..	7	A.-Cu.	..	..	..	..	8.3	
17	WNW	W	NW	3	3.3	8.9	62	5	..	..	..	..	5	..	..	Cu.	WNW	4	A.-Cu.	..	..	..	..	4.7	
18	NW	WSW	W	3	3.3	6.0	42	5	A.-Cu.	NW	Fr.-Cu.	..	6	Ci.-Cu.	WNW	Cu.	WNW	5	..	..	..	..	..	5.3	
19	WNW	NW	WNW	2	2.7	9.5	67	10	..	..	Cu.-Nb.	..	4	Ci.	SW	Fr.-Cu.	NNW	0	..	..	..	..	..	4.7	
20	WSW	WSW	WNW	3	3.7	11.0	78	6	..	..	Cu.	..	6	Ci.	WSW	..	..	0	..	..	..	..	..	4.0	
21	N	Var.	N	2	1.7	14.0	99	0	..	..	..	..	0	..	..	..	..	0	..	..	..	..	..	0.0	
22	—	SW	ENE	3	2.0	11.0	78	0	..	..	..	..	6	A.-Cu.	WSW	..	..	10	..	..	..	..	..	5.3	
23	SE	SSE	WSW	2	2.3	2.5	18	10	A.-Cu.	SW	..	..	8	A.-Cu.	WSW	..	..	8	..	..	..	..	..	8.7	
24	WNW	S	SW	4	3.0	1.9	13	10	..	..	Nb.	..	7	Ci.-Cu.	WSW	..	..	5	..	..	..	..	..	7.3	
25	S	SSW	SW	3	3.7	1.8	12	10	..	..	Nb.	SW	10	..	..	Nb.	SW	7	..	..	..	..	..	9.0	
26	SW	SW	SW	4	4.3	7.7	56	8	Ci.	WNW	Cu.-Nb.	..	8	..	..	Cu.	SW	6	..	..	..	..	..	7.3	
27	SW	WSW	WSW	4	4.3	6.5	47	3	Ci.-Cu.	W	..	..	4	Ci.	WSW	Cu.	WSW	7	..	..	..	..	..	4.7	
28	WSW	W	SSW	2	3.3	6.7	49	8	..	..	Nb.	WSW	6	A.-Cu.	WSW	..	..	10	..	..	..	..	..	8.0	
29	SE	ESE	NNW	2	3.0	0.3	2	10	..	..	Nb.	..	10	..	..	Nb.	SSW-SE	10	..	..	..	..	..	10.0	
30	NW	WNW	NW	3	4.7	7.6																			

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>b</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0 h. to 24 h., REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale), Sunshine (Total, Per cent. of Possible), Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper, Lower), Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.

JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.  
 Heights above M.S.L.:—H=54 m. H<sub>b</sub>=55 m. Above Ground:—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Day.	Air Pressure at Station Level.				Air Temperature in Degrees Absolute.						Min. Temp. on Grass.	Percentage of Humidity.				Rain 0 h. to 24 h.	REMARKS.
	7 h.	14 h.	21 h.	Mean of 3 Readings.	7 h.	14 h.	21 h.	Max.	Min.	Mean of 5 Readings.		7 h.	14 h.	21 h.	Mean.		
1	mb. 15.6	mb. 15.1	mb. 14.4	mb. 15.0	a. 200+	a. 200+	a. 200+	a. 200+	a. 200+	a. 200+	a. 200+	% 76	% 63	% 67	% 69	mm. 0.6	● from 21 h.
2	10.8	11.2	11.8	11.2	88.4	88.3	88.0	88.7	85.2	88.9	83.9	98	89	92	93	0.3	o. 4 h. ≡ 6 h.-8 h.
3	13.1	13.2	12.4	13.0	88.7	90.8	89.3	91.6	88.2	89.7	84.9	93	88	97	93	3.9	d. 12 h. 30 m. ● ≡ 17 h.
4	08.3	08.8	09.2	08.8	88.9	90.7	89.4	92.6	86.5	89.6	86.6	95	83	86	88	4.9	● 4 h.
5	08.7	10.6	11.0	10.0	89.1	89.6	89.8	90.1	x 88.4	89.4	87.4	97	96	90	94	8.4	≡ 11 h. 15 m.
6	08.8	06.0	06.2	07.1	89.6	91.3	90.0	91.6	x 88.4	x 90.2	87.7	96	82	96	91	2.1	● 19 h.
7	08.7	09.6	12.3	10.2	88.0	88.0	88.1	90.0	84.0	87.6	84.3	77	78	82	79	2.8	● frequently from 6 h. ● <sup>2</sup> 14 h. q.
8	14.7	16.7	17.1	16.2	88.4	89.3	88.7	89.6	88.0	88.8	85.0	91	86	77	85	1.6	● 5 h.
9	15.6	16.8	16.6	16.3	88.5	91.1	87.5	92.0	87.3	89.3	84.4	79	74	94	82	—	—
10	16.8	17.2	17.6	17.2	87.0	90.3	88.5	90.9	86.8	88.7	83.0	89	78	86	84	—	—
11	18.7	20.4	21.9	20.3	89.0	90.5	88.6	90.9	88.0	89.4	85.7	89	85	94	89	0.2	● 5 h. 15 m. Quickly-moving low cloud
12	21.1	20.6	20.7	20.8	88.8	89.9	88.6	90.0	88.0	89.1	85.3	84	74	79	79	—	[21 h.]
13	20.4	21.1	20.4	20.7	88.1	89.0	88.7	89.5	87.7	88.6	86.2	86	87	85	86	—	—
14	17.9	13.6	08.4	13.4	87.7	88.8	88.4	89.5	87.5	88.4	83.6	80	80	81	80	—	—
15	08.4	09.9	12.8	10.3	85.8	85.3	84.1	87.6	83.0	85.2	81.5	73	61	53	62	2.1	● shower 11 h. 40 m. ● <sup>o</sup> 14 h.
16	17.0	17.8	17.1	17.2	83.1	85.8	82.8	86.2	81.4	83.9	75.5	62	53	70	62	6.7	● showers 3 h. 40 m. Squall over sea 9 h. ● 9 h. 20 m.
17	12.6	10.6	07.4	10.2	84.5	84.4	86.0	86.0	81.9	84.6	77.5	68	91	89	83	12.2	● after 0 h. ● continuously from 10 h.
18	08.3	12.7	16.0	12.4	86.1	87.8	86.6	88.3	86.0	87.0	82.3	82	66	81	76	0.2	⊔ 4 h. ● 6 h. [45 m.]
19	11.6	11.8	14.7	12.7	85.3	85.8	85.2	87.2	84.1	85.5	83.0	92	61	68	74	4.0	● 4 h.
20	16.0	15.6	15.0	15.5	83.6	83.6	79.4	84.8	78.8	82.0	77.6	70	58	53	60	—	—
21	11.8	08.6	06.7	09.0	77.1	81.3	79.6	n 81.9	n 76.4	n 79.3	n 69.6	77	n 42	51	57	—	—
22	02.2	99.9	03.5	01.9	79.1	83.2	85.1	85.2	78.3	82.2	71.1	73	80	76	76	2.1	— 7 h. (first winter frost). ● 11 h. to 16 h.
23	07.0	05.8	05.0	05.9	84.0	87.0	85.1	88.0	83.9	85.6	79.4	86	74	82	81	0.1	⊕ 10 h. Glow S.W.-N.E.
24	01.6	97.9	90.4	96.7	83.9	84.1	84.8	85.7	83.0	84.3	75.7	86	86	84	85	—	—
25	83.5	88.2	93.1	88.3	84.9	86.2	83.3	87.6	82.2	84.8	81.2	77	64	73	71	0.4	Strong S. wind during night. ● <sup>o</sup> 13 h.
26	01.6	06.6	04.3	04.2	81.4	86.0	84.3	86.4	80.4	83.7	75.6	76	55	66	66	8.1	● during night. Frequent squalls. Calm 10 h.
27	89.2	88.7	87.9	88.6	85.9	86.3	83.0	86.3	81.4	84.6	80.2	89	52	65	69	12.1	● 1 h. ↘ from S. ▲ 10 h. 40 m. <
28	93.4	97.0	98.4	96.3	83.2	81.4	82.7	84.6	81.0	82.6	79.8	72	86	82	80	7.6	q. all day. [20 h. 30 m.]
29	85.6	89.2	94.7	89.9	84.3	84.3	84.4	86.3	81.4	84.1	77.7	96	79	77	84	x 16.5	q. all day.
30	92.0	93.1	93.9	93.1	85.9	86.0	85.7	87.2	83.8	85.7	79.7	93	73	86	84	7.6	● all night till 10 h. and from 21 h.
31	01.8	07.9	08.8	06.2	84.9	86.1	85.1	87.4	83.8	85.5	80.2	65	67	75	69	0.6	● till 8 h. < from 18 h. during night on W. horizon.
Means	07.8	08.5	08.7	08.3	85.8	87.2	86.1	88.2	84.2	86.3	81.2	83	74	79	79	105.1	
Normal	07.8	07.6	08.2	07.8	84.5	87.0	85.1	87.8	83.3	85.5	80.0	83	73	80	79	91.8	

JERSEY (ST LOUIS OBSERVATORY).

Day.	Wind Direction and Force (0-12 on the Beaufort Scale).			Mean.	Sunshine.		Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming.												Mean Amount.		
					Total.	Per cent. of Possible.	Upper.				Lower.				Upper.					Lower.	
	7 h.	14 h.	21 h.	hr.	%	Tenths.	Type.	Direction.	Type.	Direction.	Tenths.	Type.	Direction.	Type.	Direction.	Tenths.	Type.	Direction.	Type.	Direction.	
	Dir. (12)	Dir. (12)	Dir. (12)	7 h.	7 h.	7 h.	7 h.	7 h.	7 h.	7 h.	14 h.	14 h.	14 h.	14 h.	14 h.	21 h.	21 h.	21 h.	21 h.	21 h.	
1	S	S	SW	2.7	1.9	4	{A.-Cu.	WNW}	..	..	10	..	..	..	..	10	..	..	Nb.	..	8.0
2	SW	WSW	SW	3.7	1.1	9	..	..	..	..	10	..	..	..	..	10	..	..	..	..	10.0
3	SW	SSW	SW	4.4	1.8	16	..	..	St.-Cu.	SW	7	..	..	St.-Cu.	SW	10	..	..	..	..	8.3
4	SSW	WSW	SW	5.3	2.0	17	..	..	Nb.	NW	9	..	..	St.-Cu.	WSW	8	..	..	..	..	8.3
5	WSW	WSW	SW	5.3	0.0	0	..	..	Nb.	W	10	..	..	Nb.	WSW	10	..	..	..	..	9.3
6	SSW	WSW	SW	6.3	0.2	1	..	..	..	..	10	..	..	Cu.-Nb.	W	10	..	..	Nb.	..	10.0
7	WSW	WSW	W	6.7	1.2	10	..	..	Cu.	W	10	..	..	Nb.	WSW	8	A.-Cu.	NW	Nb	NW	7.7
8	W	W	WSW	5.0	2.3	21	..	..	Nb.	W	10	..	..	Cu.-Nb.	W	10	..	..	Cu.-Nb.	..	10.0
9	SW	W	WSW	3.7	2.2	19	..	..	Cu.-Nb.	WSW	6	..	..	Cu.	W	7	..	..	Cu.-Nb.	W	7.3
10	SW	SW	WSW	4.7	2.2	38	..	..	Cu.-Nb.	WSW	3	Ci.	..	..	..	5	Ci.	..	..	..	4.7
11	WSW	WSW	WSW	4.7	2.9	26	..	..	Nb.	W	6	Ci.	NW	Cu.-Nb.	W	6	..	..	Cu.-Nb.	W	6.7
12	WSW	WSW	WSW	4.0	0.3	3	..	..	St.-Cu.	W	10	..	..	St.-Cu.	WSW	10	..	..	..	..	10.0
13	SW	SW	WSW	2.3	0.0	0	..	..	St.-Cu.	W	10	..	..	..	..	10	..	..	..	..	9.0
14	SW	SW	WSW	4.7	0.1	1	..	..	..	..	10	..	..	St.-Cu.	SW	10	..	..	..	..	10.0
15	NW	NW	NW	4.3	3.7	34	Ci.	SW	Cu.-Nb.	NW	10	..	..	Cu.-Nb.	WNW	5	..	..	Cu.	NW	7.7
16	WNW	WNW	WNW	2.3	6.3	58	..	..	Cu.	N	6	Ci.	W	Cu.	N	7	..	..	..	..	5.7
17	SW	SSW	SW	2.7	0.5	5	A.-Cu.	W	Cu.-Nb.	SW	10	..	..	Nb.	SW	10	..	..	Nb.	..	9.3
18	NW	W	W	3.7	6.7	63	Ci.-Cu.	W	Nb.	NW	4	Ci.	W	Cu.	NW	10	..	..	..	..	7.0
19	NW	NNW	NNE	5.4	0.0	0	..	..	..	..	10	..	..	Nb.	N	4	..	..	Cu.	..	8.0
20	NE	ENE	E	4.0	6.6	62	A.-Cu.	NE	Cu.	NE	2	..	..	Cu.	..	2	..	..	..	..	3.7
21	E	E	ESE	2.7	9.9	95	A.-Cu., Ci.	N	..	..	2	Ci.	W	..	..	2	..	..	..	..	2.7
22	SE	S	SW	5.4	2.5	24	A.-Cu.	SSW	Fr.-Nb.	SE	8	..	..	Nb.	S	0	..	..	..	..	5.3
23	S	SSW	S	3.3	7.1	68	Ci.-Cu.	SW	Fr.-Nb.	S	6	..	..	Cu.	SW	6	..	..	..	..	6.0
24	S	SSW	S	5.4	3.2	31	A.-Cu.	S	Nb.	SW	8	..	..	{St.-Cu.}	SW	5	..	..	..	..	6.7
25	SW	WSW	W	2.4	6.2	60	Ci.-Cu., Ci.	SSW	Cu.-Nb.	SW	6	..	..	Cu.-Nb.	WSW	4	..	..	..	..	5.7
26	NW	WSW	S	5.3	4.0	39	..	..	Nb.	NW	3	..	..	Cu.	WSW	10	..	..	..	..	7.3
27	SSW	SSW	SW	8.7	4.3	42	..	..	Cu.	SW	6	Ci., A.-Cu.	SW	Cu.-Nb.	..	10	..	..	Nb.	..	7.3
28	SW	WSW	WSW	4.5	1.9	18	A.-Cu.	W	Cu.-Nb.	..	10	..	..	Nb.	..	2	..	..	..	..	6.3
29	SSW	WSW	WSW	5.7	3.1	31	..	..	Nb.	SW	6	Ci.-Cu.	WSW	Nb.	..	7	..	..	..	..	7.7
30	SSW	SW	SSW	6.0	1.8	18	..	..	Nb.	SW	4	Ci.-Cu.	W	Fr.-Cu.	W	10	..	..	Nb.	..	8.0
31	WSW	SW	SSW	5.3	8.7																

JERSEY (ST LOUIS OBSERVATORY—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L. :—H=54 m. H<sub>p</sub>=55 m. Above Ground :—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Main meteorological data table with columns for Day, Air Pressure at Station Level, Air Temperature in Degrees Absolute, Min. Temp. on Grass, Percentage of Humidity, Rain 0 h. to 24 h., and REMARKS.

JERSEY (ST LOUIS OBSERVATORY).

Detailed meteorological data table including Wind Direction and Force, Sunshine, Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming, and Mean Amount.

In the column for air pressure the initial 9 or 10 is omitted.



JERSEY (ST LOUIS OBSERVATORY).—Lat. 49° 12' N. Long. 2° 6' W.

Heights above M.S.L.:—H=54 m. H<sub>b</sub>=55 m. Above Ground:—h<sub>t</sub>=1.48 m. h<sub>r</sub>=1.72 m. h<sub>a</sub>=8 m.

Table with columns: Day, Air Pressure at Station Level (7h, 14h, 21h, Mean of 3 Readings), Air Temperature in Degrees Absolute (7h, 14h, 21h, Max., Min., Mean of 5 Readings), Min. Temp. on Grass, Percentage of Humidity (7h, 14h, 21h, Mean), Rain 0 h. to 24 h., and REMARKS. Includes data for days 1-31 and Means/Normal values.

JERSEY (ST LOUIS OBSERVATORY).

Table with columns: Day, Wind Direction and Force (0-12 on the Beaufort Scale) for 7h, 14h, 21h; Sunshine (Total, Per cent. of Possible); Cloud Amount (tenths of Sky covered), Type of Cloud, and Direction whence coming (Upper/Lower for Type and Direction); and Mean Amount. Includes data for days 1-31 and Means/Normal values.

In the column for air pressure the initial 9 or 10 is omitted.