RESULTS

OF THE

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS

MADE AT

THE ROYAL OBSERVATORY, GREENWICH,

IN THE YEAR

1888:

UNDER THE DIRECTION OF

W. H. M. CHRISTIE, M.A., F.R.S.,
ASTRONOMER ROYAL.

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MAGNETICAL AND METEOROLOGICAL OBSERVATIONS, 1883.

INTRODUCTION.—Page *xxxvii.*, line 20, *for* – 0°. 2′ *read* – 0°·2

Page (xv). In the six columns headed "Number of Observations," in the table of monthly values of magnetic dip, insert in each case above the figures 21, 20, 23, 23, 24 and 21 respectively, the word "Sum".

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS, 1884.

Page (vi). Line 3 of the portion of heading of table inclosed in brackets *for* and corrected of temperature *read* and corrected for temperature.

Also insert above the figures in the column "Day of Month" the letter "d."

Page (xv). In the six columns headed "Number of Observations," in the table of monthly values of magnetic dip, insert in each case above the figures 21, 22, 24, 23, 23 and 23 respectively, the word "Sum".

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS, 1885.

Page (xix). In the six columns headed "Number of Observations," in the table of monthly values of magnetic dip, insert in each case above the figures 21, 22, 21, 22, 21 and 21 respectively the word "Sum".

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS, 1886.

INTRODUCTION.—Page *xviii*, line 3, *for* distance *read* difference.
Page *xlv*, line 12 from bottom, *for* 1885 *read* 1886.

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS, 1887.

INTRODUCTION.—Page *xviii*, line 3, *for* distance *read* difference.
Page *xliii*, line 22, *for* Zambri *read* Zambra.
Page *xliv*, line 31, *for* devoloped *read* developed.

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Page (lxxxiv). Record of Gauge No. 1 in June, *for* 2·385 *read* 2·455, and yearly sum, *for* 18·652 *read* 18·722.

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RESULTS

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GREENWICH MAGNETICAL AND METEOROLOGICAL OBSERVATIONS,

1888.

INTRODUCTION.

§ 1. *Personal Establishment and Arrangements.*

During the year 1888 the establishment of Assistants in the Magnetical and Meteorological Department of the Royal Observatory consisted of William Ellis, Superintendent, and William Carpenter Nash, Assistant, aided by four Computers. The Computers employed during the year were, Ernest E. McClellan, Edward Finch, Francis H. W. Hope, and Francis H. Letchford.

Mr. Ellis controls and superintends the whole of the work of the Department. Mr. Nash is charged generally with the instrumental adjustments, the determination of the values of instrumental constants, and the more delicate magnetic observations. He also specially superintends the Meteorological Reductions. The routine magnetical and meteorological observations are in general made by the Computers.

§ 2. *General Description of the Buildings and Instruments of the Magnetical and Meteorological Observatory.*

The Magnetical and Meteorological Observatory was erected in the year 1838. Its northern face is distant about 170 feet south-south-east from the nearest point of the South-East Dome, and about 35 feet south from the carpenters' workshop. On its east stands the New Library (erected at the end of the year 1881), in the construction of which non-magnetic bricks were used, and every care was taken to exclude iron. The Magnetical and Meteorological Observatory is based on concrete and built of wood, united for the most part by pegs of bamboo ; no iron was intentionally admitted in its construction, or in subsequent alterations. Its form is that of a cross, the arms of the cross being nearly in the direction of the cardinal magnetic points as they were in 1838. The northern arm is longer than the others, and is separated from them by a partition, and used as a computing room ; the stove which warms this room, and its flue, are of copper. The remaining portion, consisting of the eastern, southern, and western arms, is known as the Upper Magnet Room. The upper declination magnet and its theodolite, for determination of absolute declination, are placed in the southern arm, an opening in the roof allowing circumpolar stars to be observed by the theodolite for determination of its reading for the astronomical meridian. Both the magnet and its theodolite are supported on piers built from the ground. In the eastern arm is placed the Thomson electrometer for photographic record of the variations of atmospheric electricity, its water cistern rests on four glass insulators supported by a platform fixed to the western side of the southern arm, near the ceiling. The Standard barometer is suspended near the junction of the southern and western arms. The sidereal clock, Grimalde and Johnson, is fixed at the junction of the eastern and southern arms, and there is in addition a mean solar chronometer, McCabe No. 649, for general use. A mean solar clock (Molyneux), transferred from the Astronomical Department, was set up in the northern arm during the year 1883.

Until the year 1863 the horizontal and vertical force magnets were also located in the Upper Magnet Room, the upper declination magnet being up to that time employed for photographic record of the variations of declination, as well as for absolute measure of the element. But experience having shown that the horizontal and vertical force magnets were exposed in the upper room to large variations of temperature, a room known as the Magnet Basement (in which the variations of temperature are very much smaller) was excavated in the year 1864 below the Upper Magnet Room, and the horizontal and vertical force magnets, as well as a new declination magnet for photographic record of declination, were mounted therein. The Magnet Basement is of the same dimensions as the Upper Magnet Room. The lower declination magnet and the horizontal force and vertical force magnets, as now located in the Basement, are used entirely for record of the variations of the respective magnetic elements. The declination magnet is suspended in the southern arm, immediately under the upper declination magnet, to avoid mutual interference; the horizontal and vertical force magnets are placed in the eastern and western arms respectively, in positions nearly underneath those which they occupied when in the Upper Magnet Room. All are mounted on or suspended from supports carried by piers built from the ground. A photographic barometer is fixed to the northern wall of the Basement, and an apparatus for photographic registration of earth currents is placed near the southern wall of the eastern arm. A mean solar clock of peculiar construction for interruption of the photographic traces at each hour is fixed to the pier which supports the upper declination theodolite. Another mean solar clock is attached to the western wall of the southern arm. For better ascertaining the variations of temperature of the Basement a Richard metallic thermograph was added in February, 1886. It is placed on the pier carrying the horizontal force magnet, and gives a continuous register of temperature on a scale of 5° to 1 inch, the scale for time being 24 hours to $5\frac{1}{3}$ inches. On the northern wall, near the photographic barometer, is fixed the Sidereal Standard clock of the Astronomical Observatory, Dent 1906, communicating with the chronograph and with clocks of the Astronomical Department by means of underground wires. This clock is placed in the Magnet Basement, because of its nearly uniform temperature.

The Basement is warmed when necessary by a gas stove (of copper), and ventilated by means of a large copper tube nearly two feet in diameter, which receives the flues from the stove and all gas-lights and passes through the Upper Magnet Room to a revolving cowl above the roof. Each of the arms of the Basement has a well window facing the south, but these wells are usually closely stopped up with bags packed with straw or jute. In January 1886 a line of 9-inch pipes was laid underground from the Basement southward to a distance of about 155 feet, at which point there is an inlet from the atmosphere, for the purpose of ventilating the Basement by air which has acquired the temperature of the soil at a depth of several feet below the surface, and of thus obtaining greater uniformity of temperature. The depth of the line of pipes below the surface varies from five feet at the inlet in the south ground to 11 feet 6 inches at the entrance to the Basement.

A platform erected above the roof of the Magnet House is used for the observation of meteors. The sunshine instrument and a rain gauge are placed on a table on this platform, and there are also thermometers (placed in a louvre-boarded shed or screen, with free circulation of air) for observation of the temperature of the air in an exposed situation at a height of 20 feet above the ground.

An apparatus for naphthalizing the gas used for the photographic registration is mounted in a small detached zinc-built room adjacent to the computing room on its western side.

The Dip instrument and Deflexion apparatus are placed in the New Library. Each instrument rests on a heavy slate slab supported by strong wooden framework rising from brick work built into the ground.

To the south of the Magnet House, in what is known as the Magnet Ground, is an open shed, consisting principally of a roof supported on four posts, under which is placed the old photographic dry-bulb and wet-bulb thermometer apparatus, now used only in case of temporary interruption of the new apparatus. On the roof of this shed there is fixed an ozone box and a rain gauge, and close to its north-western corner are placed the earth thermometers, the upper portions of which, projecting above the ground, are protected by a small wooden hut. About 25 feet to the west of the photographic thermometers is situated the revolving stand carrying the thermometers used for ordinary eye observations, and adjacent to the thermometer stand on the north side are three rain gauges. Between the rain gauges and the Magnet House are placed the thermometers for solar and terrestrial radiation; they are laid on short grass, and freely exposed to the sky. A little to the east of the thermometer stand is placed a Stevenson screen containing dry bulb, wet bulb, and maximum and minimum thermometers.

The Magnet Ground is bounded on its south side by a range of seven rooms, known as the Magnet Offices. No 1 is used as a general store room, and in it is placed the Watchman's Clock; Nos. 2, 3, and 4 are used for photographic purposes in connexion with the Photoheliograph, placed in a dome adjoining No. 3, on its south side; Nos. 5 and 6 are store rooms; No. 7 forms an ante-room and means of approach to the Lassell dome.

In the ground south of the Magnet Offices (known as the South Ground) is the new photographic dry-bulb and wet-bulb thermometer apparatus, mounted in the year 1885; it is generally similar to the old apparatus but with some important modifications, of which an account is given in the proper Section.

Two Anemometers, Osler's, giving continuous record of direction and pressure of wind, and amount of rain, and Robinson's, giving continuous record of velocity, are fixed, the former above the north-western turret of the Octagon Room (the ancient part of the Observatory), the latter above the small building on the roof of the Octagon Room.

On 1883 March 3 the iron tube of the Lassell reflecting telescope was brought into the South Ground, and on March 9 the iron supports of the same. On 1883 December 31 the iron work of the dome was brought into the same ground, and on 1884 June 26 the iron gutter of the dome, in 16 pieces, weighing together about 2 tons 6 cwt. A careful examination of the magnetic registers on each of these occasions shows that no disturbance of the declination, horizontal force, or vertical force magnets was caused by the location of these masses of iron in the South Ground, at a distance of more than 100 feet from the magnets.

In order to determine the effect of a mass of iron on the magnets, experiments were made on 1884 July 2, with 4, 8, 12, and 16 pieces of the gutter respectively, placed at a distance of 25 feet from the declination magnet in a direction south-east (magnetic) from it, so that the maximum effect would be produced. The following are the results for the deflexions of the Upper Declination magnet:—

	Mean Deflexion.	
	′	″
With 4 pieces of the iron gutter - - - - -	1	4
,, 8 pieces ,, - - - - -	2	2
,, 12 pieces ,, - - - - -	3	12
,, 16 pieces ,, - - - - -	3	40

Each piece weighs nearly 3 cwt.

As the effect of a mass of iron on a magnet varies as the sine of twice its magnetic azimuth divided by the cube of its distance from the magnet, these experiments show that the deflexion caused by the whole of the iron in the Lassell instrument and dome (which is at a distance of 100 feet and very nearly in the magnetic meridian of the declination magnet) would be quite insensible.

Regular observation of the principal magnetical and meteorological elements was commenced in the autumn of the year 1840, and has been continued, with some additions to the subjects of observation, to the present time. Until the end of the year 1847 observations were in general made every two hours, but at the beginning of the year 1848 these were superseded by the introduction of the method of photographic registration, by which means a continuous record of the various elements is obtained.

For information on many particulars concerning the history of the Magnetical and Meteorological Observatory, especially in regard to alterations not recited in this volume, which have been made from time to time, the reader is referred to the Introduction to the Magnetical and Meteorological Observations for the year 1880 and previous years, and to the Descriptions of the Buildings and Grounds, with accompanying Plans, given in the Volumes of Astronomical Observations for the years 1845 and 1862.

§ 3. *Subjects of Observation in the year* 1888.

The observations comprise determinations of absolute magnetic declination, horizontal force, and dip; continuous photographic record of the variations of declination, horizontal force, and vertical force, and of the earth currents indicated in two distinct lines of wire; eye observations of the ordinary meteorological instruments, including the barometer, dry and wet bulb thermometers, and radiation and earth thermometers, and of thermometers placed on the roof of the Magnet House; continuous photographic record of the variations of the barometer, dry and wet bulb thermometers, and electrometer (for atmospheric electricity); continuous automatic record of the direction, pressure, and velocity of the wind, and of the amount of rain; registration of the duration of sunshine, and amount of ozone; observations of some of the principal meteor showers; general record of ordinary atmospheric changes of weather, including numerical estimation of the amount of cloud, and occasional phenomena.

From the beginning of the year 1885, Greenwich civil time, reckoning from midnight to midnight and counting from 0 to 24 hours, has been employed throughout the magnetical and meteorological sections. In previous years the time used throughout the magnetic section was Greenwich astronomical time, reckoning from noon to noon; and generally, in the meteorological section, Greenwich civil time, reckoning from midnight to midnight.

§ 4. *Magnetic Instruments.*

UPPER DECLINATION MAGNET AND ITS THEODOLITE.—The upper declination magnet, employed solely for the determination of absolute declination, is by Meyerstein of Göttingen: it is a bar of hard steel, 2 feet long, $1\frac{1}{2}$ inch broad, and about $\frac{1}{4}$ inch thick, attached by a pinching screw to the magnet carrier, also by Meyerstein, but since altered by Troughton and Simms. To a stalk extending upwards from the magnet carrier is attached the torsion circle, which consists of two circular brass discs, one turning independently of the other on their common vertical axis, the lower and graduated portion being firmly fixed to the stalk of the magnet carrier; to the upper portion carrying the vernier is attached, by a hook, the suspension skein. This is of silk, and consists of several fibres united by juxtaposition, without apparent twist; its length is about 6 feet.

The magnet, with its suspending skein, &c., is carried by a braced wooden tripod stand, whose feet, passing through holes cut in the floor, rest on slates covering brick piers, built from the ground and rising through the Magnet Basement nearly to its ceiling. The upper end of the suspension skein is attached to a short square wooden rod, sliding in the corresponding square hole of a fixed wooden bracket. To the upper end of the rod is fixed a leather strap, which passing over two brass pulleys carried by the upper portion of the tripod stand, is attached to a cord which passes down to a small windlass fixed to the stand. Thus in raising or lowering the magnet, an operation necessary in determinations of its collimation error, no alteration is made in the length of the suspension skein. The magnet is inclosed in a double rectangular wooden box (one box within another), both boxes being covered externally and internally with gilt paper, and having holes at their south and north ends, for illumination of the magnet-collimator and for viewing the collimator with the theodolite telescope respectively. The holes in the outer box are covered with glass. The magnet-collimator is formed by a diagonally placed cobweb cross, and a lens of 13 inches focal length and nearly 2 inches aperture, carried by two sliding frames fixed by pinching screws to the south and north arms of the magnet respectively. The cobweb cross is in the principal focus of the lens, and its image in the theodolite telescope is well seen. From the lower side of the magnet carrier a rod extends downwards, terminating below the magnet box in a horizontal brass bar immersed in water, for the purpose of checking small vibrations of the magnet.

The theodolite, by which the position of the upper declination magnet is observed, is by Troughton and Simms. It is planted about 7 feet north of the magnet. The radius of its horizontal circle is 8·3 inches, and the circle is divided to 5′, and read, by three verniers, to 5″. The theodolite has three foot-screws, which rest in brass channels let into the stone pier placed upon the brick pier which rises from the ground through the Magnet Basement. The length of the telescope is 21 inches, and the aperture of its object glass 2 inches: it is carried by a horizontal transit axis 10½ inches long, supported on Y's carried by the central vertical axis of the theodolite. The eye-piece has one fixed horizontal wire and one vertical wire moved by a micrometer-screw, the field of view in the observation of stars being illuminated through the pivot of the transit-axis on that side of the telescope which carries the micrometer-head. The value of one division of the striding level is considered to be equal to 1″·05. The opening in the roof of the Magnet House permits of observation of circumpolar stars as high as δ Ursæ Minoris above the pole and as low as β Cephei below the pole. A fixed mark, consisting of a small hole in a plate of metal, placed on one of the buildings of the Astronomical Observatory, at a distance of about 270 feet from the theodolite, affords an additional check on its continued steadiness.

The inequality of the pivots of the axis of the theodolite telescope was found from several independent determinations made at different times to be very small. It appears that when the level indicates the axis to be horizontal the pivot at the illuminated end of the axis is really too low by $1^{\mathrm{div}}\cdot 3$, equivalent to 1″·4.

The value in arc of one revolution of the telescope-micrometer is 1′. 34″·2.

The reading for the line of collimation of the theodolite telescope was found, by ten double observations, 1888 February 13, to be $100^{\mathrm{r}}\cdot 328$, by ten double observations, 1888 February 14, $100^{\mathrm{r}}\cdot 301$, and by ten double observations, 1888 December 3, $100^{\mathrm{r}}\cdot 300$. The value used throughout the year 1888 was $100^{\mathrm{r}}\cdot 310$.

The effect of the plane glass in front of the outer box of the declination-magnet at that end of the box towards the theodolite was determined by ten double observations made on 1886 November 3, which showed that in the ordinary position of the glass the theodolite readings were diminished by 20″·3. Each of two other sets of observations, made on 1887 December 8 and 1888 December 3, gave 20″·3 and 20″·0 respectively. The mean of these, 20″·2 has been added to all readings throughout the year 1888.

The error of collimation of the magnet collimator is found by observing the position of the magnet, first with its collimator in the usual position (above the magnet), then with the collimator reversed (or with the magnet placed in its carrier with the collimator below), repeating the observations several times. The value used during the year 1888 was 26′. 4″·2, being the mean of determinations made on 1884 December 12, 1885 December 18, 1886 November 10, 1887 December 8, and 1888 December 3, giving respectively 26′. 2″·9, 26′. 4″·3, 26′. 3″·5, 26′. 9″·5 and 26′. 0″·6. With the collimator in its usual position, above the magnet, the quantity 26′. 4″·2 has been subtracted from all readings.

The effect of torsion of the suspending skein is eliminated by turning the lower portion of the torsion-circle until the torsion bar (an oak bar of the same size as the magnet, and weighted with lead weights to be also of equal weight), inserted in place of the magnet, rests in the plane of the magnetic meridian. The bar is thus inserted usually about once a month, and whenever the adjustment is found not to have been sufficiently close, the observed positions of the magnet are corrected for displacement of the magnet from the meridian by the torsion of the skein. Such correction is determined experimentally, with the magnet in position, by changing the reading of the torsion-circle by a definite amount, usually 90°, thus giving the skein that amount of azimuthal twist, and observing, with the theodolite, the change in the position of the magnet thereby produced, from which is derived the ratio of the couple due to torsion of the skein to the couple due to the earth's horizontal magnetic force. With the skein at present in use this ratio was, on 1882 September 13, found to be $\frac{1}{126}$, on 1883 December 12, $\frac{1}{137}$, on 1884 December 12, $\frac{1}{132}$, on 1885 December 10, $\frac{1}{137}$, on 1886 November 10, $\frac{1}{146}$, on 1887 December 8, $\frac{1}{133}$, and on 1888 December 14, $\frac{1}{137}$. During the year 1888 the plane in which the suspension skein was free from torsion so nearly coincided with the magnetic meridian, that no correction of the absolute measures of magnetic declination for deviation of the plane of no torsion was at any time required.

The time of vibration of the upper declination magnet under the influence of terrestrial magnetism was found on 1880 December 29 to be 30ˢ·78, on 1881 September 9, 31ˢ·30, on 1882 September 14, 31ˢ·20, on 1883 December 13, 31ˢ·15, on 1884 December 11, 31ˢ·17, on 1885 December 18, 31ˢ·15, on 1886 November 10, 31ˢ·01, on 1887 December 8, 30ˢ·89, and on 1888, December 14, 30ˢ·90.

The reading of the azimuthal circle of the theodolite corresponding to the astronomical meridian is determined about once in each month by observation of the stars Polaris or δ Ursæ Minoris. The fixed mark is usually observed weekly. The concluded mean reading of the circle for the south astronomical meridian (deduced entirely from the observations of the polar stars), used from January 1 to May 30, was 27°. 6′. 19″·8, and from May 31 to the end of the year, 27°. 4′. 54″·2.

In regard to the manner of making observations with the upper declination magnet:—The observer on looking into the theodolite telescope sees the image of the diagonal cross of the magnet collimator vibrating alternately right and left. The time of vibration of the magnet being about 30 seconds, he first applies his eye to the telescope about one minute, or two vibrations, before the pre-arranged time of observation, and, with the vertical wire carried by the telescope-micrometer, bisects the magnet-cross at its next extreme limit of vibration, reading the micrometer. He similarly observes the next following extreme vibration, in the opposite direction, and so on, taking in all four readings. The mean of each pair of adjacent readings of the micrometer is taken, giving three means, and the mean of these three is adopted. In practice this is done by adding the first and fourth readings to twice the second and third, and dividing the sum by 6. Should the magnet be nearly free from vibration, two bisections only of the cross are made, one at the vibration next before the pre-arranged time, the other at the vibration following. The verniers of the theodolite-circle are then read. The excess of the adopted micrometer-reading above the reading for the line of collimation of the telescope being converted into arc and applied to the mean circle-reading, and also the corrections for collimation of the magnet and for collimation of the plane glass in front of its box, the concluded circle-reading corresponding to the position of the magnet is found. The difference between this reading and the adopted reading of the circle for the south astronomical meridian gives, when, as is usually the case, no correction for torsion of the skein is necessary, the observed value of absolute declination, afterwards used for determining the value of the photographed base line on the photographic register of the lower declination magnet. The times of observation of the upper declination magnet are usually $9^h. 5^m$, $13^h. 5^m$, $15^h. 5^m$, and $21^h. 5^m$ of Greenwich civil time, reckoning from midnight.

LOWER DECLINATION MAGNET.—The lower declination magnet is used simply for the purpose of obtaining photographic register of the variations of magnetic declination. It is by Troughton and Simms, and is of the same dimensions as the upper declination magnet, being 2 feet long, $1\frac{1}{2}$ inch broad, and $\frac{1}{4}$ inch thick. The magnet is suspended, in the Magnet Basement, immediately below the upper declination magnet, in order that the absolute measure of declination by the upper magnet should not be affected by the proximity of the lower magnet.

The manner of suspension of the magnet is in general similar to that of the upper declination magnet, the suspension pulleys being carried by a small pier built on one of the crossed slates resting on the brick piers rising from the ground. The length of free suspending skein is about 6 feet, but, unlike the arrangement adopted for the upper magnet, the skein is itself carried over the suspension pulleys. The position of the azimuthal plane in which the torsion bar rests, when substituted for the magnet, is examined from time to time, and adjustment made as necessary, to keep this plane in or near the magnetic meridian, such exact adjustment as is required for the upper declination-magnet not being necessary in this case.

To destroy the small accidental vibrations to which the magnet would be otherwise liable, it is encircled by a damper consisting of a copper bar, about 1 inch square, which is bent into a long oval form, the plane of the oval being vertical; a lateral bend is made in the upper bar of the oval to avoid interference with the suspension piece of the magnet. The effect of the damper is to reduce the amplitude of the oscillation after every complete or double vibration of the magnet in the proportion of 5 : 2 nearly.

In regard to photographic arrangements, it may be convenient, before proceeding to speak of the details peculiar to each instrument, to remark that the general principle adopted for obtaining continuous photographic record is the same for all instruments. For the register of each indication a cylinder of ebonite is provided, the axis of the cylinder being placed parallel to the direction of the change of indication to be registered. If, as is usually the case, there are two indications whose movements are in the same direction, both may be registered on the same cylinder: thus the movements in the case of magnetic declination and horizontal magnetic force, being both horizontal, can be registered on different parts of one cylinder with axis horizontal: so also can two different galvanic earth currents. The movements in the case of vertical magnetic force, and of the barometer, being both vertical, can similarly be registered on different parts of one cylinder having its axis vertical, as also can the indications of the dry-bulb and wet-bulb thermometers. In the electrometer the movement being horizontal, a horizontal cylinder is provided.

The cylinder is in each case driven by chronometer or accurate clock-work to ensure uniform motion. The pivots of the horizontal cylinders turn on anti-friction wheels: the vertical cylinders rest each on a circular plate turning on anti-friction wheels, the driving mechanism being placed below. A sheet of sensitized paper being wrapped round the cylinder, and held by a slender brass clip, the cylinder thus prepared is placed in position, and connected with the clock-movement: it is then ready to receive the photographic record, the optical arrangements for producing which will be found explained in the special description of each particular instrument. The sheets are removed from the cylinders and fresh sheets supplied every day, usually at noon. On each sheet, a reference line is also photographed, the arrangements for which will be more particularly described in each special case. All parts of the apparatus and all parts of the paths of light are protected, as found necessary, by wood or zinc casings or tubes, blackened on the inside, in order to prevent stray light from reaching the photographic paper.

In June 1882 the photographic process employed for so many years was discarded, and a dry paper process introduced, the argentic-gelatino-bromide-paper, as prepared by Messrs. Morgan and Kidd of Richmond (Surrey), being used with ferrous oxalate development. The greater sensitiveness of this paper permits diminution of the effective surface of the magnet mirrors, and allows also the use of smaller gas flames. In the case of the vertical force magnet the old and comparatively heavy mirror has been replaced by a small and light mirror with manifest advantage, as will be seen in the description of the vertical force magnet. The new paper acts equally well at all seasons of the year, and any loss of register on account of photographic failure is now extremely rare.

Referring now specially to the lower declination magnet, there is attached to the magnet carrier, for the purpose of obtaining photographic register of the motions of the magnet, a concave mirror of speculum metal, 5 inches in diameter (reduced by a stop, on the introduction of the new photographic paper, to an effective diameter of about 1 inch), which thus partakes in all the angular movements of the magnet. The revolving ebonite cylinder is 11½ inches long and 14¼ inches in circumference: it is supported, in an approximately east and west position, on brass uprights carried by a metal plate, the whole being planted on a firm wooden platform, the supports of which rest on blocks driven into the ground. The platform is placed midway between the declination and horizontal force magnets, in order that the variations of magnetic declination and horizontal force may both be registered on the same cylinder, which makes one complete revolution in 26 hours.

The light used for obtaining the photographic record is that given by a flame of coal gas, charged with the vapour of coal naphtha. A vertical slit about $0^{in}\cdot3$ long and $0^{in}\cdot01$ wide, placed close to the light, is firmly supported on the pier which carries the magnet. It stands slightly out of the straight line joining the mirror of the magnet and the registering cylinder, and its distance from the mirror is about 25 inches. The distance of the axis of the registering cylinder from the mirror is 134·4 inches. Immediately above the cylinder, and parallel to its axis, are placed two long reflecting prisms (each 11 inches in length) extending from end to end of the cylinder and facing opposite ways towards the mirrors carried by the declination and horizontal force magnets respectively. The front surface of each prism is convex, being a portion of a horizontal cylinder. The light of the declination lamp, after passing through the vertical slit, falls on the concave mirror, and is thence reflected as a converging beam to form an image of the slit on the convex surface of the reflecting prism, by the action of which it is reflected downwards to the paper on the cylinder as a small spot of light. The concave mirror can be so adjusted in azimuth on the magnet that the spot shall fall not at the centre of the cylinder but rather towards its western side, in order that the declination trace shall not interfere with that of horizontal force, which is made to fall towards the eastern side of the cylinder. The special advantage of the arrangement here described is that the registers of both magnets are made at the same part of the circumference of the cylinder, a line joining the two spots being parallel to its axis, so that when the traces on the paper are developed, the parts of the two registers which appear in juxtaposition correspond to the same Greenwich time.

By means of a small prism, fixed near the registering cylinder, the light from another lamp is made to form a spot of light on the cylinder in a fixed position, so that, as the cylinder revolves, a reference or base line is traced out on the paper, from which, in the interpretation of the records, the ordinates are measured.

A clock of special construction, arranged by Messrs. E. Dent and Co., acting upon a small shutter placed near the declination slit, cuts off the light from the mirror two minutes before each hour, and admits it again two minutes after the hour, thus producing at each hour a visible interruption in the trace, and so ensuring accuracy as regards time scale. By means of another shutter the observer occasionally cuts off the light for a few minutes, registering the times at which it was cut off and admitted again. The visible interruptions thus made at definite times in the trace obviate any possibility of error being made by wrong numeration of the hourly breaks.

The usual hour of changing the photographic sheet is noon, but on Sundays, and occasionally on other days, this rule is not strictly followed. To obviate any uncertainty that might arise on such occasions from the interference of the two ends of a trace slightly longer than 24 hours, it has been arranged that one revolution of the cylinder should be made in 26 hours. The actual length of 24 hours on the sheet is about 13·3 inches.

The scale for measurement of ordinates of the photographic curve is thus determined. The distance from the concave mirror to the surface of the cylinder, in the actual path of the ray of light through the prism, is practically the same as the horizontal distance of the centre of the cylinder from the mirror, 134·4 inches. A movement of 1° of the mirror produces a movement of 2° in the reflected ray. From this it is found that 1° of movement of the mirror, representing a change of 1° of magnetic declination, is equal to 4·691 inches on the photographic paper. A small strip of cardboard is therefore prepared, graduated on this scale to degrees and minutes. The ordinates of the curve as referred to the base line being measured for the times at which absolute values of declination were determined by the upper declination magnet, usually four times daily, the apparent value of the base line, as inferred from each observation, is found.

The process assumes that the movements of the upper and lower declination magnets are precisely similar. The separate base line values being divided into groups, usually monthly, a mean base line value is adopted for use through each group. This adopted base line value is written upon every sheet. Then, with the cardboard scale, there is laid down, conveniently near to the photographic trace, a new base line, whose ordinate represents some whole number of degrees or other convenient quantity. Thus every sheet carries its own scale of magnetic measure. From the new base line the hourly ordinates (see page *xxx*) are measured.

HORIZONTAL FORCE MAGNET.—The horizontal force magnet, for measure of the variations of horizontal magnetic force, was made by Meyerstein of Göttingen, and like the two declination magnets, is 2 feet long, 1½ inch broad, and about ¼ inch thick. For support of its suspension skein the back and sides of its brick pier rise through the eastern arm of the Magnet Basement to the upper Magnet Room, being there covered by a slate slab, to the top of which a brass plate is attached, carrying, immediately above the magnet, two brass pulleys, with their axes in the same east and west line; and at the back of the pier, and opposite to these pulleys, two others, with their axes similarly in an east and west line: these constitute the upper suspension piece, and support the upper portions of the two branches of the suspension skein. The two lower pulleys, having their axes in the same horizontal plane, and their grooves in the same vertical plane, are attached to a small horizontal bar which forms the upper portion of the torsion circle: it carries the verniers for reading the torsion circle, and can be turned independently of the lower and graduated portion of the torsion circle, below which, and in rigid connexion with it, is the magnet carrier.

The suspension skein is led under the two pulleys carried by the upper portion of the torsion circle, its two branches then rise up and pass over the front pulleys of the upper suspension piece, thence to and over the back pulleys, thence descending to a single pulley, round which the two branches are tied: from this pulley a cord goes to a small windlass fixed to the back of the pier. The effective length of each of the two branches of the suspension skein is about $7^{ft}\ 6^{in}$. The distance between the branches of the skein, where they pass over the upper pulleys, is $1^{in}\cdot 14$: at the lower pulleys the distance between the branches is $0^{in}\cdot 80$. The two branches are not intended to hang in one plane, but are to be so twisted that their torsion will maintain the magnet in a direction very nearly east and west magnetic, the marked end being west. In this state an increase of horizontal magnetic force draws the marked end of the magnet towards the north, whilst a diminution of horizontal force allows the marked end to recede towards the south under the influence of torsion. An oval copper bar, exactly similar to that used with the lower declination magnet, is applied also to the horizontal force magnet, for the purpose of diminishing the small accidental vibrations.

Below the magnet carrier there is attached a small plane mirror to which is directed a small telescope for the purpose of observing by reflexion the graduations of a horizontal opal glass scale, attached to the southern wall of the eastern arm of the basement. The magnet, with its plane mirror, hangs within a double rectangular box, covered with gilt paper in the same way as was described for the upper declination magnet. The numbers of the fixed scale increase from east to west, so that when the magnet is inserted in its usual position, with its marked end towards the west, increasing readings of the scale, as seen in the telescope, denote increasing horizontal force. The normal to the scale that meets the centre of the plane mirror is situated at the division 51 of the scale nearly, the distance of the scale from the centre of the plane mirror being 90·84 inches. The angle between the normal to the scale, which coincides nearly with the normal to the axis of the magnet, and the axis of the fixed telescope is about 38°, the plane of the mirror being therefore inclined about 19° to the axis of the magnet.

To adjust the magnet so that it shall be truly transverse to the magnetic meridian, which position is necessary in order that the indications of the instrument may apply truly to changes in the magnitude of horizontal magnetic force, without regard to changes of direction, the time of vibration of the magnet and the reading of the fixed scale are determined for different readings of the torsion circle. In regard to the interpretation of such experiments the following explanation may be premised.

Suppose that the magnet is suspended in its carrier with its marked end in a magnetic westerly direction, not exactly west but in any westerly direction, and suppose that, by means of the fixed telescope, the reading of the scale is taken. The position of the axis of the magnet is thereby defined. Now let the magnet be taken out of its carrier, and replaced with its marked end easterly. The terrestrial magnetic force will now act, as regards torsion, in the direction opposite to that in which it acted before, and the magnet will take up a different position. But by turning the torsion-circle so as to reverse the direction of the torsion produced by the oblique tension of the two branches of the suspending skein, the magnet may be made to take the same position as before but with poles reversed, which will be proved by the reading of the scale, as seen in the fixed telescope, being the same. We thus obtain two readings of the torsion circle corresponding to the same direction of the magnet axis, but with the marked end opposite ways, without however possessing any information as to whether the magnet axis is accurately transverse to the magnetic meridian, inasmuch as the same operation can be performed whether the magnet axis be transverse or not.

But there is another observation which will indicate whether the magnet axis is or is not accurately transverse. Let, in addition, the time of vibration be taken in each position of the magnet. Resolve the terrestrial magnetic forces acting on the poles of the magnet each into two parts, one transverse to the magnet, the other longitudinal. In the two positions of the magnet, marked end westerly and marked end easterly, the magnitude of the transversal force is the same, and the changes which the torsion undergoes in a vibration of given extent are the same, and, if there were no other force, the time of vibration would also be the same. But there is another force, the longitudinal force, and when the marked end is northerly this tends from the centre of the magnet's length, and when it is southerly it tends towards the centre of the magnet's length, and in a vibration of given extent this force, in one case increases that due to the torsion, and in the other case diminishes it. The times of vibration will therefore be different. There is only one exception to this, which is when the magnet axis is transverse to the magnetic meridian, in which case the longitudinal force vanishes, and the times of vibration in both positions of the magnet become the same.

The criterion then of the position truly transverse to the meridian is this. Find the readings of the torsion circle which, with the magnet in reversed positions, will give the same readings of the scale and the same time of vibration for the magnet. With such readings of the torsion circle the magnet is, in either position, transverse to the meridian, and the difference of circle-readings is the difference between the position in which the terrestrial magnetism acting on the magnet twists it one way and the position in which the same force twists it the opposite way, and is therefore double of the angle of torsion of the suspending lines for which, in either position, the force of terrestrial magnetism is neutralized by the torsion.

The present suspension skein was mounted on 1880 December 30. On 1887 December 31 the following observations were made for determination of the angle of torsion :—

1887, Day.	The Marked End of the Magnet.							
	West.				East.			
	Torsion-Circle Reading.	Scale Reading.	Difference of Scale Readings for change of 1° of Torsion-Circle Reading.	Mean of the Times of Vibration.	Torsion-Circle Reading.	Scale Reading.	Difference of Scale Readings for change of 1° of Torsion-Circle Reading.	Mean of the Times of Vibration.
	°	div.	div.	s	°	div.	div.	s
Dec. 31	145	47·89		21·36	229	48·97		20·56
			8·76				7·46	
	146	56·65		21·16	230	56·43		20·80
			8·41				7·88	
	147	65·06		20·84	231	64·31		21·00

From these observations it appeared that the times of vibration and scale readings were sensibly the same when the torsion circle read 146°. 40′, marked end west, and 230°. 45′, marked end east, the difference being 84°. 5′. Half this difference, or 42°. $2\frac{1}{2}$′, is therefore the angle of torsion when the magnet is transverse to the meridian. The value adopted in the reduction of the observations during the year 1888 was 42°. 0′.

The adopted reading of torsion-circle, for transverse position of the magnet, the marked end being west, was 146° throughout the year.

The angle through which the magnet turns to produce a change of one division of scale reading, and the corresponding variation of horizontal force in terms of the whole horizontal force, is thus found.

The length of 30^{div}·85 of the fixed scale is exactly 12 inches, and the distance of the centre of the face of the plane mirror from the scale 90·84 inches ; consequently the angle at the mirror subtended by one division of the scale is 14′. 43″·2, or for change of one division of scale-reading the magnet is turned through an angle of 7′. 21″·6.

The variation of horizontal force, in terms of the whole horizontal force, producing angular motion of the magnet corresponding to change of one division of scale reading = cotan. angle of torsion × value of one division in terms of radius. Using the numbers above given, the change of horizontal force corresponding to change of one division of scale reading was found to be 0·002378, which value has been used throughout the year 1888 for conversion of the observed scale-readings into parts of the whole horizontal force.

In regard to the manner of making observations with the horizontal force magnet. A fine vertical wire is fixed in the field of view of the observing telescope, across which the graduations of the fixed scale, as reflected by the plane mirror carried by the magnet, are seen to pass alternately right and left as the magnet oscillates, and the scale reading for the extreme points of vibration is easily taken. The hours of observation are usually 9^h, 13^h, 15^h, and 21^h of Greenwich civil time (reckoning from midnight). Remarking that the time of vibration of the magnet is about 20 seconds, and that the observer looks into the telescope about 40 seconds before the pre-arranged time, the manner of making the observation is generally similar to that already described for the upper declination magnet.

A thermometer, the bulb of which reaches considerably below the attached scale, is so planted in a nearly upright position on the outer magnet box that the bulb projects into the interior of the inner box containing the magnet. Readings of this thermometer are usually taken at 9^h, 10^h, 11^h, 12^h, 13^h, 14^h, 15^h, and 21^h, Greenwich civil time. An index correction of — 0°·3, has been applied to all readings.

The photographic record of the movements of the horizontal force magnet is made on the same revolving cylinder as is used for record of the motions of the lower declination magnet. And as described for that magnet, there is also attached to the carrier of the horizontal force magnet a concave mirror, 4 inches in diameter, reduced by a stop (on the introduction of the new photographic paper) to an effective diameter of about 1 inch. The arrangements as regards lamp, slit, and other parts are precisely similar to those for the lower declination magnet already described, and may be perfectly understood by reference to that description (pages *xiii* and *xiv*), in which was incidentally included an explanation of some parts specially referring to register of horizontal force. The distance of the vertical slit from the concave mirror of the magnet is about 21 inches, and the distance of the axis of the registering cylinder from the concave mirror is 136·8 inches, the slit standing slightly out of the straight line joining the mirror and the registering cylinder. The same base line is used for measure of the horizontal force ordinates, and the register is similarly interrupted at each hour by the clock, and occasionally by the observer, for determination of time scale, the length of which is of course the same as that for declination.

The scale for measure of ordinates of the photographic curve is thus constructed. The distance from the concave mirror to the surface of the cylinder, in the actual path of the ray of light through the prism is (as for declination) practically the same as the horizontal distance of the centre of the cylinder from the mirror, or 136·8 inches. But, because of the reflexion at the concave mirror, the double of this measure, or 273·6 inches, is the distance that determines the extent of motion on the cylinder of the spot of light, which, in inches, for a change of 0·01 part of the whole horizontal force will therefore be 273·6 × tan. angle of torsion × 0·01. Taking for angle of torsion 42°. 0′ the movement of the spot of light on the cylinder for a change of 0·01 of horizontal force is thus found to be 2·464 inches, and with this unit the cardboard scale for measure of the ordinates was prepared. The ordinates being measured for the times at which eye observations of the scale were made, combination of the measured ordinates with the observed scale readings converted into parts of the whole horizontal force, gives an apparent value of the base line for each observation. These being divided into groups, mean base line values are adopted, written on the sheets, and new base lines laid down, from which the hourly ordinates (see page *xxx*) are measured, exactly in the same way as described for declination.

The indications of horizontal force are in a slight degree affected by the small changes of temperature to which the Magnet Basement is subject. The temperature coefficient of the magnet was determined by artificially heating the Magnet Basement to different temperatures, and observing the change of position of the magnet thereby produced. This process seems preferable to others in which was observed the effect which the magnet, when enclosed within a copper trough or box and artificially heated by hot water or hot air to different temperatures, produced on another suspended magnet, since the result obtained includes the entire effect of temperature upon all the various parts of the mounting of the magnet, as well as on the magnet itself. Referring to previous volumes for details, it is sufficient here to state that from a series of experiments made between January 3 and February 21 of the year 1868 on the principle mentioned, in temperatures ranging from 48°·2 to 61°·5, it appeared that when the marked end of the horizontal force magnet was to the west (its ordinary position) a change of 1° of temperature (Fahrenheit) produced an apparent change of ·000174 of the whole horizontal force, a smaller number of observations made with the marked end of the magnet east, in temperatures ranging from 49°·0 to 60°·9, indicating that a change of 1° of temperature produced an apparent change of ·000187 of horizontal force, increase of temperature in both cases being accompanied by decrease of magnetic force. It was concluded that an increase of 1° of temperature produces an apparent decrease of ·00018 of horizontal force. In the years 1885 and 1886 further observations on the same general plan were made, with the result that the decrease of horizontal force for increase of 1° of temperature was found to be somewhat greater at the higher than at the lower temperatures. A discussion of all the observations taken in 1885 and 1886, details of which are given at the end of the Introduction for 1886, shows that the correction for reduction to temperature 32° (expressed in terms of the horizontal force) is $(t-32) \times \cdot0000936 + (t-32)^2 \times \cdot000002074$ in which t is the temperature in degrees Fahrenheit. The decrease of horizontal force for an increase of 1° of temperature (Fahrenheit) would thus be ·00021 at 60°, ·00023 at 65°, and ·00025 at 70°.

VERTICAL FORCE MAGNET.—The vertical force magnet, for measure of the variations of vertical magnetic force, is by Troughton and Simms. It is 1 ft. 6 in. long and lozenge shaped, being broad at the centre and pointed at the ends; it is mounted on a solid brick pier capped with stone, situated in the western arm of the basement, its position being nearly symmetrical with that of the horizontal force magnet in the eastern arm. The supporting frame consists of two pillars, connected at their bases, on whose tops are the agate planes upon which rest the extreme parts of the continuous steel knife edge, attached to the magnet carrier by clamps and pinching screws. The knife edge, eight inches long, passes through an aperture in the magnet. The axis of the magnet is approximately transverse to the magnetic meridian, its marked end being east; its axis of vibration is thus nearly north and south magnetic. The magnet carrier is of iron; at its southern end there is fixed a small plane mirror for use in eye observations, whose plane makes with the vertical plane through the magnet an angle of 52¾° nearly. A telescope fixed to the west side of the brick pier supporting the theodolite of the upper declination magnet is directed to the mirror, for observation by reflexion of the divisions of a vertical opal glass scale fixed to the pier that carries the telescope, very near to the telescope itself. The numbers of this fixed scale increase downwards, so that when the magnet is placed in its usual position with the marked end east, increasing readings of the scale, as seen in the telescope, denote increasing vertical force.

The magnet is placed excentrically between the bearing parts of its knife edge, nearer to the southern side, leaving a space of about four inches in the northern part of the iron frame, in which the concave mirror used for the photographic register is planted. Two screw stalks, carrying adjustable screw weights, are fixed to the magnet carrier, near its northern side; one stalk is horizontal, and a change in the position of the weight affects the position of equilibrium of the magnet; the other stalk is vertical, and change in the position of its weight affects the delicacy of the balance, and so varies the magnitude of its change of position produced by a given change in the vertical force of terrestrial magnetism.

In the year 1882 Messrs. Troughton and Simms substituted for the old mirror of 4 inches diameter a much lighter mirror of 1 inch diameter, and also lowered the position of the knife-edge bar with respect to the magnet so as to permit of a diminution of the adjustable counterpoise weights which as well as the mirror appear to largely affect the temperature correction of this balance-magnet. The use of a smaller and much lighter mirror was rendered possible by the greater sensitiveness of the new photographic paper introduced in 1882 June.

The whole is enclosed in a rectangular box, resting upon the pier before mentioned, and having apertures, covered with glass, opposite to the two mirrors carried by the magnet.

The time of vibration of the magnet in the vertical plane is observed usually about once in each week. From 58 observations made during the course of the year this was found to be $19^{s}\cdot666$.

The time of vibration of the magnet in the horizontal plane is determined by suspending the magnet with all its attached parts from a tripod stand, its broad side being in a plane parallel to the horizon, so that its moment of inertia is the same as when in observation. A telescope, with a wire in its focus, being directed to the plane mirror carried by the magnet, a scale of numbers is placed on the floor, at right angles to the long axis of the magnet, so as to be seen, by reflexion, in the fixed telescope. The magnet is observed only when swinging through a small arc.

Observations made in the way described on 1888 January 3 gave for the time of vibration of the magnet in the horizontal plane, $16^{s}\cdot930$. This value has been used throughout the year 1888.

The length of the normal to the fixed vertical scale that meets the face of the plane mirror is 186·07 inches, and $30^{div}\cdot85$ of the scale correspond to 12 inches. Consequently the angle which one division of the scale subtends, as seen from the mirror, is $7'. 11''\cdot2$, or the angular movement of the normal to the mirror, corresponding to a change of one division of scale reading, is $3'. 35''\cdot6$.

But the angular movement of the normal to the mirror is equal to the angular movement of the magnet multiplied by the sine of the angle which the plane of the mirror makes with a vertical plane through the magnet. This angle, as already stated, is $52\frac{3}{4}^{\circ}$, therefore dividing the result just obtained, $3'. 35''\cdot6$, by Sin. $52\frac{3}{4}^{\circ}$, the angular motion of the magnet corresponding to a change of one division of scale reading is found to be $4'. 30''\cdot9$.

The variation of vertical force, in terms of the whole vertical force, producing angular motion of the magnet corresponding to a change of one division of scale reading = cotan. dip $\times \left(\frac{T'}{T}\right)^2 \times$ value of one division in terms of radius, in which T' is the time of vibration of the magnet in the horizontal plane, and T that in the vertical plane. Assuming $T' = 16^{s}\cdot930$, $T = 19^{s}\cdot666$, and dip $= 67^{\circ}. 25\frac{1}{2}'$, the change of vertical force corresponding to change of one division of scale reading was found to be 0·0004047, and this value has been used throughout the year for conversion of the observed scale readings into parts of the whole vertical force.

The hours of observation of the vertical force magnet are the same as those for the horizontal force magnet, and the method of observation is precisely similar, the time of vertical vibration being substituted for that of horizontal. The wire in the fixed telescope is here horizontal, and as the magnet oscillates the divisions of the scale are seen to pass upwards and downwards in the field of view.

As in the case of the horizontal force magnet a thermometer is provided whose bulb projects into the interior of the magnet box. Readings are taken usually at 9^h, 10^h, 11^h, 12^h, 13^h, 14^h, 15^h, and 21^h, Greenwich civil time. An index correction of $-0^{\circ}\cdot3$, has been applied to all readings.

The photographic register of the movements of the vertical force magnet is made on a cylinder of the same size as that used for declination and horizontal force, driven also by chronometer movement. The cylinder is here placed vertical instead of horizontal, and the variations of the barometer are also registered on it. The slit is horizontal, and other arrangements are generally similar to those already described for declination and horizontal force. The concave mirror carried by the magnet is 1 inch in diameter, and the slit is distant from it about 22 inches, being placed a little out of the straight line joining the mirror and the registering cylinder. There is a slight deviation in the further optical arrangements. Instead of falling on a reflecting prism (as for declination and horizontal force) the converging horizontal beam from the concave mirror falls on a system of plano-convex cylindrical lenses, placed in front of the cylinder, with their axes parallel to that of the cylinder. The trace is made on the western side of the cylinder, the position of the magnet being so adjusted that the spot of light shall fall on the lower part of the sheet to avoid interference with the barometer trace. A base line is photographed, and the record is interrupted at each hour by the clock, and occasionally by the observer, for establishment of time scale, in the same way as for the other magnets. The length of the time scale is the same as that for the other magnetic registers.

The scale for measure of ordinates of the photographic curve is determined as follows: — The distance from the concave mirror to the surface of the registering cylinder is 100·2 inches. But the double of this measure, or 200·4 inches, is the distance that determines the extent of motion on the cylinder of the spot of light, which, in inches, for a change of 0·01 part of the whole vertical force, will therefore be $= 200{\cdot}4 \times \tan.\ \text{dip} \times \left(\frac{T}{T'}\right)^2 \times 0{\cdot}01$. Using the values of T, T', and of dip, before given, (page *xxii*), the movement of the spot of light on the cylinder for a change of 0·01 of vertical force is thus found to be, 6·504 inches, and with this unit the scale for measure of the ordinates was constructed for use throughout the year. Base line values were then determined, and written on the sheets, and new base lines laid down, from which the hourly ordinates (see page *xxx*) were measured, exactly in the same way as was described for declination.

In regard to the temperature correction of the vertical force magnet, it is only necessary here to say that, according to a series of experiments made between October 17 and 23, 1882 in a similar manner to those for the horizontal force magnet (page *xx*), and in temperatures ranging from 59°·3 to 64°·9 it appeared that an increase of 1° of temperature (Fahrenheit) produced an apparent increase of 0·00020 of vertical force, a value which succeeding experiments have closely confirmed. The value of the coefficient is thus much less than was found in the old state of the magnet with the large mirror, although still not following the ordinary law of increase of temperature producing loss of magnetic power. Further observations made in the years 1885 and 1886, of which particulars are given at the end of the Introduction for 1886, showed that through the range of temperature to which the magnet is usually exposed the increase of vertical force for increase of 1° of temperature is uniformly 0·000212, no term depending on the square of the temperature being here necessary, as in the case of horizontal force.

DIP INSTRUMENT.—The instrument with which the observations of magnetic dip are made is that which is known as Airy's instrument. It was constructed by Messrs. Troughton and Simms, and is mounted in the New Library on a slate slab supported by a braced wooden stand built up from the ground independently of the floor. The plan of the instrument was arranged by Sir G. B. Airy so that the points of the needles should be viewed by microscopes and if necessary observed whilst the needles were in a state of vibration; that there should be power of employing needles of different lengths; and that the field of view of each microscope should be illuminated from the side opposite to the observer, in such way that the needle point should form a dark image in the bright field.

The instrument is adapted to the observation of needles of 9 inches, 6 inches, and 3 inches in length. The main portion of the instrument, that in which the needle under observation is placed, consists of a square box made of gun metal (carefully selected to ensure freedom from iron), with back and front of glass Six microscopes, so planted as to command the points of the three different lengths of needles, turn on a horizontal axis so as to follow the points of the needles in the different positions which in observation they take up. The needle pivots rest on agate bearings. The object glasses and field glasses of the microscopes are within the front glass plate, their eye glasses being outside, and turning with them on the same axis. Upon the plane side of each field glass (the side next the object glass and on which the image of the needle point is formed) a scale is etched by means of which the position of the needle points is noted. And on the inner side of the front glass plate is etched the graduated circle, 9¾ inches in diameter, divided to 10′, and read by two verniers to 10″. The verniers (thin plates of metal, with notches instead of lines, for use with transmitted light) are carried by the horizontal axis, inside the front glass plate, their reading lenses, attached to the same axis, being outside. A suitable clamp with slow motion is provided. The microscopes and verniers can be illuminated by one gas lamp, the light from which falling on eight corresponding prisms is thereby directed to each separate microscope and vernier. The prisms are carried behind the back glass plate on a circular frame in such a way that, on reversion of the instrument in azimuth, the whole set of prisms can at one motion of the frame be shifted so as to bring each one again opposite to its proper microscope or vernier.

Since the instrument has been placed in the New Library artificial light has not been employed in making the observation.

The whole of the apparatus is planted upon a circular horizontal plate, admitting of rotation in azimuth : a graduated circle near the circumference of the plate is read by two fixed verniers.

A brass zenith point needle, having points corresponding in position to the three different lengths of dip needles, is used to determine the zenith point for each particular length of needle.

The instrument carries two levels, one parallel to the plane of the vertical circle, the other at right angles to that plane, by means of which the instrument is adjusted in level from time to time. The readings of the first-mentioned level are also regularly employed to correct the apparent value of dip for any small outstanding error of level : the correction seldom exceeds a very few seconds of arc.

Observations are made only in the plane of the magnetic meridian, and the following is a description of the method of proceeding. The needle to be used is first magnetised by double touch, giving it nine strokes on each of its sides : it is then placed in position in the instrument, the microscope scale readings are taken, and the verniers of the vertical graduated circle are read : the readings of the level parallel to the plane of this circle are also read. The instrument is then reversed in azimuth and a second observation made. The needle pivots are then reversed on the agate bearings, and two observations in reversed positions of the instrument again made. The needle is then removed from the instrument and re-magnetised so as to reverse the direction of its poles, and four more observations are made in the way just described. The mean of the eight partial values of dip thus found, corrected for error of level, gives the final value of dip which appears in the printed results.

The needles in regular use are of the ordinary construction ; they are two 9-inch needles, B_1 and B_2, two 6-inch needles, C_1 and C_2, and two 3-inch needles, D_1 and D_2.

DEFLEXION INSTRUMENT.—The observations of deflexion of a magnet in combination with observations of vibration of the deflecting magnet, for determination of the absolute measure of horizontal magnetic force, are made with a unifilar instrument, which, with the exception of some slight modification of the mechanical arrangements, is similar to those issued from the Kew Observatory. It is mounted in the New Library on a slate slab in the same way as the Dip instrument.

The deflected magnet, used merely to ascertain the ratio which the power of the deflecting magnet at a given distance bears to the power of terrestrial magnetism, is 3 inches long, and carries a small plane mirror, to which is directed a telescope fixed to and rotating with the frame that carries also the suspension piece of the deflected magnet: a scale fixed to the telescope is seen by reflexion at the plane mirror. The deflecting magnet is a hollow cylinder 4 inches long, containing in its internal tube a collimator, by means of which in another apparatus its time of vibration is observed. In observations of deflexion the deflecting magnet is placed on the transverse deflexion rod, carried by the rotating frame, at the distances 1·0 foot and 1·3 foot of the engraved scale from the deflected magnet, and with one end towards the deflected magnet. Observations are made at the two distances mentioned, with the deflecting magnet both east and west of the deflected magnet, and also with its poles in reversed positions. The fixed horizontal circle is 10 inches in diameter: it is graduated to 10′, and read by two verniers to 10″.

It will be convenient in this case to include with the description of the instrument an account of the method of reduction employed, in which the Kew precepts and generally the Kew notation are followed. Previous to the establishment of the instrument at the Royal Observatory the values of the various instrumental constants, as determined at the Kew Observatory, were kindly communicated by the late Professor Balfour Stewart, and these have been since used in the reduction of all observations made with the instrument at Greenwich.

The instrumental constants as thus furnished are as follows:—

The increase in the magnetic moment of the deflecting magnet produced by the inductive action of unit magnetic force in the English system of absolute measurement = μ = 0·00015587.

The correction for decrease of the magnetic moment of the deflecting magnet required in order to reduce to the temperature 35° Fahrenheit $= c =$ 0·00013126 $(t - 35)$ + 0·000000259 $(t-35)^2$: t representing the temperature (in degrees Fahrenheit) at which the observation is made.

Moment of inertia of the deflecting magnet = K. At temperature 30°, log. K = 0·66643 : at temperature 90°, log. K = 0·66679.

The distance on the deflexion rod from 1^{ft}·0 east to 1^{ft}·0 west of the engraved scale, at temperature 62°, is too long by 0·0034 inch, and the distance from 1^{ft}·3 east to 1^{ft}·3 west is too long by 0·0053 inch. The coefficient of expansion of the scale for 1° is ·00001.

The adopted value of K was confirmed in the year 1878 by a new and entirely independent determination made at the Royal Observatory, giving log. K at temperature 30° = 0·66727.

Let m = Magnetic moment of deflecting or vibrating magnet.
X = Horizontal component of Earth's magnetic force.

Then, if in the two deflexion observations, r_1, r_2, be the apparent distances of centre of deflecting magnet from deflected magnet, corrected for scale error and temperature (about 1·0 and 1·3 foot).

u_1, u_2 the observed angles of deflexion.

$$A_1 = \tfrac{1}{2} r_1^3 \sin. u_1 \left\{ 1 + \frac{2\mu}{r_1^3} + c \right\}$$

$$A_2 = \tfrac{1}{2} r_2^3 \sin. u_2 \left\{ 1 + \frac{2\mu}{r_2^3} + c \right\}$$

$P = \dfrac{A_1 - A_2}{\frac{A_1}{r_1^2} - \frac{A_2}{r_2^2}}$ [P being a constant depending on the distribution of magnetism in the deflecting and deflected magnets],

we have, using for reduction of the observations a mean value of P :—

$$\frac{m}{X} = A_1 \left(1 - \frac{P}{r_1^2}\right), \text{ from observation at distance } r_1.$$

$$\frac{m}{X} = A_2 \left(1 - \frac{P}{r_2^2}\right), \text{ from observation at distance } r_2.$$

The mean of these is adopted as the true value of $\frac{m}{X}$.

In calculating the value of P as well as the values of the four factors within brackets, the distances r_1 and r_2 are taken as being equal to 1·0 ft. and 1·3 ft. respectively. The expression for P is not convenient for logarithmic computation, and, in practice, its value for each observation has, since the year 1877, been calculated from the expression

$$\frac{\text{Log. } A_1 - \text{Log. } A_2}{\text{modulus}} \times \frac{r_1^2 \times r_2^2}{r_2^2 - r_1^2} = (\text{Log. } A_1 - \text{Log. } A_2) \times 5·64.$$

For determination, from the observed vibrations, of the value of mX:—let T_1 = time of vibration of the deflecting magnet, corrected for rate and arc of vibration,

$\frac{H}{F}$ = ratio of the couple due to torsion of the suspending thread to the couple due to the Earth's magnetic force. [This is obtained from the formula $\frac{H}{F} = \frac{\theta}{90° - \theta}$, where θ = the angle through which the magnet is deflected by a twist of 90° in the thread.]

$$\text{Then } T^2 = T_1^2 \left\{ 1 + \frac{H}{F} + \mu \frac{X}{m} - c \right\}$$

$$\text{and } mX = \frac{\pi^2 K}{T^2}.$$

The adopted time of vibration is the mean of 100 vibrations observed immediately before, and of 100 vibrations observed immediately after the observations of deflexion.

From the combination of the values of $\frac{m}{X}$ and mX, m and X are immediately found. The computation is made with reference to English measure, taking as units of length and weight the foot and grain, but it is desirable to express X also in metric measure. If the English foot be supposed equal to α times the millimètre, and the grain equal to β times the milligramme, then for reduction to metric measure $\frac{m}{X}$ and mX must be multiplied by α^3 and $\alpha^2\beta$ respectively, or X must be multiplied by $\sqrt{\frac{\beta}{\alpha}}$. Taking the mètre as equal to 39·37079 inches, and the gramme as equal to 15·43249 grains, the factor by which X is to be multiplied in order to obtain X in metric measure is $0{\cdot}46108 = \frac{1}{2{\cdot}1689}$. The values of X in metric measure thus derived from those in English measure are given in the proper table. Values of X in terms of the centimètre and gramme, known as the C.G.S. unit (centimètre-gramme-second unit), are readily obtained by dividing those referred to the millimètre and milligramme by 10.

EARTH CURRENT APPARATUS.—For observation of the spontaneous galvanic currents which in some measure are almost always discoverable in the earth, and which are occasionally very powerful, two insulated wires having earth connexions at Angerstein Wharf (on the bank of the River Thames near Charlton) and Lady Well for one circuit; and at the Morden College end of the Blackheath Tunnel and the North Kent East Junction of the South-Eastern Railway for the other circuit, have been employed. The connecting wires, which are special and used for no other purpose, pass from the Royal Observatory to the Greenwich Station of the South-Eastern Railway, and thence, by kind permission of the Directors of the South-Eastern Railway Company, along the lines of the Railway to the respective earths, in each case a copper plate. The direct distance between the earth plates of the Angerstein Wharf—Lady Well circuit is 3 miles, and the azimuth of the line, reckoning from magnetic north towards east, 50°; in the Blackheath—North Kent East Junction circuit the direct distance is 2½ miles, and the azimuth, from magnetic north towards west, 46°. The actual lengths of wire in the circuitous courses which the wires necessarily take in order to reach the Observatory registering apparatus are about 7½ miles and 5 miles respectively. The identity of the four branches is tested from time to time as appears necessary.

In each circuit at the Royal Observatory there is placed a horizontal galvanometer, having its magnet suspended by a hair. Each galvanometer coil contains 150 turns of No. 29 copper wire, or the double coil of each instrument consists of 300 turns of wire, the resistance as found by direct measurements being 7 ohms. For registration of the larger earth currents, a portion only of the current is allowed to pass through the galvanometer, while the greater part flows through a shunt, consisting of a short coil of fine copper wire, the resistance of which is 1·3 ohms. The amplitude of the movement is thus reduced in the ratio of 6·4 to 1. On a few selected days in each month registers on a large scale, for determination of the small diurnal inequality in earth currents, are obtained by removing the shunts, but no discussion of these registers has yet been made. The galvanometers are placed on opposite sides of the registering cylinder which is horizontal. One galvanometer stands towards one end of the cylinder, and the other towards the other end, and each carries, on a light stalk extending downwards from its magnet, a small plane mirror. Immediately above the cylinder are placed two long reflecting prisms which, except that they are each but half the length of the cylinder, and are placed end to end, are generally similar to those used for magnetic declination and horizontal force, the front convex surfaces facing opposite ways, each towards the mirror of its respective galvanometer. In each case the light of a gas lamp, passing through a vertical slit and a cylindrical lens having its axis vertical, falls upon the galvanometer mirror, which reflects the converging beam to the convex surface of the reflecting prism, by whose action it is made to form on the paper on the cylinder a small spot of light ; thus all the azimuthal motions of the galvanometer magnet are registered. The extent of trace for each galvanometer is thus confined to half the length of the cylinder, which is of the same size as those used for the magnetic registers. The arrangements for turning the cylinder, automatically determining the time scale, and forming a base line are similar to those which have been before described. When the traces on the paper are developed the parts of the registers which appear in juxtaposition correspond, as for declination and horizontal force, to the same Greenwich time, and the scale of time is of the same length as for the magnetic registers.

§ 5. *Magnetic Reductions.*

The results given in the Magnetic Section refer to the civil day, commencing at midnight.

Before the photographic records of magnetic declination, horizontal force, and vertical force are discussed, they are divided into two groups ; one including all days on which the traces show no particular disturbance, and which therefore are suitable for the determination of diurnal inequality ; the other comprising days of unusual and violent disturbance, when the traces are so irregular that it appears impossible to treat them except by the exhibition of every motion of each magnet through the day. Following the principle of separation hitherto adopted, there are 3 days in the year 1888 which have been classed as days of great disturbance. These are January 13–14, 23–24, and May 20–21. Other days of lesser disturbance are January 14–15, March 15–16, 16–17, 17–18, 18–19, April 11, 12, 13, 14, May 7, 8, 9, 10, 21–22, June 3–4, August 3–4, 16, October 19–20, 20–21, 21–22, 30–31, 31, November 1, 16–17, 17–18, December 24. When two days are mentioned it is to be understood that the reference is usually to one set of photographic sheets extending from noon to noon and including the last half and the first half respectively of two consecutive civil days.

Separating the 3 days of great disturbance to be spoken of hereafter, the photographic sheets for the remaining available days, including those of lesser disturbance, were thus treated. Through each photographic trace a pencil line was drawn, representing the general form of the curve, without its petty irregularities. The ordinates of these pencil curves were then measured, with the proper pasteboard scales, at every hour, the measures being entered in a form having double argument, the vertical argument ranging through the 24 hours of the civil day (0^h to 23^h), and the horizontal argument through the days of a calendar month, the means of the numbers standing in the vertical columns giving the mean daily value of the element, and the means of the numbers in the horizontal columns the mean monthly value at each hour of the day. Tables I. and II. contain the results for declination, Tables III. to VI. those for horizontal force, with corresponding tables of temperature, and Tables VII. to X. those for vertical force, with corresponding tables of temperature. In the formation of diurnal inequalities it is unimportant whether a day omitted be a complete civil day, or the parts of two successive civil days making together a whole day, although in the latter case the results are not available for daily values. The omissions actually made on account of disturbed days, or from other causes, in the formation of Tables I. and II., for declination, are January 13, 23, May 21, 25, June 26, July 4, December 31; in Tables III. to VI. for horizontal force, are January 13, 23, May 21, July 4, and in Tables VII. to X. for vertical force, are January 1, 2, 3, 13, 23, May 21, October 6, December 28, 29, 30, 31. Table XI. gives the collected monthly values for declination, horizontal force, and vertical force, and Table XII. the mean diurnal inequalities for the year.

The temperature of the horizontal and vertical force magnets was maintained so nearly uniform through each day that the determination of the diurnal inequalities of horizontal and vertical force should possess great exactitude. It was not possible under the circumstances to maintain similar uniformity of temperature through the seasons, a point however of less importance. In years preceding 1883 the results for horizontal and vertical force have been given uncorrected for temperature, leaving the correction to be applied when the results for series of years are collected for discussion; but from the beginning of the year 1883 it has been considered desirable to add also, in Tables III., V., VII., and IX., results corrected for temperature, in order to render them more immediately available. In Tables XI. and XII., only results corrected for temperature are given. The corrected mean daily and mean hourly values of horizontal force given in Tables III. and V. respectively are obtained by applying to the uncorrected values the correction $(t-32) \times \cdot 0000936 + (t-32)^2 \times \cdot 000002074$ (page *xx*) where t is the temperature in degrees Fahrenheit, and to those of vertical force, Tables VII. and IX., the correction $-(t-32) \times \cdot 000212$ (page *xxiv*). The corrections applied are founded on the daily and hourly values of temperature given in Tables IV., VI., VIII., and X.

In regard to the formation of the tables of temperature, the hourly readings of the Richard thermograph were entered into a form having double arguments, as for the magnets, the mean hourly values deduced therefrom giving for each month the variation through the day, and the mean daily values the variation through the month. To adapt these to represent the temperature within the horizontal and vertical-force magnet boxes respectively, the monthly means of the thermograph readings at 9^h, 10^h, 11^h, 12^h, 13^h, 14^h, 15^h, and 21^h, were compared with the corresponding means of the eye readings of the thermometers whose bulbs are within the respective magnet boxes, giving corrections to the thermograph readings at these hours, which were very accordant, and from which by interpolation corrections were obtained for the remaining hours. The eight daily observations gave also the means of reducing the daily thermograph values to the temperature of the interior of the respective magnet boxes. The results are given in Tables IV., VI., VIII., and X.

In order to economise space the daily values as exhibited in Tables III. and VII., both uncorrected and corrected, have been diminished by constants. The division ═══ in these Tables and in Table XI. indicates that the instrument has been disturbed for experiment or adjustment, or that for some reason the continuity of the values has been broken, the constants deducted being different before and after each break. In the interval between two breaks the constant deducted remains the same, and that deducted in Tables III. and VII. from the corrected values differs from that deducted from the uncorrected values by some multiple of 100. In Tables II., V., IX., and XII. the separate hourly values of the different elements have been simply diminished by the smallest hourly value.

The variations of declination are given in the sexagesimal division of the circle, and those of horizontal and vertical force in terms of ·00001 of the whole horizontal and vertical forces respectively taken as units. In Tables XI. and XII. they have been also expressed in terms of ·00001 of Gauss's absolute unit, as referred to the metrical system of the millimètre-milligramme-second.

The factors for conversion from the former to the latter system of measures are as follows :—

For variation of declination, expressed in minutes, the factor is

$$\text{H.F. in metrical measure} \times \sin 1' = 1{\cdot}8204 \times \sin 1' = 0{\cdot}0005295.$$

For variation of horizontal force, the factor is

$$\text{H.F. in metrical measure} = 1{\cdot}8204.$$

and for variation of vertical force

$$\begin{aligned}\text{V. F. in metrical measure} &= \text{H. F. in metrical measure} \times \tan \text{dip}, \\ &= 1{\cdot}8204 \times \tan 67^\circ.\,25\tfrac{1}{2}' = 4{\cdot}3786.\end{aligned}$$

The measures as referred to the millimètre-milligramme-second system are convertible into measures on the centimètre-gramme-second (C. G. S.) system by dividing by 10.

Table XIII. exhibits the diurnal range of declination and horizontal force on each separate day, as determined from the 24 hourly ordinates of each element measured from the photographic register (as explained on page *xxx*), and the monthly means of these numbers, the results for horizontal force being corrected for temperature. The first portion of Table XIV. contains the difference between the greatest and least hourly mean values in each month, for declination, horizontal force, and vertical force, as extracted from Table II., and columns *c* of Tables V. and IX. In the second portion of the table there are given for each month the numerical sums of the deviations of the 24 hourly values from the mean, taken without regard to sign.

The magnetic diurnal inequalities of declination, horizontal force, and vertical force, for each month and for the year, have been treated by the method of harmonic analysis, and the results are given in Tables XV. and XVI. The values of the coefficients contained in Table XV. have been thus computed, 0 representing the value at 0^h (midnight), 1 that at 1^h, and so on.

$$m = \frac{1}{24}\,(0+1+2\ldots\ldots22+23).$$

$$\begin{aligned}12\,a_1 = 0-12 &+ \{(1+23)-(11+13)\}\cos 15^\circ + \{(2+22)-(10+14)\}\cos 30^\circ \\ &+ \{(3+21)-(9+15)\}\cos 45^\circ + \{(4+20)-(8+16)\}\cos 60^\circ \\ &+ \{(5+19)-(7+17)\}\cos 75^\circ.\end{aligned}$$

$$12\ b_1 = 6-18 + \{(5+7) - (17+19)\} \sin 75^\circ + \{(4+8) - (16+20)\} \sin 60^\circ$$
$$+ \{(3+9) - (15+21)\} \sin 45^\circ + \{(2+10) - (14+22)\} \sin 30^\circ$$
$$+ \{(1+11) - (13+23)\} \sin 15^\circ.$$

$$12\ a_2 = (0+12) - (6+18) + \{(1+11+13+23) - (5+7+17+19)\} \cos 30^\circ$$
$$+ \{(2+10+14+22) - (4+8+16+20)\} \cos 60^\circ.$$

$$12\ b = (3+15) - (9+21) + \{(2+4+14+16) - (8+10+20+22)\} \sin 60^\circ$$
$$+ \{(1+5+13+17) - (7+11+19+23)\} \sin 30^\circ.$$

$$12\, a = (0+8+16)-(4+12+20)+\{(1+7+9+15+17+23)-(3+5+11+13+19+21)\} \cos 45^\circ.$$

$$12\ b = (2+10+18)-(6+14+22)+\{(1+3+9+11+17+19)-(5+7+13+15+21+23)\} \sin 45^\circ.$$

$$12\ a_4 = (0+6+12+18)-(3+9+15+21)$$
$$+ \{(1+5+7+11+13+17+19+23) - (2+4+8+10+14+16+20+22)\} \cos 60^\circ.$$

$$12\ b_4 = \{(1+2+7+8+13+14+19+20) - (4+5+10+11+16+17+22+23)\} \sin 60^\circ.$$

The values of the coefficients c_1, and of the constant angles α contained in Table XVI., are then determined by means of the following relations :—

$$\frac{a_1}{b_1} = \tan \alpha \qquad\qquad c_1 = \frac{a_1}{\sin \alpha} = \frac{b_1}{\cos \alpha}.$$

Similarly for c_2, β, &c.

Finally, the values of the angles α', β', &c. were thus found. Calling the Sun's hour angle east at mean midnight $= h$, then—

$$\alpha' = \alpha + h$$
$$\beta' = \beta + 2h$$
$$\&c. = \&c.,$$

a mean value of h for the month being employed.

The values of a_5 and b_5 for the diurnal inequalities for the year were also calculated, but could not be conveniently included in Table XV. ; they are as follows :—

1888.	a_5.	b_5.
Declination	−0′·10	−0′·04
Horizontal Force......	+0·9	−2·0
Vertical Force	+0·7	−0·2

In order to give some indication of the accuracy with which the results of observation are represented by the harmonic formula, the sums of squares of residuals remaining after the introduction of m and of each successive pair of terms of the expression on page (xii), corresponding to the single terms of the expressions on page (xiii), have been calculated for the mean diurnal inequalities for the year (columns 1, 2, and 3 of Table XII). The respective sums of squares of residuals are as follows :—

SUMS OF SQUARES OF RESIDUALS OF DIURNAL INEQUALITIES.

For the Year 1888.	Declination.	Horizontal Force.	Vertical Force.
Sums of Squares of Observed Values (Table XII.)	173′·21	217338·5	10652·0
Sums of Squares of Residuals after the introduction of m	96·92	35073·0	2293·1
" " a_1 and b_1	33·21	9506·2	1429·4
" " a_2 and b_2	5·37	2303·5	217·3
" " a_3 and b_3	1·01	600·4	38·7
" " a_4 and b_4	0·15	78·4	9·7
" " a_5 and b_5	0·01	19·5	2·8

The unit in the case of horizontal and vertical force being ·00001 of the whole horizontal and vertical forces respectively, it thus appears that there would be no advantage in carrying the approximation (Table XV.) beyond the determination of a_4, b_4.

As regards Magnetic Dip, the result of each complete observation of dip with each of the six needles in ordinary use is given in Table XVII., and in Table XVIII. the concluded monthly and yearly values for each needle.

The results of the observations for Absolute Measure of Horizontal Force contained in Table XIX. require no special remark, the method of reduction and all necessary explanation having been given with the description of the instrument.

No numerical discussion of Earth Current records is contained in the present volume.

In the treatment of disturbed days it was formerly the custom to measure out for each element all salient points of the curves and to print the numerical values. But, since the year 1882, it has been considered preferable to give instead of these tables reduced copies of the actual photographic curves (reproduced by photo-lithography from full-sized tracings of the original photographs), adding thereto copies of the corresponding earth-current curves. The registers thus exhibited are those for the days of great and of lesser disturbance mentioned on page (*xxx*).

The plates are preceded by a brief description of *all* significant magnetic motions (superposed on the ordinary diurnal movement) recorded throughout the year, These, in combination with the plates, give very complete information on magnetic disturbances during the year 1888, affording thereby, it is hoped, facilities for making comparison with solar phenomena.

In regard to the plates, it may be remarked that on each day five distinct registers are usually given, viz.: declination, horizontal force, vertical force, and the two earth-currents, all necessary information for proper understanding of the plates being given in the notes on page (xxvi).

An additional plate (XI.) exhibits the registers of declination, horizontal force, and vertical force on four quiet days, which may be taken as types of the ordinary diurnal movement at four seasons of the year. These are given for the civil day as exhibiting more clearly the character of the diurnal movement. The earth currents on these days are very small.

The indications of horizontal and vertical force are given precisely as registered; they are therefore affected, slightly as compared with the amount of motion on disturbed days, by the small recorded changes of temperature of the magnets. The recorded hourly temperatures being inserted on the plates, reference to the temperature correction of the magnets, given at page *xxxi*, will show the effect produced. Briefly, an increase of about $4\frac{1}{2}°$ of temperature throws the horizontal force curve upward by 0·001 of the whole horizontal force; an increase of about 5° of temperature throws the vertical force curve downward by 0·001 of the whole vertical force.

The original photographs have been reduced in the proportion of 20 to 11 on the plates, and the corresponding scale values are :—

—	LENGTH IN INCHES					
	Of 1° of Declination.		Of 0·01 of Horizontal Force.		Of 0·01 of Vertical Force.	
	in.	mm.	in.	mm.	in.	mm.
On the Photographs	4·691	119·15	2·464	62·58	6·504	165·20
On the Plates -	2·580	65·53	1·355	34·42	3·577	90·85

The scales actually attached to the plates are, however, so arranged as to correspond with the tables of the magnetic section, that is to say, the units for horizontal force and vertical force are ·00001 of the whole horizontal and vertical forces respectively.

But the preceding scale values are not immediately comparable for the different elements, and it will therefore be desirable to refer them all to the same unit, say 0·01 of the horizontal force.

Now, the transverse force represented by a variation of 1° of Declination

= ·0175 of Horizontal Force

and Vertical Force = Horizontal Force × tan. dip [dip = 67°. 25½′]

= Horizontal Force × 2·4053

whence we have the following equivalent scale values for the different elements :—

—	Length of Unit, Equivalent to 0·01 of Horizontal Force.					
	For Declination Curve.		For Horizontal Force Curve.		For Vertical Force Curve.	
	in.	mm.	in.	mm.	in.	mm.
On the Photographs	2·68	68·1	2·46	62·6	2·70	68·7
On the Plates	1·47	37·4	1·36	34·4	1·49	37·8

It may be convenient to give also comparative scale values for the different systems of absolute measurement, viz. :—

Foot-grain-second,	or British unit,	in terms of which Mean H. F. for 1888	= 3·9480
Millimètre-milligramme-second,	or Metric unit,	„ „ „	= 1·8204
Centimètre-gramme-second,	or C. G. S. unit,	„ „ „	= 0·18204

Dividing therefore the scale values last given by 3·9480, 1·8204, and 0·18204 respectively, the following comparative scale values for each of the elements on the photographs and on the plates as referred to 0·01 of these units respectively are found :—

UNIT.	LENGTH OF 0·01 OF UNIT.											
	Declination.				Horizontal Force.				Vertical Force.			
	On the Photographs.		On the Plates.		On the Photographs.		On the Plates.		On the Photographs.		On the Plates.	
	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.
British - -	0·68	17·2	0·37	9·5	0·62	15·9	0·34	8·7	0·68	17·4	0·38	9·6
Metric - -	1·47	37·4	0·81	20·5	1·35	34·4	0·74	18·9	1·49	37·7	0·82	20·8
C. G. S. - -	14·7	374·	8·1	205·	13·5	344·	7·4	189·	14·9	377·	8·2	208·

The scale values for the earth-current registers have been determined by measurement of the movement on the photographic sheet produced by the current from a standard Daniell cell, through a known resistance in combination with determinations of the resistance of each earth-current circuit by means of an electrical balance. It was thus found (by measures on 1886 Oct. 21 and 1887 Sept. 28 and 29) that 1 inch on the photographic sheet corresponds to a current of ·00062 ampère for the Angerstein Wharf—Ladywell circuit, and to a current of ·00073 ampère for the Blackheath—North Kent East Junction circuit, in both cases without the shunt. The following measures of resistance of the circuits have been made :—

	Angerstein Wharf—Ladywell.	Blackheath—North Kent East Junction.
	Ohms.	Ohms.
1887 Dec. 2	225	262
1888 May 8	245	258
May 9	247	262
1889 April 26	231	197
April 27	252	—
May 1	238	217
Means ...	240	239

Taking 240 ohms as an approximate value of the resistance in each circuit, we have the following approximate scale-values for a difference of potential of 1 volt between the earth plates of the two earth current circuits :—

—	LENGTH CORRESPONDING TO 1 VOLT.							
	Angerstein Wharf—Ladywell Circuit.				Blackheath—North Kent East Junction Circuit.			
	Without Shunt.		With Shunt.		Without Shunt.		With Shunt.	
	in.	mm.	in.	mm.	in.	mm.	in.	mm.
On the Photographs - - -	6·5	165·	1·02	25·9	5·6	142·	0·87	22·1
On the Plates - - - -	—	—	0·56	14·2	—	—	0·48	12·2

The earth current registers given on the lithographed plates are in all cases those taken with the shunt in circuit, the effect of this being, as explained on page *xxix*, to reduce the amplitude of the movement in the ratio of 6·4 to 1.

Slight interruptions in the traces on the plates are due to various causes. In the originals there are breaks at each hour for time scale, so slight however that, in the copies, the traces could usually be made continuous without fear of error : in a few cases, however, this could not be done. Further, to check the numeration of hours, the observer interrupts the register at definite times for about five minutes, usually at or near 9^{h}. 30^{m}, 14^{h}. 30^{m}, and 20^{h}. 30^{m}, Greenwich civil time, and at somewhat different times on Sundays. The interruption in the earth-current registers is greater than in the other registers because of the necessity of also temporarily disconnecting the wires for determination of the instrumental zeros. A weekly clearing of the gas pipes also causes a somewhat longer interruption, usually at about 10^{h}, as on January 14. 10^{h}. Explanation in regard to other accidental interruptions will be found on page (xxvi).

The original photographic records were first traced on thin paper, the separate records on each day being arranged one under another on the same sheet, and great attention being paid to accuracy as regards the scale of time. Each sheet containing the records for two or more days was then reduced by photo-lithography, in the proportion of 20 to 11, to bring it to a convenient size for insertion in the printed volume.

§ 6. *Meteorological Instruments.*

STANDARD BAROMETER.—The standard barometer, mounted in 1840 on the southern wall of the western arm of the upper magnet room, is Newman No. 64. Its tube is $0^{in}\cdot565$ in diameter and the depression of the mercury due to capillary action is $0^{in}\cdot002$, but no correction is applied on this account. The cistern is of glass, and the graduated scale and attached rod are of brass ; at its lower end the rod terminates in a point of ivory, which in observation is made just to meet the reflected image of the point as seen in the mercury. The scale is divided to $0^{in}\cdot05$, sub-divided by vernier to $0^{in}\cdot002$.

The readings of this barometer until 1866 August 20 are considered to be coincident with those of the Royal Society's flint-glass standard barometer. It then became necessary to remove the sliding rod, for repair of its slow motion screw, which was completed on August 30. Before the removal of the rod the barometer had been compared with three other barometers, one of which, during repair of the rod, was used for the daily readings. After restoration of the rod a comparison was again made with the same three barometers, from which it appeared that the readings of the standard, in its new state, required a correction of $-0^{in}\cdot006$, all three auxiliary barometers giving accordant results. This correction has been applied to every observation since 1866 August 30.

An elaborate comparison of the standard barometers of the Greenwich and Kew Observatories, made, under the direction of the Kew Committee, by Mr. Whipple, Superintendent of the Kew Observatory, in the spring of the year 1877, showed that the difference between the two barometers (after applying to the Greenwich barometer readings the correction $-0^{in}\cdot006$) did not exceed $0^{in}\cdot001$. (*Proceedings of the Royal Society*, vol. 27, page 76.)

The height of the barometer cistern above the mean level of the sea is 159 feet, being $5^{ft}\ 2^{in}$ above Mr. Lloyd's reference mark in the then transit room, now the Astronomer Royal's official room. (*Philosophical Transactions*, 1831.)

The barometer is usually read at 9^h, 12^h (noon), 15^h, 21^h (civil reckoning). Each reading is corrected by application of the index correction above mentioned, and reduced to the temperature 32° by means of Table II. of the "Report of the Committee of Physics" of the Royal Society. The readings thus found are used to determine the value of the instrumental base line on the photographic record.

PHOTOGRAPHIC BAROMETER.—The barometric record is made on the same cylinder as is used for magnetic vertical force, the register being arranged to fall on the upper half of the cylinder, on its eastern side. A siphon barometer fixed to the northern wall of the Magnet Basement is employed, the bore of the upper and lower extremities of the tube being about 1·1 inch, and that of the intermediate portion 0·3 inch. A metallic float is partly supported by a counterpoise acting on a light lever, leaving a definite part of its weight to be supported by the mercury. The lever carries at its other end a vertical plate of blackened mica, having a small horizontal slit, whose distance from the fulcrum is about eight times that of the point of connexion with the float, and whose vertical movement is therefore about four times that of the ordinary barometric column. The light of a gas lamp, passing through this slit and falling on a cylindrical lens, forms a spot of light on the paper. The barometer can, by screw action, be raised or lowered so as to keep the photographic trace in a convenient part of the sheet. A base line is traced on the sheet, and the record is interrupted at each hour by the clock and occasionally by the observer in the same way as for the magnetic registers. The length of the time scale is also the same.

The barometric scale is determined by experimentally comparing the measured movement on the paper with the observed movement of the standard barometer; one inch of barometric movement is thus found = $4^{in}{\cdot}39$ on the paper. Ordinates measured for the times of observation of the standard barometer, combined with the corrected readings of the standard barometer, give apparent values of the base line, from which mean values for each day are formed; these are written on the sheets and new base lines drawn, from which the hourly ordinates (see page *lii*) are measured as for the magnetic registers.

As the diurnal change of temperature in the basement is very small, no appreciable differential effect is produced on the photographic register by the expansion of the column of mercury.

DRY AND WET BULB THERMOMETERS.—The dry and wet bulb thermometers and maximum and minimum self-registering thermometers, both dry and wet, are mounted on a revolving frame planned by Sir G. B. Airy. A vertical axis fixed in the ground, in a position about 35 feet south of the southern arm of the Magnetic Observatory, carries the frame, which consists of a horizontal board as base, of a vertical board projecting upwards from it and connected with one edge of the horizontal board, and of two parallel inclined boards (separated about 3 inches) connected at the top with the vertical board and at the bottom with the other edge of the horizontal board: the outer inclined board is covered with zinc, and the air passes freely between all the boards. The dry and wet bulb thermometers are mounted near the centre of the vertical board, with their bulbs about 4 feet from the ground; the maximum and minimum thermometers for air temperature are placed towards one side of the vertical board, and those for evaporation temperature towards the other side, with their bulbs at about the same level as those of the dry and wet bulb thermometers. A small roof projecting from the frame protects the thermometers from rain. The frame is turned in azimuth several times during the day (whether cloudy or clear) so as to keep the inclined side always towards the sun. In 1878 September, a circular board 3 feet in diameter was fixed, below the frame, round the supporting post, at a height of 2 feet 6 inches above the ground, with the object of protecting the thermometers from radiation from the ground. In the summer of 1886 experiments were made with the view of determining the effect of the circular board in this respect, an account of which will be found at the end of the Introduction to the volume for the year 1887.

The corrections to be applied to the thermometers in ordinary use (except the earth thermometers) are determined usually once each year for the whole extent of scale actually employed, by comparison with the standard thermometer, No. 515, kindly supplied to the Royal Observatory by the Kew Committee of the Royal Society.

The dry and wet bulb thermometers are Negretti and Zambra, Nos. 45354 and 45355 respectively. The correction $-$ 0°·2 has been applied to dry bulb readings, and $-$ 0°·1 to wet bulb readings throughout.

The self-registering thermometers for temperature of air and evaporation are all by Negretti and Zambra. The maximum thermometers are on Negretti and Zambra's principle, the minimum thermometers are of Rutherford's construction. To the readings of No. 8527 for maximum temperature of the air a correction of $-$ 0°·9 has been applied, and to those of No. 38338, for minimum temperature of the air, a correction of + 0°·1. The readings of No. 44285 for maximum temperature of evaporation, and those of No. 3627 for minimum temperature of evaporation required corrections of $-$ 0°·5 and + 1°·9 respectively throughout the year.

The dry and wet bulb thermometers are usually read at 9^h, 12^h (noon), 15^h, 21^h (civil reckoning). Readings of the maximum and minimum thermometers are usually taken at 9^h and 21^h. Those of the dry and wet bulb thermometers are employed to correct the indications of the photographic dry and wet bulb thermometers.

In January 1887, three thermometers, a dry-bulb, a maximum, and a minimum, to which a wet-bulb thermometer was added in February, were mounted in a Stevenson screen, with double louvre-boarded sides, of the pattern adopted by the Royal Meteorological Society, which is fully described in the *Quarterly Journal* of the Society, Vol. X, page 92. The screen is planted 11 feet to the eastward of the revolving frame carrying the ordinary dry-bulb and wet-bulb thermometers, and its internal dimensions are, length 18 inches, width 11 inches, and height 15 inches, the bulbs of the thermometers placed in it being at a height of about 4 feet above the ground. The dry-bulb thermometer is Hicks No. 262495 and the wet-bulb Hicks No. 268525, to the readings of which corrections of $-$ 0°·1 and + 0°·1 respectively have been applied. The maximum thermometer is Hicks No. 233036 and the minimum thermometer Hicks No. 262739 to the readings of which corrections of + 0°·1 and + 0°·4 respectively have been applied. The observation of these thermometers is omitted on Sundays and a few other days.

Experiments were made in the summer of the year 1887 to determine whether, with the door of the screen open, the thermometers were in any way influenced by radiation from external objects, an account of which will be found at the end of the Introduction to the Volume for 1887.

At the beginning of the year 1886 three thermometers were mounted on the platform above the Magnet House, in a louvre-boarded shed or screen, so constructed as to give free circulation of air with protection from radiation. No. 45356, by Negretti and Zambra, is for eye observation of the temperature of the air, and required a correction of − 0°·1. No. 37467, also by Negretti and Zambra, is a self-registering maximum thermometer, and required a correction of − 0°·4. No. 342663, by Hicks, is a self-registering minimum thermometer, and required correction as follows: below 35° 0°·0, between 35° and 45° + 0°·1, between 45° and 55° + 0°·2, and above 55° + 0°·3. These corrections have been applied to the readings throughont the year 1888. The bulbs of all these thermometers are 4 feet above the platform, and about 20 feet above the ground. The observation of these thermometers is omitted on Sundays and a few other days.

PHOTOGRAPHIC DRY-BULB AND WET-BULB THERMOMETERS.—The apparatus now in use was constructed in the year 1884 by Messrs. Negretti & Zambra from designs furnished by me, and was mounted in the year 1885, but from various causes it was not brought into regular use until 1887 January 1. It is placed nearly in the centre of the South Ground under a shed 8 feet square standing upon posts about 8 feet high. This shed is open to the north and is generally similar to that provided for the old apparatus, excepting that the roof inclines somewhat towards the south and that the protecting boards (fixed as far as necessary on the eastern, southern and western sides) are double, with spaces between to ensure a free circulation of air while screening the thermometers from the direct rays of the sun. The thermometers are further protected from sky and ground radiation by boards on the thermometer stand as described below. The photographic register is received on paper placed on a vertical ebonite cylinder 11½ inches high and 14¼ inches in circumference, and I have arranged that the dry and wet bulb traces shall fall on the same part of the cylinder, as regards time-scale, a long air bubble in the wet-bulb thermometer column giving the means of registering the indications of the wet bulb (as well as of such degrees and decades of its scale as fall within the bubble), just below the trace of the dry-bulb thermometer, without any interference of the two records, an arrangement which admits of the time-scale being made equal to that of all the other registers. The stems of the thermometers are placed close together, each being covered by a vertical metal plate having a fine vertical slit, so that light passes through only at such parts of the bore of the tube as do not contain mercury. Two gas lamps, each at a distance of 21 inches, are placed at such an angle that the light from each after passing through its corresponding slit and thermometer tube falls on the photographic paper in one and the same vertical line. Degree lines etched upon the thermometer stems, and painted, interrupt the light sufficiently to produce a clear and sharp indication on the photographic sheet, the line at each tenth degree being thicker than the others as well as those at 32°, 52°, 72°, &c. The length of scale is from 0° to 120° for each thermometer, the length of 1° being about 0·1 inch, and the air bubble in the wet-bulb thermometer is about 12° in length so that it will always include one of the ten-degree lines. The bulbs, which are 2 inches long and of about ½ an inch in internal bore, are separated horizontally by 5 inches, the tubes of the thermometers having a double bend above the bulbs, which are placed about 4 feet above the ground. The thermometers are carried by a vertical frame with independent vertical adjustment for each thermometer so that the register in summer or winter can be brought to a convenient part of the photographic sheet. The revolving cylinder is driven by a pendulum clock contained within the brass case covering the whole apparatus, excepting the thermometer bulbs which project below. It makes one revolution in 26 hours, and the time-scale is the same as that for all the other registers. As the cylinder revolves the light passing through the portion of the thermometer tubes not occupied by mercury imprints on the paper a broad band of photographic trace, corresponding to the dry bulb register, whose breadth in the vertical direction varies with the height of the mercury in the tube, and a narrower band below, corresponding to the wet bulb. When these are developed the traces are seen to be crossed by thin white lines, the horizontal lines corresponding to degrees and the vertical lines to hours, the lower boundary of each trace indicating the thermometric record corresponding to the upper surface of the thermometric column.

The driving clock of the new apparatus is made to interrupt the light for a short time at each hour, producing on the sheet the hour lines above mentioned; the observer also occasionally interrupts the register for a short time for proper identification of the hourly breaks.

The bulbs of the thermometers were at first completely protected from radiation by vertical or inclined boards fixed to the thermometer stand, two on the south side, two on the north side, one at the east end, one at the west end, and one below, but with proper spaces for free circulation of air. Experiments made in the summer of the

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year 1886, an account of which is given at the end of the Introduction for 1887, showed that the north and south boards were unnecessary, and the two south boards and one north board were in consequence removed before commencing regular work with the instrument at the beginning of the year 1887.

For a description of the apparatus formerly employed reference may be made to the Introduction to previous volumes. It is still maintained in its old position for use in case of temporary interruption of register by the new apparatus. A comparison of the results given by the old and new apparatus will be found at the end of the Introduction to the year 1887.

RADIATION THERMOMETERS.—These thermometers are placed in the Magnet Ground, a little south of the Magnet House. The thermometer for solar radiation is a self-registering mercurial maximum thermometer by Negretti and Zambra, No. 38592; its bulb is blackened, and the thermometer is enclosed in a glass sphere from which the air has been exhausted. The thermometer for radiation to the sky is a self-registering spirit minimum thermometer of Rutherford's construction, by Horne and Thornthwaite, No. 3120. The thermometers are laid on short grass; they require no correction for index error.

EARTH THERMOMETERS.—These thermometers were made by Adie, of Edinburgh, under the superintendence of Professor J. D. Forbes. They are placed at the north-west corner of the photographic thermometer shed.

The thermometers are four in number, placed in one hole in the ground, the diameter of which in its upper half is 1 foot and in its lower half about 6 inches, each thermometer being attached in its whole length to a slender piece of wood. The thermometer No. 1 was dropped into the hole to such a depth that the centre of its bulb was 24 French feet (25·6 English feet) below the surface, then dry sand was poured in till the hole was filled to nearly half its height. Then No. 2 was dropped in till the centre of its bulb was 12 French feet below the surface; Nos. 3 and 4 till the centres of their bulbs were respectively 6 and 3 French feet below the surface; and the hole was then completely filled with dry sand. The upper parts of the tubes carrying the scales were left projecting above the surface; No. 1 by 27·5 inches, No. 2 by 28·0 inches, No. 3 by 30·0 inches, and No. 4 by 32·0 inches. Of these lengths, 8·5, 10·0, 11·0, and 14·5 inches respectively are in each case tube with narrow bore. The length of 1° on the scales is 1·9 inch, 1·1 inch, 0·9 inch, and 0·5 inch in each case respectively. The ranges of the scales are for No. 1, 46°·0 to 55°·5; No. 2, 43°·0 to 58°·0; No. 3, 44°·0 to 62°·0; and for No. 4, 37°·0 to 68°·0.

The bulbs of the thermometers are cylindrical, 10 or 12 inches long, and 2 or 3 inches in diameter. The bore of the principal part of each tube, from the bulb to the graduated scale, is very small; in that part to which the scale is attached it is larger; the fluid in the tubes is alcohol tinged red; the scales are of opal glass.

The ranges of scale having in previous years been found insufficient, fluid has at times been removed from or added to the thermometers as necessary, corresponding alterations being made in the positions of the attached scales. Information in regard to these changes will be found in previous Introductions.

The parts of the tubes above the ground are protected by a small wooden hut fixed to the ground; the sides of the hut are perforated with numerous holes, and it has a double roof; in the north face is a plate of glass, through which the readings are taken. Within the hut are two small thermometers, one, No. 5, with bulb one inch in the ground, another, No. 6, whose bulb is freely exposed in the centre of the hut.

These thermometers are read every day at noon, and the readings are given without correction. The index errors of Nos. 1, 2, 3, and 4 are unknown; No. 5 appears to read too high by $0^{\circ}\cdot 2$, and No. 6 by $0^{\circ}\cdot 4$, but no corrections have been applied.

THAMES THERMOMETERS.—Observations of the temperature of the water of the river Thames, which had been discontinued in the year 1879 in consequence of inability to find a suitable station after the placing of the police ship "Royalist" on the river bank, were resumed in the year 1883, under the direction of the Corporation of the City of London. The thermometers are placed at the end of one of the jetties of the Foreign Cattle Market at Deptford, and the record includes observations (by means of two Six's self-registering thermometers made by Negretti and Zambra) of the maximum and minimum temperature of the water at a depth of two feet below the surface, and also near the bottom of the river, the thermometers being read daily at 9^{h} (civil reckoning). By arrangement with the officers of the Corporation a copy of the record is furnished weekly to the Royal Observatory, in order that the readings of the surface thermometers may be included in the tables of "Daily Results of Meteorological Observations," page (xxviii), in which the highest and lowest readings recorded each morning at 9^{h} are entered to the same civil day. The observations are made by Mr. G. Philcox, Clerk of the Market. The Royal Observatory authorities are however not responsible for the accuracy of the observations. The observations were suspended from July 15 until December 1 in consequence of the jetty to which the thermometers are fixed being under repair.

OSLER'S ANEMOMETER.—This self-registering anemometer, devised by A. Follett Osler, for continuous registration of the direction and pressure of the wind and of the amount of rain, is fixed above the north-western turret of the ancient part of the

Observatory. For the direction of the wind a large vane, from which a vertical shaft proceeds down to the registering table within the turret, gives motion, by a pinion fixed at its lower end, to a rack-work carrying a pencil. A collar on the vane shaft bears upon anti-friction rollers, running in a cup of oil, rendering the vane very sensitive to changes of direction in light winds. The pencil marks a paper fixed to a board moved horizontally and uniformly by a clock, in a direction transverse to that of the motion of the pencil. The paper carries lines corresponding to the positions of N., E., S., and W. of the vane, with transversal hour-lines. The vane is 60 feet above the adjacent ground, and 215 feet above the mean level of the sea. A fixed mark on the north-eastern turret, in a known azimuth, as determined by celestial observation, is used for examining at any time the position of the direction plate over the registering table, to which reference is made by means of a direction pointer when adjusting a new sheet on the travelling board.

For the pressure of the wind the construction is as follows: At a distance of 2 feet below the vane there is placed a circular pressure plate (with its plane vertical) having an area of $1\frac{1}{3}$ square feet, or 192 square inches, which, moving with the vane in azimuth, and being thereby kept directed towards the wind, acts against a combination of springs in such way that, with a light wind, slender springs are first brought into action, but, as the wind increases, stiffer springs come into play. For a detailed account of the arrangement adopted the reader is referred to the Introduction for the year 1866. [Until 1866 the pressure plate was a square plate, 1 foot square, for which in that year a circular plate, having an area of 2 square feet, was substituted and employed until the spring of the year 1880, when the present circular plate, having an area of $1\frac{1}{3}$ square feet, was introduced.] A short flexible snake chain, fixed to a cross bar in connexion with the pressure plate, and passing over a pulley in the upper part of the shaft is attached to a brass chain (formerly a copper wire) running down the centre of the shaft to the registering table, just before reaching which the chain communicates with a short length of silk cord, which, led round a pulley, gives horizontal motion to the arm carrying the pressure pencil. The substitution, in the year 1882, of the flexible brass chain for the copper wire has greatly increased the delicacy of movement of the pressure pencil, every small movement of the pressure plate being now registered. The scale for pressure, in lbs. on the square foot, is experimentally determined from time to time as appears necessary; the pressure pencil is brought to zero by a light spiral spring. In the autumn of the year the pressure springs of the anemometer were found to be in an unsatisfactory state, the weaker springs being much rusted, and on October 31 they were removed. The springs were entirely renewed by Messrs. Troughton and Simms, and brought again into action on December 12.

Whilst the action of the pressure apparatus has been satisfactory for moderate winds, it is believed that the record of occasional very large pressures in years preceding 1882 was due principally to irregular action, in excessive gusts, of the connecting copper wire, but the brass chain being always in tension, the movements of the recording pencil have since been in complete sympathy with those of the pressure plate, and in this condition of the apparatus, that is since the year 1882, no pressure greater than about 30 lbs. has been recorded.

A self-registering rain gauge of peculiar construction forms part of the apparatus: this is described under the heading "Rain Gauges."

A new sheet of paper is applied to the instrument every day at noon. The scale of time is the same as that of the magnetic registers.

ROBINSON'S ANEMOMETER.—This instrument is constructed on the principle described by the late Dr. Robinson in the *Transactions of the Royal Irish Academy*, Vol. XXII., for registration of the horizontal movement of the air, and is mounted above the small building on the roof of the Octagon Room. The motion is given by the pressure of the wind on four hemispherical cups, each 5 inches in diameter, the centre of each cup being 15 inches distant from the vertical axis of rotation. The foot of the axis is a hollow flat cone bearing upon a sharp cone, which rises up from the base of a cup of oil. An endless screw acts on a train of wheels furnished with indices for reading off the amount of motion of the air in miles, and a pinion on the axis of one of the wheels draws upwards a rack, to which is attached a rod passing down to the pencil, which marks the paper placed on the vertical revolving cylinder in the chamber below. A motion of the pencil upwards through a space of one inch represents horizontal motion of the air through 100 miles. The revolving hemispherical cups are 56 feet above the adjacent ground, and 211 feet above the mean level of the sea.

The cylinder is driven by a clock in the usual way, and makes one revolution in 24 hours. A new sheet of paper is applied every day at noon. The scale of time is the same as that of Osler's Anemometer and of the magnetic registers.

It is assumed, in accordance with the experiments made by Dr. Robinson, that the horizontal motion of the air is three times the space described by the centres of the cups. To verify this conclusion experiments were made in the year 1860 in Greenwich Park with the anemometer then in use, not the same as that now employed. The instrument was fixed to the end of a horizontal arm, which was made to revolve round a vertical axis. For more detailed account of these experiments see the Introduction for 1880 and for previous years. With the arm revolving in the direction N., E., S., W., opposite to the direction of rotation of the cups, for movement of the instrument through one mile 1·15 was registered; with the arm revolving in the direction N., W., S., E., in the same direction as the rotation of the cups, 0·97 was registered. This was considered to confirm sufficiently the accuracy of the assumption. The hemispherical cups of the instrument with which the experiments were made were each $3\frac{1}{2}$ inches in diameter, the centre of each cup being 7 inches distant from the vertical axis of rotation.

RAIN GAUGES.—During the year 1887 eight rain-gauges were employed, placed at different elevations above the ground, complete information in regard to which will be found at page (lxxxiv) of the Meteorological Section.

The gauge No. 1 forms part of the Osler Anemometer apparatus, and is self-registering, the record being made on the sheet on which the direction and pressure of the wind are recorded. The receiving surface is a rectangular opening 10 × 20 inches (200 square inches in area). The collected water passes into a vessel suspended by spiral springs, which lengthen as the water accumulates, until 0·25 inch is collected. The water then discharges itself by means of the following modification of the siphon. A vertical copper tube, open at both ends, is fixed in the receiver, with one end just projecting below the bottom. Over this tube a larger tube, closed at the top, is loosely placed. The accumulating water, having risen to the top of the inner tube, begins to flow off into a small tumbling bucket, fixed in a globe placed underneath, and carried by the receiver. When full the bucket falls over, throwing the water into a small exit pipe at the lower part of the globe—the only outlet. The water filling the bore of the pipe creates a partial vacuum in the globe sufficient to cause the longer leg of the siphon to act, and the whole remaining contents of the receiver then run off, through the globe, to a waste pipe. The spiral springs at the same time shorten, and raise the receiver. The gradual descent of the water vessel as the rain falls, and the immediate ascent on discharge of the water, act upon a pencil, and cause a corresponding trace to be made on the paper fixed to the moving board of the anemometer. The rain scale on the paper was determined experimentally by passing a known quantity of water through the receiver. The continuous record thus gives complete information on the rate of the fall of rain.

Gauge No. 2 is a ten-inch circular gauge, placed close to gauge No. 1, its receiving surface being precisely at the same level. The gauge is read daily at 9^h Greenwich civil time.

Gauges Nos. 3, 4, and 5 are eight-inch circular gauges, placed respectively on the roof of the Octagon Room, over the roof of the Magnetic Observatory, and on the roof of the Photographic Thermometer Shed. All are read daily at 9^h Greenwich civil time.

Gauges Nos. 6, 7, and 8 are also eight-inch circular gauges, placed on the ground south of the Magnetic Observatory ; No. 6 is the old daily gauge, No. 7 the old monthly gauge, and No. 8 an additional gauge brought into use in July 1881, as a check on the readings of Nos. 6 and 7, the monthly amounts collected by these gauges having occasionally shown greater differences than seemed proper. The positions of these gauges were slightly shifted on April 1, 1884. No. 6 is read daily, usually at 9^h, 15^h and 21^h Greenwich civil time, and Nos. 7 and 8 at 9^h only.

The gauges are also read at midnight on the last day of each calendar month.

ELECTROMETER.—The electric potential of the atmosphere is measured by means of a Thomson self-recording electrometer, constructed by White, of Glasgow.

For a full description of the principle of the electrometer reference may be made to Sir William Thomson's "Report on Electrometers and Electrostatic Measurements," contained in the *British Association Report* for the year 1867. It will be sufficient here to give a general description of the instrument which, with its registering apparatus, is planted in the Upper Magnet Room on the slate slab which carries the suspension pulleys of the Horizontal Force Magnet. A thin flat needle of aluminium, carrying immediately above it a small light mirror, is suspended, on the bifilar principle, by two silk fibres from an insulated support within a large Leyden jar. A little strong sulphuric acid is placed in the bottom of the jar, and from the lower side of the needle depends a platinum wire, kept stretched by a weight, which connects the needle with the sulphuric acid, that is with the inner coating of the jar. A positive charge of electricity being given to the needle and jar, this charge is easily maintained at a constant potential by means of a small electric machine or replenisher forming part of the instrument, and by which the charge can be either increased or diminished at pleasure. A gauge is provided for the purpose of indicating at any moment the amount of charge. The needle hangs within four insulated quadrants, which may be supposed to be formed by cutting a circular flat brass box into quarters, and then slightly separating them. The opposite quadrants are placed in metallic connexion.

Sir William Thomson's water-dropping apparatus is used to collect the atmospheric electricity. For this purpose a rectangular cistern of copper, capable of holding above 30 gallons of water, is placed near the ceiling on the west side of the south arm of the Upper Magnet Room. The cistern rests on four pillars of glass, each one encircled and nearly completely enclosed by a glass vessel containing sulphuric acid. A pipe passing out from the cistern, through the south face of the building, extends about six feet into the atmosphere, the nozzle (about ten feet above the ground) having a very small hole, through which the water passes and breaks almost immediately into drops.

The cistern is thus brought to the same electrical potential as that of the atmosphere, near the nozzle, and this potential is communicated by means of a connecting wire to one of the pairs of electrometer quadrants, the other pair being connected to earth. The varying atmospheric potential thus influences the motions of the included needle, causing it to be deflected from zero in one direction or the other, according as the atmospheric potential is greater or less than that of the earth, that is according as it is positive or negative.

The small mirror carried by the needle is used for the purpose of obtaining photographic record of its motions. The light of a gas-lamp falling, through a slit, upon the mirror, is thence reflected, and by means of a plano-convex cylindrical lens is brought to a focus at the surface of a horizontal cylinder of ebonite, nearly 7 inches long and 16 inches in circumference, which is turned by clock-work. A second fixed mirror, by means of the same gas-lamp, causes a reference line to be traced round the cylinder. The actual zero is found by cutting off the cistern communication, and placing the pairs of quadrants in metallic connexion with each other and with earth. The break of register at each hour is made by the driving-clock of the electrometer cylinder itself. Other photographic arrangements are generally similar to those which have been described for other instruments.

The scale of time is the same as that of the magnetic registers.

Interruptions sometimes occur through cobwebs making connexion between the cistern or its pipe and the walls of the building, and, in winter, from the occasional freezing of the water in the exit pipe.

The electrometer having been in use for ten years, it was removed by Messrs. Elliott on July 12 for thorough cleaning and repair. After return it was found that its indications were altogether changed. The instrument was not again brought into use during the present year.

SUNSHINE RECORDER.—Until the end of the year 1886 the instrument with which the record given in the printed volume was made was that presented to the Royal Observatory by the late Mr. J. F. Campbell, by whom this method of record was devised. This instrument is fully described in the Introductions to previous volumes. Commencing with the year 1887 the record is that of a modification of the Campbell form of instrument, as arranged by Sir G. G. Stokes for use at the observing stations of the Meteorological Office. By employing this instrument, the manipulation of which is more simple, there is the further advantage that the Greenwich results become strictly comparable with those of the Meteorological Office Stations. A very complete account of the Campbell-Stokes instrument is given in the *Quarterly Journal* of the Royal Meteorological Society, Vol. VI., page 83. The recording cards are supported by carriers no larger than is required for keeping them in proper position; one straight card serves for the equinoctial periods of the year, and another, curved, for the solstitial periods, the only difference between the summer and winter cards being that the summer cards are the longer: grooves are provided so that the cards are placed in position with great readiness. The daily record is transferred to a sheet of paper specially ruled with equal vertical spaces to represent hours, each sheet containing the record for one calendar month. The daily sums, and sums for each hour (reckoning from *apparent* midnight) through the month, are thus readily formed. The recorded durations are to be understood as indicating the amount of *bright* sunshine, no register being obtained when the sun shines faintly through fog or cloud or when the sun is very near the horizon. The instrument is placed on a table upon the platform above the Magnetic Observatory.

A comparison between the two instruments for one complete year, 1886 June 1 to 1887 May 31, will be found at the end of the Introduction to the Volume for the year 1887.

OZONOMETER.—This apparatus is fixed on the south-west corner of the roof of the Photographic Thermometer shed, at a height of about 10 feet from the ground. The box in which the papers are exposed is of wood: it is about 8 inches square, blackened inside, and so constructed that there is free circulation of air through the box, without exposure of the paper to light. The papers exposed at 9^h, 15^h, and 21^h, are collected respectively at 15^h, 21^h, and 9^h, and the degree of tint produced is compared with a scale of graduated tints, numbered from 0 to 10. The value of ozone for the civil day is determined by taking the degree of tint obtained at each hour of collection as proportional to the period of exposure. Thus to form the value for any given civil day, three-fourths of the value registered at 9^h, the values registered at 15^h and 21^h, and one-fourth of that registered at the following 9^h, are added together, the resulting sum (which appears in the tables of "Daily Results of the Meteorological Observations") being taken as the value referring to the civil day on a scale of 0 to 30. The means of the 9^h, 15^h, and 21^h values, as observed, are also given for each month in the foot notes.

§ 7. *Meteorological Reductions.*

The results given in the Meteorological Section refer to the civil day, commencing at midnight.

All results in regard to atmospheric pressure, temperature of the air and of evaporation with deductions therefrom, and atmospheric electricity, are derived from the photographic records, excepting that the maximum and minimum values of air temperature are those given by eye-observation of the ordinary maximum and minimum thermometers at 9^h and 21^h (civil reckoning), reference being made, however, to the photographic register when necessary to obtain the values corresponding to the civil day from midnight to midnight. The hourly readings of the photographic traces for the elements mentioned are entered into a form having double argument, the horizontal argument ranging through the 24 hours of the civil day (0^h to 23^h) and the vertical argument through the days of a calendar month. Then, for all the photographic elements, the means of the numbers standing in the vertical columns of the monthly forms, into which the values are entered, give the mean monthly photographic values for each hour of the day, the means of the numbers in the horizontal columns giving the mean daily value. It should be mentioned that before measuring out the electrometer ordinates, a pencil line was first drawn through the trace to represent the general form of the curve, in the way described for the magnetic registers (page *xxx*), excepting that no day has been omitted on account of unusual electrical disturbance, as it has been found difficult to decide on any limit of disturbance beyond which it would seem proper, as regards determination of diurnal inequality, to reject the results. In measuring the electrometer ordinates a scale of inches is used, and the values given in the tables which follow are expressed in thousandths of an inch, positive and negative potential being denoted by positive and negative numbers respectively. The scale has not been determined in terms of any electrical unit.

To correct the photographic indications of barometer and dry and wet bulb thermometers for small instrumental error, the means of the photographic readings at 9^h, 12^h (noon), 15^h, and 21^h in each month are compared with the corresponding corrected mean readings of the standard barometer and standard dry and wet bulb thermometers, as given by eye-observation. A correction applicable to the photographic reading at each of these hours is thus obtained, and, by interpolation, corrections for the intermediate hours are found. The mean of the twenty-four hourly corrections in each month is adopted as the correction applicable to each mean daily value in the month. Thus mean hourly and mean daily values of the several elements are obtained for each month. The process of correction is equivalent to giving photographic indications in terms of corrected standard barometer, and in terms of the standard dry and wet bulb thermometers exposed on the free stand. The barometer results are *not* reduced to sea level.

The mean daily temperature of the dew-point and degree of humidity are deduced from the mean daily temperatures of the air and of evaporation by use of Glaisher's

Hygrometrical Tables. The factors by which the dew-point given in these tables is calculated were found by Mr. Glaisher from the comparison of a great number of dew-point determinations obtained by use of Daniell's hygrometer, with simultaneous observations of dry and wet bulb thermometers, combining observations made at the Royal Observatory, Greenwich, with others made in India and at Toronto. The factors are given in the following table.

TABLE OF FACTORS by which the DIFFERENCE between the READINGS of the DRY-BULB and WET-BULB THERMOMETERS is to be MULTIPLIED in order to PRODUCE the CORRESPONDING DIFFERENCE between the DRY-BULB TEMPERATURE and that of the DEW-POINT.

Reading of Dry-bulb Thermometer.	Factor.	Reading of Dry-bulb Thermometer.	Factor.	Reading of Dry-bulb Thermometer.	Factor.	Reading of Dry-bulb Thermometer.	Factor.
10°	8·78	33°	3·01	56°	1·94	79°	1·69
11	8·78	34	2·77	57	1·92	80	1·68
12	8·78	35	2·60	58	1·90	81	1·68
13	8·77	36	2·50	59	1·89	82	1·67
14	8·76	37	2·42	60	1·88	83	1·67
15	8·75	38	2·36	61	1·87	84	1·66
16	8·70	39	2·32	62	1·86	85	1·65
17	8·62	40	2·29	63	1·85	86	1·65
18	8·50	41	2·26	64	1·83	87	1·64
19	8·34	42	2·23	65	1·82	88	1·64
20	8·14	43	2·20	66	1·81	89	1·63
21	7·88	44	2·18	67	1·80	90	1·63
22	7·60	45	2·16	68	1·79	91	1·62
23	7·28	46	2·14	69	1·78	92	1·62
24	6·92	47	2·12	70	1·77	93	1·61
25	6·53	48	2·10	71	1·76	94	1·60
26	6·08	49	2·08	72	1·75	95	1·60
27	5·61	50	2·06	73	1·74	96	1·59
28	5·12	51	2·04	74	1·73	97	1·59
29	4·63	52	2·02	75	1·72	98	1·58
30	4·15	53	2·00	76	1·71	99	1·58
31	3·70	54	1·98	77	1·70	100	1·57
32	3·32	55	1·96	78	1·69		

In the same way the mean hourly values of the dew-point temperature and degree of humidity in each month (pages (lvii) and (lviii)) have been calculated from the corresponding mean hourly values of air and evaporation temperatures (pages (lvi) and (lvii)).

The excess of the mean temperature of the air on each day above the average of 20 years, given in the "Daily Results of the Meteorological Observations," is found by comparing the numbers contained in column 6 with a table of average daily temperatures found by smoothing the accidental irregularities of the numbers given in Table LXXVII. of the "Reduction of Greenwich Meteorological Observations, 1847–1873," which are similarly deduced from photographic records. The smoothed numbers are given in the following table.

ADOPTED VALUES of MEAN TEMPERATURE of the AIR, deduced from TWENTY-FOUR HOURLY READINGS on each Day, for every Day of the Year, as obtained from the PHOTOGRAPHIC RECORDS for the Period 1849–1868.

Day of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	°	°	°	°	°	°	°	°	°	°	°	°
1	38·1	40·5	40·3	45·3	48·7	57·5	61·6	62·6	60·1	54·7	47·0	41·5
2	37·9	40·6	40·4	45·7	48·9	57·7	61·5	62·7	60·0	54·4	46·7	41·8
3	37·8	40·7	40·5	46·1	49·1	57·9	61·4	62·7	59·8	54·0	46·4	42·1
4	37·7	40·7	40·5	46·4	49·4	58·1	61·4	62·7	59·7	53·7	46·0	42·4
5	37·6	40·6	40·5	46·6	49·7	58·2	61·5	62·7	59·5	53·4	45·6	42·6
6	37·6	40·4	40·5	46·7	50·0	58·3	61·7	62·7	59·3	53·0	45·2	42·7
7	37·6	40·2	40·6	46·8	50·3	58·4	61·9	62·7	59·0	52·7	44·7	42·8
8	37·7	39·9	40·6	46·8	50·6	58·5	62·2	62·7	58·8	52·5	44·3	42·8
9	37·7	39·6	40·7	46·9	50·8	58·5	62·5	62·7	58·5	52·3	43·8	42·8
10	37·8	39·3	40·7	46·9	51·1	58·6	62·7	62·7	58·3	52·1	43·4	42·7
11	37·9	39·1	40·8	47·0	51·4	58·7	62·9	62·7	58·1	51·9	43·0	42·5
12	38·1	38·9	40·8	47·1	51·8	58·8	63·1	62·6	58·0	51·7	42·6	42·2
13	38·2	38·8	40·9	47·2	52·1	58·9	63·3	62·5	57·8	51·6	42·3	41·8
14	38·3	38·7	41·0	47·4	52·5	59·1	63·4	62·4	57·6	51·4	42·0	41·5
15	38·4	38·7	41·1	47·5	52·9	59·3	63·4	62·3	57·4	51·3	41·8	41·1
16	38·5	38·8	41·2	47·6	53·3	59·5	63·5	62·1	57·3	51·2	41·6	40·8
17	38·6	38·9	41·3	47·8	53·7	59·7	63·5	61·9	57·1	51·1	41·5	40·5
18	38·8	39·0	41·4	47·9	54·1	59·9	63·4	61·8	56·9	51·0	41·5	40·2
19	38·9	39·2	41·4	48·0	54·4	60·2	63·3	61·6	56·8	50·8	41·4	40·0
20	39·1	39·3	41·5	48·1	54·7	60·5	63·2	61·4	56·6	50·6	41·3	39·8
21	39·3	39·5	41·6	48·2	55·0	60·8	63·0	61·3	56·4	50·4	41·2	39·6
22	39·5	39·6	41·7	48·2	55·3	61·1	62·9	61·3	56·2	50·1	41·1	39·4
23	39·6	39·7	41·8	48·3	55·5	61·4	62·8	61·2	56·1	49·7	41·0	39·3
24	39·7	39·8	42·0	48·3	55·7	61·7	62·7	61·1	55·9	49·4	41·0	39·3
25	39·8	39·9	42·3	48·4	55·9	61·9	62·7	61·0	55·8	49·1	40·9	39·2
26	39·9	40·0	42·6	48·4	56·1	62·0	62·7	60·9	55·7	48·8	40·8	39·1
27	40·0	40·1	43·0	48·4	56·3	62·0	62·6	60·8	55·5	48·5	40·8	39·0
28	40·1	40·2	43·4	48·5	56·5	61·9	62·6	60·7	55·4	48·2	40·9	38·8
29	40·2		43·8	48·5	56·8	61·8	62·6	60·6	55·2	47·9	41·0	38·7
30	40·3		44·3	48·6	57·0	61·7	62·6	60·4	54·9	47·6	41·2	38·5
31	40·4		44·8		57·3		62·6	60·3		47·3		38·3
Means	38·7	39·7	41·5	47·5	53·1	59·8	62·6	61·9	57·5	51·0	42·7	40·8

The mean of the twelve monthly values is 49°·7.

The daily register of rain contained in column 18 is that recorded by the gauge No. 6, whose receiving surface is 5 inches above the ground. This gauge is usually read at 9^h, 15^h, and 21^h Greenwich civil time. The continuous record of Osler's self-registering gauge shows whether the amounts measured at 9^h are to be placed to the same, or to the preceding civil day; and in cases in which rain fell both before and after midnight, also gives the means of ascertaining the proper proportion of the 9^h amount which should be placed to each civil day. The number of days of rain given in the foot notes, and in the abstract tables, pages (lv) and (lxxxiv), is formed from the records of this gauge. In this numeration only those days are counted on which the fall amounted to or exceeded $0^{in}\cdot005$.

The indications of atmospheric electricity are derived from Thomson's Electrometer. Occasionally, during interruption of photographic registration, the results depend on eye-observations. After July 12 the instrument was not in a state to give trustworthy records.

No particular explanation of the anemometric results seems necessary. It may be understood generally that the greatest pressures usually occur in gusts of short duration. The "Mean of 24 Hourly Measures" was in former years the mean of 24 measures of pressure taken *at* each hour, but commencing with 1887 January 1 it is the mean of measures each one of which is the average pressure during the hour of which the nominal hour is the middle point.

The mean amount of cloud given in a foot note on the right-hand page, and in the abstract table, page (lv), is the mean found from observations made usually at 9^h, 12^h (noon), 15^h, and 21^h, of each civil day.

For understanding the divisions of time under the headings "Clouds and Weather" and "Electricity," the following remarks are necessary:—In regard to Clouds and Weather, the day is divided by columns into two parts (from midnight to noon, and from noon to midnight), and each of these parts is subdivided into two or three parts by colons (:). Thus, when there is a single colon in the first column, it denotes that the indications before it apply (roughly) to the interval from midnight to 6^h, and those following it to the interval from 6^h to noon. When there are two colons in the first column, it is to be understood that the twelve hours are divided into three nearly equal parts of four hours each. And similarly for the second column. In regard to Electricity the results are included in one column; in this case the colons divide the whole period of 24 hours (midnight to midnight).

The notation employed for Clouds and Weather is as follows, it being understood that for clouds Howard's Nomenclature is used. The figure denotes the proportion of sky covered by cloud, an overcast sky being represented by 10.

a	denotes	*aurora borealis*
ci	...	*cirrus*
ci-cu	...	*cirro-cumulus*
ci-s	...	*cirro-stratus*
cu	...	*cumulus*
cu-s	...	*cumulo-stratus*
d	...	*dew*
hy-d	...	*heavy dew*
f	...	*fog*
slt-f	...	*slight fog*
tk-f	...	*thick fog*
fr	...	*frost*
ho-fr	...	*hoar frost*
g	...	*gale*
hy-g	...	*heavy gale*
glm	...	*gloom*
gt-glm	...	*great gloom*
h	...	*haze*
slt-h	...	*slight haze*
hl	...	*hail*
l	...	*lightning*
li-cl	...	*light clouds*
lu-co	...	*lunar corona*
lu-ha	...	*lunar halo*
m	...	*mist*
slt-m	...	*slight mist*
n	...	*nimbus*
p-cl	...	*partially cloudy*
prh	...	*parhelion*
prs	...	*paraselene*
r	...	*rain*
c-r	...	*continued rain*
fr-r	...	*frozen rain*
fq-r	...	*frequent rain*
hy-r	...	*heavy rain*
c-hy-r	...	*continued heavy rain*
m-r	...	*misty rain*
fq-m-r	...	*frequent misty rain*
oc-m-r	denotes	*occasional misty rain*
oc-r	...	*occasional rain*
sh-r	...	*shower of rain*
shs-r	...	*showers of rain*
slt-r	...	*slight rain*
oc-slt-r	...	*occasional slight rain*
th-r	...	*thin rain*
fq-th-r	...	*frequent thin rain*
oc-th-r	...	*occasional thin rain*
hy-sh	...	*heavy shower*
slt-sh	...	*slight shower*
fq-shs	...	*frequent showers*
hy-shs	...	*heavy showers*
fq-hy-shs	...	*frequent heavy showers*
oc-hy-shs	...	*occasional heavy showers*
li-shs	...	*light showers*
oc-shs	...	*occasional showers*
s	...	*stratus*
sc	...	*scud*
li-sc	...	*light scud*
sl	...	*sleet*
sn	...	*snow*
oc-sn	...	*occasional snow*
slt-sn	...	*slight snow*
so-ha	...	*solar halo*
sq	...	*squall*
sqs	...	*squalls*
fq-sqs	...	*frequent squalls*
hy-sqs	...	*heavy squalls*
fq-hy-sqs	...	*frequent heavy squalls*
oc-sqs	...	*occasional squalls*
t	...	*thunder*
t-sm	...	*thunder storm*
th-cl	...	*thin clouds*
v	...	*variable*
vv	...	*very variable*
w	...	*wind*
st-w	...	*strong wind*

The following is the notation employed for Electricity :—

N denotes	*negative*	w denotes	*weak*
P ...	*positive*	s ..	*strong*
m ...	*moderate*	v ...	*variable*

The duplication of the letter denotes intensity of the modification described, thus, ss, is very strong; vv, very variable. 0 indicates zero potential, and a dash "—" accidental failure of the apparatus.

The remaining columns in the tables of "Daily Results" seem to require no special remark; all necessary explanation regarding the results therein contained will be found in the notes at the foot of the left-hand page, or in the descriptions of the several instruments given in § 6.

In regard to the comparisons of the extremes and means, &c. of meteorological elements with average values, contained in the foot notes, it may be mentioned that the photographic barometric results are compared with the corresponding barometric results, 1854–1873, and the photographic thermometric results and deductions therefrom with the corresponding thermometric results, 1849–1868 (see "Reduction of Greenwich Meteorological Observations 1847–1873"). Other deductions, from eye observations, are compared with averages for the period 1841–1887.

The tables following the "Daily Results" require no lengthened explanation. They consist of tables giving the highest and lowest readings of the barometer through the year; monthly abstracts of the principal meteorological elements; hourly values in each month of barometer reading, of temperature of air, evaporation, and dew point, and of degree of humidity; sunshine results; observations of thermometers in a Stevenson screen and on the roof of the Magnet House, and of the earth thermometers; changes of direction of the wind; hourly values in each month of the horizontal movement of the air derived from Robinson's Anemometer; results derived from the Thomson Electrometer; rain results; and observations of meteors.

In the tables of mean values of meteorological elements at each hour for the different months of the year, the mean values have, in previous years, been given for the hours 0^h to 23^h only. But since 1886 the mean for the 24th hour (the following midnight) has been added, thus indicating the amount of non-periodic variation. The monthly means have also been given since 1886 for the 24 hours, 1^h to 24^h, as well as for the hours, 0^h (midnight) to 23^h, which were given in former years.

It may be pointed out that the monthly means, 0^h to 23^h, for barometer and temperature of the air and of evaporation contained in these tables, pages (lvi) and (lvii), do not in some cases agree with the monthly means given in the daily results, pages (xxviii) to (l), and in the table on page (lv), in consequence of occasional interruption of the photographic register, at which times daily values to complete the daily results could be supplied from the eye observations, as mentioned in the foot notes, but hourly values, for the diurnal inequality tables, could not be so supplied. In such cases, however, the means given with these tables are the proper means to be used in connexion with the numbers standing immediately above them, for formation of the actual diurnal inequality.

The table "Abstract of the Changes of the Direction of the Wind" as derived from Osler's Anemometer, page (lxxiii), exhibits every change of direction of the wind occurring throughout the year whenever such change amounted to two nautical points or 22½°. It is to be understood that the change from one direction to another during the interval between the times mentioned in each line of the table was generally gradual. All complete turnings of the vane which were evidently of accidental nature, and which in the year 1881 and in previous years had been included, are here omitted. Between any time given in the second column and that next following in the first column no change of direction in general occurred varying from that given by so much as one point or 11¼°. From the numbers given in this table the monthly and yearly excess of motion, page (lxxviii), is formed. By direct motion it is to be understood that the change of direction occurred in the order N, E, S, W, N, &c., and by retrograde motion that the change occurred in the order N, W, S, E, N, &c.

In regard to Electric Potential of the Atmosphere, in addition to giving the hourly values in each month, including all available days, the days in each month have been (since the year 1882) further divided into two groups, one containing all days on which the rainfall amounted to or exceeded $0^{in.}020$, the other including only days on which no rainfall was recorded, the values of daily rainfall given in column 18 of the "Daily Results of Meteorological Observations" being adopted in selecting the days. These additional tables are given on pages (lxxxii) and (lxxxiii) respectively.

In regard to the observations of Luminous Meteors, it is simply necessary to say that in general only special meteor showers are watched for, such as those of April, August, and November. The observers of meteors in the year 1888 were Mr. Nash, Mr. McClellan, Mr. Finch, and Mr. Hope; their observations are distinguished by the initials N, M, F, and H, respectively.

W. H. M. CHRISTIE.

Royal Observatory, Greenwich,
1890 April 26.

ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

MAGNETICAL OBSERVATIONS

(EXCLUDING THE DAYS OF GREAT MAGNETIC DISTURBANCE).

1888.

TABLE I.—MEAN MAGNETIC DECLINATION WEST FOR EACH CIVIL DAY.

(Each result is the mean of 24 hourly ordinates from the photographic register.)

1888.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	17°	17°	17°	17°	17°	17°	17°	17°	17°	17°	17°	17°
d	′	′	′	′	′	′	′	′	′	′	′	′
1	43.6	42.5	42.7	41.2	41.7	40.5	40.8	39.5	39.4	40.2	38.5	37.9
2	42.8	42.9	42.4	41.4	40.8	41.1	40.2	39.5	38.5	39.5	39.3	37.8
3	43.2	43.1	42.3	41.1	40.7	40.3	39.9	38.8	38.4	39.7	39.2	37.9
4	42.9	42.1	42.4	41.4	41.2	42.2	...	39.1	39.1	39.8	39.8	37.2
5	43.1	42.6	42.4	41.4	41.0	41.0	40.4	39.2	39.2	40.2	38.4	37.1
6	43.8	42.0	42.2	41.3	40.6	41.2	40.5	39.1	38.9	40.1	38.1	37.6
7	42.7	42.4	43.1	40.8	40.5	40.6	40.9	39.2	39.4	39.9	37.7	37.6
8	42.7	42.3	42.4	40.9	40.3	40.6	40.1	38.9	39.5	39.8	37.7	39.0
9	42.2	41.5	40.7	41.3	41.0	40.0	40.7	40.0	39.4	40.2	37.7	37.7
10	42.3	42.6	41.4	41.4	41.2	41.0	40.7	39.3	38.7	39.8	37.4	38.0
11	43.0	42.4	41.8	42.2	40.8	40.6	41.2	39.8	39.1	39.6	39.3	37.9
12	43.0	42.4	42.1	41.1	41.6	41.2	41.1	40.1	39.4	40.5	39.2	37.8
13	...	42.9	41.8	41.4	41.2	42.0	40.2	39.9	39.5	40.9	39.3	38.0
14	41.7	42.5	41.5	40.6	40.9	41.3	40.6	39.7	39.6	40.4	39.5	38.0
15	43.0	42.7	42.5	41.1	40.8	40.9	40.5	39.8	40.2	39.8	39.7	37.6
16	42.9	43.1	41.0	40.2	41.1	40.7	40.5	40.7	40.3	39.8	38.6	37.7
17	42.9	42.5	42.4	40.7	40.1	40.2	40.4	40.4	39.0	39.2	38.7	37.9
18	42.8	42.2	42.0	40.5	40.8	40.6	39.5	39.2	39.4	39.1	38.0	38.0
19	42.4	41.4	41.8	40.2	41.1	39.8	40.8	38.9	37.1	38.1	37.6	38.1
20	42.8	41.8	42.3	40.3	42.3	40.2	40.0	39.5	38.3	39.0	37.6	37.9
21	42.1	42.4	41.9	40.6	...	41.3	39.9	39.6	39.5	40.1	38.1	38.1
22	42.4	41.8	42.4	40.3	39.4	40.0	41.4	38.9	39.8	39.8	37.8	37.9
23	...	42.5	41.4	40.8	40.3	40.6	40.7	38.8	39.9	39.7	37.7	38.2
24	43.1	42.7	41.8	40.3	39.8	40.3	41.1	38.9	39.4	39.3	37.9	37.2
25	42.4	42.2	41.7	40.3	...	40.4	40.2	39.0	39.0	39.5	37.4	37.9
26	42.3	42.2	41.3	40.6	41.1	...	40.6	39.4	40.4	39.1	37.7	38.2
27	41.0	42.3	42.0	40.6	41.4	40.7	40.6	39.5	41.0	38.9	37.9	37.6
28	42.6	42.8	41.3	41.0	41.0	40.5	40.7	38.8	39.2	38.7	37.3	37.7
29	42.2	42.3	41.5	41.6	40.9	41.1	39.9	39.7	39.3	38.9	38.1	37.7
30	42.7		40.8	40.8	40.8	40.8	40.0	39.7	39.9	38.7	37.3	38.3
31	42.8		41.1		40.8		39.9	39.3		37.8		...

TABLE II.—MONTHLY MEAN DIURNAL INEQUALITY OF MAGNETIC DECLINATION WEST.

(The results in each month are diminished by the smallest hourly value).

1888.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	′	′	′	′	′	′	′	′	′	′	′	′
Midn.	0.7	0.2	1.1	0.7	1.9	3.1	2.4	1.8	0.2	0.9	0.9	0.8
1h	0.7	0.6	1.3	0.8	2.0	2.9	2.2	2.1	0.2	1.2	1.1	1.2
2	1.1	0.9	1.3	1.0	2.0	3.0	2.5	2.2	0.3	1.4	1.5	1.7
3	1.6	0.8	1.5	1.0	1.7	2.7	2.2	2.1	0.1	1.6	1.7	2.0
4	1.6	1.0	1.3	0.6	1.5	2.0	1.7	1.9	0.2	1.7	2.0	2.1
5	1.6	1.3	1.6	0.3	0.5	0.6	0.8	1.0	0.3	1.5	2.1	2.0
6	1.6	1.5	1.9	0.4	0.3	0.0	0.0	0.3	0.4	1.5	2.2	2.0
7	1.6	1.8	1.7	0.2	0.0	0.0	0.0	0.0	0.2	1.2	2.3	1.9
8	1.5	1.9	0.7	0.0	0.2	0.3	0.3	0.4	0.0	0.5	2.3	1.8
9	1.5	1.8	0.0	0.5	1.2	1.2	1.2	1.5	0.7	0.5	2.4	1.9
10	2.3	2.5	1.1	2.1	3.2	3.2	2.9	3.5	2.5	1.9	3.2	2.6
11	3.4	4.0	3.6	4.3	5.8	6.0	5.5	5.7	4.8	4.5	4.8	3.6
Noon.	4.7	4.9	6.3	6.7	7.7	8.1	7.8	8.0	6.4	6.3	5.4	3.9
13h	5.2	5.6	7.6	8.2	8.8	9.2	9.2	9.1	7.2	6.8	5.3	4.3
14	4.4	5.2	7.5	7.6	8.3	9.3	9.2	8.6	6.3	6.0	4.4	4.1
15	3.3	3.8	6.3	6.0	7.3	8.7	8.2	7.3	4.7	4.6	3.3	3.4
16	2.3	2.8	4.6	4.6	6.3	7.4	7.0	5.5	3.1	3.2	2.8	3.0
17	2.1	2.6	3.1	3.3	5.2	5.7	5.7	4.0	2.1	2.3	2.5	2.2
18	1.7	2.0	2.1	2.0	4.1	4.6	4.7	3.1	1.5	2.0	1.8	1.7
19	1.0	1.4	1.4	1.4	3.3	4.0	4.2	2.8	1.0	1.2	1.4	1.5
20	0.6	0.5	1.0	1.2	2.5	3.7	3.9	2.5	0.6	0.3	0.8	0.8
21	0.2	0.3	1.0	1.0	2.5	3.1	3.3	2.2	0.6	0.0	0.0	0.2
22	0.0	0.4	0.9	0.7	2.4	3.1	2.8	2.2	0.5	0.0	0.0	0.0
23	0.2	0.0	0.6	0.7	2.2	3.0	2.7	2.0	0.1	0.2	0.6	0.3
Means	1.87	1.99	2.48	2.30	3.37	3.95	3.77	3.33	1.83	2.14	2.28	2.04

TABLE III.—MEAN HORIZONTAL MAGNETIC FORCE (diminished by a Constant) FOR EACH CIVIL DAY.

(Each result is the mean of 24 hourly ordinates from the photographic register, expressed in terms of the whole Horizontal Force, the unit in the table being ·00001 of the whole Horizontal Force. The letters u *and* c *indicate respectively values uncorrected for, and corrected for temperature.)*

1888.

Day of Month.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	u	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*
d																								
1	480	407	515	450	708	631	842	809	810	777	666	648	607	642	753	781	634	692	510	495	452	515	439	509
2	480	451	536	440	809	730	849	827	772	730	669	679	617	659	785	820	650	718	554	517	487	540	467	527
3	525	481	538	461	790	750	828	791	775	733	674	716	624	680	748	799	643	747	620	551	492	550	456	533
4	550	506	523	486	764	733	739	702	790	742	588	634	...	...	621	686	632	748	638	603	488	525	457	546
5	557	520	572	528	765	736	737	706	769	725	597	613	664	729	682	747	663	779	517	488	501	549	467	566
6	517	491	583	531	803	781	715	684	772	750	640	636	679	732	690	736	664	772	490	468	476	499	459	551
7	584	569	599	551	850	832	760	720	760	783	650	664	723	767	717	785	705	787	576	490	382	430	412	516
8	383	363	575	540	820	787	797	736	724	743	677	707	684	728	688	804	660	718	644	524	348	416	343	425
9	460	467	570	535	815	795	794	733	664	646	725	744	616	676	631	768	649	691	645	537	418	471	384	456
10	488	479	580	540	841	795	811	753	607	538	754	759	606	652	619	799	650	694	564	522	421	477	392	434
11	491	467	582	517	827	787	797	741	608	526	727	734	645	643	624	781	662	697	555	513	483	529	354	426
12	550	524	566	501	852	789	733	685	612	547	731	754	692	692	608	753	698	731	544	507	471	531	345	451
13	...	...	568	499	757	735	778	743	573	521	688	709	700	700	612	744	628	665	489	501	525	573	323	427
14	387	363	582	521	800	785	801	764	554	528	756	756	710	770	625	717	635	683	441	455	514	579	298	418
15	409	389	547	497	812	794	814	777	604	558	807	807	690	770	649	719	633	701	474	479	540	622	280	398
16	448	422	550	496	713	671	823	792	644	598	785	790	710	785	615	678	613	705	479	498	507	577	286	414
17	428	406	525	469	649	605	799	766	673	642	733	743	671	739	596	640	656	738	517	536	395	451	362	475
18	428	395	494	452	708	656	782	749	725	712	756	749	677	752	587	631	642	717	506	543	398	456	406	507
19	467	436	470	422	715	659	780	771	684	709	773	766	717	797	604	646	582	662	500	523	430	507	431	566
20	486	466	498	448	712	660	801	775	699	706	766	764	742	829	609	669	525	600	381	425	433	501	483	599
21	522	511	491	451	745	714	777	744	...	...	823	828	657	744	641	709	565	630	347	380	400	460	461	586
22	543	512	484	436	792	736	781	752	599	568	865	904	658	762	639	719	580	648	363	419	378	470	475	591
23	...	...	508	454	833	789	818	800	670	630	737	797	618	748	637	712	555	627	330	398	419	508	507	601
24	429	407	516	458	854	808	864	849	623	601	654	726	612	732	652	744	565	652	359	392	460	525	460	568
25	499	455	505	430	874	824	780	754	656	634	623	734	617	733	671	782	529	618	421	460	472	542	442	543
26	520	466	518	443	876	839	805	765	661	626	614	751	635	734	660	778	535	595	465	542	439	528	496	592
27	502	454	549	472	860	829	807	765	676	613	661	769	625	709	629	747	512	560	532	595	442	534	440	565
28	459	405	543	476	860	829	858	838	652	608	658	738	701	797	648	761	521	577	567	606	411	486	541	649
29	505	451	612	535	852	819	893	832	645	630	657	722	674	751	667	751	534	599	545	598	431	501	559	651
30	478	417			872	828	844	802	673	649	680	740	662	730	706	786	503	551	599	632	437	500	537	624
31	496	438			840	792			650	626			718	755	652	722			552	577			486	585

At the end of the year experiments were made for determination of the angle of torsion, thus breaking the continuity of the values.

TABLE IV.—MEAN TEMPERATURE for each CIVIL DAY within the box inclosing the HORIZONTAL FORCE MAGNET.

1888.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	60.1	60.5	59.9	62.0	62.0	62.7	65.0	64.7	66.0	62.8	66.2	66.5
2	62.2	59.0	59.8	62.5	61.6	63.9	65.3	65.0	66.4	61.8	65.8	66.1
3	61.5	59.9	61.7	61.8	61.6	65.3	65.9	65.7	67.9	60.3	66.0	66.8
4	61.5	61.8	62.1	61.8	61.3	65.5	...	66.3	68.4	61.9	65.1	67.3
5	61.8	61.5	62.2	62.1	61.5	64.2	66.3	66.3	68.4	62.2	65.6	67.7
6	62.3	61.1	62.5	62.1	62.5	63.3	65.8	65.5	68.1	62.5	64.5	67.4
7	62.8	61.3	62.7	61.7	64.5	64.1	65.4	66.4	67.0	59.5	65.6	67.9
8	62.6	61.9	62.0	60.7	64.3	64.8	65.4	68.4	66.0	57.8	66.4	67.0
9	63.8	61.9	62.6	60.7	62.7	64.3	66.1	69.3	65.3	58.4	65.8	66.6
10	63.1	61.7	61.4	60.8	60.3	63.7	65.5	71.0	65.4	61.6	65.9	65.3
11	62.4	60.5	61.7	60.9	59.7	63.8	63.4	70.1	65.0	61.6	65.5	66.6
12	62.3	60.5	60.6	61.3	60.5	64.5	63.5	69.6	64.9	61.8	66.1	68.0
13	...	60.3	62.5	61.9	61.1	64.4	63.5	69.1	65.1	64.0	65.6	67.9
14	62.4	60.7	62.8	61.8	62.3	63.5	66.1	67.4	65.6	64.1	66.3	68.6
15	62.6	61.2	62.7	61.8	61.4	63.5	66.9	66.5	66.4	63.7	67.0	68.5
16	62.3	61.0	61.6	62.1	61.4	63.7	66.7	66.2	67.4	64.3	66.5	68.9
17	62.5	60.9	61.5	62.0	62.1	63.9	66.4	65.4	67.0	64.3	65.9	68.3
18	62.0	61.6	61.1	62.0	62.9	63.2	66.7	65.4	66.7	65.1	66.0	67.8
19	62.1	61.3	60.9	63.1	64.6	63.2	66.9	65.3	66.9	64.5	66.8	69.2
20	62.6	61.2	61.1	62.3	63.8	63.4	67.2	66.1	66.7	65.4	66.4	68.4
21	63.0	61.7	62.1	62.0	...	63.7	67.2	66.4	66.3	64.9	66.1	68.8
22	62.1	61.3	60.9	62.2	62.1	65.2	67.9	66.9	66.4	65.9	67.4	68.4
23	...	61.0	61.5	62.7	61.7	66.1	69.0	66.7	66.6	66.4	67.3	67.5
24	62.5	60.8	61.4	62.8	62.5	66.6	68.6	67.4	67.2	64.9	66.3	68.1
25	61.5	60.0	61.2	62.3	62.5	68.2	68.4	68.2	67.3	65.2	66.5	67.8
26	61.0	60.0	61.8	61.7	61.9	69.3	67.7	68.5	66.1	66.8	67.3	67.6
27	61.3	59.9	62.1	61.6	60.6	68.1	67.1	68.5	65.6	66.2	67.4	68.8
28	61.0	60.4	62.1	62.6	61.5	66.9	67.6	68.3	65.9	65.2	66.7	68.1
29	61.0	59.9	62.0	60.7	62.8	66.3	66.8	67.1	66.3	65.8	66.5	67.4
30	60.7		61.5	61.6	62.4	66.1	66.4	66.9	65.6	64.9	66.2	67.2
31	60.8		61.3		62.4		65.1	66.5		64.6		67.7
Means	61.99°	60.86°	61.65°	61.85°	62.08°	64.85°	66.33°	67.13°	66.46°	63.50°	66.22°	67.68°

TABLE V.—MONTHLY MEAN DIURNAL INEQUALITY OF HORIZONTAL MAGNETIC FORCE.

(The results are expressed in terms of the whole Horizontal Force, diminished in each case by the smallest hourly value, the unit in the table being ·00001 of the whole Horizontal Force. The letters u *and* c *indicate respectively values uncorrected for, and corrected for temperature.)*

1888.

Hour, Greenwich Civil Time.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c
Midnight.	14	30	23	38	92	107	141	157	124	139	154	168	174	193	173	192	167	187	115	138	34	48	1	8
1h	26	42	22	37	88	101	134	147	116	131	143	155	164	180	161	178	158	175	115	134	46	60	10	14
2	24	35	29	42	85	96	122	133	111	124	130	140	155	169	159	173	149	164	111	127	48	58	19	18
3	44	53	25	34	93	102	128	137	100	108	129	136	149	161	157	166	144	156	116	130	50	57	33	28
4	65	72	40	47	103	107	120	125	103	107	126	128	144	148	149	156	141	149	123	132	63	68	43	30
5	76	81	53	58	104	106	118	120	94	96	119	119	119	123	144	149	145	150	143	150	77	79	59	42
6	82	85	61	63	116	118	113	115	71	73	96	96	93	95	115	120	144	149	141	143	82	82	71	54
7	79	82	62	64	116	116	103	103	43	43	61	61	56	58	80	82	121	124	125	127	74	74	69	49
8	66	66	59	61	84	84	79	79	22	22	22	22	16	18	44	46	68	71	91	91	52	52	68	48
9	29	29	50	52	40	40	38	38	10	10	0	0	0	0	16	18	23	26	41	41	19	19	53	33
10	11	11	28	30	10	10	0	0	0	0	5	5	2	2	0	0	0	0	0	0	0	0	38	18
11	0	0	9	9	0	0	7	7	21	18	17	17	19	19	22	24	11	11	8	6	2	0	22	0
Noon.	16	16	0	0	27	27	49	49	55	52	59	61	57	59	70	72	47	50	39	39	15	13	25	3
13h	40	43	21	21	58	58	78	78	89	89	99	101	109	113	117	119	93	96	74	74	38	36	41	19
14	57	60	41	43	88	90	102	104	97	99	128	135	151	158	155	162	106	111	89	91	39	41	35	15
15	51	56	42	44	107	111	125	130	116	120	165	175	186	198	180	189	110	118	96	103	36	41	26	9
16	48	53	28	30	113	117	132	139	142	148	166	178	190	204	164	176	112	122	108	117	42	49	34	19
17	52	59	32	34	105	111	148	155	171	179	185	199	192	208	167	184	127	137	117	128	48	58	20	7
18	50	57	32	37	115	121	170	177	185	196	201	215	203	219	186	203	151	161	122	136	40	52	23	13
19	49	58	33	40	121	130	174	181	181	194	210	229	208	227	197	214	154	169	124	138	33	43	15	10
20	42	51	18	27	110	119	167	174	173	186	198	217	212	231	199	218	154	169	119	135	35	47	14	13
21	39	50	13	22	113	122	157	166	150	163	176	195	204	223	193	212	157	174	114	133	25	37	7	6
22	41	55	27	38	112	123	161	172	135	150	163	182	186	205	179	200	159	176	113	132	20	32	3	5
23	33	49	30	43	110	125	152	165	125	140	161	177	176	195	183	204	155	172	117	138	24	38	0	7
Means corrected for Temperature.	49·7		38·1		93·4		118·8		107·8		129·6		141·9		144·0		125·7		107·6		45·2		19·5	

TABLE VI.—MONTHLY MEAN TEMPERATURE at each HOUR of the DAY within the box inclosing the HORIZONTAL FORCE MAGNET.

1888.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	62°·4	61°·3	62°·1	62°·3	62°·5	65°·1	66°·7	67°·5	66°·9	64°·1	66°·6	68°·4	64°·66
1h	62·4	61·3	62·0	62·2	62·5	65·0	66·6	67·4	66·8	63·9	66·6	68·3	64·58
2	62·2	61·2	61·9	62·1	62·4	64·9	66·5	67·3	66·7	63·8	66·4	68·1	64·46
3	62·1	61·0	61·8	62·0	62·2	64·8	66·4	67·1	66·6	63·7	66·3	67·9	64·33
4	62·0	60·9	61·6	61·8	62·0	64·6	66·1	67·0	66·4	63·5	66·2	67·6	64·14
5	61·9	60·8	61·5	61·7	61·9	64·5	66·1	66·9	66·3	63·4	66·1	67·4	64·04
6	61·8	60·7	61·5	61·7	61·9	64·5	66·0	66·9	66·3	63·2	66·0	67·4	63·99
7	61·8	60·7	61·4	61·6	61·8	64·5	66·0	66·8	66·2	63·2	66·0	67·3	63·94
8	61·7	60·7	61·4	61·6	61·8	64·5	66·0	66·8	66·2	63·1	66·0	67·3	63·92
9	61·7	60·7	61·4	61·6	61·8	64·5	65·9	66·8	66·2	63·1	66·0	67·3	63·92
10	61·7	60·7	61·4	61·6	61·8	64·5	65·9	66·7	66·1	63·1	66·0	67·3	63·90
11	61·7	60·6	61·4	61·6	61·7	64·5	65·9	66·8	66·1	63·0	65·9	67·2	63·87
Noon.	61·7	60·6	61·4	61·6	61·7	64·6	66·0	66·8	66·2	63·1	65·9	67·2	63·90
13h	61·8	60·6	61·4	61·6	61·8	64·6	66·1	66·8	66·2	63·1	65·9	67·2	63·92
14	61·8	60·7	61·5	61·7	61·9	64·8	66·2	67·0	66·3	63·2	66·1	67·3	64·04
15	61·9	60·7	61·6	61·8	62·0	64·9	66·4	67·1	66·4	63·4	66·2	67·4	64·15
16	61·9	60·7	61·6	61·9	62·1	65·0	66·5	67·2	66·5	63·5	66·3	67·5	64·23
17	62·0	60·7	61·7	61·9	62·2	65·1	66·6	67·4	66·5	63·6	66·4	67·6	64·31
18	62·0	60·8	61·7	61·9	62·3	65·1	66·6	67·4	66·5	63·7	66·5	67·7	64·35
19	62·1	60·9	61·8	61·9	62·4	65·3	65·7	67·4	66·7	63·7	66·4	67·9	64·43
20	62·1	61·0	61·8	61·9	62·4	65·3	66·7	67·5	66·7	63·8	66·5	68·1	64·48
21	62·2	61·0	61·8	62·0	62·4	65·3	66·7	67·5	66·8	63·9	66·5	68·1	64·52
22	62·3	61·1	61·9	62·1	62·5	65·3	66·7	67·6	66·8	63·9	66·5	68·2	64·57
23	62·4	61·2	62·1	62·2	62·5	65·2	66·7	67·6	66·8	64·0	66·6	68·4	64·64

TABLE VII.—MEAN VERTICAL MAGNETIC FORCE (diminished by a constant) FOR EACH CIVIL DAY.

(*Each result is the mean of 24 hourly ordinates from the photographic register, expressed in terms of the whole Vertical Force, the unit in the table being ·00001 of the whole Vertical Force. The letters* u *and* c *indicate respectively values uncorrected for, and corrected for temperature.*)

1888.

Day of Month.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	u	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*
d 1	...	...	681	598	609	530	657	534	683	549	691	561	772	604	785	617	757	544	675	524	633	420	558	356
2	...	...	645	594	607	522	653	538	674	553	723	568	765	591	777	607	752	523	627	501	640	425	550	348
3	...	...	651	575	638	525	643	530	665	558	755	573	772	590	783	601	780	523	582	484	637	424	550	331
4	728	615	699	580	646	525	630	515	656	543	770	585	801	605	785	581	806	545	574	432	631	435	567	331
5	733	614	705	590	647	519	644	525	654	537	750	601	807	611	818	618	805	536	594	447	617	421	586	342
6	760	630	712	595	641	509	643	517	664	532	715	573	791	609	798	620	809	548	...	...	609	435	591	355
7	755	619	725	606	651	519	636	517	725	545	718	548	779	611	791	587	778	542	538	457	597	415	593	349
8	789	663	736	606	660	526	613	511	720	544	752	570	775	605	840	592	759	540	487	444	602	400	586	359
9	803	659	743	615	673	524	604	512	697	576	751	594	783	596	880	611	729	527	486	427	588	390	560	352
10	790	660	737	614	673	552	597	503	649	573	735	591	787	615	906	604	713	509	552	422	581	385	523	334
11	773	658	723	621	680	561	622	522	621	538	734	590	734	606	914	634	706	508	566	434	557	366	514	310
12	754	643	719	619	661	561	596	494	642	546	749	577	710	584	895	626	695	508	568	432	561	357	522	293
13	...	...	704	614	692	560	627	508	661	554	754	591	698	566	885	637	694	505	602	430	564	368	519	294
14	773	660	700	598	693	551	645	526	690	558	736	587	746	553	836	613	698	494	620	450	579	364	517	277
15	757	646	710	597	710	574	647	526	673	543	726	575	790	573	800	596	723	500	602	432	592	360	524	284
16	735	633	704	608	680	584	673	543	667	541	707	560	794	598	777	575	754	516	603	414	614	389	518	276
17	727	616	696	596	670	576	677	547	682	546	711	569	780	589	757	566	746	519	607	411	619	413	505	278
18	723	616	700	585	644	550	676	555	700	560	700	568	785	583	745	565	757	532	603	425	613	411	484	265
19	710	599	692	581	628	543	690	548	751	573	690	556	805	603	742	562	731	493	587	398	608	395	486	233
20	708	589	667	569	631	529	690	571	771	616	695	561	805	597	743	543	738	511	602	402	607	401	478	242
21	718	586	678	576	651	532	676	559	...	...	692	545	826	611	755	547	735	527	599	403	590	392	482	236
22	712	597	666	570	627	535	675	543	722	609	744	568	838	596	781	566	727	510	609	394	590	365	485	256
23	...	...	647	562	631	529	673	541	708	603	782	586	868	611	780	567	730	503	623	400	583	358	472	264
24	747	630	635	554	638	525	679	543	702	572	796	594	863	613	786	561	745	501	600	407	572	364	465	244
25	730	628	612	533	628	536	662	534	706	576	843	607	849	615	806	560	760	510	608	400	569	361	484	276
26	724	630	613	526	632	517	660	543	691	572	892	639	831	608	818	555	749	524	622	390	581	358	473	271
27	724	626	611	532	646	523	648	533	673	571	892	665	814	597	819	556	716	503	645	418	580	353	479	254
28	697	612	617	532	651	523	659	523	677	547	868	670	812	585	813	554	708	495	655	453	574	366	...	...
29	694	600	601	520	667	537	640	546	690	550	845	658	812	604	802	566	729	512	660	464	561	357	...	...
30	682	597			655	548	651	532	695	565	825	645	805	601	780	553	725	519	637	463	558	352	...	...
31	676	591			656	554			698	575			795	617	773	554			618	442			...	...

On December 28, the magnet was readjusted, thus breaking the continuity of the values.

TABLE VIII.—MEAN TEMPERATURE for each CIVIL DAY within the box inclosing the VERTICAL FORCE MAGNET.

1888.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	...	59·5	59·3	61·4	61·9	61·7	63·5	63·5	65·6	62·7	65·6	65·1
2	...	58·0	59·6	61·0	61·3	62·9	63·8	63·6	66·4	61·5	65·7	65·1
3	...	59·2	60·9	60·9	60·6	64·2	64·2	64·2	67·7	60·2	65·6	65·9
4	60·9	61·2	61·3	61·0	60·9	64·3	64·8	65·2	67·9	62·3	64·8	66·7
5	61·2	61·0	61·6	61·2	61·1	62·6	64·8	65·0	68·3	62·5	64·8	67·1
6	61·7	61·1	61·8	61·5	61·8	62·3	64·2	64·0	67·9	...	63·8	66·7
7	62·0	61·2	61·8	61·2	64·1	63·6	63·5	65·2	66·7	59·4	64·2	67·1
8	61·5	61·7	61·9	60·4	63·9	64·2	63·6	67·3	65·9	57·6	65·1	66·3
9	62·4	61·6	62·6	59·9	61·3	63·0	64·4	68·3	65·1	58·4	64·9	65·4
10	61·7	61·4	61·3	60·0	59·2	62·4	63·7	69·8	65·2	61·7	64·8	64·5
11	61·0	60·4	61·2	60·3	59·5	62·4	61·6	68·8	64·9	61·8	64·6	65·2
12	60·8	60·3	60·3	60·4	60·1	63·7	61·5	68·3	64·4	62·0	65·2	66·4
13	...	59·8	61·8	61·2	60·6	63·3	61·8	67·3	64·5	63·7	64·8	66·2
14	60·9	60·4	62·3	61·2	61·8	62·6	64·7	66·1	65·2	63·6	65·7	66·9
15	60·8	60·9	62·0	61·3	61·7	62·7	65·8	65·2	66·1	63·6	66·5	66·9
16	60·4	60·1	60·1	61·7	61·5	62·5	64·8	65·1	66·8	64·5	66·2	67·0
17	60·8	60·3	60·0	61·7	62·0	62·3	64·6	64·6	66·3	64·8	65·3	66·3
18	60·6	61·0	60·0	61·3	62·2	61·8	65·1	64·1	66·2	64·0	65·1	65·9
19	60·8	60·8	59·6	62·3	64·0	61·9	65·1	64·1	66·8	64·5	65·6	67·5
20	61·2	60·2	60·4	61·2	62·9	61·9	65·4	65·0	66·3	65·0	65·3	66·7
21	61·8	60·4	61·2	61·1	...	62·5	65·7	65·4	65·4	64·8	64·9	67·2
22	61·0	60·1	59·9	61·8	60·9	63·9	67·0	65·7	65·8	65·7	66·2	66·4
23	...	59·6	60·4	61·8	60·5	64·8	67·7	65·6	66·3	66·1	66·2	65·4
24	61·1	59·4	60·9	62·0	61·7	65·1	67·4	66·2	67·1	64·7	65·4	66·0
25	60·4	59·3	59·9	61·6	61·7	66·7	66·6	67·2	67·4	65·4	65·4	65·4
26	60·0	59·7	61·0	61·1	61·2	67·5	66·1	68·0	66·2	66·5	66·1	65·1
27	60·2	59·3	61·4	61·0	60·4	66·3	65·8	68·0	65·6	66·3	66·3	66·2
28	59·6	59·6	61·6	62·0	61·7	64·9	66·3	67·8	65·6	65·1	65·4	...
29	60·0	59·4	61·7	60·0	62·2	64·4	65·4	66·7	65·8	64·8	65·2	...
30	59·6		60·6	61·2	61·7	64·1	65·2	66·3	65·3	63·8	65·3	...
31	59·6		60·4		61·4		64·0	65·9		63·9		...
Means	60·85	60·24	60·93	61·16	61·53	63·55	64·78	66·05	66·16	63·36	65·33	66·17

TABLE IX.—MONTHLY MEAN DIURNAL INEQUALITY OF VERTICAL MAGNETIC FORCE.

(The results are expressed in terms of the whole Vertical Force, diminished in each case by the smallest hourly value, the unit in the table being ·00001 of the whole Vertical Force. The letters u *and* c *indicate respectively values uncorrected for, and corrected for temperature.)*

1888.

Hour, Greenwich Civil Time.	January.		February.		March.		April.		May.		June.	
	u	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*
Midnight.	20	7	25	10	30	16	46	27	52	35	42	33
1ʰ	15	2	22	7	29	17	44	29	48	31	38	31
2	14	5	15	2	25	15	41	29	41	26	32	27
3	7	0	13	7	23	17	36	26	42	31	32	30
4	5	2	13	9	22	20	37	31	41	35	35	35
5	4	3	12	10	21	21	36	32	42	38	38	40
6	2	3	11	11	18	18	36	34	44	40	40	42
7	2	3	11	11	20	22	38	38	42	40	38	40
8	2	5	11	13	23	25	34	34	37	35	32	34
9	0	3	7	9	18	20	25	25	28	26	23	25
10	2	5	4	4	10	10	15	13	12	10	12	14
11	1	4	0	0	0	2	4	4	2	2	0	0
Noon.	0	1	3	5	0	0	0	0	0	0	3	1
13ʰ	9	8	8	10	7	7	8	8	17	15	15	10
14	23	22	16	14	21	19	29	25	37	31	32	25
15	28	25	25	23	37	33	43	37	54	45	46	37
16	27	24	30	28	48	44	55	47	64	53	61	50
17	24	19	30	26	51	45	63	55	72	59	71	58
18	22	17	29	23	48	40	65	57	76	61	74	61
19	22	15	34	28	45	37	62	52	75	60	70	57
20	21	14	32	21	44	36	55	45	71	56	64	51
21	19	10	33	22	40	32	54	42	65	50	61	48
22	16	5	29	16	35	25	53	38	60	43	51	38
23	15	2	24	11	35	21	48	31	56	39	50	39
Means corrected for Temperature.	8·5		13·3		22·6		31·6		35·9		34·4	

Hour, Greenwich Civil Time.	July.		August.		September.		October.		November.		December.	
	u	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*
Midnight.	40	27	32	22	25	9	22	0	18	8	24	3
1ʰ	33	22	29	21	19	8	20	2	12	2	19	2
2	29	20	25	19	18	9	18	2	6	0	13	0
3	31	24	24	20	18	11	17	3	5	2	9	1
4	35	33	25	23	19	14	14	7	4	5	7	3
5	40	38	28	28	20	17	14	9	3	6	5	5
6	36	36	32	32	21	20	14	13	2	7	4	6
7	37	37	35	39	23	24	16	15	3	8	4	8
8	31	31	33	37	20	21	19	22	4	9	1	5
9	23	25	23	27	13	14	13	16	5	10	1	5
10	11	13	12	16	4	5	5	8	0	5	0	4
11	1	3	3	7	0	1	0	3	1	6	1	5
Noon.	0	0	0	0	1	0	2	3	5	10	6	8
13ʰ	14	12	10	8	11	10	7	6	15	18	10	10
14	26	19	26	22	23	20	18	13	23	24	18	16
15	39	30	41	35	36	29	30	23	28	27	23	19
16	49	38	49	41	44	35	33	24	28	25	23	17
17	56	43	54	42	45	36	32	20	24	18	22	16
18	60	49	56	44	44	35	34	20	25	19	26	18
19	59	46	50	40	42	31	35	19	26	20	25	12
20	56	43	46	34	43	32	36	18	25	17	27	12
21	52	39	45	33	41	27	33	13	22	14	25	10
22	48	35	42	27	34	20	30	10	21	13	22	5
23	44	31	37	22	30	16	25	5	20	10	24	3
Means corrected for Temperature.	28·9		26·6		18·5		11·4		11·8		8·0	

TABLE X.—MONTHLY MEAN TEMPERATURE at each HOUR of the DAY within the box inclosing the VERTICAL FORCE MAGNET.

1888.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	61°·3	60°·7	61°·4	61°·7	61°·9	63°·7	65°·1	66°·3	66°·6	64°·0	65°·7	66°·9	63°·78
1ʰ	61·3	60·7	61·3	61·5	61·9	63·6	65·0	66·2	66·4	63·8	65·7	66·7	63·67
2	61·1	60·6	61·2	61·4	61·8	63·5	64·9	66·1	66·3	63·7	65·5	66·5	63·55
3	61·0	60·3	61·0	61·3	61·6	63·4	64·8	66·0	66·2	63·6	65·4	66·3	63·41
4	60·8	60·2	60·8	61·1	61·4	63·3	64·6	65·9	66·1	63·3	65·2	66·1	63·23
5	60·7	60·1	60·7	61·0	61·3	63·2	64·6	65·8	66·0	63·2	65·1	65·9	63·13
6	60·6	60·0	60·7	60·9	61·3	63·2	64·5	65·8	65·9	63·0	65·0	65·8	63·06
7	60·6	60·0	60·6	60·8	61·2	63·2	64·5	65·6	65·8	63·0	65·0	65·7	63·00
8	60·5	59·9	60·6	60·8	61·2	63·2	64·5	65·6	65·8	62·8	65·0	65·7	62·97
9	60·5	59·9	60·6	60·8	61·2	63·2	64·4	65·6	65·8	62·8	65·0	65·7	62·96
10	60·5	60·0	60·7	60·9	61·2	63·2	64·4	65·6	65·8	62·8	65·0	65·7	62·98
11	60·5	60·0	60·6	60·8	61·1	63·3	64·4	65·6	65·8	62·8	65·0	65·7	62·97
Noon.	60·6	59·9	60·7	60·8	61·1	63·4	64·5	65·8	65·9	62·9	65·0	65·8	63·03
13ʰ	60·7	59·9	60·7	60·8	61·2	63·5	64·6	65·9	65·9	63·0	65·1	65·9	63·10
14	60·7	60·1	60·8	61·0	61·4	63·6	64·8	66·0	66·0	63·2	65·2	66·0	63·23
15	60·8	60·1	60·9	61·1	61·5	63·7	64·9	66·1	66·2	63·3	65·3	66·1	63·33
16	60·8	60·1	60·9	61·2	61·6	63·8	65·0	66·2	66·3	63·4	65·4	66·2	63·41
17	60·9	60·2	61·0	61·2	61·7	63·9	65·1	66·4	66·3	63·5	65·5	66·2	63·49
18	60·9	60·3	61·1	61·2	61·8	63·9	65·0	66·4	66·3	63·6	65·5	66·3	63·53
19	61·0	60·3	61·1	61·3	61·8	63·9	65·1	66·3	66·4	63·7	65·5	66·5	63·57
20	61·0	60·5	61·1	61·3	61·8	63·9	65·1	66·4	66·4	63·8	65·6	66·6	63·63
21	61·1	60·5	61·1	61·4	61·8	63·9	65·1	66·4	66·5	63·9	65·6	66·6	63·66
22	61·2	60·6	61·2	61·5	61·9	63·9	65·1	66·5	66·5	63·9	65·6	66·7	63·72
23	61·3	60·6	61·4	61·6	61·9	63·8	65·1	66·5	66·5	63·9	65·7	66·9	63·77

TABLE XI.—MEAN MAGNETIC DECLINATION, HORIZONTAL FORCE, and VERTICAL FORCE in each MONTH.

(The results for Horizontal Force and Vertical Force are corrected for temperature.)

Month, 1888.	Declination West in Arc.	Horizontal Force in terms of the whole Horizontal Force (diminished by a Constant).	Vertical Force in terms of the whole Vertical Force (diminished by a Constant).	Declination diminished by 17° and expressed as Westerly Force. (in terms of Gauss's Metrical Unit.)	Horizontal Force (diminished by a Constant). (in terms of Gauss's Metrical Unit.)	Vertical Force (diminished by a Constant). (in terms of Gauss's Metrical Unit.)
January	17° 42'·7	452	624	2261	823	2732
February	17. 42·4	484	582	2245	881	2548
March	17. 41·9	759	539	2219	1382	2360
April	17. 40·9	764	531	2166	1391	2325
May	17. 40·9	647	561	2166	1178	2456
June	17. 40·8	736	589	2160	1340	2579
July	17. 40·5	731	598	2144	1331	2618
August	17. 39·4	739	584	2086	1345	2557
September	17. 39·3	677	518	2081	1232	2268
October	17. 39·5	509	433	2092	927	1896
November	17. 38·3	512	387	2028	932	1695
December	17. 37·8	526	297	2002	958	1300
Means	17° 40'·4	......	......	2138	......	......
Number of Column	1	2	3	4	5	6

The units in columns 2 and 3 are ·00001 of the whole Horizontal and Vertical Forces respectively; in columns 4, 5, and 6 the unit is ·00001 of the Millimètre-Milligramme-Second Unit, or ·000001 of the Centimètre-Gramme-Second (C.G.S.) Unit, in terms of which units the values of whole Horizontal Force (applicable to columns 4 and 5) are 1·8204 and 0·18204 respectively for the year, and of whole Vertical Force (applicable to column 6) are 4·3786 and 0·43786 respectively for the year.

HORIZONTAL FORCE.—At the end of the year experiments were made for determination of the angle of torsion, thus breaking the continuity of the values.

VERTICAL FORCE.—On December 28 the magnet was readjusted, thus breaking the continuity of the values.

TABLE XII.—MEAN DIURNAL INEQUALITIES OF MAGNETIC DECLINATION, HORIZONTAL FORCE, and VERTICAL FORCE, for the Year 1888.

(Each result is the mean of the twelve monthly mean values, the annual means for each element being diminished by the smallest hourly value. The results for Horizontal Force and Vertical Force are corrected for temperature.)

Hour, Greenwich Civil Time.	Inequality of			Inequality of		
	DECLINATION WEST in Arc.	HORIZONTAL FORCE in terms of the whole Horizontal Force.	VERTICAL FORCE in terms of the whole Vertical Force.	DECLINATION expressed as WESTERLY FORCE (in terms of GAUSS'S METRICAL UNIT)	HORIZONTAL FORCE (in terms of GAUSS'S METRICAL UNIT)	VERTICAL FORCE (in terms of GAUSS'S METRICAL UNIT)
Midnight.	′0·40	110·8	14·1	21·2	201·7	61·7
1h	0·53	106·5	12·2	28·1	193·9	53·4
2	0·74	100·3	10·5	39·2	182·6	46·0
3	0·75	99·4	12·0	39·7	180·9	52·5
4	0·64	99·4	15·8	33·9	180·9	69·2
5	0·30	99·8	18·3	15·9	181·7	80·1
6	0·18	93·1	19·5	9·5	169·5	85·4
7	0·08	75·6	21·4	4·2	137·6	93·7
8	0·00	48·7	20·3	0·0	88·7	88·9
9	0·37	19·2	14·8	19·6	35·0	64·8
10	1·75	0·0	6·6	92·7	0·0	28·9
11	3·84	3·0	0·8	203·3	5·5	3·5
Noon.	5·52	30·4	0·0	292·3	55·3	0·0
13h	6·38	64·3	7·9	337·8	117·1	34·6
14	5·91	86·1	18·5	312·9	156·7	81·0
15	4·74	101·5	28·0	251·0	184·8	122·6
16	3·55	106·4	33·2	188·0	193·7	145·4
17	2·57	115·3	34·1	136·1	209·9	149·3
18	1·78	126·0	34·7	94·3	229·4	151·9
19	1·22	129·8	32·4	64·6	236·3	141·9
20	0·70	125·9	29·3	37·1	229·2	128·3
21	0·37	119·0	26·0	19·6	216·6	113·8
22	0·25	116·2	20·6	13·2	211·5	90·2
23	0·22	114·8	16·9	11·6	209·0	74·0
Means . .	′1·78	87·1	18·7	94·4	158·6	81·7
Number of Column	1	2	3	4	5	6

The units in columns 2 and 3 are ·00001 of the whole Horizontal and Vertical Forces respectively; in columns 4, 5, and 6 the unit is ·00001 of the Millimètre-Milligramme-Second Unit, or ·000001 of the Centimètre-Gramme-Second (C.G.S.) Unit, in terms of which units the values of whole Horizontal Force (applicable to columns 4 and 5) are 1·8204 and 0·18204 respectively, and of whole Vertical Force (applicable to column 6) are 4·3786 and 0·43786 respectively.

TABLE XIII.—DIURNAL RANGE OF DECLINATION AND HORIZONTAL FORCE, on each CIVIL DAY, as deduced from the TWENTY-FOUR HOURLY MEASURES of ORDINATES of the PHOTOGRAPHIC REGISTER.

(The Declination is expressed in minutes of arc; the unit for Horizontal Force is ·00001 of the whole Horizontal Force. The results for Horizontal Force are corrected for temperature.)

1888.

Day of Month.	January.		February.		March.		April.		May.		June.	
	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.
d	′		′		′		′		′		′	
1	7·3	63	4·3	101	6·1	251	9·6	174	8·3	334	6·8	209
2	4·7	111	4·1	110	7·3	139	9·9	287	7·8	274	9·0	182
3	6·8	86	7·2	240	6·0	109	9·2	335	8·7	236	19·7	373
4	5·2	120	7·1	88	4·8	68	17·7	361	7·5	160	11·1	382
5	4·7	99	10·8	178	5·8	106	9·9	271	8·7	220	10·0	291
6	7·3	200	2·7	97	5·7	96	7·8	217	8·5	245	12·9	296
7	4·8	149	7·1	106	7·0	216	8·4	145	16·9	300	10·0	293
8	16·4	448	8·6	146	7·6	244	9·0	158	11·3	449	10·2	253
9	4·3	72	9·7	315	11·7	226	7·8	170	11·6	350	8·3	163
10	6·6	73	9·6	110	8·7	247	9·5	161	13·3	298	14·0	197
11	6·8	129	11·0	256	9·0	132	25·0	312	12·1	253	9·3	301
12	5·0	99	6·4	210	7·6	91	21·9	348	11·2	357	10·3	203
13	...	...	4·0	88	9·1	138	13·2	382	11·4	309	12·1	195
14	9·9	135	2·8	81	7·5	177	12·6	269	8·9	259	8·8	384
15	5·5	214	3·5	124	16·0	192	8·5	397	9·4	256	11·1	267
16	5·0	137	9·6	167	17·7	227	5·3	226	11·8	256	12·4	299
17	6·7	225	8·3	161	14·5	292	6·3	106	7·4	171	9·7	245
18	10·0	204	12·4	244	14·3	343	7·8	161	6·4	221	10·8	265
19	6·5	189	11·5	166	11·5	209	8·7	151	9·3	168	8·9	249
20	5·0	155	7·8	170	8·1	197	8·4	230	9·8	265	8·9	156
21	10·2	160	10·2	152	7·7	160	6·9	188	...	...	12·2	236
22	6·7	155	8·7	232	9·2	241	9·7	149	8·5	170	15·4	273
23	...	...	9·3	129	8·5	120	9·2	135	12·6	233	10·7	329
24	7·6	173	9·7	150	10·1	173	13·6	210	13·2	231	12·1	411
25	10·9	141	10·3	173	8·6	172	14·9	175	...	192	9·1	318
26	5·4	117	9·3	132	9·8	199	12·5	206	12·9	153	...	238
27	9·1	138	5·4	127	12·1	215	9·4	280	10·6	219	6·4	293
28	6·6	170	7·7	90	11·5	330	10·1	299	10·7	237	7·6	239
29	6·8	174	7·8	246	10·6	222	8·4	303	10·4	292	8·4	204
30	4·9	109			11·4	199	8·5	242	7·9	237	8·4	372
31	5·5	152			9·6	125			8·2	203		
Means.....	7·0	152	7·8	158	9·5	189	10·7	235	10·2	252	10·5	271

Day of Month.	July.		August.		September.		October.		November.		December.	
	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.
d	′		′		′		′		′		′	
1	19·0	330	10·7	265	10·7	289	7·7	166	9·0	151	4·5	64
2	9·9	325	9·5	293	9·3	299	6·2	158	5·5	95	4·7	162
3	9·7	301	12·7	249	9·8	198	5·4	180	5·6	183	7·5	182
4	...	...	12·5	267	8·6	252	6·5	145	11·6	161	5·6	45
5	8·3	276	8·3	201	9·5	239	10·2	158	10·8	164	5·1	137
6	11·6	286	8·9	265	10·0	282	6·1	143	10·6	195	9·2	195
7	11·2	216	11·4	229	9·8	245	7·1	182	9·6	228	6·3	105
8	11·0	256	10·1	213	11·0	286	8·0	288	11·6	165	10·3	285
9	10·8	404	11·5	234	10·2	244	8·6	218	5·0	127	6·6	67
10	10·7	215	9·6	266	9·3	286	11·4	205	3·7	148	4·1	60
11	11·8	286	11·2	282	8·7	301	7·6	188	8·7	202	3·2	49
12	10·2	350	13·7	195	9·8	214	8·7	298	5·3	99	5·1	104
13	10·6	359	10·1	168	12·2	429	9·3	256	3·7	46	6·3	231
14	11·1	274	10·5	190	9·0	261	7·2	225	3·7	67	7·0	305
15	11·6	275	8·9	297	8·4	287	8·0	227	3·4	97	9·2	266
16	11·5	172	15·0	469	6·9	250	8·1	165	13·5	312	5·8	123
17	8·8	300	9·9	315	5·6	210	6·6	199	15·2	377	4·0	158
18	8·4	315	9·7	300	13·5	158	8·9	252	8·8	235	3·8	77
19	8·8	205	9·9	250	15·8	355	18·3	395	7·0	184	2·8	103
20	11·3	185	10·0	267	15·5	238	13·6	182	5·1	124	3·4	77
21	8·5	424	11·4	285	6·7	167	12·1	371	4·9	135	4·2	150
22	9·1	341	8·8	235	7·0	166	6·5	215	3·6	86	4·3	108
23	9·4	282	8·6	257	7·6	205	10·3	219	3·1	90	2·5	86
24	10·4	221	9·9	294	7·6	291	9·8	192	3·0	34	8·1	263
25	6·9	302	9·1	265	10·9	314	6·6	260	8·0	220	5·6	268
26	8·6	255	9·1	220	8·5	273	8·7	197	8·7	170	8·5	151
27	8·3	226	10·6	182	8·2	294	5·2	162	9·8	171	4·1	126
28	14·2	305	9·2	222	13·0	212	6·0	127	11·5	124	4·0	94
29	12·6	307	9·0	232	9·4	172	6·8	175	4·5	87	4·0	104
30	8·9	339	8·6	274	7·2	204	6·4	250	6·2	116	6·5	162
31	12·1	277	11·4	232			14·0	258			...	126
Means.....	10·5	287	10·3	255	9·7	254	8·6	215	7·4	153	5·5	143

The mean of the twelve monthly values is, for Declination 9′·0, and for Horizontal Force 214.

TABLE XIV.—MONTHLY MEAN DIURNAL RANGE, and SUMS of HOURLY DEVIATIONS from MEAN, for DECLINATION, HORIZONTAL FORCE, and VERTICAL FORCE, as deduced from the Monthly Mean Diurnal Inequalities, Tables II., V., and IX.

(The Declination is expressed in minutes of arc: the units for Horizontal Force and Vertical Force are ·00001 of the whole Horizontal and Vertical Forces respectively. The results for Horizontal Force and Vertical Force are corrected for temperature.)

Month, 1888.	Difference between the Greatest and Least of the 24 Hourly Values.			Sums of the 24 Hourly Deviations from the Mean Value.		
	Declination.	Horizontal Force.	Vertical Force.	Declination.	Horizontal Force.	Vertical Force.
	′			′		
January	5·2	85	25	25·7	383	152
February	5·6	64	28	31·0	276	160
March	7·6	130	45	43·5	693	230
April	8·2	181	57	49·1	991	263
May	8·8	196	61	53·3	1153	307
June	9·3	229	61	55·1	1371	298
July	9·2	231	49	55·6	1580	248
August	9·1	218	44	50·0	1343	225
September	7·2	187	36	44·6	1055	216
October	6·8	150	24	37·1	829	158
November	5·4	82	27	27·2	394	155
December	4·3	54	19	21·4	300	115
Means	7′·2	151	40	41′·1	864	211

TABLE XV.—VALUES of the CO-EFFICIENTS in the PERIODICAL EXPRESSION

$$V_t = m + a_1 \cos t + b_1 \sin t + a_2 \cos 2t + b_2 \sin 2t + a_3 \cos 3t + b_3 \sin 3t + a_4 \cos 4t + b_4 \sin 4t$$

(in which t is the time from Greenwich mean midnight converted into arc at the rate of 15° to each hour, and V_t the mean value of the magnetic element at the time t for each month and for the year, as given in Tables II., V., IX., and XII., the values for Horizontal Force and Vertical Force being corrected for temperature).

The values of the co-efficients for Declination are given in minutes of arc: the units for Horizontal Force and Vertical Force are ·00001 of the whole Horizontal and Vertical Forces respectively.

Month, 1888.	m	a_1	b_1	a_2	b_2	a_3	b_3	a_4	b_4
	DECLINATION WEST.								
	′	′	′	′	′	′	′	′	′
January	1·87	− 1·62	− 0·08	+ 0·48	+ 0·77	− 0·41	− 0·18	+ 0·26	+ 0·19
February	1·99	− 2·01	− 0·35	+ 0·47	+ 0·66	− 0·29	− 0·24	+ 0·25	+ 0·24
March	2·48	− 2·03	− 1·04	+ 0·80	+ 1·62	− 0·40	− 0·95	+ 0·32	+ 0·41
April	2·30	− 2·38	− 1·47	+ 1·26	+ 1·42	− 0·54	− 0·60	+ 0·17	+ 0·27
May	3·37	− 2·22	− 2·18	+ 1·37	+ 1·37	− 0·55	− 0·27	+ 0·17	0·00
June	3·95	− 1·97	− 2·55	+ 1·55	+ 1·64	− 0·49	− 0·26	− 0·02	+ 0·10
July	3·77	− 2·05	− 2·61	+ 1·29	+ 1·48	− 0·61	− 0·35	0·00	+ 0·17
August	3·33	− 2·27	− 1·74	+ 1·59	+ 1·41	− 0·75	− 0·39	0·00	+ 0·14
September	1·83	− 2·43	− 1·03	+ 1·26	+ 0·90	− 0·68	− 0·49	+ 0·30	+ 0·16
October	2·14	− 2·01	− 0·49	+ 0·93	+ 1·36	− 0·64	− 0·36	+ 0·50	+ 0·24
November	2·28	− 1·85	+ 0·18	+ 0·49	+ 0·61	− 0·37	+ 0·01	+ 0·37	+ 0·08
December	2·04	− 1·41	+ 0·08	+ 0·24	+ 0·79	− 0·26	+ 0·01	+ 0·11	+ 0·11
For the Year	1·78	− 2·02	− 1·11	+ 0·98	+ 1·17	− 0·50	− 0·34	+ 0·20	+ 0·18
	HORIZONTAL FORCE.								
January	49·7	+ 7·6	+ 3·1	− 21·9	+ 6·7	+ 2·7	− 15·2	+ 0·5	+ 4·1
February	38·1	+ 4·6	+ 10·1	− 11·9	+ 0·5	+ 9·9	− 5·6	− 1·7	+ 3·3
March	93·4	+ 34·3	− 16·6	− 26·2	+ 9·8	+ 9·7	− 17·7	− 0·1	+ 6·9
April	118·8	+ 54·0	− 37·1	− 23·4	+ 12·6	+ 5·1	− 12·5	+ 3·5	+ 8·4
May	107·8	+ 48·0	− 60·5	− 19·9	+ 17·4	− 5·7	− 0·8	+ 7·2	+ 3·6
June	129·6	+ 56·4	− 70·8	− 21·7	+ 24·6	− 4·9	− 9·8	+ 5·0	+ 4·0
July	141·9	+ 65·5	− 75·9	− 15·8	+ 32·6	− 3·5	− 12·4	− 1·8	+ 3·6
August	144·0	+ 63·0	− 57·5	− 15·0	+ 29·5	− 4·4	− 18·9	+ 1·1	+ 7·1
September	125·7	+ 64·7	− 22·1	− 17·7	+ 19·0	+ 0·8	− 18·7	+ 9·1	+ 11·7
October	107·6	+ 46·0	− 10·0	− 27·5	+ 16·0	+ 5·7	− 17·3	+ 7·0	+ 8·2
November	45·2	+ 13·8	+ 7·4	− 18·3	+ 12·9	+ 4·0	− 7·8	+ 5·1	+ 6·3
December	19·5	− 1·7	+ 15·8	− 11·8	+ 0·4	+ 3·2	− 4·4	− 0·6	+ 4·2
For the Year	87·1	+ 38·0	− 26·2	− 19·2	+ 15·2	+ 1·9	− 11·8	+ 2·9	+ 5·9
	VERTICAL FORCE.								
January	8·5	− 3·1	− 8·3	− 3·1	+ 3·1	+ 2·4	− 0·7	− 1·9	+ 0·7
February	13·3	+ 0·5	− 8·6	− 6·4	0·0	+ 1·9	− 1·6	− 1·2	+ 0·1
March	22·6	+ 3·5	− 10·1	− 11·5	+ 0·3	+ 4·9	+ 0·4	− 3·3	− 0·7
April	31·6	+ 8·2	− 9·5	− 15·1	− 0·2	+ 5·7	+ 0·3	− 1·5	+ 0·7
May	35·9	+ 9·9	− 12·1	− 16·3	+ 0·2	+ 5·3	− 2·5	− 1·5	+ 1·1
June	34·4	+ 10·4	− 9·8	− 16·8	− 0·4	+ 5·2	− 1·0	− 0·2	+ 0·1
July	28·9	+ 7·8	− 5·9	− 14·2	− 1·8	+ 3·2	− 2·1	− 0·5	− 0·3
August	26·6	+ 3·0	− 5·1	− 13·2	− 1·4	+ 6·5	− 0·6	− 1·9	+ 1·0
September	18·5	+ 1·1	− 8·9	− 11·1	− 0·1	+ 3·4	− 2·2	− 2·0	+ 0·8
October	11·4	− 3·4	− 4·4	− 7·5	− 1·3	+ 3·1	− 1·0	− 2·6	+ 0·8
November	11·8	− 4·0	− 8·4	− 2·4	+ 1·1	+ 1·4	− 3·1	− 1·2	+ 0·7
December	8·0	− 3·5	− 5·9	− 3·1	+ 1·3	+ 0·8	− 1·2	0·0	+ 0·5
For the Year	18·7	+ 2·5	− 8·1	− 10·0	+ 0·1	+ 3·6	− 1·3	− 1·5	+ 0·4

TABLE XVI.—VALUES of the CO-EFFICIENTS and CONSTANT ANGLES in the PERIODICAL EXPRESSIONS

$$V_t = m + c_1 \sin(t+\alpha) + c_2 \sin(2t+\beta) + c_3 \sin(3t+\gamma) + c_4 \sin(4t+\delta)$$
$$V_{t'} = m + c_1 \sin(t'+\alpha') + c_2 \sin(2t'+\beta') + c_3 \sin(3t'+\gamma') + c_4 \sin(4t'+\delta')$$

(in which t and t' are the times from Greenwich mean midnight and apparent midnight respectively converted into arc at the rate of 15° to each hour, and V_t, $V_{t'}$ the mean value of the magnetic element at the time t or t' for each month and for the year, as given in Tables II., V., IX., and XII., the values for Horizontal Force and Vertical Force being corrected for temperature).
The values of the co-efficients for Declination are given in minutes of arc: the units for Horizontal Force and Vertical Force are ·00001 of the whole Horizontal and Vertical Forces respectively.

Month, 1888.	m	c_1	α	α'	c_2	β	β'	c_3	γ	γ'	c_4	δ	δ'
						DECLINATION WEST.							
	′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′
January	1·87	1·63	267. 13	269. 35	0·91	32. 1	36. 45	0·45	246. 20	253. 26	0·32	54. 2	63. 30
February	1·99	2·04	260. 16	263. 45	0·81	35. 37	42. 35	0·37	230. 53	241. 20	0·34	45. 53	59. 49
March	2·48	2·28	242. 59	245. 6	1·81	26. 13	30. 27	1·03	202. 56	209. 17	0·52	37. 56	46. 24
April	2·30	2·80	238. 21	238. 21	1·90	41. 40	41. 40	0·81	222. 7	222. 7	0·32	31. 18	31. 18
May	3·37	3·11	225. 33	224. 41	1·93	45. 0	43. 16	0·61	244. 21	241. 45	0·17	90. 0	86. 32
June	3·95	3·22	217. 48	217. 55	2·25	43. 19	43. 33	0·55	242. 26	242. 47	0·10	350. 37	351. 5
July	3·77	3·32	218. 5	219. 27	1·96	41. 4	43. 48	0·71	240 35	244. 41	0·17	0. 0	5. 28
August	3·33	2·86	232. 26	233. 20	2·12	48. 35	50. 23	0·84	242. 16	244. 58	0·14	1. 44	5. 20
September	1·83	2·64	246. 56	245. 37	1·55	54. 22	51. 44	0·84	234. 12	230. 15	0·34	62. 3	56. 47
October	2·14	2·07	256. 21	252. 49	1·65	34. 14	27. 10	0·73	240. 35	229. 59	0·55	64. 20	50. 12
November	2·28	1·86	275. 41	272. 3	0·79	38. 52	31. 36	0·37	271. 26	260. 32	0·38	77. 57	63. 25
December	2·04	1·41	273. 11	272. 15	0·82	17. 8	15. 16	0·26	272. 2	269. 14	0·16	46. 5	42. 21
For the Year	1·78	2·30	241. 20	241. 20	1·52	39. 56	39. 56	0·60	235. 52	235. 52	0·27	49. 16	49. 16
						HORIZONTAL FORCE.							
			° ′	° ′		° ′	° ′		° ′	° ′		° ′	° ′
January	49·7	8·2	67. 46	70. 8	22·9	286. 56	291. 40	15·4	169. 50	176. 56	4·1	6. 21	15. 49
February	38·1	11·1	24. 35	28. 4	11·9	272. 29	279. 27	11·4	119. 39	130. 6	3·7	333. 19	347. 15
March	93·4	38·1	115. 50	117. 57	27·9	290. 32	294. 46	20·2	151. 27	157. 48	6·9	358. 57	7. 25
April	118·8	65·6	124. 30	124. 30	26·5	298. 17	298. 17	13·5	157. 37	157. 37	9·1	22. 41	22. 41
May	107·8	77·2	141. 36	140. 44	26·4	311. 9	309. 25	5·7	261. 47	259. 11	8·0	63. 17	59. 49
June	129·6	90·5	141. 28	141. 35	32·8	318. 36	318. 50	11·0	206. 39	207. 0	6·4	51. 20	51. 48
July	141·9	100·2	139. 12	140. 34	36·3	334. 8	336. 52	12·9	195. 45	199. 51	4·0	333. 4	338. 32
August	144·0	85·3	132. 24	133. 18	33·1	333. 5	334. 53	19·4	193. 2	195. 44	7·2	8. 57	12. 33
September	125·7	68·3	108. 51	107. 32	25·9	317. 1	314. 23	18·7	177. 39	173. 42	14·8	37. 51	32. 35
October	107·6	47·1	102. 16	98. 44	31·8	300. 11	293. 7	18·2	161. 47	151. 11	10·8	40. 24	26. 16
November	45·2	15·7	61. 54	58. 16	22·4	305. 10	297. 54	8·7	152. 46	141. 52	8·1	39. 14	24. 42
December	19·5	15·9	353. 50	352. 54	11·8	271. 44	269. 52	5·5	143. 53	141. 5	4·2	352. 4	348. 20
For the Year	87·1	46·2	124. 33	124. 33	24·5	308. 12	308. 12	11·9	170. 54	170. 54	6·6	25. 41	25. 41
						VERTICAL FORCE.							
			° ′	° ′		° ′	° ′		° ′	° ′		° ′	° ′
January	8·5	8·9	200. 7	202. 29	4·3	315. 0	319. 44	2·5	106. 45	113. 51	2·0	290. 43	300. 11
February	13·3	8·6	177. 1	180. 30	6·4	269. 42	276. 40	2·5	129. 35	140. 2	1·2	276. 55	290. 51
March	22·6	10·7	160. 59	163. 6	11·5	271. 32	275. 46	4·9	85. 43	92. 4	3·3	257. 25	265. 53
April	31·6	12·5	139. 21	139. 21	15·1	269. 7	269. 7	5·7	86. 33	86. 33	1·7	292. 52	292. 52
May	35·9	15·7	140. 50	139. 58	16·3	270. 33	268. 49	5·8	115. 12	112. 36	1·9	305. 6	301. 38
June	34·4	14·3	133. 19	133. 26	16·8	268. 43	268. 57	5·3	101. 10	101. 31	0·2	289. 48	290. 16
July	28·9	9·8	126. 56	128. 18	14·3	262. 50	265. 34	3·8	123. 4	127. 10	0·6	239. 45	245. 13
August	26·6	5·9	150. 3	150. 57	13·3	263. 46	265. 34	6·6	95. 37	98. 19	2·2	297. 45	301. 21
September	18·5	9·0	172. 49	171. 30	11·1	269. 21	266. 43	4·0	123. 30	119. 33	2·1	292. 1	286. 45
October	11·4	5·6	217. 59	214. 27	7·6	259. 57	252. 53	3·3	107. 12	96. 36	2·7	286. 47	272. 39
November	11·8	9·3	205. 32	201. 54	2·7	295. 22	288. 6	3·4	156. 29	145. 35	1·4	301. 51	287. 19
December	8·0	6·9	210. 41	209. 45	3·4	293. 32	291. 40	1·5	148. 35	145. 47	0·5	355. 19	351. 35
For the Year	18·7	8·5	162. 45	162. 45	10·0	270. 20	270. 20	3·9	109. 25	109. 25	1·6	286. 47	286. 47

TABLE XVII.—SEPARATE RESULTS of OBSERVATIONS of MAGNETIC DIP made in the Year 1888.

Day and Hour, (Civil Reckoning) 1888.	Needle.	Magnetic Dip.	Observer.
d h		° ′ ″	
Jan. 4. 14	C 2	67. 26. 42	N
7. 13	C 1	67. 26. 50	N
18. 14	B 1	67. 25. 24	N
19. 13	B 2	67. 26. 53	N
19. 14	D 2	67. 25. 57	N
24. 13	D 1	67. 27. 27	N
24. 14	C 1	67. 28. 2	N
25. 12	B 1	67. 28. 18	N
25. 13	D 2	67. 28. 36	N
31. 13	C 2	67. 23. 40	N
Feb. 7. 14	C 1	67. 26. 36	N
10. 14	D 1	67. 27. 14	N
13. 14	D 2	67. 27. 0	N
14. 13	C 2	67. 25. 38	N
15. 13	B 1	67. 26. 17	N
17. 14	B 2	67. 25. 31	N
18. 14	C 1	67. 25. 7	N
21. 14	D 1	67. 27. 4	N
21. 15	D 2	67. 27. 10	N
23. 14	C 2	67. 26. 40	N
28. 14	C 1	67. 25. 32	N
29. 13	B 1	67. 24. 51	N
29. 14	B 2	67. 24. 32	N
Mar. 2. 14	C 2	67. 24. 14	N
6. 14	B 2	67. 24. 6	N
10. 14	C 1	67. 27. 38	N
13. 14	C 2	67. 26. 32	N
17. 14	B 1	67. 27. 14	N
21. 14	B 2	67. 25. 0	N
21. 15	C 1	67. 24. 37	N
24. 14	D 1	67. 26. 45	N
27. 13	D 2	67. 25. 23	N
29. 12	B 1	67. 24. 7	N
29. 14	C 2	67. 25. 27	N
29. 15	D 2	67. 26. 5	N
Apr. 6. 14	D 1	67. 24. 59	N
11. 14	C 1	67. 27. 3	N
13. 14	D 2	67. 24. 56	N
13. 15	B 2	67. 24. 15	N
17. 15	C 2	67. 24. 55	N
20. 14	B 1	67. 24. 19	N
20. 15	C 1	67. 24. 23	N
26. 14	D 1	67. 25. 55	N
26. 15	D 2	67. 25. 33	N
27. 13	C 2	67. 26. 10	N
27. 14	B 2	67. 23. 37	N
30. 15	D 1	67. 25. 14	N

Day and Hour, (Civil Reckoning) 1888.	Needle.	Magnetic Dip.	Observer.
d h		° ′ ″	
May 4. 14	B 1	67. 23. 41	N
4. 15	C 2	67. 24. 26	N
9. 14	B 2	67. 24. 54	N
9. 15	C 1	67. 26. 44	N
15. 14	D 1	67. 25. 19	N
15. 15	D 2	67. 25. 36	N
24. 14	C 2	67. 24. 33	N
25. 12	B 1	67. 24. 13	N
25. 14	B 2	67. 24. 17	N
30. 14	C 1	67. 25. 54	N
31. 14	D 2	67. 26. 18	N
31. 15	D 1	67. 26. 33	N
June 5. 14	C 2	67. 25. 39	N
8. 15	C 1	67. 25. 27	N
12. 14	B 1	67. 25. 48	N
12. 15	D 1	67. 28. 31	N
13. 14	B 2	67. 23. 50	N
14. 14	C 2	67. 23. 27	N
15. 14	D 2	67. 24. 28	N
18. 15	D 1	67. 25. 45	N
21. 14	C 1	67. 24. 13	N
21. 15	B 1	67. 23. 44	N
22. 15	B 2	67. 22. 58	N
25. 14	C 2	67. 24. 3	N
28. 15	D 2	67. 26. 23	N
28. 16	D 1	67. 25. 55	N
July 3. 15	C 1	67. 24. 33	N
9. 15	B 1	67. 22. 49	N
13. 14	B 2	67. 21. 56	N
13. 15	C 2	67. 23. 53	N
16. 16	D 2	67. 24. 57	N
17. 15	D 1	67. 25. 59	N
17. 16	C 2	67. 25. 9	N
19. 15	B 2	67. 23. 16	N
27. 14	B 1	67. 23. 52	N
27. 15	C 1	67. 25. 17	N
31. 15	D 1	67. 27. 2	N
31. 16	D 2	67. 26. 40	N
Aug. 1. 16	D 2	67. 25. 4	N
8. 14	D 1	67. 26. 11	N
8. 15	C 1	67. 26. 0	N
9. 13	B 2	67. 25. 31	N
9. 15	B 1	67. 23. 59	N
10. 14	C 2	67. 26. 13	N
14. 15	B 2	67. 23. 37	N
15. 15	C 1	67. 25. 14	N
23. 14	D 1	67. 26. 52	N
23. 15	D 2	67. 25. 47	N
23. 16	C 2	67. 26. 9	N
28. 14	B 1	67. 25. 50	N
30. 13	B 2	67. 24. 16	N
30. 15	D 2	67. 25. 27	N

Day and Hour, (Civil Reckoning) 1888.	Needle.	Magnetic Dip.	Observer.
d h		° ′ ″	
Sept. 4. 15	D 1	67. 25. 21	N
6. 15	D 2	67. 27. 21	N
7. 12	D 1	67. 25. 5	N
7. 15	C 1	67. 24. 55	N
13. 14	B 1	67. 25. 21	N
14. 14	B 2	67. 24. 4	N
14. 15	C 2	67. 25. 49	N
20. 14	B 2	67. 24. 19	N
21. 15	B 1	67. 25. 12	N
24. 15	C 1	67. 26. 36	N
27. 12	B 2	67. 26. 17	N
27. 13	C 2	67. 27. 6	N
27. 15	D 1	67. 27. 14	N
29. 13	D 2	67. 25. 42	N
Oct. 4. 15	D 1	67. 26. 55	N
5. 12	C 2	67. 24. 7	N
9. 14	B 1	67. 23. 44	N
16. 16	C 1	67. 25. 16	N
18. 14	B 2	67. 24. 34	N
18. 15	B 1	67. 23. 59	N
19. 15	C 2	67. 25. 2	N
19. 16	D 2	67. 27. 58	N
20. 13	D 1	67. 27. 45	N
25. 15	D 2	67. 25. 44	N
25. 16	C 1	67. 24. 57	N
31. 15	B 1	67. 23. 59	N
31. 16	B 2	67. 24. 47	N
Nov. 5. 16	B 1	67. 25. 17	N
10. 13	C 2	67. 26. 44	N
13. 15	B 2	67. 24. 23	N
13. 16	C 1	67. 25. 13	N
16. 15	D 1	67. 27. 28	N
16. 16	D 2	67. 27. 6	N
20. 15	C 1	67. 26. 24	N
20. 16	D 2	67. 25. 58	N
24. 12	D 1	67. 26. 20	N
24. 13	C 2	67. 25. 23	N
30. 15	B 1	67. 22. 1	N
Dec. 7. 14	B 1	67. 22. 43	N
7. 15	B 2	67. 21. 30	N
12. 12	C 1	67. 27. 24	N
12. 13	B 2	67. 24. 56	N
12. 14	B 1	67. 22. 54	N
13. 15	C 2	67. 24. 40	N
18. 13	D 2	67. 25. 39	N
18. 14	D 1	67. 25. 53	N
20. 14	C 1	67. 24. 52	N
20. 15	B 1	67. 25. 0	N
22. 14	D 2	67. 25. 46	N
29. 14	B 2	67. 24. 9	N

The needles B 1 and B 2 are 9 inches in length; C 1 and C 2, 6 inches; and D 1 and D 2, 3 inches.
The initial N is that of Mr. Nash.

TABLE XVIII.—MONTHLY and YEARLY MEANS of MAGNETIC DIP in the YEAR 1888.

Monthly Means of Magnetic Dip.

Month, 1888.	B 1, 9-inch Needle.	Number of Observations.	B 2, 9-inch Needle.	Number of Observations.	C 1, 6-inch Needle.	Number of Observations.
	° ′ ″		° ′ ″		° ′ ″	
January	67. 26. 51	2	67. 26. 53	1	67. 27. 26	2
February	67. 25. 34	2	67. 25. 2	2	67. 25. 45	3
March	67. 25. 40	2	67. 24. 33	2	67. 26. 8	2
April	67. 24. 19	1	67. 23. 56	2	67. 25. 43	2
May	67. 23. 57	2	67. 24. 35	2	67. 26. 19	2
June	67. 24. 46	2	67. 23. 24	2	67. 24. 50	2
July	67. 23. 20	2	67. 22. 36	2	67. 24. 55	2
August	67. 24. 54	2	67. 24. 28	3	67. 25. 37	2
September	67. 25. 16	2	67. 24. 53	3	67. 25. 46	2
October	67. 23. 54	3	67. 24. 40	2	67. 25. 7	2
November	67. 23. 39	2	67. 24. 23	1	67. 25. 49	2
December	67. 23. 32	3	67. 23. 32	3	67. 26. 8	2
Means	67. 24. 35	Sum 25	67. 24. 18	Sum 25	67. 25. 47	Sum 25

Month, 1888.	C 2, 6-inch Needle.	Number of Observations.	D 1, 3-inch Needle.	Number of Observations.	D 2, 3-inch Needle.	Number of Observations.
	° ′ ″		° ′ ″		° ′ ″	
January	67. 25. 11	2	67. 27. 27	1	67. 27. 16	2
February	67. 26. 9	2	67. 27. 9	2	67. 27. 5	2
March	67. 25. 38	3	67. 26. 45	1	67. 25. 44	2
April	67. 25. 32	2	67. 25. 23	3	67. 25. 15	2
May	67. 24. 30	2	67. 25. 56	2	67. 25. 57	2
June	67. 24. 23	3	67. 26. 44	3	67. 25. 25	2
July	67. 24. 31	2	67. 26. 31	2	67. 25. 48	2
August	67. 26. 11	2	67. 26. 32	2	67. 25. 26	3
September	67. 26. 27	2	67. 25. 53	3	67. 26. 32	2
October	67. 24. 34	2	67. 27. 20	2	67. 26. 51	2
November	67. 26. 3	2	67. 26. 54	2	67. 26. 32	2
December	67. 24. 40	1	67. 25. 53	1	67. 25. 42	2
Means	67. 25. 18	Sum 25	67. 26. 27	Sum 24	67. 26. 6	Sum 25

The monthly means have been formed without reference to the hour at which the observation on each day was made.
In combining the monthly results, to form annual means, weights have been given proportional to the number of observations.

COLLECTED YEARLY MEANS of MAGNETIC DIP for each of the NEEDLES, and GENERAL MEAN for the Year 1888.

Lengths of the several Sets of Needles.	Needles.	Number of Observations with each Needle.	Mean Yearly Dip from Observations with each Needle.	Mean Yearly Dip from each Set of Needles.	Mean Yearly Dip from all the Sets of Needles.
			° ′ ″	° ′ ″	° ′ ″
9-inch Needles	B 1	25	67. 24. 35	67. 24. 26	67. 25. 25
	B 2	25	67. 24. 18		
6-inch Needles	C 1	25	67. 25. 47	67. 25. 33	
	C 2	25	67. 25. 18		
3-inch Needles	D 1	24	67. 26. 27	67. 26. 16	
	D 2	25	67. 26. 6		

TABLE XIX.—DETERMINATIONS OF THE ABSOLUTE VALUE OF HORIZONTAL MAGNETIC FORCE IN THE YEAR 1888.

Abstract of the Observations of Deflexion of a Magnet for Absolute Measure of Horizontal Force.

Month and Day (Civil Reckoning), 1888.	Distances of Centres of Magnets.	Temperature.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature.	Observer.
	ft.	°	° ′ ″	s		°	
January 20	1·0	46·6	10. 23. 40	5·692	100	45·2	N
	1·3		4. 43. 4	5·685	100	45·5	
February 24	1·0	42·6	10. 23. 25	5·690	100	41·0	N
	1·3		4. 42. 48	5·689	100	42·0	
March 23	1·0	49·3	10. 22. 25	5·690	100	47·8	N
	1·3		4. 42. 23	5·690	100	47·9	
April 24	1·0	52·0	10. 21. 45	5·689	100	50·8	N
	1·3		4. 41. 58	5·690	100	51·0	
May 18	1·0	59·8	10. 21. 4	5·698	100	60·0	N
	1·3		4. 41. 46	5·694	100	61·7	
June 19	1·0	54·9	10. 20. 46	5·694	100	54·9	N
	1·3		4. 41. 46	5·688	100	55·1	
July 18	1·0	61·6	10. 20. 14	5·693	100	62·0	N
	1·3		4. 41. 27	5·703	100	62·0	
August 16	1·0	60·0	10. 20. 26	5·700	100	59·8	N
	1·3		4. 41. 30	5·702	100	60·0	
September 19	1·0	62·0	10. 20. 5	5·702	100	62·5	N
	1·3		4. 41. 19	5·702	100	63·0	
October 24	1·0	47·3	10. 21. 49	5·700	100	48·0	N
	1·3		4. 42. 10	5·697	100	47·8	
November 14	1·0	50·2	10. 20. 36	5·698	100	50·5	N
	1·3		4. 41. 35	5·696	100	51·0	
December 19	1·0	39·9	10. 22. 3	5·694	100	40·1	N
	1·3		4. 42. 7	5·691	100	39·7	

The deflecting magnet is placed on the east side of the suspended magnet, with its marked pole alternately east and west, and on the west side with its marked pole also alternately east and west: the deflexion given in the table above is the mean of the four deflexions observed in these positions of the magnets.
The initial N is that of Mr. Nash.
In the subsequent calculations every observation is reduced to the temperature 35° Fahrenheit.

Computation of the Values of Horizontal Force in Absolute Measure.

Month and Day (Civil Reckoning), 1888.	In English Measure.									In Metric Measure.
	Apparent Value of A_1.	Apparent Value of A_2.	Apparent Value of P.	Mean Value of P.	Log $\frac{m}{X}$.	Adopted Time of Vibration of Deflecting Magnet.	Log m X.	Value of m.	Value of X.	Value of X.
						s				
January 20	0·09037	0·09050	−0·00355		8·95724	5·6885	0·14912	0·3574	3·9440	1·8185
February 24	0·09028	0·09036	−0·00226		8·95666	5·6895	0·14870	0·3570	3·9448	1·8189
March 23	0·09024	0·09033	−0·00254		8·95649	5·6900	0·14907	0·3571	3·9472	1·8200
April 24	0·09018	0·09024	−0·00147		8·95614	5·6895	0·14935	0·3571	3·9500	1·8213
May 18	0·09021	0·09029	−0·00237		8·95633	5·6960	0·14903	0·3570	3·9478	1·8202
June 19	0·09008	0·09022	−0·00361	−0·00256	8·95586	5·6910	0·14955	0·3570	3·9523	1·8223
July 18	0·09011	0·09022	−0·00293		8·95593	5·6980	0·14916	0·3569	3·9501	1·8213
August 16	0·09012	0·09021	−0·00259		8·95593	5·7010	0·14854	0·3566	3·9474	1·8201
September 19	0·09010	0·09018	−0·00231		8·95581	5·7020	0·14860	0·3566	3·9481	1·8204
October 24	0·09012	0·09023	−0·00293		8·95596	5·6985	0·14813	0·3565	3·9454	1·8192
November 14	0·08999	0·09009	−0·00259		8·95532	5·6970	0·14855	0·3564	3·9501	1·8213
December 19	0·09005	0·09010	−0·00158		8·95548	5·6925	0·14849	0·3564	3·9492	1·8209
Means	...	...	...	...	...	...	...	...	3·9480	1·8204

The value of X in English Measure is referred to the Foot-Grain-Second Unit, and in Metric Measure to the Millimètre-Milligramme-Second Unit. To obtain X in the Centimètre-Gramme-Second (C.G.S.) Unit, the values in the last column of the table must be divided by 10.

ROYAL OBSERVATORY, GREENWICH.

MAGNETIC DISTURBANCES

AND

EARTH CURRENTS.

1888.

MAGNETIC DISTURBANCES in DECLINATION, HORIZONTAL FORCE, and VERTICAL FORCE, and EARTH CURRENTS, recorded at the ROYAL OBSERVATORY, GREENWICH, in the Year 1888.

The following notes give a brief description of all magnetic movements (superposed on the ordinary diurnal movement) exceeding 3′ in Declination, 0·001 in Horizontal Force, or 0·0003 in Vertical Force, as taken from the photographic records of the respective Magnetometers. The movements in Horizontal and Vertical Force are expressed in parts of the whole Horizontal and Vertical Forces respectively. When any one of the three elements is not specifically mentioned it is to be understood that the movement, if any, was insignificant. Any failure or want of register is specially indicated.

The term "wave" is used to indicate a movement in one direction and return; "double wave" a movement in one direction and return with continuation in the opposite direction and return; "two successive waves" consecutive wave movements in the same direction; "fluctuations" a number of movements in both directions. The extent and direction of the movement are indicated in brackets, + denoting an increase and – a decrease of the magnetic element. In the case of fluctuations the sign ± denotes positive and negative movements of generally equal extent.

In all cases of marked magnetic movement the earth-current photographs show corresponding earth currents, but it has not been thought necessary to refer to these in detail.

Magnetic movements which do not admit of brief description in this way are exhibited with their corresponding earth currents on accompanying plates.

The time is Greenwich Civil Time (commencing at midnight, and counting the hours from 0 to 24).

1888.

January 1. 14^h to 22^h Fluctuations in Dec. (± 2′): in H.F. small.

2. 19^h to 23^h Fluctuations in Dec. (± 2′): in H.F. small.

6. 4^h to 10^h Fluctuations in Dec. (± 2′): in H.F. (± ·0008). $14\frac{1}{2}^h$ to 17^h Wave in Dec. (– 4′).

7. $15\frac{3}{4}^h$ to 8. 0^h Fluctuations in H.F. (± ·0007).

8. $0\frac{1}{2}^h$ to 3^h Double Wave in Dec. (+ 6′ to – 8′). $0\frac{1}{2}^h$ to 2^h Wave in H.F. (+ ·003). $0\frac{3}{4}^h$ to $1\frac{1}{4}^h$ Decrease of V.F. (– ·0007). 8^h to 19^h Fluctuations in Dec. (± 4′): in H.F. (± ·0012). 11^h to 19^h Long wave in V.F. (+ ·001).

10. 20^h to 22^h Fluctuations in Dec. (± 2′).

13. 12^h to 15. 12^h. See Plate I.

17. 4^h to 9^h Fluctuations in Dec. (± 4′): in H.F. (± ·0008): in V.F. small.

18. 20^h to 23^h Fluctuations in Dec. (± 2′).

1888.

January 21. 19^h to 22. 4^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001) : in V.F. small.

22. 19^h to 23. 11^h Fluctuations in Dec. (± 2′) : in H.F. (± ·0007).

23. 12^h to 24. 12^h. See Plate II.

24. $12\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Fluctuations in Dec. (± 6′) : in H.F. (± ·0015). $20\frac{1}{2}^h$ to 23^h Fluctuations in V.F. (± ·0003).

25. 18^h to 26. 3^h Fluctuations in Dec. (± 5′) : in H.F. (± ·002).

26. 18^h to 27. 6^h Fluctuations in Dec. (± 4′) : in H.F. (± ·0015) : in V.F. small.

27. $16\frac{1}{2}^h$ to $17\frac{1}{2}^h$ Wave in Dec. (− 13′), followed till 28. 6^h by fluctuations (± 5′) : in H.F. fluctuations (± ·002) : in V.F. (± ·0001).

28. 21^h to 29. 4^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001).

29. 21^h to 23^h Fluctuations in Dec. (± 2′) : in H.F. (± ·0006).

31. 14^h to February 1. 5^h Fluctuations in Dec. (± 2′) : in H.F. (± ·0005).

February 3. $18\frac{1}{2}^h$ to 20^h Wave in Dec. (+ 5′).

4. 19^h to 5. 3^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001) : in V.F. small.

7. $22\frac{1}{2}^h$ to 8. 1^h Wave in Dec. (− 8′) : in H.F. small fluctuations.

8. 19^h to 9. 12^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001) : in V.F. (± ·0002).

9. 18^h to 10. 5^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0008) : in V.F. small.

10. $19\frac{1}{2}^h$ to 21^h Wave in Dec. (− 10′). 20^h to 21^h Wave in H.F. (+ ·0016).

11. 4^h to 14^h Fluctuations in Dec. (± 2′) : in H.F. (± ·001) : in V.F. small. 11. 16^h to 12. 0^h Fluctuations in Dec. (± 4′) : in H.F. (± ·0006), with wave, 11. $19\frac{1}{2}^h$ to 21^h (+ ·003) : fluctuations in V.F. (± ·0002).

12. 14^h to 21^h Fluctuations in Dec. (± 5′) : in H.F. (± ·0015) : in V.F. small.

16. 16^h to 17. 2^h Fluctuations in Dec. (± 3′), with wave, 16. $19\frac{1}{3}^h$ to 21^h (− 8′) : fluctuations in H.F. (± ·0008) : in V.F. small.

17. 18^h to 21^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001).

18. 19^h to 19. 5^h Fluctuations in Dec. (± 5′) : in H.F. (± ·0015) : in V.F. (± ·0003).

19. 17^h to 20. 3^h Fluctuations in Dec. (± 8′) : in H.F. (± ·0015) : in V.F. (± ·0002).

20. 17^h to 22. 5^h Fluctuations in Dec. (± 7′) : in H.F. (± ·0015) : in V.F. (± ·0002).

22. 14^h to 23. 2^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001), with wave, 22. $21\frac{3}{4}^h$ to 23^h (+ ·0022) : fluctuations in V.F. (± ·0001).

23. $21\frac{1}{3}^h$ to $22\frac{1}{3}^h$ Wave in H.F. (+ ·0018).

24. 19^h to 25. 3^h Fluctuations in Dec. (± 7′) : in H.F. (± ·001) : in V.F. (± ·0002).

25. $22\frac{1}{2}^h$ to 26. 0^h Wave in Dec. (− 8′) : in H.F. (+ ·0018).

28. 23^h to 29. 4^h Fluctuations in Dec. (± 6′) : in H.F. (± ·001) : in V.F. (± ·0002).

1888.

March 1. 20^h to 2. 1^h Fluctuations in Dec. (± 2′) : in H.F. (± ·0005).

3. 22^h to 4. 4^h Fluctuations in Dec. (± 2′). 3. 22^h to 23^h Wave in H.F. (+ ·0015).

7. 12^h to 8. 18^h Fluctuations in Dec., frequently rapid (± 4′) : in H.F. (± ·0015) : in V.F. small.

8. $21\frac{1}{2}^h$ to 9. 3^h Fluctuations in Dec. (± 4′) : in H.F. (± ·0007). 9. $1\frac{1}{2}^h$ to 2^h Decrease of V.F. (— ·0005).

9. $16\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Wave in Dec. (— 17′), followed till 23^h by fluctuations (± 4′). Waves in H.F. $16\frac{1}{2}^h$ to $17\frac{3}{4}^h$ (— ·003), and $19\frac{1}{2}^h$ to $21\frac{1}{2}^h$ (+ ·003). 17^h to 21^h Fluctuations in V.F. (± ·0002).

10. 4^h to 14^h Fluctuations in Dec., frequently rapid, (± 3′) : in H.F. (± ·001) : in V.F. small. 10. 21^h to 11. 2^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0005) : in V.F. small.

13. 18^h to 14. 1^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0007) : in V.F. small.

14. 19^h to 15. 1^h Fluctuations in Dec. (± 2′) : in H.F. (± ·0005).

15. 12^h to 19. 12^h. See Plates II. and III.

19. 18^h to 20. 5^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001) : in V.F. small.

21. $18\frac{3}{4}^h$ to 20^h Wave in Dec. (— 8′) : fluctuations in H.F. (± ·0007) : in V.F. small.

22. $19\frac{1}{2}^h$ to 21^h Wave in Dec. (— 4′).

23. 19^h to 24. 3^h Fluctuations in Dec. (± 3′) : in H.F. small.

28. 19^h to 29. 0^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0008) : in V.F. small.

29. 20^h to 30. 8^h Fluctuations in Dec. (± 3′) : in H.F. small.

30. 22^h to 31. 5^h Fluctuations in Dec. (± 2′).

April 2. $20\frac{1}{4}^h$ to 3. 9^h Fluctuations in Dec. (± 6′) : in H.F. (± ·001). 3. $2\frac{3}{4}^h$ to $3\frac{1}{4}^h$ Decrease of V.F. (— ·0006).

3. 12^h to 18^h Fluctuations in H.F. (± ·001). 3. $21\frac{1}{2}^h$ to $22\frac{1}{4}^h$ Wave in Dec. (— 10′), followed till 4. 3^h by fluctuations (± 3′). 3. $21\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0025), followed till 4. 3^h by fluctuations (± ·0005).

4. 7^h to 13^h Small rapid fluctuations in Dec. (± 2′) : in H.F. (± ·0005), with wave 9^h to $10\frac{1}{4}^h$ (— ·0025). 4. $18\frac{3}{4}^h$ to $22\frac{1}{2}^h$ Wave in Dec. (— 12′), with superposed fluctuations (± 4′). 4. 19^h to 20^h Double crested wave in H.F. (+ ·004), followed till 5. 0^h by fluctuations (± ·0013). 4. $19\frac{1}{2}^h$ to 20^h Decrease of V.F. (— ·0007), followed till 23^h by fluctuations (± ·0002).

5. 9^h to 17^h Small rapid fluctuations in Dec. (± 2′) : in H.F. (± ·001).

5. 21^h to 6. 4^h Fluctuations in Dec. (± 6′) : in H.F. (± ·0012).

7. 18^h to 8. 2^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0006).

8. $17\frac{3}{4}^h$ to $18\frac{3}{4}^h$ Wave in Dec. (— 7′). 8. 16^h to 20^h Fluctuations in H.F. (± ·0005).

11. 0^h to 15. 0^h. See Plates III. and IV.

15. 2^h to 5^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001). 15. 12^h to 16. 3^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001).

16. 21^h to $22\frac{1}{4}^h$ Wave in H.F. (+ ·001).

17. 21^h to 18. 7^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001)

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April 20. 15^h to 18^h Fluctuations in H.F. (± ·0008).

24. 21^h to 25. 1^h Long wave in Dec. (− 8′). 24. $21\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Double crested wave in H.F. (+ ·003).

29. $20\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Fluctuations in H.F. (± ·0006).

30. 4^h to 15^h Small rapid fluctuations in Dec. (± 2′): in H.F. (± ·0005).

May 1. 2^h to 21^h Fluctuations in Dec. (± 3′), with double crested wave $7\frac{1}{4}^h$ to $9\frac{1}{4}^h$ (+ 10′): fluctuations in H.F. (± ·0015), with double crested wave 7^h to $8\frac{1}{2}^h$ (− ·003): fluctuations in V.F. (± ·0002).

2. 0^h to 6^h Fluctuations in Dec. (± 4′): in H.F. (± ·001). 2. 18^h to 3. 1^h Fluctuations in Dec. (± 3′): in H.F. (± ·0005).

3. $18\frac{3}{4}^h$ to $20\frac{1}{2}^h$ Wave in Dec. (− 7′). 19^h to $19\frac{3}{4}^h$ Wave in H.F. (+ ·0014).

7. 0^h to 11. 0^h. See Plates V. and VI.

11. 12^h to 12. 0^h Fluctuations in H.F. (± ·001).

12. 15^h to 13. 0^h Fluctuations in Dec. (± 3′): in H.F. (± ·001): in V.F. small.

16. 14^h to 18^h Fluctuations in H.F. (± ·001).

18. 22^h to 19. 6^h Fluctuations in Dec. (± 3′): in H.F. (± ·0008): in V.F. (± ·0001).

20. 12^h to 22. 12^h. See Plate VI.

23. 20^h to 22^h Fluctuations in Dec. (± 3′). 24. $1\frac{3}{4}^h$ to $3\frac{1}{2}^h$ Wave in Dec. (− 7′). 23. 16^h to 24. 6^h Fluctuations in H.F. (± ·0012): in V.F. (± ·0001).

26. 12^h to 20^h Fluctuations in H.F. (± ·002).

27. 0^h to 10^h Fluctuations in Dec., sometimes rapid, (± 3′). 27. 19^h to 28. 0^h Double wave in Dec. (− 6′ to + 6′). 27. 0^h to 28. 0^h. Fluctuations in H.F., sometimes rapid, (± ·001).

29. 11^h to 17^h Fluctuations in H.F., sometimes rapid, (± 001). $19\frac{1}{2}^h$ to 21^h Wave in Dec. (− 4′).

June 3. 4^h to 12^h Fluctuations in Dec. (± 3′): in H.F. (± ·001): in V.F. small.

3. 12^h to 4. 12^h. See Plate VII.

4. 14^h to 5. 1^h Fluctuations in Dec. (± 6′): in H.F. (± ·001): in V.F. (± ·0001).

5. 13^h to 6. 4^h Fluctuations in Dec. (± 4′): in H.F. (± ·0012): in V.F. (± ·0001).

6. 23^h to 7. 9^h Fluctuations in Dec. (± 3′). 6. 13^h to 7. 9^h Fluctuations in H.F. (± ·001).

7. 20^h to 8. 0^h Fluctuations in Dec. (± 3′): in H.F. (± ·0008): in V.F. small.

10. 13^h to 15^h Fluctuations in Dec. (± $1\frac{1}{2}$′). 13^h to 18^h Fluctuations in H.F. (± ·001): in V.F. (± ·0001).

19. 12^h to 21^h Fluctuations in H.F. (± ·0008).

21. 14^h to 18^h Fluctuations in H.F. (± ·0006).

22. 1^h to 10^h Fluctuations in Dec. (± 2′): in H.F. (± ·0005). 13^h to 19^h Fluctuations in Dec. (± 4′): in H.F. (± ·0025): in V.F. (± ·0002).

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June

23. $0\frac{1}{2}^h$ to $3\frac{1}{4}^h$ Wave in Dec. (+ 15′): fluctuations in H.F. (± ·001). 23. 2^h to 3^h Decrease of V.F. (− ·0005). 23. 21^h to 24. 5^h Fluctuations in Dec. (± 4′). 23. 14^h to 24. 5^h Fluctuations in H.F. (± ·001): in V.F. small.

24. 12^h to 26. 1^h Small fluctuations in H.F. (± ·0005): in V.F. (± ·0001). 25. 0^h to 13^h Small fluctuations in Dec. (± 2′). 25. 13^h to 26. 12^h. No register of Dec.

28. 13^h to 17^h Fluctuations in H.F. (± ·0005).

30. 23^h to July 1. 17^h Fluctuations in Dec. (± 6′). July 1. 21^h to 2. 8^h Fluctuations in Dec. (± 3′). June 30. $14\frac{1}{2}^h$ to July 2. 8^h. Fluctuations in H.F. (± 002): in V.F. (± ·0002).

July

2. 14^h to 3. 6^h Fluctuations in Dec. (± 4′): in H.F. (± ·001): in V.F. (± ·0001).

3. 14^h to 22^h Fluctuations in Dec. (± 2′): in H.F. (± ·0007): in V.F. small.

5. $0\frac{1}{4}^h$ to 1^h Wave in Dec. (+ 3′). $0\frac{1}{4}^h$ to 2^h Wave in H.F. (+ ·0015). $0\frac{1}{4}^h$ to 1^h Decrease of V.F. (− ·0003).

7. 22^h to 8. 3^h Small fluctuations in Dec., with wave, 8. $1\frac{1}{4}^h$ to $2\frac{1}{2}^h$ (+ 8′): small fluctuations in H.F., with wave, 8. $1\frac{1}{4}^h$ to $2\frac{1}{2}^h$ (+ ·0015). 8. $1\frac{3}{4}^h$ to $2\frac{1}{4}^h$ Decrease of V.F. (− ·0005).

8. 13^h to 9. 0^h Fluctuations in Dec. (± 2′): in H.F. (± ·0015): in V.F. small.

16. 13^h to 22^h Fluctuations in H.F. (± ·0015). $20\frac{1}{2}^h$ to $21\frac{3}{4}^h$ Wave in Dec. (− 8′).

17. 0^h to 10^h Fluctuations in Dec. (± 4′): in H.F. (± ·0008): in V.F. small. 17. 20^h to $21\frac{1}{4}^h$ Wave in Dec. (− 6′). 17. 18^h to 18. 1^h Fluctuations in H.F. (± ·0008).

20. $4\frac{1}{2}^h$ to 6^h Wave in Dec. (+ 6′). 20. 21^h to $22\frac{3}{4}^h$ Wave in Dec. (− 9′), followed till 21. 3^h by fluctuations (± 2′). 20. 12^h to 21. 0^h Fluctuations in H.F. (± ·001): in V.F. (± ·0001).

21. 22^h to 22. 9^h Fluctuations in Dec. (± 3′). 21. 13^h to 22. 9^h Fluctuations in H.F. (± ·001): in V.F. small.

22. 21^h to 23. 3^h Fluctuations in Dec. (± 4′). 22. 14^h to 23. 1^h Fluctuations in H.F. (± ·001): in V.F. small.

23. 12^h to 16^h Fluctuations in H.F. (± ·0008).

28. 8^h to 29. 7^h Fluctuations in Dec. (± 6′): in H.F. (± ·0018): in V.F. (± ·0002).

29. $14\frac{3}{4}^h$ to $16\frac{1}{2}^h$ Wave in H.F. (− ·002).

August

1. $1\frac{2}{3}^h$ to $3\frac{3}{4}^h$ Wave in Dec. (+ 4′).

2. 14^h to 18^h Fluctuations in H.F. (± ·001). 2. 21^h to 3. 5^h Fluctuations in Dec. (± 4′): in H.F. (± ·0008): in V.F. (± ·0001).

3. 12^h to 4. 12^h. See Plate VII.

4. 15^h to 21^h Fluctuations in Dec. (± 3′): in H.F. (± ·0015): in V.F. (± ·0001).

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August 11. 20^h to 12. 8^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001) : in V.F. (± ·0001).

12. 11^h to 18^h Fluctuations in H.F. (± ·001).

14. 0^h to $1\frac{1}{2}^h$ Wave in H.F. (+ ·001).

16. 0^h to 17. 0^h. See Plate VII.

17. 0^h to 15^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001) : in V.F. (± ·0001). 17. 20^h to 18. 2^h Fluctuations in Dec. (± 6′) : in H.F. (± ·0008) : in V.F. (± ·0002).

18. $4\frac{1}{2}^h$ to $6\frac{1}{4}^h$ Wave in H.F. (− ·002). 18. 18^h to 19. 0^h Fluctuations in Dec. (± 4′). 18. 14^h to 19. 0^h Fluctuations in H.F. (± ·0015) : in V.F. (± ·0002).

19. 16^h to 20. 0^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0007) : in V.F. small.

20. 20^h to 21. 2^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0006).

22. 19^h to 23. 3^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0005).

30. $17\frac{1}{2}^h$ Increase of H.F. (+ ·002) : of Dec. and V.F. small. 30. 23^h to 31. 1^h Wave in Dec. (− 8′). 31. 6^h to 11^h. Fluctuations in Dec. (± 2′). 30. 21^h to 31. 18^h. Fluctuations in H.F. (± ·0008) : in V.F. small.

31. 23^h to September 1. 4^h Fluctuations in Dec. (± 2′) : in H.F. small.

September 1. $19\frac{1}{2}^h$ to 21^h Wave in Dec. (− 9′). 2. $2\frac{1}{3}^h$ to $3\frac{3}{4}^h$ Wave in Dec. (+ 5′). 1. 13^h to 2. 4^h Fluctuations in H.F. (± ·0008), with wave, 1. $22\frac{5}{6}^h$ to 2. 0^h (+ ·002).

2. 22^h to 3. 6^h Fluctuations in Dec. (± 4′) : in H.F. (± ·0005) : in V.F. (± ·0001).

12. 19^h to 14. 2^h Fluctuations in Dec. (± 4′) : in H.F. (± ·002). 12. $23\frac{1}{2}^h$ to 13. 3^h Wave in V.F. (− ·0005), followed till 13. 16^h by fluctuations (± ·0001).

14. 6^h to 15. 22^h Fluctuations in Dec. (± 3′), with wave, 15. $0\frac{1}{2}^h$ to 2^h (+ 11′) : Fluctuations in H.F. (± ·0015). 15. 1^h to 2^h Decrease of V.F. (− ·0008).

17. $20\frac{1}{2}^h$ to 18. 4^h Fluctuations in Dec. (± 3′). 17. $20\frac{1}{2}^h$ to 22^h Wave in H.F. (+ ·0025), followed till 18. 0^h by small fluctuations.

18. 20^h to 19. 6^h Fluctuations in Dec. (± 7′). 18. 16^h to 19. 6^h Fluctuations in H.F. (± ·002) : in V.F. (± ·0002).

19. 18^h to 20. 6^h Fluctuations in Dec. (± 6′) : in H.F. (± ·002) : in V.F. (± ·0002).

21. 18^h to 19^h Wave in Dec. (− 6′). $18\frac{1}{4}^h$ to $19\frac{1}{4}^h$ Wave in H.F. (+ ·0015).

24. 23^h to 25. 2^h Fluctuations in Dec. (± 3′) : in H.F. and V.F. small.

25. 21^h to 26. 2^h Fluctuations in Dec. (± 3′).

26. 12^h to 27. 10^h Fluctuations in Dec. (± 6′), with long wave, 27. $5\frac{1}{2}^h$ to $9\frac{1}{2}^h$ (+ 8′): in H.F. (± ·0015) : in V.F. (± ·0002).

27. 13^h to 28. 2^h Fluctuations in Dec. (± 3′). 27. 21^h to 28. 0^h Wave in H.F. (+ ·002).

28. 19^h to 29. 0^h Fluctuations in Dec. (± 6′) : in H.F. (± ·0015) : in V.F. (± ·0002).

29. $17\frac{3}{4}^h$ to 20^h Wave in Dec. (− 11′). 18^h to 20^h Wave in H.F. (+ ·003) : small fluctuations in V.F.

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October 1. 19^h to 2. 2^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001).

5. 17^h to 6. 2^h Fluctuations in Dec. (± 6′) : in H.F. (± ·0015). 5. 18^h to $19\frac{1}{2}^h$ Wave in V.F. (+ ·0004).

6. 16^h to 7. 0^h Small fluctuations in Dec. and H.F.

7. 21^h to 8. 1^h Small fluctuations in Dec. and H.F.

8. 21^h to 9. 0^h Fluctuations in H.F. (± ·0008).

10. 21^h to 11. 4^h Fluctuations in Dec. (± 6′) : in H.F. (± ·0005) : in V.F. (± ·0002).

11. 19^h to $20\frac{1}{2}^h$ Wave in Dec. (− 11′). 17^h to 21^h Fluctuations in H.F. (± ·0012).

12. 1^h to 16^h Fluctuations in Dec. (± 6′) : in H.F. (± ·0015). 12. 1^h to 2^h Decrease of V.F. (− ·0007). 12. 19^h to 13. 5^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0007).

13. 16^h to 14. 3^h Fluctuations in Dec. (± 3′) : in H.F. small.

18. $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 4′).

19. 12^h to 22. 12^h. See Plate VIII.

23. 15^h to 24. 6^h Fluctuations in Dec. (± 4′) : in H.F. (± ·0012).

24. 17^h to 25. 0^h Fluctuations in Dec. (± 7′) : in H.F. (± ·001).

25. 13^h to 26. 4^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0008).

26. 22^h to 27. 1^h Fluctuations in Dec. (± 3′). 26. 22^h to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0015). 26. 22^h to $22\frac{1}{2}^h$ Wave in V.F. (+ ·0002).

30. 12^h to November 1. 12^h. See Plate IX.

November 1. 16^h to 2. 1^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001).

4. 15^h to 5. 4^h Fluctuations in Dec. (± 5′) : in H.F. (± ·0015) : in V.F. (± ·0002).

5. 20^h to 6. 9^h Fluctuations in Dec. (± 3′) : in H.F. small.

6. $14\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in Dec. (− 5′). $20\frac{3}{4}^h$ to $22\frac{1}{2}^h$ Wave in Dec. (− 8′). 15^h to 17^h and 20^h to 23^h Fluctuations in H.F. (± ·001).

7. $0\frac{1}{2}^h$ to 2^h Wave in Dec. (+ 9′). $0\frac{5}{8}^h$ to $2\frac{1}{4}^h$ Wave in H.F. (+ ·0015). 1^h to 2^h Decrease of V.F. (− ·0005). 7. 14^h to 8. 0^h Fluctuations in Dec. (± 4′) : in H.F. (± ·0006) : in V.F. small.

8. 16^h to 9. 3^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001) : in V.F. small.

11. 4^h to 10^h Fluctuations in Dec. (± 5′) : in H.F. (± ·0015) : in V.F. (± ·0002). 11. $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Wave in Dec. (− 11′), followed till 12. 2^h by fluctuations (± 2′). 11. 20^h to 12. 2^h Fluctuations in H.F. (± ·001) : in V.F. (± ·0002).

16. 0^h to 7^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0006) : in V.F. small.

16. 12^h to 18. 12^h. See Plates IX. and X.

18. 15^h to 19. 5^h Small fluctuations in Dec. with wave, 18. 18^h to $19\frac{3}{4}^h$ (− 7′). 18. 15^h to 19. 3^h small fluctuations in H.F.

19. 13^h to 23^h Fluctuations in Dec. (± 2′) : in H.F. (± ·0007).

20. 16^h to $17\frac{1}{4}^h$ Wave in Dec. (− 6′). 16^h to 17^h Wave in H.F. (− ·0012). $16\frac{1}{2}^h$ to 18^h Wave in V.F. (+ ·0002).

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November 25. $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Wave in Dec. (− 5′). 25. $22\frac{5}{6}^h$ to 26. 1^h Wave in Dec. (− 8′). 25. 19^h to 26. 1^h Small fluctuations in H.F. and V.F.

26. 22^h to 27. 13^h Fluctuations in Dec. (± 2′) : in H.F. (± ·0006).

27. 20^h to 28. 6^h Fluctuations in Dec. (± 5′). 27. 20^h to 28. 3^h Fluctuations in H.F. (± ·0012).

28. 17^h to 29. 1^h Fluctuations in Dec. (± 4′). 28. 13^h to 29. 0^h Fluctuations in H.F. (± ·001).

30. 17^h to 22^h Fluctuations in Dec. (± 3′) : in H.F. small.

December 1. $20\frac{1}{4}^h$ to 21^h Wave in Dec. (− 4′).

2. 22^h to 3. 3^h Fluctuations in Dec. (± 2′).

3. 19^h to 4. 7^h Fluctuations in Dec. (± 2′).

4. 19^h to 5. 4^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001).

5. 14^h to 6. 9^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001).

6. 16^h to 7. 0^h Fluctuations in Dec. (± 4′) : in H.F. (± ·0008).

7. 22^h to 8. 0^h Wave in Dec. (− 4′). 7. 22^h to 8. 2^h Fluctuations in H.F. (± ·0007).

8. 13^h to $18\frac{1}{4}^h$ Small Fluctuations in Dec. with wave, $17\frac{1}{4}^h$ to $18\frac{1}{4}^h$ (− 12′). 8. $17\frac{1}{4}^h$ to 18^h wave in H.F. (− ·0035). 8. 23^h to 9. 0^h wave in H.F. (+ ·002).

12. 20^h to 13. 1^h Fluctuations in Dec. (± 3′).

13. 20^h to 14. 7^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001).

14. $16\frac{1}{2}^h$ to 18^h Wave in Dec. (− 8′). 16^h to $18\frac{1}{2}^h$ Wave in H.F. (− ·003).

15. 3^h to 9^h Fluctuations in Dec. (± 3′). 14^h to 15^h Wave in Dec. (− 3′) : in H.F. (− ·002). 17^h to $18\frac{3}{4}^h$ Wave in Dec. (− 15′), followed till 16. 0^h by fluctuations (± 2′). 15. $16\frac{1}{2}^h$ to 18^h Double wave in H.F. (− ·002 to + ·002).

16. 16^h to 23^h Fluctuations in Dec. (± 3′). $20\frac{1}{2}^h$ to $21\frac{1}{4}^h$ Wave in H.F. (+ ·002).

18. 2^h to $3\frac{1}{4}^h$ Wave in Dec. (+ 4′).

18. 17^h to 19. 5^h Occasional small fluctuations in Dec. and H.F.

24. 0^h to 25. 0^h. See Plate X.

25. 19^h to 26. 7^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001) : in V.F. small.

26. 13^h to 27. 5^h Small fluctuations in Dec. : in H.F. (± ·001) : in V.F. small.

27. 19^h to 28. 1^h Fluctuations in Dec. (± 2′) : in H.F. (± ·001) : in V.F. small.

30. $19\frac{1}{4}^h$ to $20\frac{1}{2}^h$ Wave in Dec. (− 4′). $19\frac{1}{4}^h$ to 20^h Wave in H.F. (− ·0008).

31. 21^h to 24^h Fluctuations in Dec. (± 3′).

EXPLANATION OF THE PLATES.

The magnetic motions figured on the Plates are—

(1.) Those for days of great disturbance—January 13–14, 23–24, May 20–21.

(2.) Those for days of lesser disturbance—January 14–15, March 15–16, 16–17, 17–18, 18–19, April 11, 12, 13, 14, May 7, 8, 9, 10, 21–22, June 3–4, August 3–4, 16, October 19–20, 20–21, 21–22, 30–31, 31–November 1, 16–17, 17–18, December 24.

(3.) Those for four quiet days, January 5, April 10, August 10, November 23, which are given as types of the ordinary diurnal movement at four seasons of the year. The earth currents on these days are very small.

The time is Greenwich Civil Time (commencing at midnight, and counting the hours from 0 to 24).

The magnetic declination, horizontal force, and vertical force, are indicated by the letters D., H., and V. respectively; the declination (west) is expressed in minutes of arc, the units for horizontal and vertical force are ·00001 of the whole horizontal and vertical forces respectively, the corresponding scales being given on the sides of each diagram. Equal changes of amplitude in the several registers correspond nearly to equal changes of absolute magnetic force, 0·001 of a C. G. S. unit being represented by $0^{\text{in}}\cdot 81 = \overset{\text{mm.}}{20\cdot 6}$ in the declination curve, by $0^{\text{in}}\cdot 74 = \overset{\text{mm.}}{18\cdot 8}$ in the horizontal force curve, and by $0^{\text{in}}\cdot 82 = \overset{\text{mm.}}{20\cdot 8}$ in the vertical force curve.

Downward motion indicates increase of declination and of horizontal and vertical force.

The earth current register E_1 is that of the line Angerstein Wharf—Lady Well, making an angle of 50° with the magnetic meridian, reckoning from north to east. The E_2 register is that of the line Blackheath—North Kent East Junction, making an angle of 46° with the magnetic meridian, reckoning from north to west. Zero E_1 and Zero E_2 indicate the respective instrumental zeros. On January 23–24, March 15–16, 16–17, 17–18, 18–19, April 13, 14, August 16, October 19–20, 20–21, 21–22, November 16–17, 17–18, the earth current motions are not given, as the apparatus was arranged on those days to record on a much larger scale for determination of the diurnal inequality.

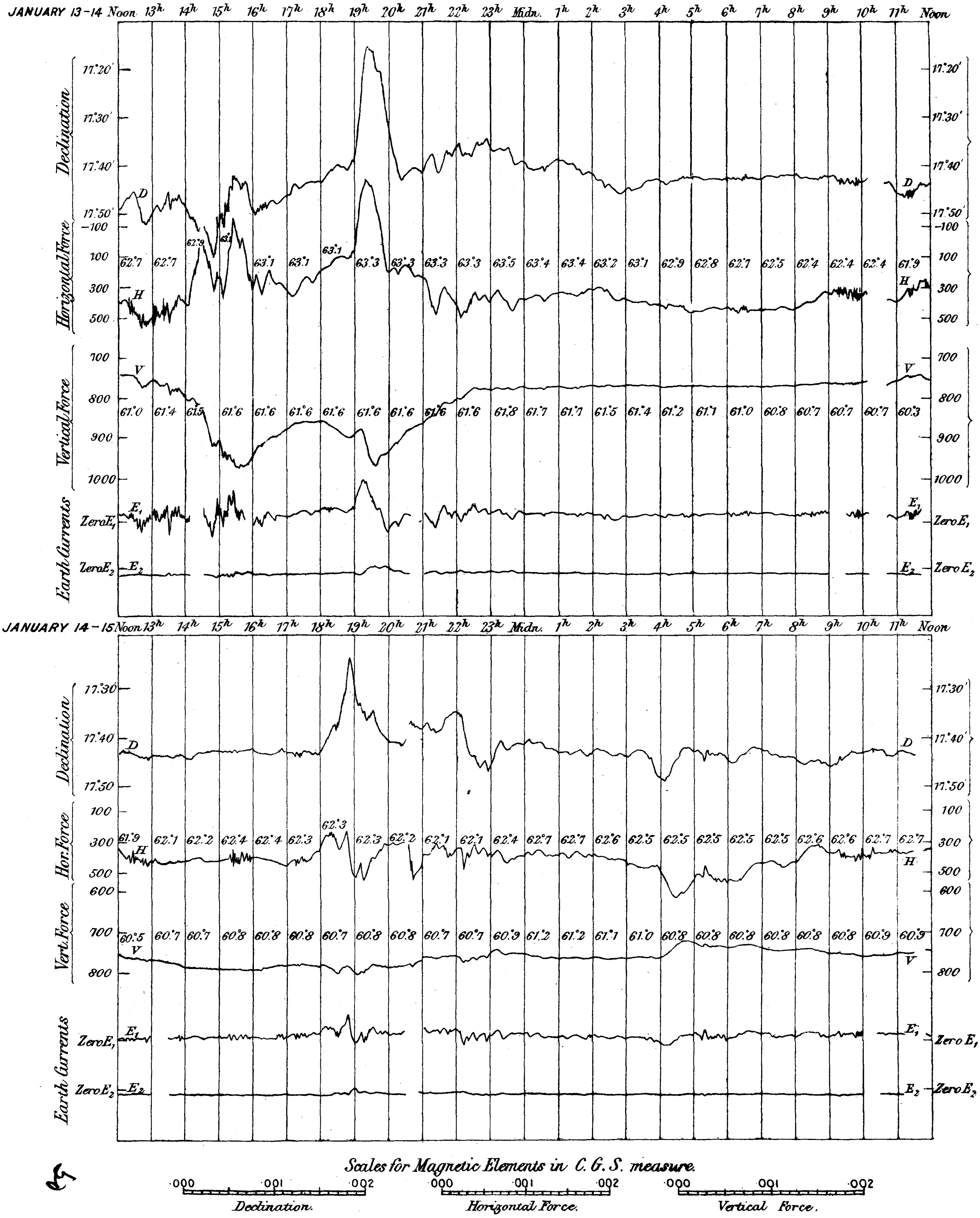
Downward motion of earth current register indicates in the E_1 circuit the passage of a current, corresponding to that from the copper pole of a battery, in the direction Angerstein Wharf to Lady Well (N.E. to S.W. magnetic), and in the E_2 circuit to the passage of a similar current in the direction Blackheath to North Kent East Junction (S.E. to N.W. magnetic.)

An arrow (↑) indicates that the register was out of range of registration in the direction of the arrow head.

The temperatures (Fahrenheit) of the horizontal and vertical force magnets at each hour are given in small figures on the Diagrams.

There are occasional small interruptions in the earth current registers not requiring any special notice.

Magnetic Disturbances and Earth Currents recorded at the Royal Observatory, Greenwich. 1888



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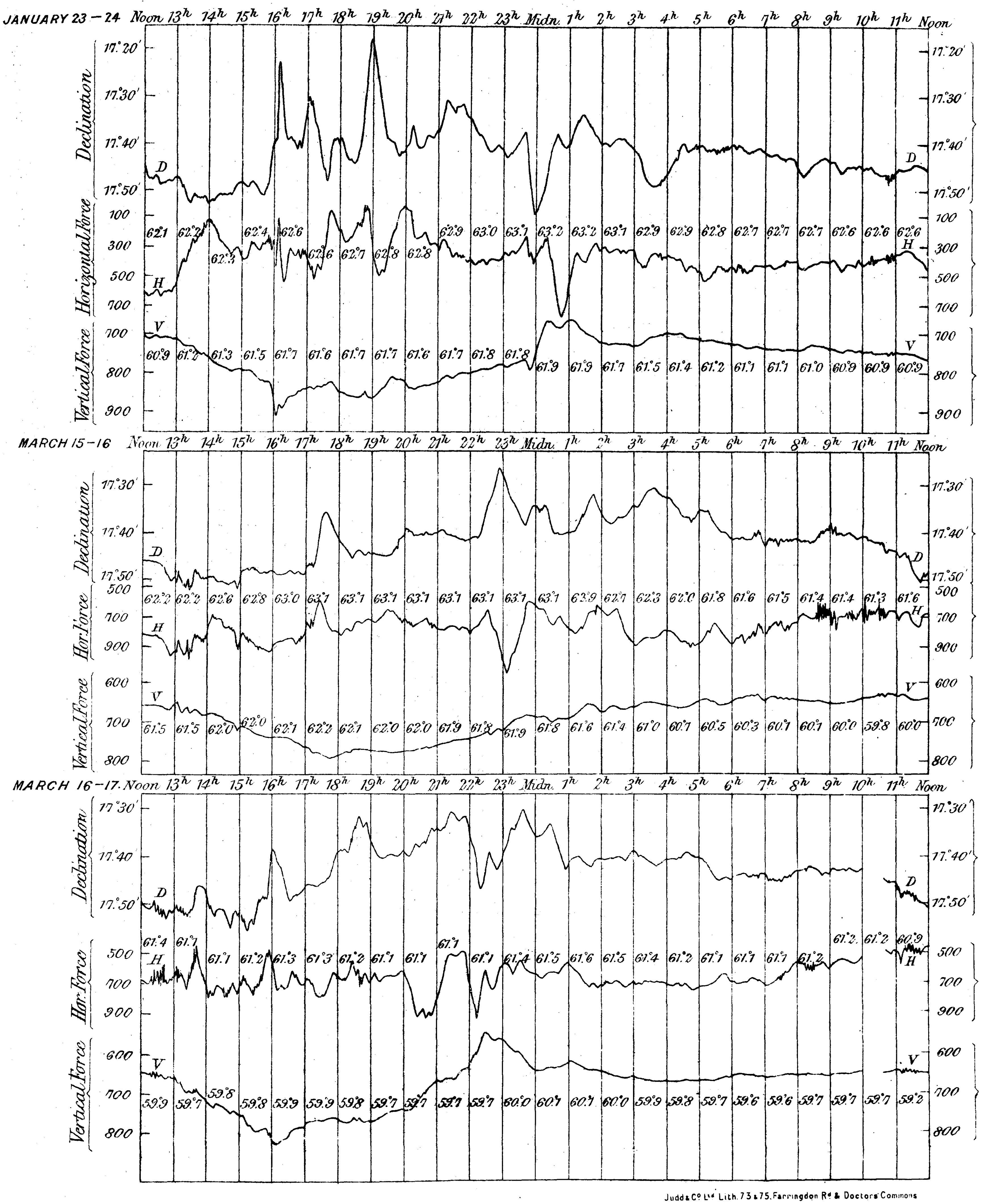
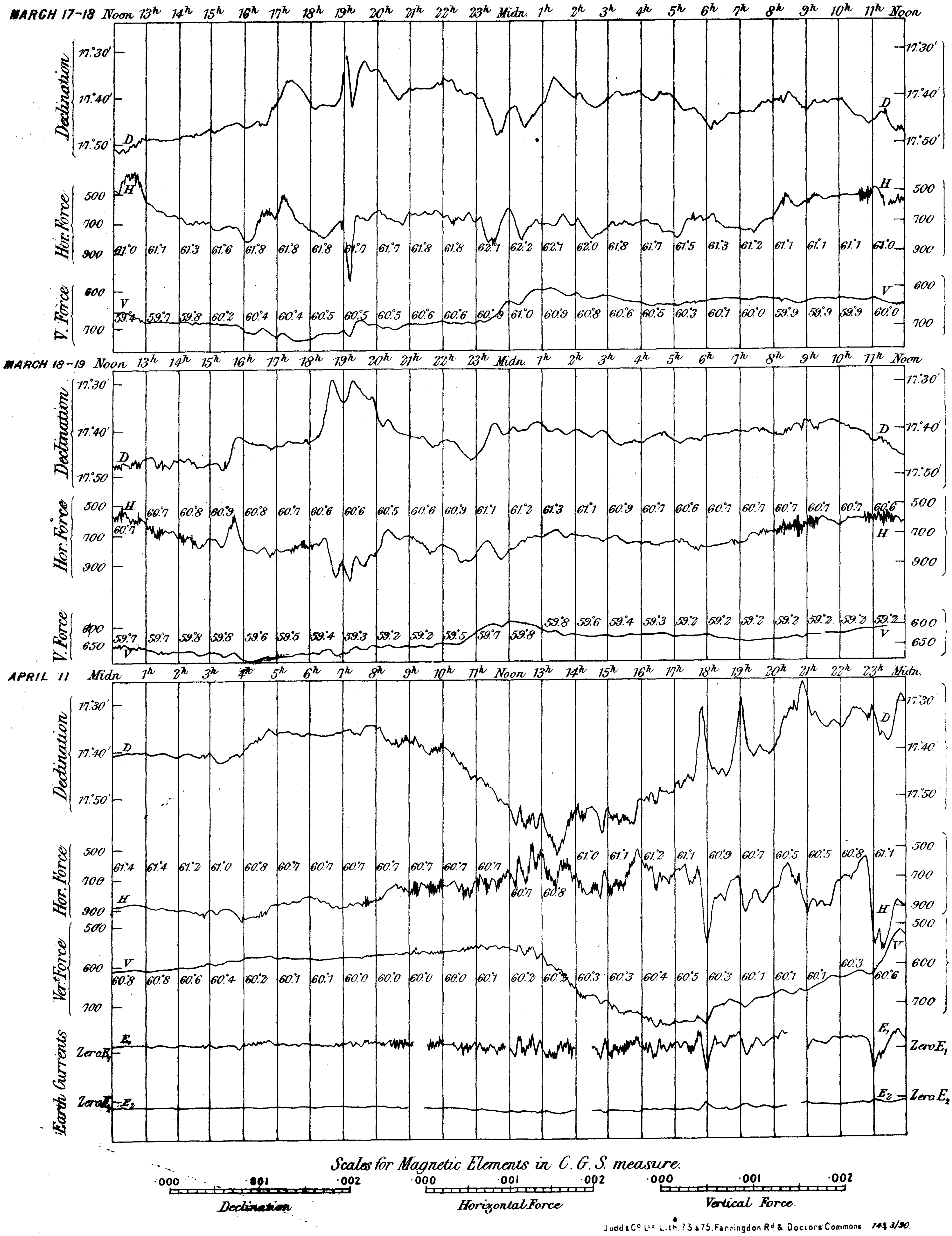
Magnetic Disturbances and Earth Currents recorded at the Royal Observatory, Greenwich, 1888.



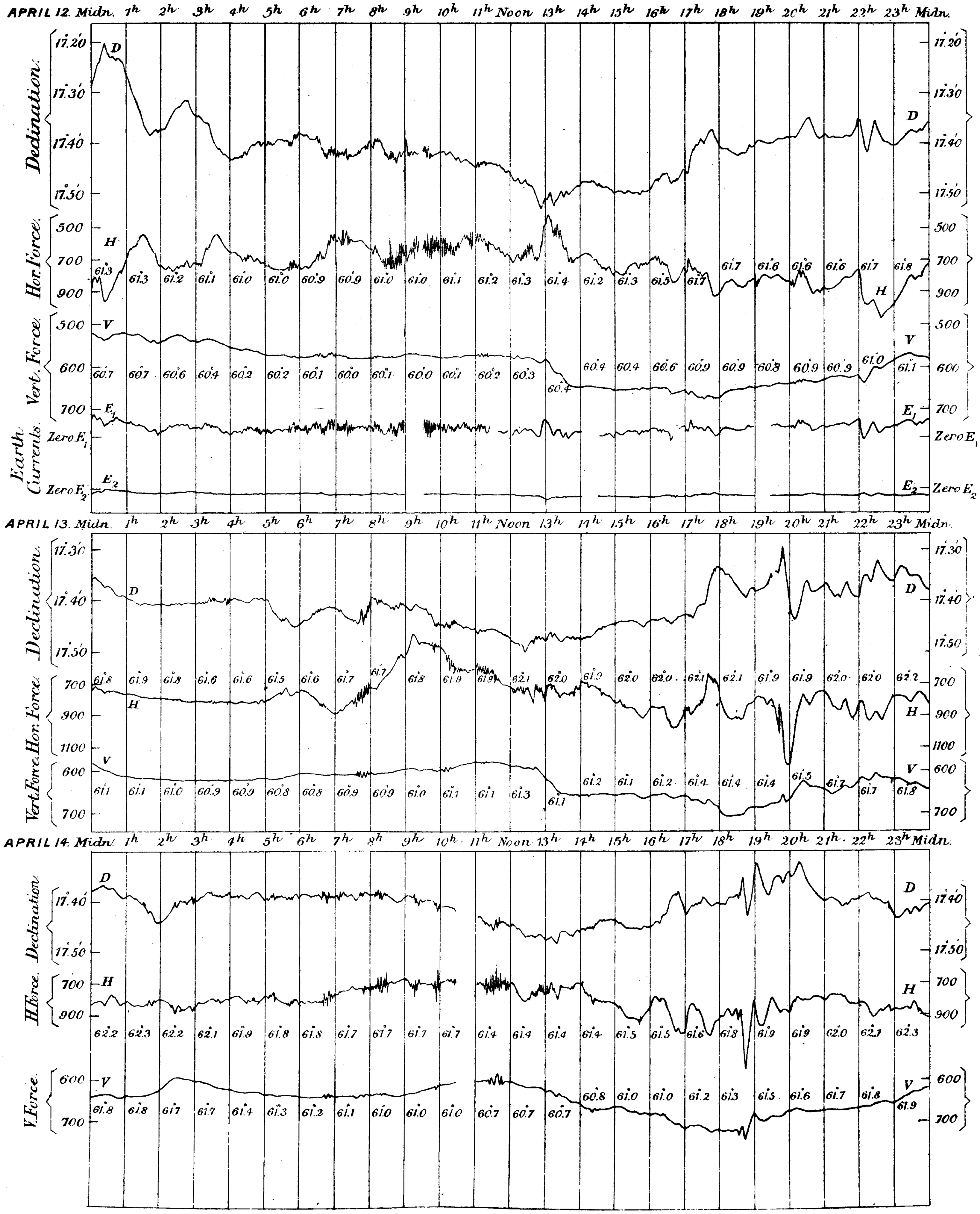
Judd & Co. Ltd. Lith. 73 & 75, Farringdon Rd. & Doctors' Commons

Magnetic Disturbances and Earth Currents recorded at the Royal Observatory, Greenwich, 1888.



Judd & Co. Ltd. Lith. 73 & 75, Farringdon Rd. & Doctors' Commons 745 3/90.

Magnetic Disturbances and Earth Currents recorded at the Royal Observatory, Greenwich, 1888.



Scales for Magnetic Elements in C.G.S. measure.

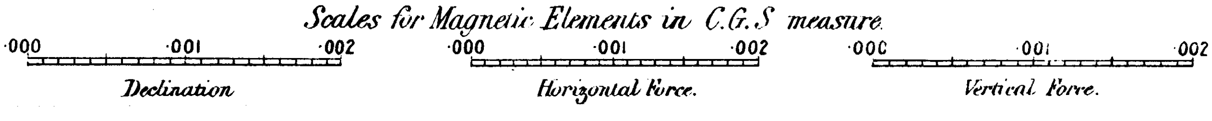
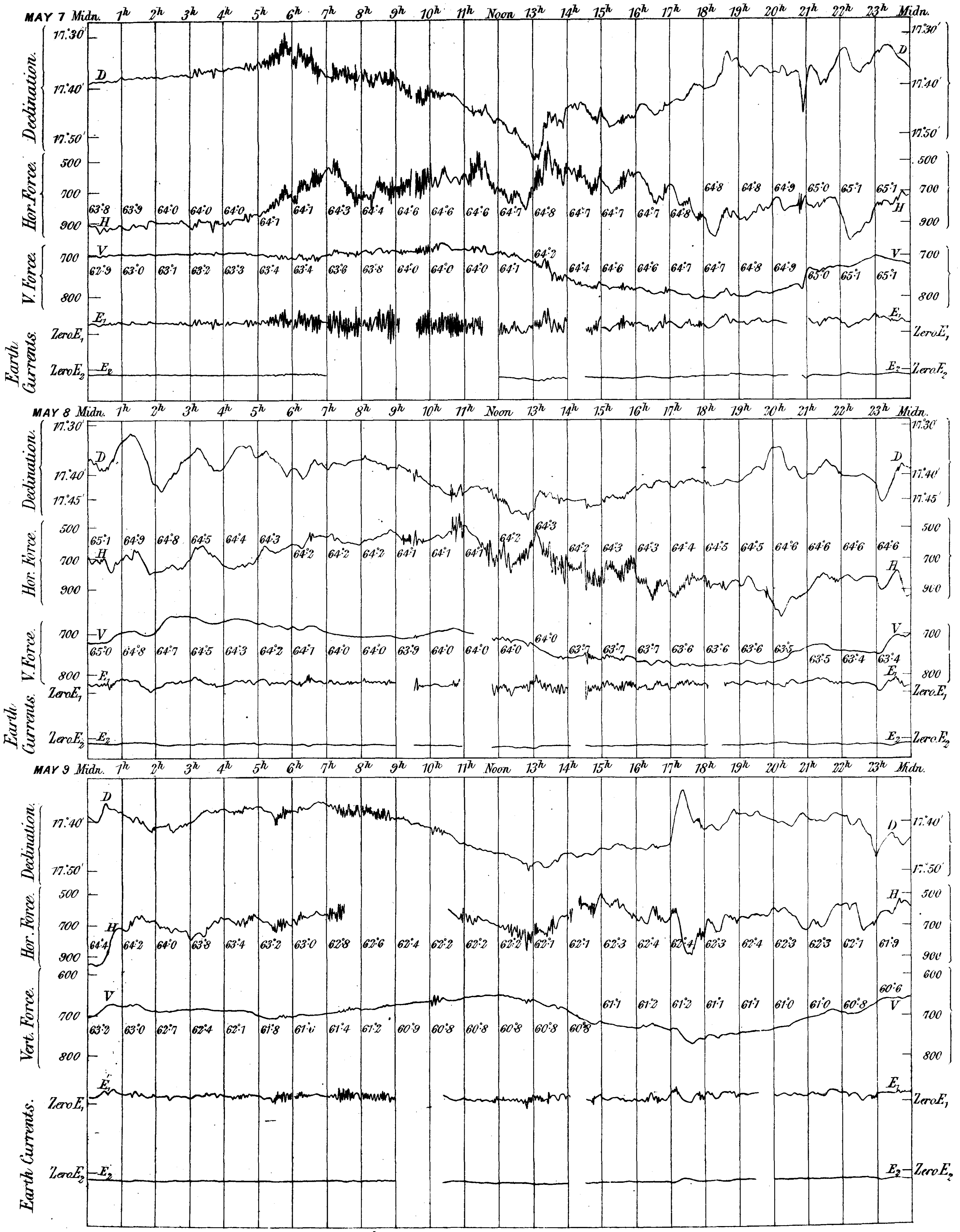


Plate V.

Magnetic Disturbances and Earth Currents Recorded at the Royal Observatory Greenwich, 1888.

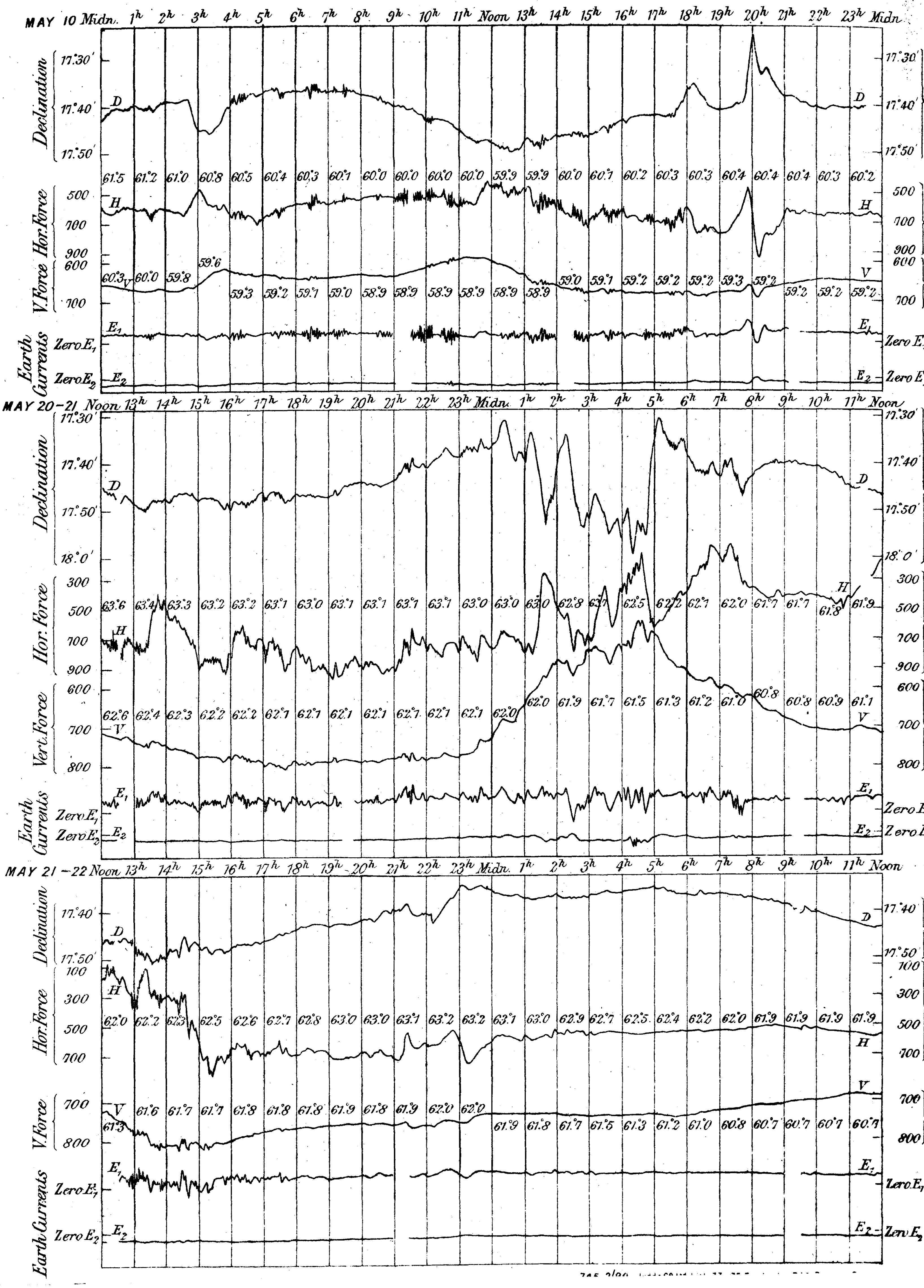


Scales for Magnetic Elements in C.G.S measure.

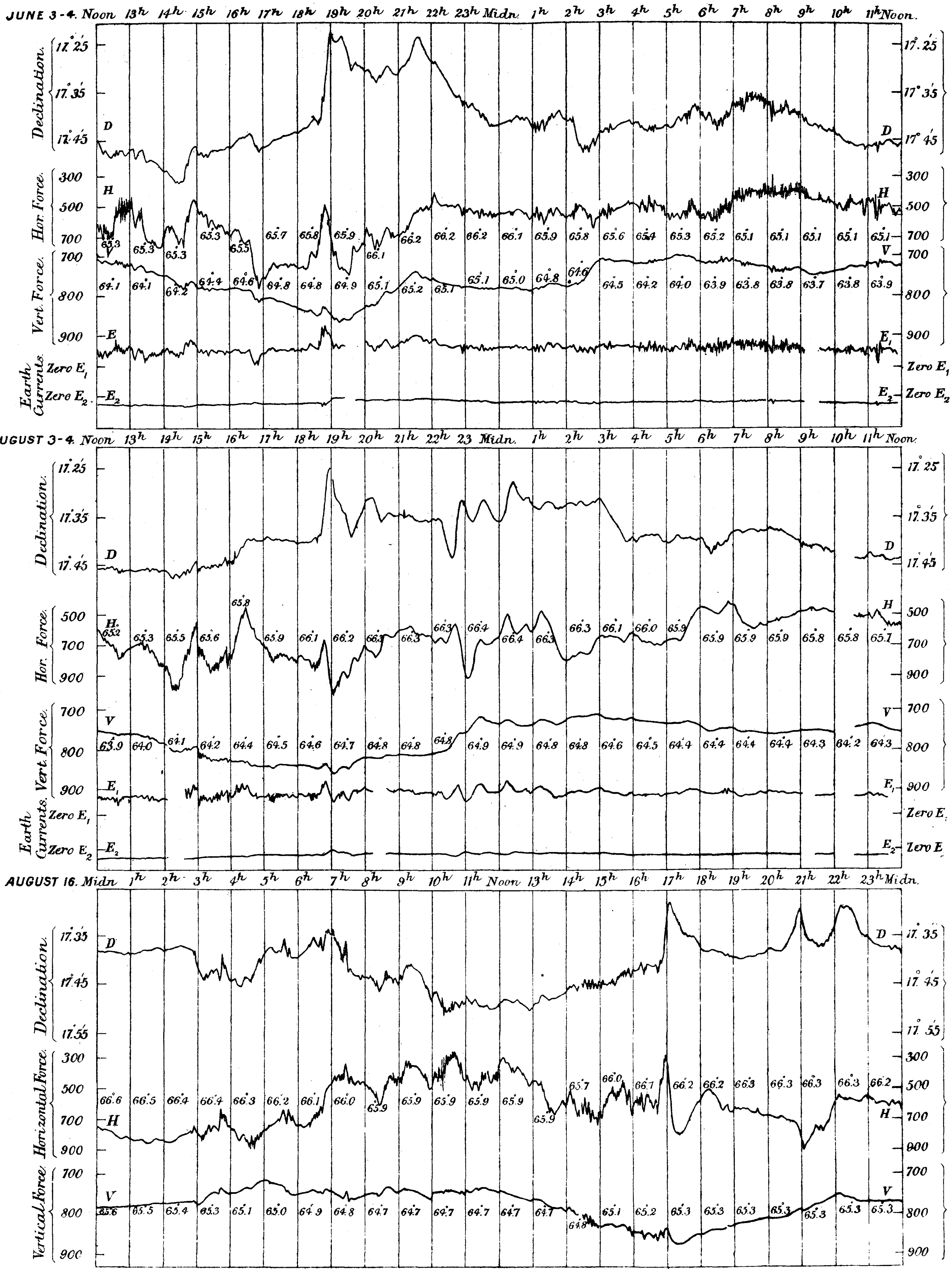
·000 ·001 ·002 Declination.
·000 ·001 ·002 Horizontal Force.
·000 ·001 ·002 Vertical Force.

Judd & Cº Ltd Lith. 73 & 75, Farringdon Rd & Doctors' Commons 745 2/90

Magnetic Disturbances and Earth Currents recorded at the Royal Observatory, Greenwich, 1888.

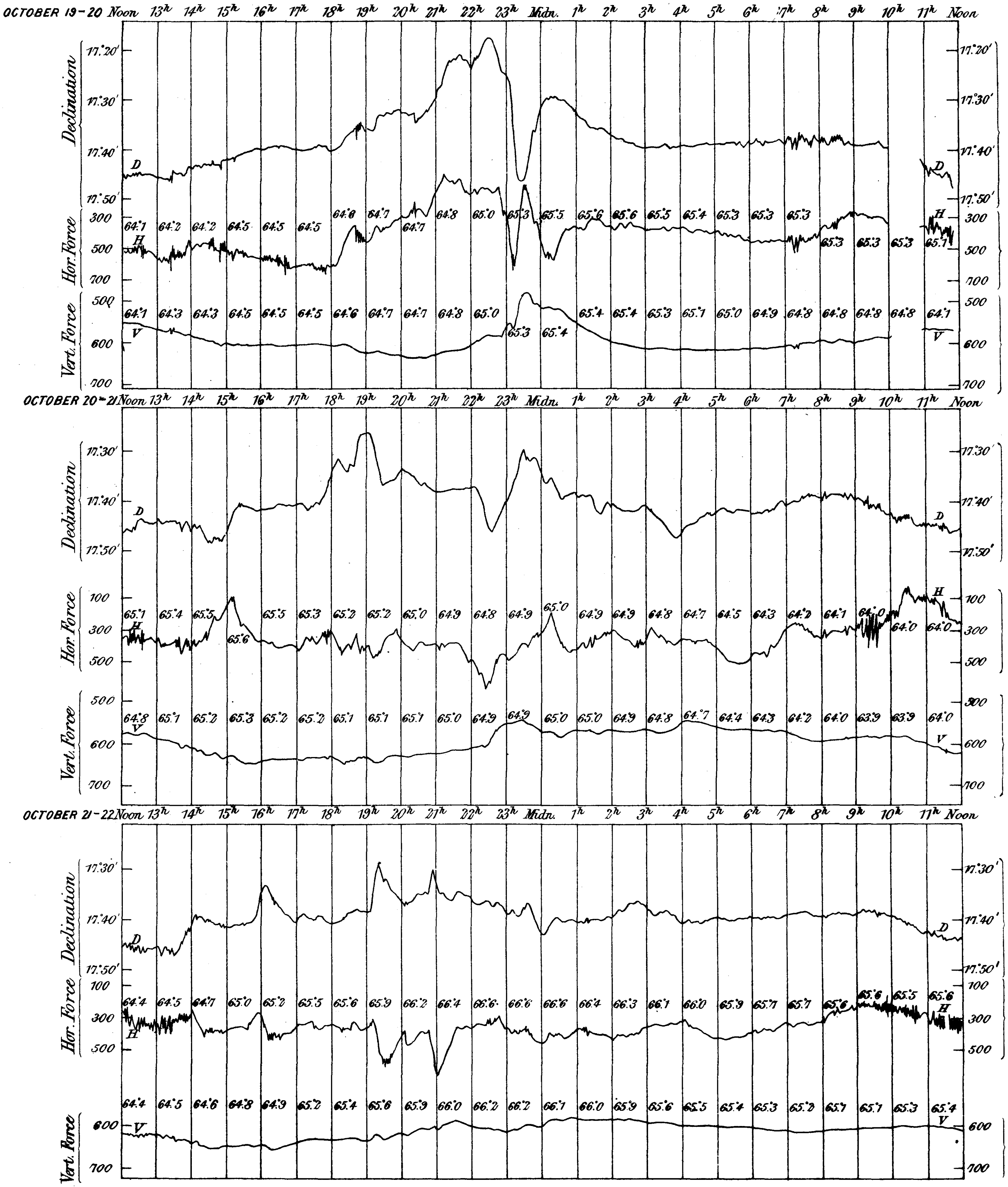


Magnetic Disturbances and Earth Currents recorded at the Royal Observatory Greenwich. 1888.

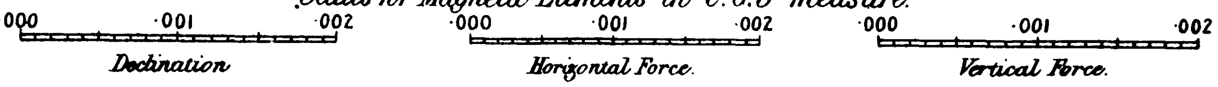


Judd & Co Ltd Lith. 73 & 75. Farringdon Rd & Doctors Commons

Magnetic Disturbances and Earth Currents recorded at the Royal Observatory, Greenwich, 1888.



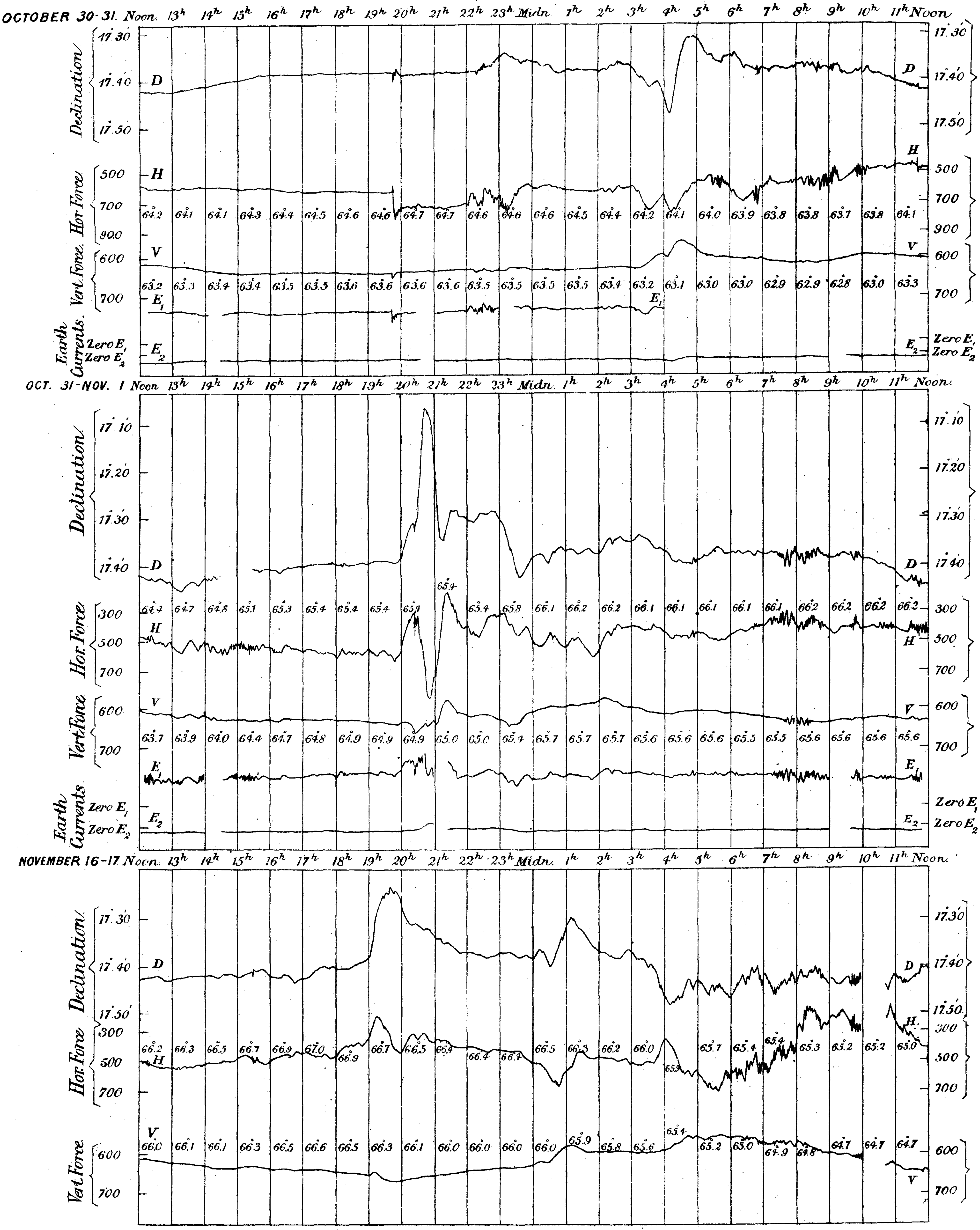
Scales for Magnetic Elements in C.G.S measure.



Judd & Co Ltd Lith 73 & 75 Farringdon Rd & Doctors Commons 745,3/90

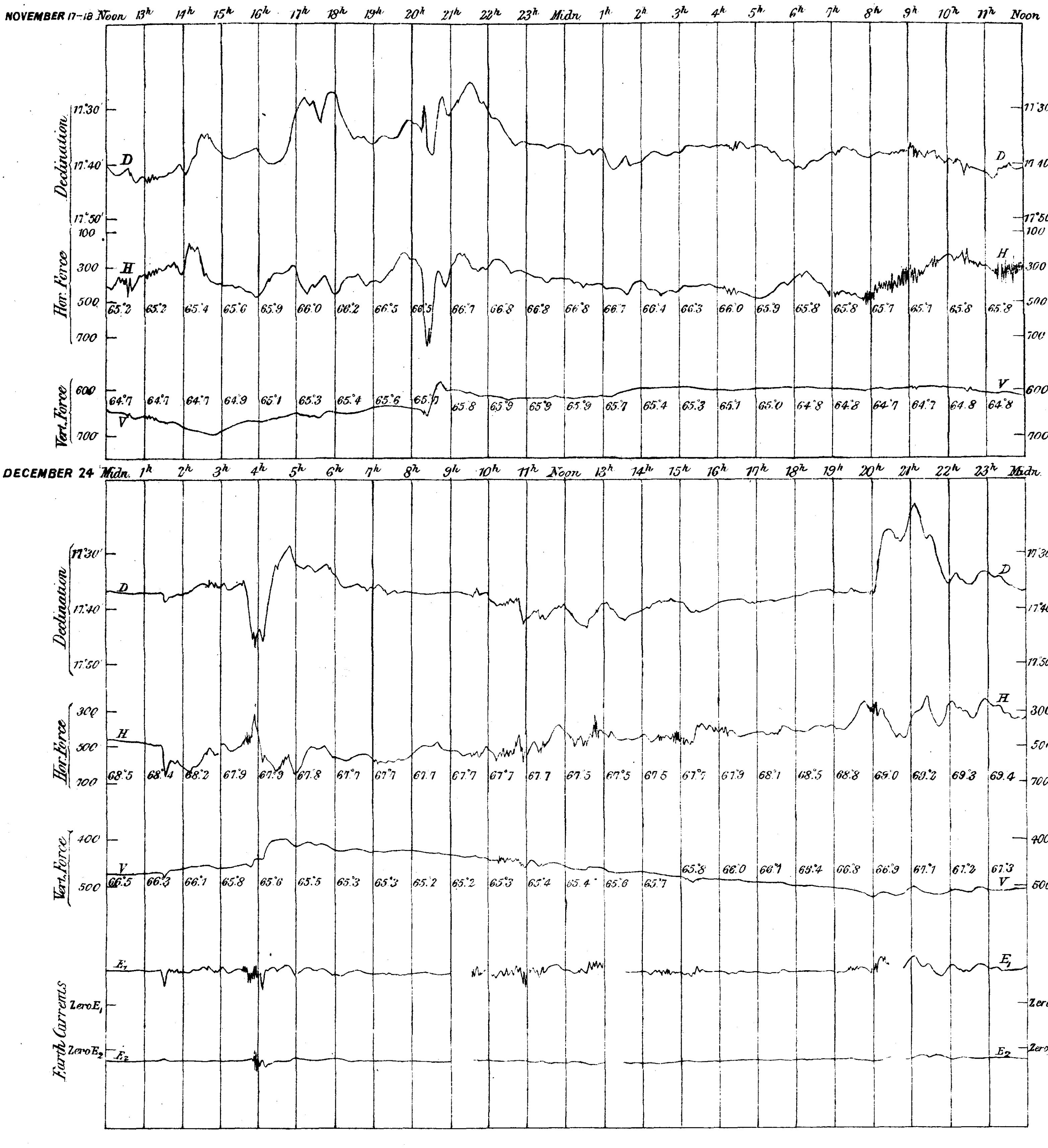
Plate IX.

Magnetic Disturbances and Earth Currents recorded at the Royal Observatory, Greenwich, 1888.

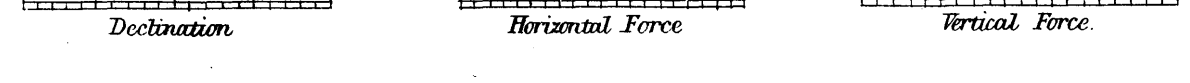


Judd & Co ... 73 & 75, Farringdon Rd & Doctors' Commons. 745, 2/90

Magnetic Disturbances and Earth Currents recorded at the Royal Observatory, Greenwich, 1888.

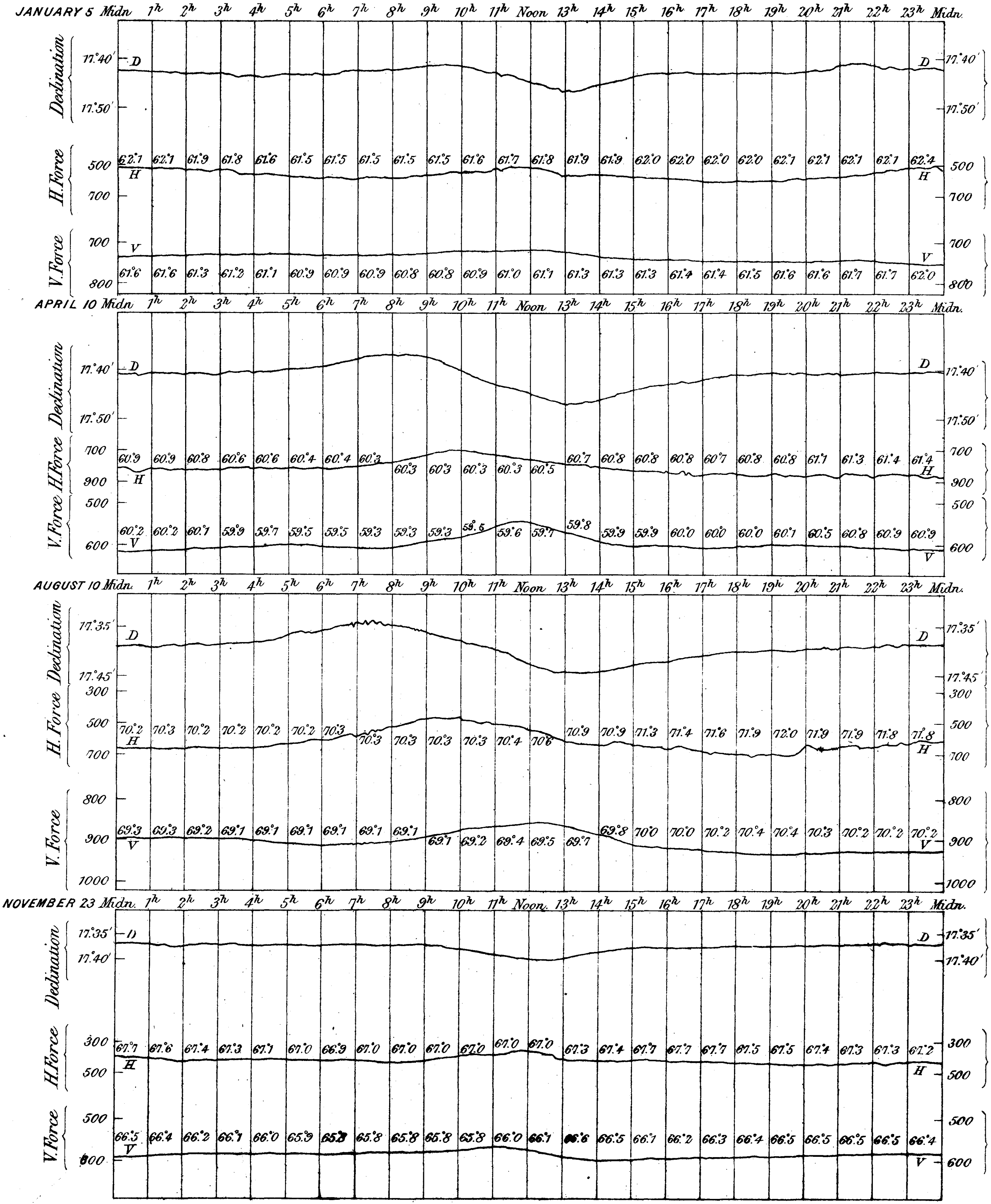


Scales for Magnetic Elements in C.G.S. measure.



Judd & Co. Ltd. Lith. 73 & 75, Farringdon Rd. & Doctors Commons 745.2.90.

Types of Magnetic Diurnal Variations at four seasons of the year recorded at the Royal Observatory, Greenwich, 1888.



745, 2/90. Judd & Co Ltd Lith. 73 & 75, Farringdon Rd & Doctors' Commons.

ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

METEOROLOGICAL OBSERVATIONS.

1888.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Of the Air. Lowest.	Of the Air. Daily Range.	Of the Air. Mean of 24 Hourly Values.	Of the Air. Excess above Average of 20 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Of Radiation. Lowest on the Grass.	Of the Water of the Thames at Deptford. Highest.	Of the Water of the Thames at Deptford. Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
Jan. 1	...	29·469	37·5	22·1	15·4	28·6	− 9·5	27·4	22·9	5·7	9·0	1·8	79	63·5	16·9	36·0	35·1	0·000	1·0	sP
2	...	29·188	46·0	37·5	8·5	41·6	+ 3·7	40·3	38·7	2·9	6·4	0·7	90	60·7	28·7	35·2	34·2	0·222	3·0	mP : vP, vN
3	...	29·732	44·5	32·5	12·0	38·6	+ 0·8	37·6	36·3	2·3	5·5	0·7	92	67·0	27·6	36·0	35·3	0·085	1·8	vN, sP : ssP
4	...	29·729	43·0	39·3	3·7	40·7	+ 3·0	38·4	35·5	5·2	9·9	1·8	82	46·8	31·9	36·2	35·2	0·012	6·7	mP : sP
5	...	29·601	49·5	39·8	9·7	43·6	+ 6·0	41·4	38·8	4·8	6·4	1·8	83	69·6	32·3	36·0	35·7	0·000	4·5	mP, wN : vP, wN : sP
6	In Equator: Last Quarter	29·952	45·5	34·7	10·8	41·8	+ 4·2	40·9	39·8	2·0	4·1	0·7	93	49·7	27·8	36·8	36·1	0·073	0·0	sP : vP, wN
7	...	30·121	47·6	41·9	5·7	45·8	+ 8·2	44·9	43·9	1·9	3·4	0·2	94	56·0	38·7	35·2	34·9	0·013	3·0	mP : sP
8	Perigee	30·335	51·0	42·0	9·0	47·8	+10·1	47·3	46·7	1·1	2·9	0·4	97	53·1	38·4	38·2	37·7	0·000	0·0	mP : sP : mP
9	...	30·492	48·9	37·2	11·7	44·2	+ 6·5	43·7	43·1	1·1	4·0	0·0	96	52·0	34·5	39·0	38·3	0·001	0·0	wP : vP : ssP
10	..	30·525	42·5	31·8	10·7	37·7	− 0·1	37·6	37·5	0·2	1·8	0·0	99	48·0	30·0	39·8	38·9	0·004	0·0	sP
11	...	30·479	37·9	32·8	5·1	35·1	− 2·8	35·1	35·1	0·0	0·0	0·0	100	41·7	31·5	40·0	39·1	0·000	0·0	ssP : sP : vP
12	Greatest Declination S.	30·460	37·9	33·3	4·6	35·7	− 2·4	35·7	35·7	0·0	0·7	0·0	100	44·4	33·3	40·7	39·7	0·018	1·8	sP
13	New	30·477	37·5	33·7	3·8	36·0	− 2·2	35·7	35·2	0·8	2·7	0·0	97	40·1	33·7	43·0	37·3	0·003	5·2	mP : sP
14	...	30·378	34·2	29·6	4·6	32·5	− 5·8	31·9	30·7	1·8	4·2	0·7	93	44·4	27·0	41·0	37·9	0·000	0·0	mP : vP
15	...	30·301	35·2	31·3	3·9	33·3	− 5·1	31·9	29·2	4·1	7·1	1·1	85	39·9	25·4	40·5	38·1	0·000	1·5	mP, wN : mP
16	...	30·268	33·4	30·7	2·7	32·3	− 6·2	31·1	28·5	3·8	5·9	1·0	86	39·1	26·4	40·0	38·7	0·000	4·5	mP
17	...	30·346	35·3	27·8	7·5	32·6	− 6·0	31·5	29·3	3·3	5·4	2·2	87	43·0	20·0	40·8	38·7	0·000	0·0	mP : sP
18	...	30·414	34·4	27·1	7·3	31·9	− 6·9	30·8	28·3	3·6	5·5	0·5	85	41·0	18·3	39·0	37·9	0·000	0·0	sP
19	In Equator	30·440	35·0	31·1	3·9	33·3	− 5·6	32·1	29·8	3·5	4·6	3·1	87	39·0	31·0	38·2	37·5	0·000	0·0	sP
20	...	30·311	39·8	27·8	12·0	35·0	− 4·1	33·7	31·6	3·4	6·0	1·0	87	62·3	23·7	38·0	37·4	0·000	0·0	sP : ssP : sP
21	Apogee: First Quarter.	29·908	49·5	39·3	10·2	45·6	+ 6·3	44·9	44·1	1·5	3·6	0·0	95	54·0	36·9	38·0	37·3	0·210	3·0	sP : vN, vP : mP
22	...	29·740	47·0	43·7	3·3	45·8	+ 6·3	44·3	42·6	3·2	5·2	1·5	89	47·0	36·4	38·9	38·3	0·000	0·0	mP
23	...	30·155	48·6	40·4	8·2	43·9	+ 4·3	42·0	39·7	4·2	8·4	1·0	85	62·6	31·3	39·0	38·2	0·000	0·5	mP : vP
24	...	30·268	45·2	38·4	6·8	41·9	+ 2·2	39·8	37·2	4·7	6·8	1·0	85	59·1	31·2	39·5	38·3	0·000	3·5	sP
25	...	30·106	46·1	38·9	7·2	41·9	+ 2·1	40·6	39·0	2·9	6·6	0·0	90	73·4	38·1	39·3	38·3	0·006	0·5	vP : sP : mP
26	Greatest Declination N.	29·826	46·1	36·8	9·3	42·9	+ 3·0	39·1	34·5	8·4	11·0	2·9	72	48·0	29·0	40·0	39·5	0·000	1·5	mP : vP, wN : mP
27	...	29·948	42·1	30·7	11·4	37·2	− 2·8	34·8	31·5	5·7	13·6	2·2	80	60·6	24·4	40·0	39·7	0·091	0·0	mP : vP : vP, vN
28	Full	29·777	36·9	29·0	7·9	32·3	− 7·8	30·5	26·6	5·7	10·7	0·4	78	62·9	23·8	39·5	38·9	0·002	0·0	mP : sP
29	...	29·825	36·2	24·6	11·6	31·7	− 8·5	29·8	25·3	6·4	10·8	0·3	76	85·0	15·5	38·3	37·9	0·002	0·0	sP : ssP
30	...	29·863	35·0	24·5	10·5	29·2	−11·1	27·6	22·0	7·2	9·7	2·9	74	60·1	14·3	37·4	36·9	0·005	0·0	ssP : vP
31	...	29·268	39·9	31·3	8·6	34·8	− 5·6	33·9	32·5	2·3	4·8	1·1	91	58·8	29·0	37·0	36·4	0·146	0·3	vP, vN : vP
Means	...	30·055	41·6	33·6	8·0	37·9	− 0·8	36·7	34·6	3·3	6·0	1·0	88·0	54·0	28·6	38·6	37·5	Sum 0·893	1·4	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The results on January 23 and 24 for Air and Evaporation Temperatures are deduced from eye-observations on account of failure of the photographic registers.

The values given in Columns 3, 4, 5, 14, 15, 16, and 17 are derived from eye-readings of self-registering thermometers.

The mean reading of the *Barometer* for the month was 30in·055, being 0in·326 *higher* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 51°·0 on January 8; the lowest in the month was 22°·1 on January 1; and the range was 28°·9.
The mean of all the highest daily readings in the month was 41°·6, being 1°·5 *lower* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 33°·6, being 0°·1 *higher* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 8°·0, being 1°·5 *less* than the average for the 47 years, 1841–1887.
The mean for the month was 37°·9, being 0°·8 *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Jan. 1	1·9	7·9	SE : ESE	SE : SSE	1·0	0·0	0·01	191	0, ho.-fr : 7, th.-cl, m, so.-ha	6,th.-cl,so.-ha : th.-cl,ho.-fr : 10
2	0·7	7·9	S	S : SSE : NW	5·0	0·0	0·30	271	10, slt.-r : 10,cu.-s,s : 9, ci.-cu,cu.-s	10 : 10, fq.-r : 10, c.-r, slt.-f
3	1·1	7·9	NW : WSW	SW : SSE	1·8	0·0	0·10	259	p.-cl, r : 0, ho.-fr : v,th.-cl,slt.-f	v, th.-cl : 0 : 0, hy.-d
4	0·0	7·9	S : SSE	SSE	4·9	0·0	0·63	341	v,lu.-ha,li.-shs : 9, th.-cl, ci.-s	9,ci.-cu,ci.-s,cu.-s : 10 : 10
5	0·4	7·9	S : SW	SW	5·1	0·0	0·63	376	10 : 10, slt.-r : p.-cl	9,cu.-s,li.-shs,glm : 3, li.-cl : 0
6	0·0	8·0	WSW : SW	SSW	2·4	0·0	0·18	321	0 : 0, ho.-fr,slt.-f : p.-cl	10 : 10 : 10, r
7	0·0	8·0	SSW : WSW	SW : WSW	2·4	0·0	0·15	322	10, shs.-r : 10, m	9, cu.-s : 10 : v, li.-cl
8	0·0	8·0	WSW	WSW : WNW	2·0	0·0	0·22	353	10 : 10	10 : 10 : 10, m.-r
9	0·0	8·1	WNW : WSW	SW	0·4	0·0	0·01	194	10 : 10, f, glm	v, f : 0, tk.-f : 0, tk.-f
10	0·0	8·1	SW	Calm : SW	0·0	0·0	0·00	105	0, tk.-f : 0, tk.-f	0, tk.-f : 0, tk.-f
11	0·0	8·1	SW	SW : Calm	0·0	0·0	0·00	70	10, tk.-f : 10, tk.-f	10, tk.-f : 10, tk.-f : 10,tk.-f,m.-r
12	0·0	8·2	Calm : E	E : ESE	0·0	0·0	0·00	92	10, tk.-f : 10, slt.-f, m.-r	10, slt.-f, m.-r : 10, m.-r
13	0·0	8·2	ESE : E	E : NE	0·0	0·0	0·00	87	10 : 10, slt.-f, m.-r	10 : 10
14	0·0	8·2	NE : N : E	NE	0·4	0·0	0·00	158	10 : 10, glm	10, cu.-s : 0 : v, th.-cl,ho.-fr
15	0·0	8·3	NE : ENE	ENE : NE	7·5	0·0	1·42	459	10 : 10, w	10, sc, w, sn : 10, w : 10, w
16	0·0	8·3	ENE	ENE	6·2	0·0	1·15	400	10, w : 10	10 : 10 : v, th.-cl, fr
17	0·1	8·3	ENE	ENE	1·6	0·0	0·11	246	p.-cl : 10	p.-cl, cu.-s : v, th.-cl : v, th.-cl,ho.-fr
18	0·0	8·4	ENE : E	E : ESE	4·2	0·0	0·53	322	v, ho.-fr : p.-cl, ho.-fr	10 : 10
19	0·0	8·4	ESE : SE	SSE : SSW	0·1	0·0	0·00	125	10 : 10	10 : 10
20	2·4	8·5	SSW : SW	SW : SSW	1·0	0·0	0·01	172	v, ho.-fr : 1, li.-cl, ho.-fr	4, li.-cl : 10 : 10, slt.-r
21	0·0	8·5	SSW : SW	WSW	4·2	0·0	0·56	402	10, li.-shs : 10, r	10 : 10
22	0·0	8·6	W	NW	5·8	0·0	0·31	334	10, li.-shs : 10,slt.-f,fq.-m.-r	10, oc.-m.-r : 10, oc.-m.-r : 10
23	0·1	8·6	NW : NNW	NW : SW	0·8	0·0	0·02	222	10 : p.-cl, m : 0, m, h	1, li.-cl, h : 0, slt.-f : 6, li.-cl., m, d, lu.-co, lu.-ha
24	0·0	8·7	SW : WSW	SW	2·6	0·0	0·28	367	p.-cl : p.-cl, s	9, li.-cl : v, lu.-ha : 10
25	1·9	8·7	SW	SW	7·3	0·0	0·65	439	10 : 10 : p.-cl	7,cu.-s,th.-cl : p.-cl : 10, slt.-r, w
26	0·0	8·8	WSW : W : WNW	NW	17·5	0·0	2·88	778	10, st.-w : 10, st.-w : 10, fq.-th.-r, st.-w	v, cu.-s, st.-w : 0, w
27	0·0	8·8	NW : W	W : NW : NNW	8·3	0·0	0·95	499	1, li.-cl : 1,th.-cl,h,ho.-fr	p.-cl : 10, r, w : v, w, slt.-sn
28	1·0	8·9	NNW	NNW	11·3	0·0	1·15	450	0, w : 1, li.-cl,cu.-s,ci.-cu	4, cu.-s, li.-cl : p.-cl : v, ho.-fr
29	4·4	8·9	NNW : NE	NE : N	5·6	0·0	0·50	335	10,oc.-sn : 10,oc.-sn : p.-cl, slt.-sn	v, slt.-sn : 0 : 0
30	0·4	9·0	N : NNW	N : SSW	0·7	0·0	0·03	187	v,slt.-sn : m, ho.-fr : v, th.-cl, m	4,cu.-s,li.-cl,slt.-f : 10 : 10, slt.-sn
31	1·1	9·0	SSW	SW : SSE : ENE	2·3	0·0	0·16	289	10, oc.-sn : 10, r, sn	9, cu.-s : 10, slt.-r : 10
Means	0·5	8·4	...	...	...	...	0·42	296		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 36°·7, being 0°·7 *lower* than
The mean *Temperature of the Dew Point* for the month was 34°·6, being 0°·8 *lower* than
The mean *Degree of Humidity* for the month was 88·0, being 0·7 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·200, being 0in·007 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·4, being *the same as*
The mean *Weight of a Cubic Foot of Air* for the month was 560 grains, being 8 grains *greater* than
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·4.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·06. The maximum daily amount of *Sunshine* was 4·4 hours on January 29.

The highest reading of the *Solar Radiation Thermometer* was 85°·0 on January 29; and the lowest reading of the *Terrestrial Radiation Thermometer* was 14°·3 on January 30.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·1; for the 6 hours ending 15h. was 0·1; and for the 6 hours ending 21h. was 0·2.

The *Proportions of Wind* referred to the cardinal points were N. 5, E. 7, S. 9, and W. 9. One day was calm.

The *Greatest Pressure of the Wind* in the month was 17·5 lbs. on the square foot on January 26. The mean daily *Horizontal Movement of the Air* for the month was 296 miles; the greatest daily value was 778 miles on January 26; and the least daily value was 70 miles on January 11.

Rain fell on 11 days in the month, amounting to 0in·893, as measured by gauge No. 6 partly sunk below the ground; being 1in·141 *less* than the average fall for the 47 years, 1841–1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Of the Air. Lowest.	Of the Air. Daily Range.	Of the Air. Mean of 24 Hourly Values.	Of the Air. Excess above Average of 20 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Of Radiation. Lowest on the Grass.	Of the Water of the Thames at Deptford. Highest.	Of the Water of the Thames at Deptford. Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
Feb. 1	...	29·646	33·3	24·0	9·3	29·9	−10·6	28·3	23·2	6·7	11·9	0·9	75	70·0	17·0	37·1	35·9	0·002	0·7	wP : mP : sP
2	Perigee: In Equator	29·952	34·2	18·4	15·8	28·0	−12·6	25·6	15·7	12·3	13·6	0·8	58	45·0	10·8	36·8	35·9	0·010	0·0	ssP : sP
3	...	29·875	43·8	30·8	13·0	38·8	− 1·9	37·9	36·7	2·1	3·1	1·2	93	51·3	29·6	35·6	35·1	0·000	0·0	vP : sP
4	Last Qr.	30·045	49·1	39·6	9·5	45·4	+ 4·7	43·6	41·5	3·9	6·9	1·1	87	56·4	31·6	36·8	35·1	0·000	0·0	mP : vP
5	...	30·087	50·8	40·2	10·6	45·5	+ 4·9	43·2	40·6	4·9	9·9	1·1	83	71·8	34·3	37·2	35·7	0·000	0·0	vP : mP
6	...	30·076	50·5	40·7	9·8	47·2	+ 6·8	44·5	41·5	5·7	10·3	2·4	81	56·2	31·4	38·8	36·9	0·000	0·0	wP
7	...	30·029	48·9	40·0	8·9	45·4	+ 5·2	41·3	36·6	8·8	12·4	6·2	72	61·7	31·0	38·4	37·1	0·000	0·0	mP
8	Greatest Declination S.	29·828	48·1	39·5	8·6	44·4	+ 4·5	42·1	39·4	5·0	7·4	1·8	82	54·0	30·0	39·9	38·3	0·030	0·0	mP, wN : wP
9	...	29·817	49·3	41·6	7·7	46·2	+ 6·6	42·6	38·5	7·7	11·1	1·3	75	62·7	36·0	39·4	38·9	0·021	0·0	wP : vP
10	...	29·657	47·8	36·6	11·2	42·6	+ 3·3	40·5	38·0	4·6	7·0	2·2	84	58·8	32·0	40·2	39·7	0·037	0·0	vP : vP, vN
11	New	29·411	43·3	33·5	9·8	37·3	− 1·8	35·8	33·7	3·6	8·6	0·7	87	77·5	28·1	41·0	40·5	0·168	0·5	ssP : sP, vN : ssP
12	...	29·333	37·4	31·0	6·4	34·7	− 4·2	32·8	29·7	5·0	9·4	1·7	81	42·7	22·4	40·6	40·1	0·000	1·5	sP : ssP
13	...	29·526	40·5	29·8	10·7	34·6	− 4·2	32·1	28·0	6·6	12·9	0·3	76	76·2	23·0	40·2	39·9	0·073	0·0	sP : sP, vN
14	...	29·425	41·0	32·1	8·9	34·2	− 4·5	33·5	32·3	1·9	4·8	0·0	93	94·7	30·0	39·6	39·1	0·152	0·0	sP
15	In Equator	29·728	37·9	32·0	5·9	34·3	− 4·4	32·9	30·5	3·8	5·7	1·5	86	57·7	27·1	39·8	39·3	0·000	0·0	vP : vP, vN
16	...	29·903	35·1	31·7	3·4	33·1	− 5·7	31·4	28·1	5·0	8·4	0·9	81	43·3	30·5	40·6	36·8	0·155	0·3	sN, vP : sP
17	Apogee	29·810	34·9	30·4	4·5	33·0	− 5·9	31·2	27·6	5·4	8·6	1·4	80	45·6	29·9	39·9	38·3	0·000	0·7	sP
18	...	29·637	40·0	30·9	9·1	34·1	− 4·9	32·6	30·0	4·1	9·0	0·3	84	58·9	26·3	39·4	36·6	0·009	0·0	vP : vP, vN
19	...	29·304	35·5	28·1	7·4	31·4	− 7·8	30·5	28·3	3·1	5·7	1·0	87	53·2	28·1	39·0	37·3	0·142	0·0	vP : wN : sP
20	First Qr.	29·453	37·8	27·4	10·4	32·7	− 6·6	31·2	28·1	4·6	8·0	1·9	83	78·3	25·2	37·8	36·9	0·033	1·8	vP, mN : vP
21	...	29·596	35·7	32·0	3·7	33·6	− 5·9	31·3	27·1	6·5	8·6	5·1	76	47·8	31·2	38·7	36·9	0·000	5·2	wP : sP : mP
22	...	29·658	32·0	28·1	3·9	29·8	− 9·8	28·5	24·4	5·4	8·6	1·8	80	35·3	28·1	38·0	36·4	0·000	0·5	vP
23	Greatest Declination N.	29·795	29·7	25·8	3·9	28·1	−11·6	26·9	22·1	6·0	10·6	2·2	77	39·7	25·8	36·2	35·7	0·013	1·5	vP
24	...	29·799	31·5	19·9	11·6	27·1	−12·7	25·0	15·5	11·6	16·2	2·7	60	76·2	18·2	36·8	34·7	0·025	0·0	mP : vP, vN
25	...	29·797	35·3	19·8	15·5	28·5	−11·4	27·1	21·8	6·7	15·5	0·6	75	51·0	18·1	36·3	33·5	0·011	0·0	wP : sP
26	...	29·903	35·3	24·0	11·3	29·8	−10·2	28·7	25·2	4·6	7·6	3·2	82	88·8	21·9	35·5	33·7	0·000	0·8	sP : vP
27	Full	30·005	33·8	31·2	2·6	32·4	− 7·7	31·3	29·0	3·4	5·4	1·7	87	39·7	30·3	35·1	32·3	0·002	2·2	vP
28	...	30·198	32·9	28·4	4·5	30·9	− 9·3	29·2	24·5	6·4	8·7	2·1	75	47·4	28·4	35·0	32·7	0·000	0·8	vP : sP
29	Perigee: In Equator	30·147	33·8	26·8	7·0	30·1	−10·2	28·6	24·0	6·1	11·2	2·1	76	52·6	24·5	34·0	32·3	0·011	2·2	mP : sP, wN : sP
Means	...	29·774	39·3	30·8	8·4	35·3	− 4·4	33·5	29·7	5·6	9·2	1·7	79·9	58·4	26·9	38·1	36·6	Sum 0·894	0·6	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9 and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, 15, 16, and 17 are derived from eye-readings of self-registering thermometers.

The mean reading of the *Barometer* for the month was 29in·774, being 0in·058 *lower* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 50°·8 on February 5; the lowest in the month was 18°·4 on February 2; and the range was 32°·4.
The mean of all the highest daily readings in the month was 39°·3, being 6°·2 *lower* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 30°·8, being 3°·6 *lower* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 8°·4, being 2°·7 *less* than the average for the 47 years, 1841–1887.
The mean for the month was 35°·3, being 4°·4 *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Feb. 1	5·2	9·1	ENE : NE	NE	9·0	0·0	1·35	434	10, oc.-sn, w : 10, oc.-sn, w : v, w	3, li.-cl : 0 : 0, ho.-fr
2	0·0	9·2	NE : N : SW	SW	2·3	0·0	0·06	220	0, ho.-fr : p.-cl	9, ci.-cu, cu.-s : 10 : 10, slt.-sn
3	0·0	9·2	WSW	WSW	3·2	0·0	0·40	354	10 : 10, m	10 : 10 : 7, th.-cl
4	0·0	9·3	WSW : NW	WNW : W : WSW	1·6	0·0	0·14	317	p.-cl, m : 10	9, cu.-s : 10, slt.-f : v
5	0·3	9·3	W : WSW : WNW	WNW : W	4·3	0·0	0·27	355	10 : 10	9, cu.-s, li.-cl : 10 : 10
6	0·0	9·4	WSW : NW : NNW	N : NNW	1·3	0·0	0·06	227	v : 10, m	10 : 10
7	0·3	9·4	NW : W	NNW : NW	6·3	0·0	0·39	373	10 : p.-cl : 10, slt.-r	p.-cl, glm : 0 : 1, th.-cl, d
8	0·0	9·5	WSW : W : NW	NW : WNW	4·6	0·0	0·64	402	p.-cl : 10, r : 10	10 : 3 : 10
9	0·7	9·6	W : WNW : NNW	NW : W	4·3	0·0	0·33	352	10, oc.-shs : 10, cu.-s	8, li.-cl, ci.-cu, cu.-s : 10 : 10
10	0·0	9·6	WSW	WSW : W	5·7	0·0	0·15	308	10 : 10, glm, slt.-r	10, oc.-slt.-r : 10, fq.-r : v, d
11	0·5	9·7	WSW : SW	SW : WSW	4·3	0·0	0·16	290	0 : v, ci.-cu, cu.-s, ho.-fr	10, hy.-r : 10, fq.-th.-r
12	0·0	9·8	WSW : WNW	NW : WSW	0·4	0·0	0·02	234	v : p.-cl	10, m : v : 0, ho.-fr
13	2·2	9·8	SW : WSW	WSW : ENE : SE	3·0	0·0	0·17	280	p.-cl, slt.-sn : v, ci.-s, cu.-s, s, m, slt.-sn	6, li.-cl, ci.-cu, cu.-s, so.-ha : 10, sn : 10, sn
14	2·8	9·9	E : SSE	ESE : NE : N	1·1	0·0	0·02	176	10, sn, r : 10, sn : p.-cl, cu.-s	9, li.-cl, sn : v, slt.-sn, slt.-r : 9
15	0·2	9·9	NNW : N	N	8·0	0·0	1·50	421	10, li.-shs : 10, w	10, slt.-sn, w : 9, slt.-sn, w
16	0·0	10·0	N : NNE	NNE : N	13·0	0·3	3·50	617	10, sn, w : 10, w	10, st.-w : 10, st.-w
17	0·0	10·1	N	N	7·3	0·1	1·77	454	10 : 10, w	10, w : 10, w
18	0·4	10·1	N : NNW	NNW : N	7·3	0·0	1·00	367	10, w : 10 : 10, slt.-sn	10, slt.-sn : v, ho.-fr, sn
19	0·1	10·2	N : NNE	NNE : N	4·0	0·0	0·52	373	10, sn : p.-cl, ci.-cu, ci.-s, sn	10, sn : 10, sn
20	2·6	10·3	E : NE	NE	9·8	0·0	2·25	510	10, sn : v, slt.-sn	v, st.-w : 10, slt.-sn, sl, st.-w : 10, st.-w
21	0·2	10·3	NE	NE	13·3	0·0	3·70	677	10, st.-w : 10, st.-w : 9, cu.-s, s, st.-w	10, w : 10, slt.-sn : 10
22	0·0	10·4	NE : ENE	NE : ENE	6·2	0·0	0·95	407	10 : 10 : 10, slt.-sn	10, oc.-sn : 10 : 10, w
23	0·0	10·5	ENE	ENE	8·0	0·0	1·91	468	10, w : 10, sn, w	10, oc.-sn, w : 10, w
24	3·1	10·5	NE : NNE	NNE : NE	7·6	0·0	1·52	484	10 : v, cu.-s, slt.-sn, w	p.-cl, cu.-s, sn, w : v, slt.-sn
25	0·0	10·6	NNE : NE	E : NE	2·6	0·0	0·26	280	10, oc.-sn : 10, slt.-sn	10, slt.-sn : v : p.-cl
26	3·8	10·7	NE	NE	9·0	0·0	1·91	533	v, fr : 6, ci.-cu, w	p.-cl, ci.-cu, w : 10, w, slt.-sn : 10, m.-r
27	0·0	10·7	NE	NE	2·8	0·0	0·54	395	10, slt.-sh : 10 : 10	10 : 10
28	0·0	10·8	NNE	NE	6·3	0·0	1·46	505	10 : 10	10 : 10
29	0·5	10·8	NE : NNE	NE	3·4	0·0	0·53	371	10 : 10, oc.-sn	v, oc.-sn : 10, sn : v, slt.-sn
Means	0·8	10·0	...	...	...	...	0·95	386		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 33°·5, being 4°·4 *lower* than
The mean *Temperature of the Dew Point* for the month was 29°·7, being 5°·7 *lower* than
The mean *Degree of Humidity* for the month was 79·9, being 4·9 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·165, being 0in·042 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·0, being 0gr·4 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 558 grains, being 4 grains *greater* than
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 8·8.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·08. The maximum daily amount of *Sunshine* was 5·2 hours on February 1.

The highest reading of the *Solar Radiation Thermometer* was 94°·7 on February 14; and the lowest reading of the *Terrestrial Radiation Thermometer* was 10°·8 on February 2.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 0·6; for the 6 hours ending 15h. was 0·0; and for the 6 hours ending 21h. was 0·0.

The *Proportions of Wind* referred to the cardinal points were N. 13, E. 6, S. 2, and W. 8.

The *Greatest Pressure of the Wind* in the month was 13·3 lbs. on the square foot on February 21. The mean daily *Horizontal Movement of the Air* for the month was 386 miles; the greatest daily value was 677 miles on February 21; and the least daily value was 176 miles on February 14.

Rain fell on 15 days in the month amounting to 0in·894, as measured by gauge No. 6 partly sunk below the ground; being 0in·597 *less* than the average fall for the 47 years, 1841–1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Of the Air. Lowest.	Of the Air. Daily Range.	Of the Air. Mean of 24 Hourly Values.	Of the Air. Excess above Average of 20 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Of Radiation. Lowest on the Grass.	Of the Water of the Thames at Deptford. Highest.	Of the Water of the Thames at Deptford. Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
Mar. 1	...	30·102	35·3	26·1	9·2	29·7	−10·6	28·2	23·3	6·4	9·4	2·1	76	83·4	21·5	34·8	32·9	0·005	0·0	vP : sP : ssP
2	...	29·937	40·4	25·4	15·0	33·8	− 6·6	31·7	28·0	5·8	11·3	2·0	79	66·2	19·8	34·8	33·1	0·000	0·0	ssP : vP : sP
3	...	29·812	39·6	30·8	8·8	35·6	− 4·9	32·7	28·3	7·3	11·0	3·4	74	81·2	24·7	34·6	33·3	0·000	0·0	sP
4	...	29·771	41·6	27·6	14·0	34·7	− 5·8	31·8	27·1	7·6	11·0	4·0	73	74·1	24·2	34·9	33·9	0·000	0·0	sP
5	Last Qr.	29·847	40·4	28·0	12·4	35·0	− 5·5	31·4	25·6	9·4	13·1	7·0	67	60·9	20·6	34·7	34·2	0·000	2·0	ssP : vP, wN : sP
6	...	29·863	48·1	32·3	15·8	40·7	+ 0·2	38·1	34·8	5·9	11·5	1·4	80	81·3	24·5	34·8	34·0	0·000	0·0	sP, wN : vP
7	Greatest Declination S.	29·883	51·6	35·4	16·2	43·4	+ 2·8	40·4	36·8	6·6	12·4	2·5	78	98·0	29·2	35·2	33·9	0·000	1·2	sP
8	...	29·629	50·1	42·4	7·7	46·6	+ 6·0	45·0	43·2	3·4	8·1	0·9	89	65·2	38·2	36·3	35·1	0·000	5·8	vP
9	...	29·280	53·0	46·8	6·2	49·7	+ 9·0	48·0	46·2	3·5	5·5	1·9	88	70·0	42·7	40·0	35·9	0·177	11·0	mP, wN : sP
10	...	29·211	56·5	45·9	10·6	49·5	+ 8·8	46·9	44·1	5·4	10·4	2·5	82	93·0	42·1	45·0	36·7	0·117	3·0	wP : mP, wN
11	...	28·877	48·2	39·0	9·2	43·8	+ 3·0	42·0	39·8	4·0	7·6	1·1	86	70·3	38·0	44·4	37·9	0·300	0·2	wP : vN, wP
12	New	29·122	41·6	32·0	9·6	38·2	− 2·6	35·7	32·3	5·9	8·5	4·2	79	60·7	30·0	44·0	38·7	0·030	0·8	mP, sN : vP, wN
13	...	29·434	36·0	30·6	5·4	32·5	− 8·4	31·1	28·1	4·4	7·6	0·0	84	56·2	30·0	43·6	37·9	0·050	2·0	mP : sP, mN
14	In Equator	29·118	52·2	31·5	20·7	41·3	+ 0·3	39·9	38·1	3·2	9·0	0·3	89	110·8	30·8	42·2	39·9	0·411	7·5	ssN, mP : vP, vN
15	...	29·064	51·7	36·5	15·2	42·4	+ 1·3	38·9	34·6	7·8	18·7	0·7	75	117·3	33·0	41·8	41·1	0·052	4·5	mP, wN : mP, vN
16	Apogee	29·241	37·0	30·3	6·7	33·9	− 7·3	32·6	30·3	3·6	9·7	0·5	86	49·5	28·8	41·5	40·9	0·092	0·0	mP, mN : vP
17	...	29·623	35·6	29·0	6·6	31·5	− 9·8	30·2	27·0	4·5	6·2	1·7	82	60·0	28·7	40·2	39·9	0·018	1·8	vP
18	...	29·969	34·2	29·2	5·0	30·7	−10·7	29·0	24·3	6·4	12·8	1·2	75	53·4	26·6	39·4	38·9	0·000	6·7	vP : mP
19	...	29·843	34·6	27·5	7·1	30·3	−11·1	28·9	24·8	5·5	10·4	0·0	78	58·8	26·3	38·0	36·9	0·086	4·5	wP : vP
20	First Qr.	29·828	34·6	29·3	5·3	31·8	− 9·7	30·6	27·8	4·0	6·1	1·3	83	49·2	29·3	37·0	36·7	0·107	0·0	vP : wP
21	Greatest Declination N.	30·034	44·1	29·5	14·6	35·8	− 5·8	33·9	31·0	4·8	10·8	1·2	83	101·6	23·6	36·3	35·9	0·000	0·0	mP : sP
22	...	29·760	46·4	27·5	18·9	37·7	− 4·0	36·3	34·4	3·3	6·5	0·0	88	59·8	21·6	36·1	35·9	0·018	1·0	sP
23	...	29·209	43·4	36·1	7·3	39·3	− 2·5	38·6	37·7	1·6	2·4	0·4	94	54·1	35·1	37·2	36·3	0·234	3·0	mP, wN : wP, wN
24	...	29·199	47·2	33·4	13·8	38·5	− 3·5	36·7	34·3	4·2	10·8	0·0	86	104·6	32·5	...	...	0·207	1·5	sP : sP, sN
25	...	28·950	44·2	32·4	11·8	36·7	− 5·6	35·4	33·6	3·1	8·4	0·0	89	78·0	32·2	...	...	0·124	6·2	sP, ssN
26	...	28·902	44·8	31·5	13·3	38·6	− 4·0	37·3	35·5	3·1	6·8	1·3	89	70·3	27·3	...	...	0·190	5·3	mP, ssN : sP, vN
27	Full	28·890	42·4	32·0	10·4	36·0	− 7·0	34·6	32·5	3·5	10·8	0·3	87	60·0	29·5	...	...	0·053	1·5	sN, sP : sP
28	In Equator: Perigee	28·688	51·7	31·6	20·1	42·5	− 0·9	40·5	38·1	4·4	8·2	0·0	85	95·0	28·9	40·2	39·3	0·350	11·3	vP, sN : sP, mN
29	...	28·728	52·1	38·8	13·3	43·4	− 0·4	40·9	37·9	5·5	12·4	0·5	81	112·0	33·0	41·2	40·3	0·039	11·2	mP : sP, vN
30	...	29·085	51·3	37·4	13·9	42·0	− 2·3	40·2	38·0	4·0	11·1	0·0	86	89·8	36·9	42·0	41·3	0·122	0·0	vP : vP, vN
31	...	29·593	45·8	37·7	8·1	41·0	− 3·8	38·8	36·0	5·0	9·2	2·1	83	83·4	36·6	42·9	42·1	0·000	0·0	mP, wN : sP, wN
Means	...	29·435	44·4	33·0	11·4	38·3	− 3·3	36·3	33·3	4·9	9·6	1·4	82·4	76·4	29·9	(27 days) 39·0	(27 days) 37·1	Sum 2·782	3·0	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The results on March 28 for Air and Evaporation Temperatures, are deduced from eye-observations, on account of failure of the photographic registers.

The values given in Columns 3, 4, 5, 14, 15, 16, and 17 are derived from eye-readings of self-registering thermometers.

The mean reading of the *Barometer* for the month was 29in·435, being 0in·287 *lower* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 56°·5 on March 10; the lowest in the month was 25°·4 on March 2; and the range was 31°·1.
The mean of all the highest daily readings in the month was 44°·4, being 5°·4 *lower* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 33°·0, being 2°·1 *lower* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 11°·4, being 3°·3 *less* than the average for the 47 years, 1841–1887.
The mean for the month was 38°·3, being 3°·3 *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Mar. 1	4·2	10·8	NE : ENE	NE : NNE	2·8	0·0	0·17	280	10, oc.-sn : 10, oc.-sn : 9, cu.-s, slt.-sn	6, ci.-cu, cu.-s : 0 : v, li.-cl, ho.-fr
2	0·3	10·9	NNE : NNW	NW	2·1	0·0	0·18	227	p.-cl, ho.-fr : v, cu.-s, slt.-f, h, ho.-fr	0, h : 10
3	1·6	11·0	NW : N	N : NNW	3·5	0·0	0·49	318	10 : 8, ci.-cu, cu.-s, li.-cl, slt.-sn	8, cu.-s, oc.-sn : p.-cl
4	0·6	11·1	WSW : W : WNW	NW : NNW	3·5	0·0	0·38	316	p.-cl, fr : 10	10, oc.-slt.-r, sl : 10 : v, cu.-s, li.-cl
5	0·2	11·1	NW : WNW : NNW	NW : SW : SSW	0·9	0·0	0·02	216	p.-cl : 8, ci.-cu, m	8, ci.-cu, h : 0
6	0·4	11·2	WSW : NW	NW : WSW	2·1	0·0	0·18	318	v, li.-shs : 8, slt.-f	8, ci.-cu, cu.-s : p.-cl : 0
7	3·8	11·2	WSW	SW	8·5	0·0	1·84	523	v : 3, li.-cl, s, w	8, li.-cl, w : v, w : 10, w
8	0·0	11·3	SW : SSW	SSW	7·4	0·0	2·26	545	10, w : 10, oc.-slt.-r, w	10, oc.-slt.-r, w : 10, m.-r, w
9	0·1	11·4	SW	SW	11·5	0·3	4·40	709	10, r, w : 10, r, st.-w : 10, st.-w	10, sc, r, w : v, w : v, w
10	1·4	11·4	SW : WSW	WSW : SW	7·8	0·0	2·02	526	p.-cl, slt.-r, w : 10, shs.-r, w : 8, ci.-cu, cu.-s, w	8, cu.-s, shs.-r : v, shs.-r : v
11	0·1	11·5	SSE : SSW	SW : WSW	31·0	0·0	5·38	790	10, hy.-r : 10, slt.-r, st.-w	10, fq.-r, hy.-g : 10, fq.-r, hy.-g
12	0·0	11·6	WSW : W : NW	NNW : NNE	13·0	0·0	1·87	479	10, slt.-r, w : 10, glm	10, slt.-r : 10 : v, li.-cl
13	0·0	11·6	NE : ESE	ESE	2·6	0·0	0·24	291	10, slt.-r, slt.-sn : 10, slt.-sn	10 : 10, sn
14	3·3	11·7	SE : SSE : SSW	SW : SSW	2·4	0·0	0·05	240	10, hy.-r, sn : p.-cl, cu.-s, th.-cl	v, ci.-cu, cu.-s, r : p.-cl, r : v, cu.-s, li.-cl
15	7·1	11·8	SSW : SSE : SW	WSW : SSW	2·7	0·0	0·12	233	v : 10, sh.-r : p.-cl	5, ci.-cu, cu, cu.-s : 10, r
16	0·0	11·8	SSW : WSW : NNE	N : NNW	6·5	0·0	1·31	369	10, fq.-r : 10, r, oc.-sn	10, slt.-sn, w : 10, slt.-sn, w
17	0·3	11·9	NNW : N	N : NNE	9·6	0·3	3·33	538	10, oc.-sn, w : 10, oc.-sn, w	10, oc.-sn, w : 10, oc.-sn, w
18	1·6	12·0	NNE	NE : NNE	9·7	0·3	3·63	659	10, oc.-sn, w : 10, slt.-sn, w	p.-cl, st.-w : v, cu.-s, w
19	0·0	12·0	NNE	NNE	12·5	0·2	4·31	700	10, oc.-sn, w : 10, st.-w	10, st.-w : 10, sn : 10, sn
20	0·0	12·1	N : NNE	NNE	6·1	0·0	1·17	470	10, sn : 10, sn	10, slt.-sn : 10, oc.-sn
21	7·5	12·2	N : NNE	ENE : SE : NNE	7·5	0·0	1·04	373	p.-cl : v	4, ci.-cu, cu, cu.-s : v, li.-cl, ho.-fr
22	0·0	12·2	SW : WSW	SW : SSW	1·2	0·0	0·07	250	v : 10, fq.-th.-r, fr.-r	10, fq.-th.-r : 10, oc.-slt.-r
23	0·0	12·3	SSW : N	N : NNE	1·7	0·0	0·17	272	10, fq.-r : 10, c.-r, glm	10, fq.-th.-r : 10, oc.-slt.-r
24	2·2	12·4	N : SE	SE : E : ENE	2·2	0·0	0·12	182	10, slt.-r : 10 : p.-cl	4, ci.-cu, cu, cu.-s, li.-cl : 10 : 10, r, sl, sn
25	1·1	12·4	Calm : SW	WSW : SSW	6·4	0·0	0·51	331	10, fq.-r : 10, fq.-r, w	p.-cl, oc.-r : 10, oc.-r : v, r
26	0·1	12·5	WSW : SSW : SW	SW : SE	7·5	0·0	0·85	371	p.-cl : 10, r, sn : 10, r, w	10, fq.-r : 10, slt.-f, r
27	0·0	12·6	SW	SSW	0·1	0·0	0·00	151	10, shs.-r : 10	10, slt.-sn : 10
28	2·2	12·6	SE : SSE	SSE : SSW	6·3	0·0	0·58	341	10, shs.-r, sn : 10, fq.-hy.-r	10, shs.-r : p.-cl, slt.-sh : 3, th.-cl
29	6·7	12·7	S : SE	SE : NE	5·3	0·0	0·20	243	p.-cl : 6, cu.-s	7, ci.-cu, cu, cu.-s, slt.-r : p.-cl, oc.-r : 10, oc.-r
30	1·0	12·8	N : NW : WSW	SW : NNW	5·7	0·0	0·12	251	10 : 10, glm : v, li.-cl, slt.-h	10, hy.-sh, hl : 10, fq.-r : 10, slt.-r
31	0·1	12·8	NNW : N	N : NNE	0·6	0·0	0·02	181	10 : 10	10, slt.-r : 10
Means	1·5	11·8	...	...	...	...	1·19	377		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was $36^{\circ}\cdot3$, being $2^{\circ}\cdot7$ *lower* than
The mean *Temperature of the Dew Point* for the month was $33^{\circ}\cdot3$, being $2^{\circ}\cdot7$ *lower* than
The mean *Degree of Humidity* for the month was 82·4, being 1·5 *greater* than
The mean *Elastic Force of Vapour* for the month was $0^{in}\cdot190$, being $0^{in}\cdot022$ *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was $2^{grs}\cdot2$, being $0^{gr}\cdot3$ *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 548 grains, being 2 grains *less* than
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 8·4.
The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·13. The maximum daily amount of *Sunshine* was 7·5 hours on March 21.
The highest reading of the *Solar Radiation Thermometer* was $117^{\circ}\cdot3$ on March 15; and the lowest reading of the *Terrestrial Radiation Thermometer* was $19^{\circ}\cdot8$ on March 2.
The mean daily distribution of *Ozone* for the 12 hours ending 9^{h}. was 2·3; for the 6 hours ending 15^{h}. was 0·3; and for the 6 hours ending 21^{h}. was 0·4.
The *Proportions of Wind* referred to the cardinal points were N. 10, E. 4, S. 9, and W. 8.
The *Greatest Pressure of the Wind* in the month was 31·0 lbs. on the square foot on March 11. The mean daily *Horizontal Movement of the Air* for the month was 377 miles; the greatest daily value was 790 miles on March 11; and the least daily value was 151 miles on March 27.
Rain fell on 21 days in the month, amounting to $2^{in}\cdot782$, as measured by gauge No. 6 partly sunk below the ground; being $1^{in}\cdot357$ *greater* than the average fall for the 47 years, 1841–1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Lowest.	Daily Range.	Mean of 24 Hourly Values.	Excess above Average of 20 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Lowest on the Grass.	Of the Water of the Thames at Deptford. Highest.	Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
April 1	...	29·849	48·7	32·1	16·6	40·0	− 5·3	37·5	34·2	5·8	12·0	1·4	80	103·1	25·9	43·0	42·4	0·000	0·0	sP : mP : sP
2	...	29·676	48·9	31·8	17·1	38·8	− 6·9	36·8	34·1	4·7	9·0	1·4	85	72·8	25·6	43·2	42·7	0·036	0·8	sP : vP, vN
3	Greatest Dec. S. Last Quarter.	29·690	47·4	30·4	17·0	36·9	− 9·2	33·8	29·3	7·6	14·5	1·7	74	106·8	24·2	42·8	42·4	0·000	2·2	sP : vP : sP
4	...	29·647	43·7	29·1	14·6	35·3	−11·1	33·6	31·0	4·3	10·3	0·6	84	82·4	21·5	44·0	42·4	0·000	0·0	sP : vP, mN
5	...	29·898	45·1	28·6	16·5	35·7	−10·9	32·9	28·6	7·1	14·7	0·0	75	111·2	22·0	43·2	42·9	0·000	3·0	sP : mP : sP
6	...	30·069	47·0	27·1	19·9	36·2	−10·5	32·9	28·0	8·2	14·1	0·9	72	107·0	20·0	42·0	41·8	0·000	1·0	ssP : vP : sP
7	...	30·001	48·1	26·3	21·8	37·2	− 9·6	34·8	31·5	5·7	13·6	0·0	80	90·9	18·6	41·8	41·3	0·040	0·0	ssP : vP
8	...	29·816	40·6	30·0	10·6	35·1	−11·7	33·1	29·9	5·2	10·3	1·7	80	84·7	23·5	41·8	41·2	0·002	0·0	sP : mP, mN : vP
9	...	29·806	42·1	29·3	12·8	36·6	−10·3	33·9	30·0	6·6	12·0	0·5	78	68·7	23·1	41·5	40·9	0·048	0·0	sP : vP, wN
10	In Equator	29·867	42·0	30·7	11·3	36·3	−10·6	33·9	30·4	5·9	10·6	0·8	79	84·6	26·7	41·0	40·7	0·000	0·0	sP, wN : vP
11	New	29·733	53·1	35·8	17·3	43·4	− 3·6	40·3	36·6	6·8	12·2	0·7	77	81·3	31·9	41·2	40·5	0·025	0·0	vP, vN : vP
12	Apogee	29·653	48·4	38·3	10·1	42·9	− 4·2	39·6	35·6	7·3	10·5	0·9	76	61·9	33·6	41·6	40·9	0·026	0·0	mP : vP, wN
13	...	29·619	62·0	40·8	21·2	52·0	+ 4·8	47·5	42·9	9·1	20·9	0·0	71	111·6	40·2	42·8	41·3	0·007	3·0	vP
14	...	29·758	63·7	42·0	21·7	50·5	+ 3·1	47·4	44·1	6·4	13·7	1·3	79	119·1	35·7	44·5	43·9	0·000	0·0	mP
15	...	29·613	61·9	38·8	23·1	50·9	+ 3·4	48·1	45·2	5·7	14·2	0·6	81	118·3	32·6	46·0	42·9	0·108	0·0	mP : mP, mN
16	...	29·729	62·6	42·2	20·4	50·9	+ 3·3	47·0	42·9	8·0	17·7	0·4	75	118·4	36·5	46·2	44·7	0·000	1·5	vP
17	Greatest Declination N.	29·581	60·2	44·4	15·8	49·5	+ 1·7	46·9	44·1	5·4	12·3	1·0	82	112·0	42·6	48·5	45·9	0·051	11·3	wP, wN : mP, wN
18	...	29·487	59·7	42·8	16·9	48·4	+ 0·5	45·7	42·8	5·6	13·2	1·5	81	110·4	38·0	49·7	48·3	0·088	6·7	mP, mN : vP, vN
19	First Qr.	29·425	56·1	40·3	15·8	47·1	− 0·9	44·9	42·5	4·6	8·0	0·9	85	115·0	35·1	49·9	48·7	0·079	4·5	sP, mN : ssN, mP
20	...	29·400	54·9	41·9	13·0	46·1	− 2·0	44·3	42·2	3·9	10·0	0·2	87	110·4	40·6	50·3	49·1	0·323	0·2	vP, ssN : vP, vN
21	...	29·528	57·6	38·3	19·3	46·1	− 2·1	42·5	38·4	7·7	15·8	0·9	75	123·8	28·9	50·0	49·9	0·003	3·0	vP, wN : vP
22	...	29·519	46·1	38·4	7·7	41·4	− 6·8	40·6	39·6	1·8	4·4	0·2	94	70·0	28·9	50·4	49·9	0·174	10·8	vP : ssN, vP
23	...	29·542	47·9	40·1	7·8	43·7	− 4·6	43·0	42·2	1·5	3·4	0·0	94	58·0	39·6	50·9	49·7	0·467	0·0	vP, wN : ssN, vP
24	In Equator	29·689	47·0	38·3	8·7	43·2	− 5·1	43·1	43·0	0·2	0·9	0·0	99	57·3	38·0	48·9	48·2	0·030	1·2	vP, vN : wP, wN
25	...	29·836	50·0	37·3	12·7	41·1	− 7·3	39·1	36·6	4·5	14·7	0·2	84	97·0	37·0	47·9	46·1	0·000	4·8	wP : mP
26	Full: Perigee.	29·989	48·3	34·3	14·0	39·7	− 8·7	36·3	31·9	7·8	11·5	5·0	74	103·6	28·0	47·1	45·1	0·000	3·0	mP : sP
27	...	29·943	57·8	30·5	27·3	45·0	− 3·4	41·3	37·0	8·0	13·6	3·0	74	108·2	22·9	46·2	44·3	0·000	0·0	sP : mP
28	...	29·836	62·6	46·0	16·6	52·9	+ 4·4	50·1	47·3	5·6	11·0	1·7	81	101·7	42·1	46·0	44·3	0·000	0·8	vP
29	...	29·666	56·1	43·1	13·0	48·3	− 0·2	44·4	40·1	8·2	12·6	3·1	74	94·0	37·0	46·9	45·1	0·000	8·0	mP
30	Greatest Declination S.	29·470	67·7	41·0	26·7	52·4	+ 3·8	47·1	41·7	10·7	23·8	1·3	67	126·2	35·0	47·0	46·1	0·000	8·0	mP
Means	...	29·711	52·6	36·3	16·2	43·5	− 4·0	40·7	37·5	6·0	12·2	1·1	79·9	97·0	31·2	45·5	44·5	Sum 1·507	2·5	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, 15, 16, and 17 are derived from eye-readings of self-registering thermometers.

The mean reading of the *Barometer* for the month was 29in·711, being 0in·092 *lower* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 67°·7 on April 30; the lowest in the month was 26°·3 on April 7; and the range was 41°·4.
The mean of all the highest daily readings in the month was 52°·6, being 4°·8 *lower* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 36°·3, being 2°·7 *lower* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 16°·2, being 2°·2 *less* than the average for the 47 years, 1841–1887.
The mean for the month was 43°·5, being 4°·0 *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
April 1	3·6	12·9	NNE	NE : SW	0·7	0·0	0·01	178	10 : p.-cl, cu.-s	p.-cl, cu.-s, li.-shs : 0, ho.-fr, slt.-f
2	0·3	13·0	WSW : W	WNW : NE : N	3·4	0·0	0·30	345	10 : 10, oc.-shs	10 : 10, oc.-r, fr.-r : 10
3	8·9	13·0	NNE : N	N : NNE	7·3	0·0	0·54	341	10 : p.-cl,cu.-s,oc.-sn	8, cu.-s : v, w : v, ho.-fr
4	0·9	13·1	NNW : WSW	NE	1·3	0·0	0·01	129	v, ho.-fr : 10,slt.-f :10,glm,slt.-f	9,ci.-cu,cu.-s,slt.-sn : v, cu.-s, ho.-fr
5	6·0	13·2	NE: NNE: ENE	NE : ESE	2·8	0·0	0·15	292	v, ho.-fr : 9, slt.-sn	8, cu.-s : v : 0, ho.-fr
6	7·4	13·2	NE : NNE	NE : NNE : ENE	3·3	0·0	0·11	249	0, ho.-fr : 3, cu	8,ci.-cu,cu.-s,li.-cl : v,slt.-r,slt.-sn : v, li.-cl, ho.-fr
7	1·9	13·3	NNE : N	N : NNE	1·9	0·0	0·07	200	0, ho.-fr : 9, cu.-s	9, cu.-s : v, r
8	2·3	13·4	N : NE	ENE : N	7·4	0·0	0·75	361	v : 10, cu.-s, oc.-sn	p.-cl, oc.-sn, w : v
9	0·4	13·4	N : NNW	NNW : N	2·6	0·0	0·10	241	10 : 9, th.-cl	10 : 10, fq.-r
10	3·3	13·5	N	N : SSW	4·6	0·0	0·19	242	10, sl : 8, cu,cu.-s,slt.-sn	10, sc : p.-cl : 10
11	0·6	13·6	SSW : WSW : WNW	NW : NNW	7·1	0·0	0·75	390	10, sh.-r : 10, r : 10,oc.-slt.-r	8, cu.-s, li.-cl : p.-cl,slt.-sh,w : v, th.-cl
12	0·0	13·6	WNW : NW	NW : SW : SSW	2·6	0·0	0·23	265	10 : 10, oc.-slt.-r	10 : 10, oc.-r
13	9·1	13·7	WSW : WNW	WNW: W: WSW	7·0	0·0	0·94	456	10, li.-shs : v, cu.-s, w	2,cu.-s,slt.-h : p.-cl, w : v, th.-cl
14	5·8	13·7	WSW	SW : SE	1·3	0·0	0·06	272	p.-cl : 10	3, cu.-s, li.-cl : 0, d
15	3·2	13·8	ESE : E : ENE	E : WSW	2·4	0·0	0·03	193	v : li.-cl, so.-ha	p.-cl : 10, r : 10, r
16	11·6	13·9	WSW : W	SW	1·6	0·0	0·08	306	v : 0 : 1, ci.-cu	4, ci.-cu, cu.-s : v, th.-cl
17	6·0	13·9	S : SW	SSW	6·2	0·0	0·78	405	10 : 10,shs.-r : p.-cl, cu, cu.-s, shs.-r	6,cu,cu.-s,sh.-r : v : p.-cl
18	4·1	14·0	SSW : SW	SW : SSW	8·4	0·0	0·93	453	10, li.-shs : v, shs.-r	v, cu.-s, hy.-sh, t, fq.-sqs : v, th.-cl, lu.-co
19	4·1	14·1	SSW	SW	5·0	0·0	0·08	302	p.-cl : p.-cl, cu.-s	10, fq.-r, l, t : p.-cl, shs.-r : 10, slt.-r
20	1·3	14·1	WSW : W	WSW : SW	0·7	0·0	0·02	246	10, hy.-r : 10,glm,fq.-r : p.-cl, slt.-r	9, sh.-r : p.-cl : 10, fq.-th.-r
21	5·4	14·2	SSW	Variable	0·4	0·0	0·00	163	10, li.-shs : 9, cu.-s	9,cu,cu.-s,th.-cl : v, slt.-f : v, th.-cl
22	0·0	14·2	E : ENE	ENE : NE	5·8	0·0	0·60	348	10 : 10 : 10, slt.-r	10, c.-r : 10
23	0·0	14·3	NE	NNE	2·7	0·0	0·29	381	10, shs.-r : 10, slt.-r	10, fq.-r : 10, c.-r : 10, c.-r
24	0·0	14·4	ESE : ENE	ENE : NE	4·8	0·0	0·33	307	10, r : 10, slt.-f	10 : 10, m.-r : 10, m.-r
25	3·2	14·4	NE	NE	7·4	0·0	2·29	601	10 : 10, w	v, w : v, w : 10
26	2·0	14·5	NNE	NNE	6·0	0·0	1·34	459	10, cu.-s, s : 10, cu.-s, w	10, cu.-s : 10 : v
27	2·2	14·5	SW : WSW	WSW	5·5	0·0	1·19	411	0, lu.-co : v : v, li.-cl, h, so.-ha, slt.-r	10, slt.-r : p.-cl : p.-cl,th.-cl,s
28	0·6	14·6	WSW	SW : SSW	3·7	0·0	0·50	336	p.-cl, sh.-r : 10, cu.-s, th.-cl	10, cu.-s : 10
29	1·2	14·7	SW	SW : SSW	6·9	0·0	1·73	478	10 : 10	10 : p.-cl : v,ci.-cu,li.-cl
30	11·0	14·7	SSW	SSW : S	4·0	0·0	0·36	289	0 : 2, cu.-s	0 : v : v
Means	3·5	13·8	...	...	...	...	0·49	321		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 40°·7, being 3°·2 *lower* than
The mean *Temperature of the Dew Point* for the month was 37°·5, being 2°·8 *lower* than
The mean *Degree of Humidity* for the month was 79·9, being 3·0 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·225, being 0in·025 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·6, being 0gr·3 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 547 grains, being 3 grains *greater* than
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·6.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·25. The maximum daily amount of *Sunshine* was 11·6 hours on April 16.

The highest reading of the *Solar Radiation Thermometer* was 126°·2 on April 30; and the lowest reading of the *Terrestrial Radiation Thermometer* was 18°·6 on April 7.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·6; for the 6 hours ending 15h. was 0·7; and for the 6 hours ending 21h. was 0·2.

The *Proportions of Wind* referred to the cardinal points were N. 9, E. 6, S. 7, and W. 8.

The *Greatest Pressure of the Wind* in the month was 8·4 lbs. on the square foot on April 18. The mean daily *Horizontal Movement of the Air* for the month was 321 miles; the greatest daily value was 601 miles on April 25; and the least daily value was 129 miles on April 4.

Rain fell on 14 days in the month, amounting to 1in·507, as measured by gauge No. 6 partly sunk below the ground; being 0in·150 *less* than the average fall for the 47 years, 1841–1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	TEMPERATURE. Of the Air. Lowest.	TEMPERATURE. Of the Air. Daily Range.	TEMPERATURE. Of the Air. Mean of 24 Hourly Values.	TEMPERATURE. Of the Air. Excess above Average of 20 Years.	TEMPERATURE. Of Evaporation. Mean of 24 Hourly Values.	TEMPERATURE. Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Difference between the Air Temperature and Dew Point Temperature. Greatest.	Difference between the Air Temperature and Dew Point Temperature. Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	TEMPERATURE. Of Radiation. Lowest on the Grass.	TEMPERATURE. Of the Water of the Thames at Deptford. Highest.	TEMPERATURE. Of the Water of the Thames at Deptford. Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
May 1	...	29·333	57·4	43·6	13·8	51·4	+ 2·7	47·4	43·3	8·1	13·4	3·1	74	112·5	37·0	48·1	47·2	0·002	11·7	mP, wN
2	Last Qr.	29·639	55·4	36·1	19·3	47·0	− 1·9	43·9	40·4	6·6	14·0	2·3	78	101·4	34·5	49·5	47·9	0·151	16·5	mP : wP, mN : mN, sP
3	...	29·705	56·1	40·9	15·2	47·2	− 1·9	42·3	36·8	10·4	17·2	5·7	68	113·0	37·4	50·1	48·5	0·008	8·0	mP, wN : vN, vP
4	...	30·006	59·0	38·5	20·5	48·8	− 0·6	43·2	37·1	11·7	21·1	3·0	64	121·6	33·7	50·1	49·4	0·000	3·0	mP : vP, wN
5	...	30·118	60·6	38·0	22·6	49·7	0·0	44·2	38·3	11·4	19·8	2·8	65	114·4	29·0	49·5	48·9	0·000	4·0	sP : vP, wN
6	...	30·132	61·4	41·7	19·7	52·2	+ 2·2	48·8	45·3	6·9	13·3	2·0	78	109·1	36·5	50·2	49·7	0·000	3·0	mP : vP
7	In Equator	30·083	71·3	51·7	19·6	58·6	+ 8·3	55·0	51·8	6·8	14·8	1·6	78	134·0	47·0	51·7	49·5	0·000	0·0	mP : wP : mP
8	...	30·036	71·8	48·9	22·9	59·0	+ 8·4	54·2	49·9	9·1	16·9	2·0	72	125·8	45·3	52·9	51·1	0·000	0·0	mP : vP, wN
9	...	30·157	60·9	39·5	21·4	50·9	+ 0·1	44·0	36·8	14·1	22·4	6·4	58	119·0	31·0	54·1	52·1	0·000	0·5	sP : wP
10	Apogee	30·211	59·8	38·3	21·5	47·3	− 3·8	42·4	36·9	10·4	19·9	2·8	68	121·7	29·6	54·7	52·5	0·000	1·5	mP
11	New	30·275	58·7	34·3	24·4	46·8	− 4·6	42·2	37·0	9·8	18·2	1·0	69	124·7	26·7	54·9	52·7	0·000	2·0	... : mP
12	...	30·244	64·9	33·8	31·1	49·4	− 2·4	44·7	39·7	9·7	18·6	1·2	69	129·3	27·3	55·1	53·3	0·000	0·0	vP
13	...	29·965	73·1	37·8	35·3	55·5	+ 3·4	48·2	41·3	14·2	28·6	1·8	59	127·1	30·3	54·8	53·9	0·000	1·0	mP
14	...	29·683	58·3	42·2	16·1	50·0	− 2·5	44·8	39·3	10·7	17·3	6·1	67	113·0	34·6	55·3	53·4	0·000	2·8	mP : wP
15	Greatest Declination N.	29·513	63·6	41·1	22·5	50·9	− 2·0	44·6	38·0	12·9	24·3	4·6	61	135·1	35·4	55·3	54·7	0·000	11·5	wP : mP
16	...	29·388	65·7	40·8	24·9	52·2	− 1·1	49·3	46·4	5·8	16·3	1·3	81	120·3	31·4	55·7	55·4	0·132	11·5	mP : wP, wN : mP, mN
17	...	29·444	63·1	50·0	13·1	55·9	+ 2·2	53·7	51·6	4·3	7·8	1·6	87	90·3	47·3	55·9	53·9	0·190	19·7	wP, mN : wP
18	First Qr.	29·575	75·7	55·4	20·3	63·9	+ 9·8	59·0	54·9	9·0	17·0	3·6	73	136·7	53·2	56·2	54·3	0·000	9·5	wP : mP
19	...	29·563	76·8	51·6	25·2	64·1	+ 9·7	58·5	53·8	10·3	19·9	3·2	69	134·4	44·5	57·2	55·8	0·000	5·2	wP : mP, sN
20	...	29·994	68·5	46·0	22·5	56·5	+ 1·8	50·8	45·5	11·0	20·5	3·4	67	142·2	39·0	58·0	56·5	0·000	5·8	wP
21	...	30·229	70·1	44·4	25·7	57·3	+ 2·3	51·3	45·8	11·5	22·5	2·5	65	136·0	33·6	58·8	57·0	0·000	0·0	wP : vP, wN
22	In Equator	30·206	57·7	44·1	13·6	50·9	− 4·4	48·4	45·8	5·1	8·7	2·5	83	83·2	31·6	59·0	58·6	0·000	0·0	mP : wP, wN : wP
23	...	30·193	68·1	43·6	24·5	56·5	+ 1·0	48·7	41·4	15·1	31·7	2·3	57	139·7	36·0	58·8	58·0	0·000	0·0	wP : wP, mN : mP
24	Perigee	30·149	73·0	41·9	31·1	54·5	− 1·2	49·2	44·0	10·5	25·7	4·2	67	142·0	31·0	59·0	58·2	0·000	0·8	mP : wP : mP
25	Full	30·041	68·0	42·0	26·0	52·5	− 3·4	47·8	43·0	9·5	19·3	2·5	70	137·4	35·3	58·6	58·0	0·000	3·0	mP : wP : mP
26	...	29·931	56·3	40·6	15·7	48·7	− 7·4	44·3	39·5	9·2	12·8	4·8	71	95·3	32·5	58·0	57·6	0·000	2·2	mP
27	...	29·698	67·3	35·0	32·3	49·8	− 6·5	45·5	41·0	8·8	17·7	0·0	72	139·0	26·8	57·8	57·3	0·000	3·0	mP : wP
28	Greatest Declination S.	29·597	64·6	38·4	26·2	51·2	− 5·3	47·6	43·9	7·3	12·9	1·8	77	126·4	29·7	57·6	57·1	0·000	0·0	wP
29	...	29·766	61·0	45·8	15·2	51·7	− 5·1	48·2	44·7	7·0	12·7	3·4	77	137·2	41·9	57·9	57·4	0·000	6·0	wP
30	...	29·572	67·3	48·8	18·5	56·9	− 0·1	52·4	48·3	8·6	16·0	0·8	73	124·6	...	58·0	57·2	0·163	7·5	wP, wN : mP
31	...	29·781	69·0	45·6	23·4	55·5	− 1·8	48·9	42·6	12·9	23·4	3·8	62	142·0	39·4	58·2	57·4	0·000	8·5	wP, wN : mN, vP
Means	...	29·878	64·7	42·6	22·1	53·0	− 0·1	48·2	43·4	9·6	18·2	2·8	70·3	123·5	(30 days) 35·6	55·2	54·0	Sum 0·646	4·8	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, 15, 16, and 17 are derived from eye-readings of self-registering thermometers.

The mean reading of the *Barometer* for the month was $29^{in}\cdot878$, being $0^{in}\cdot101$ *higher* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was $76^{\circ}\cdot8$ on May 19; the lowest in the month was $33^{\circ}\cdot8$ on May 12; and the range was $43^{\circ}\cdot0$.
The mean of all the highest daily readings in the month was $64^{\circ}\cdot7$, being $0^{\circ}\cdot6$ *higher* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was $42^{\circ}\cdot6$, being $1^{\circ}\cdot1$ *lower* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was $22^{\circ}\cdot1$, being $1^{\circ}\cdot7$ *greater* than the average for the 47 years, 1841–1887.
The mean for the month was $53^{\circ}\cdot0$, being $0^{\circ}\cdot1$ *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
May 1	4·2	14·8	S : SSW	SW : WSW	12·5	0·0	3·37	598	v, li.-shs : p.-cl : p.-cl, cu.-s, w	10, st.-w : v, st.-w : 1
2	0·9	14·8	WSW : SSW	SSW : SW	14·5	0·0	3·46	601	p.-cl : 10, w	10, fq.-r, st.-w : v, slt.-r, w
3	7·9	14·9	SW : WSW	W : WSW	14·5	0·0	4·62	703	0, w : p.-cl, w : p.-cl, cu.-s, slt.-r, st.-w	v, cu, cu.-s, shs.-r, st.-w : 1
4	10·7	14·9	WSW : W : WNW	NW : SW	4·8	0·0	0·50	313	0 : v, cu.-s, m	5, cu, cu.-s : v, cu.-s, li.-cl
5	7·3	15·0	SW : WSW	W : WNW	4·8	0·0	0·68	338	v, m, d : 0, m, h : p.-cl, so.-ha	5, cu.-s, li.-cl, h, m, so.-ha : 9, so.-ha : v
6	2·3	15·1	WSW	WSW : SW	3·7	0·0	0·48	340	0 : v, li.-cl : 10	10 : 10 : v, cu.-s, s, li.-cl
7	4·0	15·1	WSW	WSW : SW	1·7	0·0	0·33	337	p.-cl : 10 : p.-cl	7, cu, cu.-s : v : 0
8	3·3	15·2	WSW : W	W : NNW : N	3·3	0·0	0·44	324	v : p.-cl, ci.-cu, cu.-s	6, ci.-cu, cu.-s, li.-cl : 10 : 10
9	12·6	15·2	N : NNE	N : NNE : ESE	2·2	0·0	0·28	225	v : 0 : 0, h	1, li.-cl : 2, li.-cl, h
10	5·6	15·3	Calm : ENE	NE : ESE	3·2	0·0	0·10	149	v : 10, th.-cl, so.-ha	6, th.-cl, cu.-s : p.-cl : 0
11	11·5	15·3	NE	NE : SE	2·4	0·0	0·20	203	0 : 1, ho.-fr : v, cu.-s	6, cu.-s, ci.-cu, li.-cl : 0
12	11·7	15·4	WSW : Calm : ENE	Variable	0·4	0·0	0·02	127	0, h, ho.-fr : 0	1, li.-cl, cu : 0, h, m
13	13·3	15·4	WSW	W : NNW : N	3·0	0·0	0·20	263	0 : 0, h, m	0 : 1, th.-cl : 0
14	4·7	15·5	NNW : N : NNE	NE : E : SE	2·4	0·0	0·14	210	0 : v : 7, cu.-s, cu	9, cu, cu.-s : p.-cl : v, li.-cl
15	10·5	15·5	SSE	SE : ESE	3·2	0·0	0·13	208	v : v, so.-ha	2, ci.-cu, li.-cl, so.-ha : 1, li.-cl, m
16	0·9	15·6	E : S : SSW	SSW	7·1	0·0	0·35	248	v, li.-cl, ho.-fr : p.-cl, ci.-cu, cu.-s, slt.-r	10, c.-r : v : v, th.-cl, lu.-ha, r, w
17	0·0	15·6	SSW	SSW	9·3	0·0	2·41	508	10, r : 10, fq.-r, w	10, fq.-th.-r, w : 10, oc.-slt.-r, w
18	7·4	15·7	SSW : SE	SE : E : SSE	5·0	0·0	0·45	261	10, oc.-slt.-r : 10, shs.-r : v, th.-cl, slt.-r	4, th.-cl, cu : 1, li.-cl, lu.-ha
19	2·6	15·7	SSE : S	S : SW : WSW	6·1	0·0	0·50	275	p.-cl : p.-cl : 10	p.-cl, slt.-r : 10
20	11·5	15·8	WSW	WSW : WNW : SW	3·7	0·0	0·49	313	v : 7, cu	p.-cl, cu : v, cu, ci.-cu : 1, s
21	10·9	15·8	WSW : NE : N	NNE : ESE : E	6·0	0·0	0·15	198	0 : v, li.-cl	6, cu, cu.-s, ci.-cu : 6, t : v, slt.-r
22	2·4	15·9	NE : NNE	NE : NNE	3·6	0·0	0·55	301	2, li.-cl : p.-cl : 10	10 : 10 : 0, h
23	14·6	15·9	NNE : ENE	ENE	10·7	0·0	1·81	412	0, m : 0	0, st.-w : 0
24	11·7	16·0	NE : NNE	ENE : NNE	5·0	0·0	0·47	284	0 : v	0 : 0
25	10·1	16·0	NNE : NE	NE : ESE	3·4	0·0	0·64	320	0 : v : v, cu	1, li.-cl : 1, li.-cl : v
26	1·1	16·0	NE	NE : ENE	1·5	0·0	0·27	242	10 : 10	10 : p.-cl : 0
27	8·7	16·1	SW : WSW : SSW	S	1·5	0·0	0·05	137	0 : p.-cl, ci.-cu : 7, cu.-s	6, ci.-cu, cu.-s : 2, ci : 0
28	1·6	16·1	S : NNE	NNE	4·5	0·0	0·55	224	v : p.-cl, m	10 : 10, slt.-sh
29	3·9	16·1	NE : E	E : SE	3·2	0·0	0·53	233	10 : 10	v, cu, li.-cl, h, so.-ha : 10
30	7·6	16·2	SW	SW : WSW	9·7	0·0	2·53	448	10, r, w : p.-cl, cu.-s, w, sh.-r	8, cu, cu.-s, li.-cl, w : v, li.-cl
31	11·2	16·2	SW : WSW	WSW	8·4	0·0	2·57	488	v, li.-cl : 8, li.-cl, w	7, ci.-cu, cu.-s : p.-cl : 0
Means	7·0	15·6	...	...	...	...	0·94	317		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 48°·2, being 0°·7 *lower* than the average for the 20 years, 1849–1868.
The mean *Temperature of the Dew Point* for the month was 43°·4, being 1°·7 *lower* than the average for the 20 years, 1849–1868.
The mean *Degree of Humidity* for the month was 70·3, being 5·1 *less* than the average for the 20 years, 1849–1868.
The mean *Elastic Force of Vapour* for the month was 0in·281, being 0in·020 *less* than the average for the 20 years, 1849–1868.
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·2, being 0gr·2 *less* than the average for the 20 years, 1849–1868.
The mean *Weight of a Cubic Foot of Air* for the month was 540 grains, being 2 grains *greater* than the average for the 20 years, 1849–1868.
The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 5·6.
The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·45. The maximum daily amount of *Sunshine* was 14·6 hours on May 23.
The highest reading of the *Solar Radiation Thermometer* was 142°·2 on May 20; and the lowest reading of the *Terrestrial Radiation Thermometer* was 26°·7 on May 11.
The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 2·5; for the 6 hours ending 15h. was 1·2; and for the 6 hours ending 21h. was 1·1.
The *Proportions of Wind* referred to the cardinal points were N. 6, E. 7, S. 9, and W. 9.
The *Greatest Pressure of the Wind* in the month was 14·5 lbs. on the square foot on May 2 and 3. The mean daily *Horizontal Movement of the Air* for the month was 317 miles; the greatest daily value was 703 miles on May 3; and the least daily value was 127 miles on May 12.
Rain fell on 5 days in the month, amounting to 0in·646, as measured by gauge No. 6 partly sunk below the ground; being 1in·372 *less* than the average fall for the 47 years, 1841–1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Lowest.	Daily Range.	Mean of 24 Hourly Values.	Excess above Average of 20 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Lowest on the Grass.	Of the Water of the Thames at Deptford. Highest.	Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
June 1	Last Qr.	30·039	71·7	46·1	25·6	57·5	0·0	51·0	45·1	12·4	21·8	4·6	63	135·4	40·7	57·6	57·0	0·000	1·0	mP : wP, wN
2	...	29·966	83·0	50·6	32·4	64·4	+ 6·7	57·2	51·2	13·2	22·3	3·4	62	150·7	42·5	58·4	57·2	0·000	0·0	mP
3	InEquator	29·726	87·6	51·3	36·3	67·6	+ 9·7	59·5	53·1	14·5	27·5	3·2	60	150·7	44·0	61·0	58·4	0·000	1·0	mP : wP
4	...	29·867	76·0	50·7	25·3	61·3	+ 3·2	55·8	51·1	10·2	19·7	4·0	70	131·0	44·4	61·8	59·0	0·002	4·2	mP : wP, wN
5	...	29·929	57·7	47·3	10·4	51·3	− 6·9	47·5	43·6	7·7	11·2	3·4	75	97·6	47·0	62·0	60·3	0·000	5·8	wP, wN : wP
6	Apogee	29·709	64·4	47·2	17·2	53·9	− 4·4	51·9	50·0	3·9	8·0	0·6	87	104·8	41·5	60·8	59·2	0·020	6·0	wP : vP
7	...	29·666	74·5	46·5	28·0	58·1	− 0·3	53·7	49·7	8·4	18·5	0·0	74	143·6	40·6	60·1	59·4	0·007	1·5	wP : vP
8	...	29·549	68·1	52·2	15·9	59·9	+ 1·4	56·8	54·1	5·8	12·8	1·8	82	123·6	51·1	61·3	59·9	0·038	11·0	wP : vP
9	New	29·457	69·0	53·6	15·4	58·4	− 0·1	55·7	53·3	5·1	10·3	2·0	83	123·6	49·9	61·3	59·9	0·103	4·5	wP : vP, vN
10	...	29·847	70·9	49·3	21·6	59·2	+ 0·6	52·6	46·8	12·4	22·7	3·4	63	127·2	44·8	61·6	60·1	0·000	0·0	wP
11	Greatest Declination N.	29·893	75·1	46·3	28·8	59·4	+ 0·7	52·6	46·6	12·8	25·9	3·8	62	139·7	36·6	61·9	60·1	0·000	1·5	mP : wP
12	...	29·616	77·0	50·0	27·0	62·6	+ 3·8	56·2	50·7	11·9	24·5	2·4	66	144·7	46·6	62·8	61·5	0·004	12·2	wP, wN
13	...	29·642	73·6	47·0	26·6	58·0	− 0·9	50·8	44·3	13·7	24·3	3·8	60	148·2	40·3	63·0	61·9	0·000	5·0	wP : mP
14	...	29·760	65·0	46·6	18·4	51·9	− 7·2	49·5	47·1	4·8	14·6	1·6	84	134·4	41·9	63·1	62·9	0·412	2·3	mP, ssN
15	...	29·761	59·4	46·6	12·8	52·6	− 6·7	50·5	48·4	4·2	12·7	0·0	86	88·2	39·6	63·8	62·6	0·133	0·0	mP : vP
16	...	29·731	65·7	48·9	16·8	55·4	− 4·1	51·1	47·0	8·4	16·7	1·4	74	129·2	46·7	61·8	60·8	0·002	0·8	wP : vP, vN
17	First Qr.	29·905	55·7	47·2	8·5	51·6	− 8·1	48·8	46·0	5·6	8·6	2·3	81	77·6	...	60·8	60·4	0·007	2·2	wP, wN : mP
18	InEquator	30·001	55·4	45·5	9·9	50·6	− 9·3	47·9	45·1	5·5	9·0	1·9	82	73·4	38·0	60·7	60·2	0·006	0·0	mP : wP
19	...	29·994	54·4	46·2	8·2	50·4	− 9·8	48·2	45·9	4·5	7·2	1·7	85	69·2	46·0	59·9	59·0	0·001	0·0	wP : vP
20	...	29·789	55·0	45·8	9·2	51·0	− 9·5	49·8	48·6	2·4	5·0	0·6	92	69·0	45·5	59·6	58·8	0·186	0·0	vP, mN : vP, vN
21	Perigee	29·778	66·2	46·4	19·8	57·4	− 3·4	55·5	53·8	3·6	9·5	0·0	88	105·8	40·1	59·3	58·6	0·063	0·0	wP : vP, vN
22	...	29·875	73·1	54·5	18·6	62·1	+ 1·0	59·4	57·1	5·0	14·8	0·4	84	123·3	54·5	58·9	58·4	0·000	0·0	wP
23	Full	29·949	72·8	50·9	21·9	61·0	− 0·4	56·9	53·3	7·7	14·6	1·1	77	131·4	47·5	58·6	58·2	0·000	0·0	wP
24	Greatest Declination S.	29·823	77·5	52·2	25·3	63·7	+ 2·0	60·9	58·6	5·1	13·8	1·2	84	133·0	50·0	60·2	59·7	0·065	0·0	wP, wN : wP
25	...	29·800	85·0	58·1	26·9	70·2	+ 8·3	65·2	61·3	8·9	19·4	1·3	73	140·2	54·1	61·0	60·9	0·000	3·0	wP : vP
26	...	29·655	72·9	60·1	12·8	65·7	+ 3·7	63·7	62·1	3·6	11·7	0·4	88	93·5	54·2	62·8	62·5	1·703	1·0	... : vN, wP : sN, vP
27	...	29·542	69·7	56·0	13·7	61·0	− 1·0	59·1	57·5	3·5	10·0	0·2	89	117·6	55·0	63·1	62·9	0·332	7·8	wP, wN
28	...	29·441	68·1	52·5	15·6	58·3	− 3·6	55·1	52·2	6·1	11·9	0·9	80	129·6	49·0	64·3	63·1	0·084	10·2	wP : vP, vN
29	...	29·396	68·4	51·8	16·6	58·6	− 3·2	54·7	51·2	7·4	14·9	1·1	76	130·2	48·0	63·2	62·9	0·186	0·0	wP : vP, vN : wP
30	...	29·538	64·7	49·2	15·5	55·1	− 6·6	50·9	46·9	8·2	15·1	1·2	74	117·5	47·9	63·8	62·1	0·002	0·2	wP, wN : vP
Means	...	29·755	69·3	49·9	19·4	58·3	− 1·5	54·3	50·7	7·6	15·3	1·8	76·8	119·5	(29 days) 45·8	61·3	60·3	Sum 3·356	2·7	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, 15, 16, and 17 are derived from eye-readings of self-registering thermometers.

The mean reading of the *Barometer* for the month was 29in·755, being 0in·073 *lower* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 87°·6 on June 3; the lowest in the month was 45°·5 on June 18; and the range was 42°·1.
The mean of all the highest daily readings in the month was 69°·3, being 1°·6 *lower* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 49°·9, being 0°·1 *higher* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 19°·4, being 1°·7 *less* than the average for the 47 years, 1841–1887.
The mean for the month was 58°·3, being 1°·5 *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
June 1	2·3	16·2	WSW : W	WNW : SW	1·6	0·0	0·19	199	p.-cl : 9, ci.-cu, th.-cl	9,cu.-s,th.-cl: p.-cl : 4, li.-cl, s, h
2	8·5	16·3	SW : SSE	S : ESE	2·0	0·0	0·18	132	p.-cl : v	4, ci.-cu, cu, so.-ha: 4, ci.-s, th.-cl
3	9·9	16·3	Calm : SW	WSW : W	6·6	0·0	0·92	310	v,li.-cl,m,so.-ha: v, th.-cl	2, li.-cl : 3, li.-cl
4	1·7	16·3	WSW	WSW : Calm : NE	4·0	0·0	0·20	150	p.-cl : 8, cu.-s	9, th.-cl : 9, slt.-sh
5	0·2	16·4	ENE	ENE	7·2	0·1	1·62	373	10 : 10, w	10, oc.-slt.-r, w : 10, w
6	0·0	16·4	ENE : ESE	SW : W	4·8	0·0	0·61	209	10, li.-shs : 10, slt.-r	10 : 10 : 0, m
7	6·6	16·4	S : SW	SSW : S	3·0	0·0	0·29	220	10 : 7, cu, th.-cl	7, cu, cu.-s, ci.-cu: p.-cl : 10, slt.-r
8	1·0	16·4	SSE : SE	SSE	1·6	0·0	0·09	178	10, r : 10, slt.-r	10, fq.-r : v, l
9	1·8	16·4	SSW : S : SSE	W	4·9	0·0	0·40	271	10, oc.-shs : 10, r	10, sh.-r : shs.-r : v
10	8·9	16·5	WSW : W : NW	NW : WSW	4·1	0·0	0·32	259	p.-cl : 9, cu, cu.-s	5, ci.-cu, th.-cl, m: v, li.-cl
11	12·6	16·5	WSW	SW	2·1	0·0	0·21	221	p.-cl, li.-cl : v, th.-cl	1, li.-cl : 1, li.-cl : v, cu.-s
12	9·1	16·5	S : SSE : SSW	SSW : WSW	8·5	0·0	1·36	355	5, s, li.-cl : 5, li.-cl, w	6, th.-cl, ci.-cu, ci.-s, cu.-s, w: 10, oc.-shs
13	12·7	16·5	WNW : WSW	SW	4·3	0·0	0·45	273	v, s, ci.-s : 7, cu, cu.-s, li.-cl	5,ci.-cu, cu: v : 3, th.-cl
14	2·3	16·5	WSW : SSE : SW	Variable	3·5	0·0	0·04	148	10 : 10, hy.-r : p.-cl, r	v, r, l, t : v, shs.-r, t : 0, slt.-f, h
15	0·0	16·5	WSW	SSW : NNE	2·9	0·0	0·24	241	p.-cl, s, ci.-s : 10, fq.-th.-r	10, c.-r : 10, fq.-th.-r : 10, m
16	6·1	16·5	NNE	NNE	4·2	0·0	0·75	326	p.-cl : 8, cu, cu.-s	8, cu, cu.-s, shs.-r: p.-cl
17	0·0	16·6	N : NNE	N	2·3	0·0	0·35	247	10, li.-shs : 10	10 : p.-cl
18	0·0	16·6	N : NNE	NNE	3·0	0·0	0·50	263	10 : 10	10 : 10 : 10, m.-r
19	0·0	16·6	NNE	NNE	2·0	0·0	0·50	289	10, li.-shs : 10	10 : 10
20	0·2	16·6	N : NNE	N : ENE	3·8	0·0	0·35	232	10 : 10 : 10, fq.-th.-r	10, fq.-th.-r: v, shs.-r : v,sc,li.-cl,l,m
21	0·0	16·6	NE	E : ESE : ENE	1·7	0·0	0·11	191	v, s, f : 10, slt.-r	10, oc.-slt.-r : 10, r, l, m
22	5·0	16·6	NE	NE : N	3·0	0·0	0·05	149	10, f, l : 10, m	v, li.-cl, cu.-s, slt.-h: p.-cl : 10
23	12·5	16·6	N : NNE	NNE : N	6·3	0·0	1·04	372	v, ci.-s : 3, th.-cl	3, li.-cl : p.-cl, cu, cu.-s
24	6·3	16·6	NNE : NE	E	1·7	0·0	0·26	244	10,sh.-r,l: 10, sh.-r : 10	v : v, li.-cl, l
25	8·8	16·6	E : ENE	ESE	1·9	0·0	0·08	159	p.-cl, cu.-s : 2, li.-cl	v, cu, cu.-s, li.-cl, t: 4, th.-cl, l, m
26	0·2	16·5	Variable	SW	1·5	0·0	0·05	135	p.-cl : 10,s,cu.-s,sh.-r: 10, c.-r, t	10, slt.-r, t : 10, hy.-r, t.-sm
27	0·4	16·5	SW : SSW	SSW : S : SSE	4·0	0·0	0·26	254	10, r : 10, hy.-sh: 8, cu.-s	10, fq.-r : 10, c.-r, t : 10, c.-r
28	3·3	16·5	SW	WSW : SW	4·3	0·0	0·53	318	10, cu.-s : 9, cu.-s, slt.-r	9, hy.-r, t : 10
29	4·6	16·5	SW : WSW	WSW : NNE	6·0	0·0	0·46	307	v, cu.-s : 8,cu,cu.-s,sh.-r	9, cu.-s, li.-cl : 10, shs.-r
30	6·3	16·5	N : NW	N	3·6	0·0	0·67	297	10 : p.-cl	8,cu.-s,li.-cl: p.-cl : 10, cu.-s
Means	4·4	16·5	......	......	...	...	0·44	244		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 54°·3, being 0°·9 *lower* than
The mean *Temperature of the Dew Point* for the month was 50°·7, being 0°·5 *lower* than
The mean *Degree of Humidity* for the month was 76·8, being 3·5 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·370, being 0in·007 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·2, being *the same as*
The mean *Weight of a Cubic Foot of Air* for the month was 531 grains, being *the same as*
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·8.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·27. The maximum daily amount of *Sunshine* was 12·7 hours on June 13.

The highest reading of the *Solar Radiation Thermometer* was 150°·7 on June 2 and 3; and the lowest reading of the *Terrestrial Radiation Thermometer* was 36°·6 on June 11.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·7; for the 6 hours ending 15h. was 0·5; and for the 6 hours ending 21h. was 0·5.

The *Proportions of Wind* referred to the cardinal points were N. 8, E. 6, S. 8, and W. 7. One day was calm.

The *Greatest Pressure of the Wind* in the month was 8·5 lbs. on the square foot on June 12. The mean daily *Horizontal Movement of the Air* for the month was 244 miles; the greatest daily value was 373 miles on June 5; and the least daily value was 132 miles on June 2.

Rain fell on 15 days in the month, amounting to 3in·356, as measured by gauge No. 6 partly sunk below the ground; being 1in·374 *greater* than the average fall for the 47 years, 1841–1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Of the Air. Lowest.	Of the Air. Daily Range.	Of the Air. Mean of 24 Hourly Values.	Of the Air. Excess above Average of 20 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Of Radiation. Lowest on the Grass.	Of the Water of the Thames at Deptford. Highest.	Of the Water of the Thames at Deptford. Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
July 1	Last Quarter: In Equator.	29·833	66·8	46·2	20·6	55·0	− 6·6	50·3	45·8	9·2	13·7	2·6	72	113·8	43·4	62·8	62·1	0·000	1·5	wP
2	...	29·708	58·1	50·3	7·8	55·2	− 6·3	53·5	51·9	3·3	7·4	1·1	89	78·5	44·2	62·7	62·3	0·394	9·5	wP : wP, mN
3	Apogee	29·413	70·7	54·7	16·0	59·8	− 1·6	56·4	53·4	6·4	13·1	1·7	80	134·3	50·0	62·2	61·9	0·146	7·8	wP : vP, vN
4	...	29·340	68·6	51·8	16·8	58·3	− 3·1	55·6	53·2	5·1	10·8	1·0	83	129·9	47·2	62·0	61·5	0·178	3·0	wP : vP, vN
5	...	29·324	69·2	52·3	16·9	58·3	− 3·2	55·6	53·2	5·1	11·5	0·6	83	130·0	46·5	61·7	61·1	0·070	0·0	vP, vN
6	...	29·497	66·3	50·0	16·3	55·3	− 6·4	54·1	52·9	2·4	6·8	0·6	92	121·1	44·3	59·8	59·2	0·080	0·0	mP, vN : vP, vN
7	...	29·788	57·7	50·5	7·2	53·8	− 8·1	52·3	50·8	3·0	5·1	1·2	89	74·6	50·5	61·6	59·6	0·031	0·0	wP, wN : wP
8	Greatest Declination N.	29·894	66·6	50·2	16·4	57·2	− 5·0	52·8	48·8	8·4	16·4	2·8	73	130·3	45·0	61·9	61·1	0·000	2·0	wP
9	New	29·794	69·1	49·0	20·1	58·3	− 4·2	54·7	51·5	6·8	15·8	1·6	78	133·2	41·0	61·0	60·9	0·020	0·0	wP : mP
10	...	29·713	63·4	48·3	15·1	55·1	− 7·6	49·7	44·5	10·6	17·3	6·3	68	106·7	43·9	61·0	59·6	0·008	0·0	mP : wP : vP
11	...	29·577	54·9	42·8	12·1	49·0	−13·9	46·4	43·6	5·4	9·6	1·3	82	89·0	42·8	60·2	60·1	0·367	0·0	vP, vN
12	...	29·857	53·9	47·1	6·8	51·1	−12·0	49·1	47·0	4·1	6·4	1·6	86	73·1	40·9	59·7	59·0	0·044	0·0	wP, wN : ...
13	...	29·914	71·3	45·1	26·2	58·8	− 4·5	52·9	47·7	11·1	21·1	3·2	67	127·2	39·0	59·0	58·8	0·000	0·0	...
14	...	29·822	73·4	55·1	18·3	62·6	− 0·8	59·0	55·9	6·7	13·1	0·8	79	126·7	47·7	60·0	59·9	0·000	0·0	...
15	In Equator	29·601	59·1	54·1	5·0	56·4	− 7·0	55·6	54·9	1·5	3·6	0·0	95	77·0	54·1	...	...	0·324	1·3	...
16	First Qr.	29·308	67·4	51·3	16·1	59·2	− 4·3	57·2	55·4	3·8	9·4	0·0	88	112·3	46·1	...	...	0·387	4·7	...
17	...	29·276	71·4	48·6	22·8	58·8	− 4·7	56·3	54·0	4·8	13·0	0·0	84	128·6	43·4	...	...	0·061	0·0	...
18	...	29·365	69·9	55·1	14·8	59·8	− 3·6	58·4	57·2	2·6	9·7	0·6	92	128·0	48·9	...	...	0·800	0·0	...
19	Perigee	29·645	74·0	54·3	19·7	60·9	− 2·4	58·1	55·7	5·2	14·8	0·9	83	140·1	47·4	...	...	0·005	0·0	...
20	...	29·733	68·2	51·6	16·6	59·9	− 3·3	58·1	56·6	3·3	9·2	0·4	89	104·7	44·7	...	...	0·026	0·0	...
21	Greatest Dec. S.	29·724	70·2	54·8	15·4	60·2	− 2·8	56·9	54·0	6·2	13·5	0·9	80	138·0	48·7	...	...	0·000	2·5	...
22	...	29·660	72·9	55·4	17·5	63·0	+ 0·1	58·9	55·4	7·6	15·7	2·1	77	130·5	50·0	...	...	0·230	4·0	...
23	Full	29·448	70·4	53·8	16·6	61·0	− 1·8	57·6	54·6	6·4	13·5	0·8	80	140·0	48·5	...	...	0·050	3·7	...
24	...	29·572	70·6	53·7	16·9	60·9	− 1·8	56·1	52·0	8·9	15·7	2·8	72	132·0	48·0	...	...	0·036	12·3	...
25	...	29·540	63·7	56·1	7·6	59·4	− 3·3	57·6	56·0	3·4	7·6	1·5	89	84·6	53·4	...	...	0·200	9·0	...
26	...	29·571	72·4	53·0	19·4	61·2	− 1·5	56·6	52·6	8·6	20·0	0·9	74	135·3	49·0	...	...	0·210	5·0	...
27	...	29·593	70·6	49·2	21·4	58·9	− 3·7	55·8	53·0	5·9	15·7	0·4	81	140·4	43·8	...	...	0·357	4·2	...
28	In Equator	29·381	69·0	55·5	13·5	60·2	− 2·4	57·9	55·9	4·3	9·9	0·4	86	121·4	54·0	...	...	0·018	7·2	...
29	...	29·583	69·4	53·0	16·4	58·0	− 4·6	55·1	52·5	5·5	15·1	0·2	82	135·0	51·0	...	...	0·181	5·5	...
30	Last Qr.	29·328	72·7	52·0	20·7	57·9	− 4·7	56·4	55·0	2·9	12·2	0·0	90	140·0	46·0	...	...	2·491	4·5	...
31	Apogee	29·635	62·6	50·1	12·5	54·8	− 7·8	52·7	50·7	4·1	8·4	0·8	86	120·6	50·1	...	...	0·034	0·0	...
Means	...	29·595	67·2	51·5	15·8	58·0	− 4·6	55·1	52·4	5·6	12·1	1·3	82·2	118·6	46·9	...	...	Sum 6·748	2·8	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, 15, 16, and 17 are derived from eye-readings of self-registering thermometers.

The observations of the temperature of the water of the Thames were suspended from July 15 till December 1.

The electrometer was removed on July 12 for the purpose of being cleaned, but was not brought again into proper working order during the remainder of the year.

The mean reading of the *Barometer* for the month was 29in·595, being 0in·214 *lower* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 74°·0 on July 19; the lowest in the month was 42°·8 on July 11; and the range was 31°·2.
The mean of all the highest daily readings in the month was 67°·2, being 7°·1 *lower* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 51°·5, being 1°·6 *lower* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 15°·8, being 5°·4 *less* than the average for the 47 years, 1841–1887.
The mean for the month was 58°·0, being 4°·6 *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
July 1	5·5	16·5	NNW : N	NNW : NNE : SE	2·3	0·0	0·33	227	v, li.-cl, s : 9, cu.-s	p.-cl, cu.-s : v, cu.-s, li.-cl, h
2	0·0	16·5	SW : SSW	SSW : SW	7·5	0·0	1·53	375	v : 10, slt.-r	10, c.-r, w : 10, oc.-slt.-r, w
3	4·8	16·4	SW	SW : WSW	9·6	0·0	3·03	545	10, st.-w : 10, slt.-r, st.-w	9, cu.-s, li.-cl, slt.-r, w : v, hy.-shs : v, slt.-r
4	2·7	16·4	SW : WSW	SW : SSW	5·0	0·0	0·68	326	v : 9, cu.-s, slt.-r	9, cu.-s, cu, li.-cl, hy.-shs, t : 2
5	5·2	16·4	SW	SSW : SW	2·3	0·0	0·21	252	10 : p.-cl, cu, cu.-s, sh.-r, t	9, cu, cu.-s, fq.-r, t : v, cu.-s, th.-cl
6	0·3	16·4	WSW : W : N	SW : NNE	1·3	0·0	0·08	149	v, li.-shs : 10, li.-shs, m : 10, r	10, oc.-r, t : 10
7	0·0	16·3	NNE : NE	NE : ENE	1·4	0·0	0·18	183	10, shs.-r : 10, fq.-m.-r	10, fq.-m.-r : 10, slt.-r
8	5·8	16·3	E : SE	S : SW	1·0	0·0	0·06	137	10 : p.-cl	v, li.-cl : v, li.-cl
9	5·6	16·3	SW : WSW	SW : NW	7·3	0·0	1·06	342	p.-cl : 7, cu, li.-cl	9, ci.-cu, cu.-s, oc.-slt.-r : 10, oc.-th.-r
10	1·4	16·3	W : NW	WNW : SW	5·4	0·0	1·01	316	10, li.-shs : 10	9, cu.-s, ci.-cu : 10, slt.-r : v, li.-cl
11	0·3	16·2	SW : NW	NNW : NW	10·0	0·3	2·88	474	10, hy.-r : 10, w	10, shs.-r, st.-w : v, ci.-cu, li.-cl, m
12	0·0	16·2	WNW : NNW	NNW : WSW	2·1	0·0	0·30	229	slt.-f : 10, fq.-r	10, oc.-slt.-r, glm : p.-cl, cu.-s, ci.-cu, slt.-f
13	9·6	16·2	W : WNW	W : NW : NNW	2·5	0·0	0·43	256	v, m : p.-cl : 5, th.-cl	3, cu.-s, ci.-cu, li.-cl : 10 : v
14	0·5	16·1	NW : SW	ENE : ESE : E	0·9	0·0	0·02	126	v : 10 : 10	10 : 10, slt.-r : 10
15	0·0	16·1	ESE : E	ENE : E : ESE	4·9	0·0	0·76	271	10 : 10, slt.-sh : 10, r	10, c.-r : 10, c.-r : 10, shs.-r
16	1·6	16·1	ESE : SSE : S	SSW	2·4	0·0	0·37	205	10, hy.-r, l, t : 10, cu.-s	10, cu.-s : 9 : 4, li.-cl
17	3·9	16·0	SE : SW : NE	N : SSW	0·5	0·0	0·02	114	p.-cl : 7, li.-cl	9, cu.-s, li.-cl : 10, fq.-r, glm : 10, fq.-r, m
18	0·0	16·0	SSW : SE	WSW : NNE	1·4	0·0	0·05	138	10, r : p.-cl, ci.-cu, m, glm	10, glm, hy.-r, t : 10, m
19	2·6	16·0	NNE : N	N : SW	1·5	0·0	0·19	190	10 : 10 : p.-cl	7, ci.-cu, cu, cu.-s, slt.-r, t : 2, h, m
20	1·0	15·9	SSW	SSW	1·8	0·0	0·13	182	v : 10, fq.-r	10, oc.-slt.-r : p.-cl : 10, sh.-r
21	2·7	15·9	SW : WSW	SW : SSW	5·0	0·0	0·80	302	p.-cl : 9, cu, th.-cl	8, cu, cu.-s : p.-cl : v
22	2·6	15·8	SSW	SSW : NE	4·1	0·0	0·44	236	v : p.-cl, cu.-s	p.-cl : p.-cl, hy.-r, l, t
23	5·1	15·8	SW	SSW : SW	6·6	0·0	0·95	350	10, r : 10, w	10, w : v, w : 1, th.-cl
24	12·0	15·7	SSW : SW	SW : SSW	12·5	0·0	2·97	497	v, sh.-r : p.-cl, shs.-r, w	7, cu, cu.-s, w : 10, slt.-r
25	0·0	15·7	SSW	SSW	4·6	0·0	0·63	287	10 : 10 : 10, fq.-r	10, fq.-r : v, cu.-s
26	11·6	15·7	SW	WSW : SW	7·4	0·0	1·53	406	10, hy.-r : p.-cl : p.-cl, sh.-r	6, cu, cu.-s, shs.-r : 1, cu.-s, ci.-cu, ci.-s, li.-cl
27	2·3	15·6	S : SSW	SSE : ESE	2·4	0·0	0·32	236	1 : p.-cl : 8, cu.-s, ci.-cu	7, ci.-cu, cu.-s, li.-cl : 10, fq.-r : 10, fq.-r
28	1·2	15·6	SSE : ENE : NW	NW : WNW	5·6	0·0	0·68	283	10, sh.-r : 10 : 10	9, cu.-s : 10, fq.-r : 10, th.-r
29	3·7	15·5	WSW	SSW : SE	3·5	0·0	0·28	251	10 : 10 : 10, slt.-r	p.-cl, cu.-s : 10, r : v, li.-cl, r
30	3·1	15·5	S : SSE : SW	SSW : NNW	5·9	0·0	0·13	192	v : 10 : p.-cl, fq.-r	p.-cl, cu.-s, cu, ci.-cu, hy.-r : 10, t.-sm, hy.-r, hl : 10, r
31	0·6	15·4	NNW : NE	NE : ESE	1·4	0·0	0·07	185	10 : 10 : p.-cl	10, slt.-r : 10, fq.-th.-r
Means	3·1	16·0	...	...	...	...	0·71	267		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 55°·1, being 2°·6 *lower* than
The mean *Temperature of the Dew Point* for the month was 52°·4, being 1°·3 *lower* than
The mean *Degree of Humidity* for the month was 82·2, being 9·2 *greater* than
The mean *Elastic Force of Vapour* for the month was 0^{in}·394, being 0^{in}·019 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4^{grs}·4, being 0^{gr}·2 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 529 grains, being 1 grain *greater* than
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 8·5.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·19. The maximum daily amount of *Sunshine* was 12·0 hours on July 24.

The highest reading of the *Solar Radiation Thermometer* was 140°·4 on July 27; and the lowest reading of the *Terrestrial Radiation Thermometer* was 39°·0 on July 13.

The mean daily distribution of *Ozone* for the 12 hours ending 9^{h} was 1·7; for the 6 hours ending 15^{h} was 0·6; and for the 6 hours ending 21^{h} was 0·5.

The *Proportions of Wind* referred to the cardinal points were N. 6, E. 4, S. 11, and W. 10.

The *Greatest Pressure of the Wind* in the month was 12·5 lbs. on the square foot on July 24. The mean daily *Horizontal Movement of the Air* for the month was 267 miles; the greatest daily value was 545 miles on July 3; and the least daily value was 114 miles on July 17.

Rain fell on 26 days in the month, amounting to 6^{in}·748, as measured by gauge No. 6 partly sunk below the ground; being 4^{in}·403 *greater* than the average fall for the 47 years, 1841–1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER.	TEMPERATURE. Of the Air.					TEMPERATURE. Of Evaporation.	TEMPERATURE. Of the Dew Point.	Difference between the Air Temperature and Dew Point Temperature.			Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation.		TEMPERATURE. Of the Water of the Thames at Deptford.		Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	Highest.	Lowest.	Daily Range.	Mean of 24 Hourly Values.	Excess above Average of 20 Years.	Mean of 24 Hourly Values.	Deduced Mean Daily Value.	Mean.	Greatest.	Least.		Highest in Sun's Rays.	Lowest on the Grass.	Highest.	Lowest.			
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
Aug. 1	...	29·776	59·2	50·1	9·1	53·8	− 8·8	52·9	52·0	1·8	4·2	0·0	94	81·7	50·1	...	...	1·441	0·0	...
2	...	29·927	66·1	50·1	16·0	56·9	− 5·8	54·3	51·9	5·0	12·2	0·0	83	133·3	43·0	...	...	0·145	0·0	...
3	...	30·059	73·3	45·8	27·5	58·8	− 3·9	54·1	49·9	8·9	19·3	0·2	72	132·1	38·5	...	...	0·000	0·0	...
4	...	29·906	69·5	51·9	17·6	59·0	− 3·7	56·0	53·3	5·7	11·0	3·0	82	113·4	44·8	...	...	0·000	1·0	...
5	Greatest Declination N.	29·689	63·7	50·9	12·8	57·4	− 5·3	52·6	48·2	9·2	17·5	0·6	71	117·5	45·0	...	...	0·091	3·5	...
6	...	29·959	61·1	47·1	14·0	54·3	− 8·4	51·5	48·8	5·5	13·1	0·2	81	90·8	40·9	...	...	0·021	1·5	...
7	New	29·952	80·1	54·1	26·0	66·4	+ 3·7	62·4	59·2	7·2	18·5	0·0	78	139·6	54·0	...	...	0·000	0·0	...
8	...	29·967	81·1	59·0	22·1	67·4	+ 4·7	62·7	59·0	8·4	20·2	1·5	75	139·6	54·7	...	...	0·000	0·0	...
9	...	29·933	84·9	56·1	28·8	69·8	+ 7·1	63·4	58·5	11·3	25·8	0·8	67	143·0	51·2	...	...	0·000	0·0	...
10	...	29·859	87·7	57·5	30·2	71·8	+ 9·1	65·7	61·1	10·7	21·1	3·2	69	139·4	54·0	...	...	0·000	2·2	...
11	In Equator	29·908	68·1	55·2	12·9	61·4	− 1·3	58·6	56·2	5·2	9·5	1·1	84	92·0	51·9	...	...	0·000	1·5	...
12	...	29·787	74·7	55·5	19·2	64·0	+ 1·4	60·1	56·9	7·1	11·3	3·0	78	125·8	51·0	...	...	0·000	5·5	...
13	...	29·730	70·8	51·6	19·2	61·1	− 1·4	55·2	50·1	11·0	21·4	4·4	68	135·0	44·0	...	...	0·000	3·8	...
14	Perigee: First Quarter.	30·001	70·0	46·1	23·9	56·4	− 6·0	51·2	46·4	10·0	18·9	2·3	69	128·0	38·7	...	...	0·000	0·0	...
15	...	29·918	64·9	45·5	19·4	54·7	− 7·6	51·5	48·4	6·3	14·8	0·4	79	109·6	39·0	...	...	0·000	0·0	...
16	...	29·951	62·0	45·2	16·8	53·4	− 8·7	50·2	47·0	6·4	12·3	1·8	79	105·5	39·8	...	...	0·000	0·0	...
17	...	29·948	62·0	48·1	13·9	53·4	− 8·5	49·7	46·0	7·4	13·1	2·3	76	102·7	44·2	...	...	0·000	0·0	...
18	Greatest Declination S.	30·050	65·3	48·1	17·2	54·1	− 7·7	51·0	48·0	6·1	11·4	1·6	79	122·4	43·5	...	...	0·000	0·0	...
19	...	30·020	69·5	45·7	23·8	56·3	− 5·3	53·0	49·9	6·4	13·7	0·2	79	137·0	39·1	...	...	0·000	2·2	...
20	...	29·771	65·1	52·5	12·6	58·1	− 3·3	54·9	52·0	6·1	12·4	0·4	80	99·1	49·7	...	...	0·234	10·2	...
21	Full	29·485	71·1	54·3	16·8	59·8	− 1·5	57·7	55·9	3·9	12·6	0·4	87	122·9	53·9	...	...	0·084	1·5	...
22	...	29·628	69·7	52·2	17·5	60·3	− 1·0	56·3	52·8	7·5	19·1	1·0	76	123·3	47·7	...	...	0·156	0·0	...
23	...	29·735	65·3	49·9	15·4	58·6	− 2·6	56·5	54·6	4·0	6·8	0·6	86	91·6	43·7	...	...	0·015	0·8	...
24	...	29·492	76·4	54·5	21·9	62·8	+ 1·7	59·5	56·7	6·1	16·2	0·0	81	137·0	50·0	...	...	0·320	5·7	...
25	In Equator	29·571	74·0	53·5	20·5	62·4	+ 1·4	58·7	55·5	6·9	15·1	0·2	79	138·5	47·5	...	...	0·000	2·5	...
26	...	29·770	70·4	52·3	18·1	59·9	− 1·0	57·2	54·9	5·0	14·2	0·6	84	114·4	46·0	...	...	0·001	3·8	...
27	...	29·778	70·8	52·1	18·7	59·8	− 1·0	56·0	52·7	7·1	13·5	2·2	78	125·7	45·5	...	...	0·000	3·2	...
28	Apogee	29·588	62·1	49·7	12·4	58·5	− 2·2	56·9	55·5	3·0	5·3	0·9	89	80·7	49·5	...	...	0·790	6·5	...
29	Last Qr.	29·711	66·0	49·0	17·0	55·6	− 5·0	52·2	49·0	6·6	13·5	2·0	79	119·5	44·0	...	...	0·132	4·5	...
30	...	29·823	64·5	47·0	17·5	54·4	− 6·0	51·9	49·4	5·0	13·1	1·2	83	125·0	41·3	...	...	0·304	0·0	...
31	...	30·052	63·1	47·0	16·1	55·2	− 5·1	50·5	46·0	9·2	17·7	1·4	72	118·8	39·3	...	...	0·000	0·0	...
Means	...	29·830	69·4	50·9	18·5	59·2	− 2·6	55·6	52·4	6·8	14·5	1·2	78·6	118·9	46·0	...	...	Sum 3·734	1·9	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, and 15 are derived from eye-readings of self-registering thermometers.

No observations of the temperature of the water of the Thames were made throughout the month.

The mean reading of the *Barometer* for the month was $29^{in}·830$, being $0^{in}·031$ *higher* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was $87^{\circ}·7$ on August 10; the lowest in the month was $45^{\circ}·2$ on August 16; and the range was $42^{\circ}·5$.
The mean of all the highest daily readings in the month was $69^{\circ}·4$, being $3^{\circ}·6$ *lower* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was $50^{\circ}·9$, being $2^{\circ}·2$ *lower* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was $18^{\circ}·5$, being $1^{\circ}·4$ *less* than the average for the 47 years, 1841–1887.
The mean for the month was $59^{\circ}·2$, being $2^{\circ}·6$ *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. OSLER'S. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	ROBINSON'S. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Aug. 1	0·0	15·3	E : NE	NE : NNE	4·1	0·0	0·53	297	10, c.-r : 10, hy.-r	10, oc.-r : 10, shs.-r : 10, t.-sm, hy.-r
2	4·6	15·3	NNE : NE	ENE : SE	2·0	0·0	0·13	219	10, r, l : 9, cu.-s	8, cu.-s : 2 : 0
3	9·2	15·2	SSE : SW	WSW : SW	1·9	0·0	0·14	198	0, d : 0,slt.-m,hy.-d : 3,cu,cu.-s,h	5,cu,cu.-s,slt.-sh : p.-cl, so.-ha : 1, li.-cl, h
4	0·8	15·2	SW	SW	5·7	0·0	0·91	360	10, slt.-r : 10 : 10, th.-r	9,cu,cu.-s,th.-cl : p.-cl : 10, oc.-r
5	7·2	15·1	SW : NNW	NNW	8·5	0·0	1·99	434	10, fq.-shs : v, w : v,li.-cl,cu,w	p.-cl,ci.-cu,cu.-s,w : p.-cl, slt.-r
6	0·1	15·1	WSW : W	WSW : SW	1·3	0·0	0·10	198	p.-cl, ci.-s, s : p.-cl,ci.-cu,cu.-s,sh.-r	10, oc.-r : 10, fq.-th.-r : v, oc.-th.-r
7	7·9	15·0	SW : WSW	WSW : SW	3·4	0·0	0·29	248	v : p.-cl, li.-cl, m	2, li.-cl, so.-ha : v, th.-cl
8	11·7	15·0	WSW	WSW : SSW	2·5	0·0	0·52	312	p.-cl : v, cu	0 : 0, d
9	9·6	14·9	Calm : SSW	SSW	3·8	0·0	0·38	204	0, hy.-d : 1, li.-cl : 2, li.-cl	6,ci.-cu,cu,ci.-s,li.-cl,slt.-r : 10 : v, li.-cl
10	11·0	14·9	SW : SSW	SSW : SW	2·2	0·0	0·28	236	v, li.-cl : 2, li.-cl	1, li.-cl : 0 : 0, d
11	0·0	14·8	SW : WSW	SW	1·6	0·0	0·11	167	0, d : p.-cl : 10	10, slt.-r : 10
12	2·1	14·7	SSW	SSW : SW	5·3	0·0	0·65	294	10 : 10	10 : 10 : v
13	9·1	14·7	SW : WSW	WSW : W	9·2	0·0	2·89	531	v, w : 8,ci.-cu,cu.-s,w	6, cu.-s, cu, w : p.-cl, w : 1
14	8·8	14·6	WSW : W : WNW	Variable	0·5	0·0	0·01	152	0, d : 2, li.-cl, m, h	6, ci.-cu,cu.-s,li.-cl : 4 : 2, li.-cl,m,d
15	1·7	14·6	NE : E	E : ENE : NE	4·4	0·0	0·38	205	v, f : 10, f : 10	9, li.-cl : p.-cl,slt.-r : 2, li.-cl
16	4·0	14·5	NNE	NNE	2·7	0·0	0·52	281	0 : 2, li.-cl : p.-cl,cu,cu.-s	10 : 10, cu.-s
17	0·7	14·4	N : NNE	NNE : N	6·0	0·0	1·08	349	10, slt.-r : 10	10, w : 10, cu.-s, w
18	1·4	14·4	NNW : N	N : NE	4·2	0·0	0·76	263	10, w : 10, slt.-r,w	9, cu.-s, cu : p.-cl : v, li.-cl, slt.-f, d
19	5·4	14·3	Calm : SSW	SSW	1·2	0·0	0·04	128	p.-cl : 8,li.-cl,cu.-s,cu	v, cu, cu.-s : 10
20	0·0	14·3	SSE : S	SSE : SE	2·1	0·0	0·11	181	10 : 10	10 : 10, r
21	1·9	14·2	SE : WSW	WSW : SW	2·7	0·0	0·32	224	10, r : 10, r : 10, oc.-slt.-r	8, cu.-s, li.-cl, ci.-cu, oc.-slt.-r : p.-cl, li.-shs
22	7·8	14·1	WSW : W : WNW	W : WSW	6·5	0·0	0·95	338	v, li.-cl : 8, cu.-s, m, slt.-r, t	9,cu.-s,cu,hy.-shs,hl : p.-cl, w : 0, d
23	0·4	14·1	SW : SSW	SSW : SSE	4·0	0·0	0·47	262	p.-cl : 10, li.-shs	10, fq.-r : p.-cl : 2, th.-cl
24	4·6	14·0	SSE : SSW	SSW : SW	3·8	0·0	0·31	215	p.-cl : 9	8, cu,cu.-s,li.-cl : p.-cl, hy.-r, t : 10
25	9·1	13·9	SSW : SW	SSW	2·4	0·0	0·08	181	10 : 8, cu, cu.-s	v, cu, cu.-s, li.-cl, slt.-r : 1, li.-cl
26	3·7	13·9	SSW : SW	SW : SSW	3·6	0·0	0·45	260	10 : 9, cu.-s	10, cu.-s : v, li.-shs : 0, d
27	3·4	13·8	SW	SW	5·9	0·0	1·27	375	0, d : p.-cl : 7, cu.-s,th.-cl, so.-ha	8, cu.-s, ci.-cu, w : p.-cl, w
28	0·0	13·8	SW : SSW	SSW : W	21·0	0·0	2·24	447	10 : 10, shs.-r : 10, r, w	10, sc, hy.-r, w : 10, shs.-r, g
29	4·9	13·7	WSW	WSW : SW : SSW	6·7	0·0	1·48	399	v,st.-w,sh.-r : 1, li.-cl : p.-cl, cu, slt.-r	9, cu.-s, li.-cl, hy.-sh : p.-cl, slt.-r : 1, li.-cl, d
30	6·8	13·7	SSW : SW	SW : WSW	5·6	0·0	0·43	282	1, li.-cl : p.-cl, cu, cu.-s	10, t.-sm, hy.-r : v, t.-sm, hy.-r
31	7·6	13·6	WSW : WNW : NW	NW : NNW	2·0	0·0	0·19	227	p.-cl : 6, ci.-cu, li.-cl, m	4, cu, cu.-s, ci.-cu, m : p.-cl, m : v,li.-cl,m,h,l,d
Means	4·7	14·5	...	...	...	...	0·65	273		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was $55^{\circ}\cdot6$, being $2^{\circ}\cdot3$ *lower* than
The mean *Temperature of the Dew Point* for the month was $52^{\circ}\cdot4$, being $2^{\circ}\cdot0$ *lower* than
The mean *Degree of Humidity* for the month was 78·6, being 2·1 *greater* than
The mean *Elastic Force of Vapour* for the month was $0^{in}\cdot394$, being $0^{in}\cdot030$ *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was $4^{grs}\cdot4$, being $0^{gr}\cdot3$ *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 531 grains, being 3 grains *greater* than
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·0.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·32. The maximum daily amount of *Sunshine* was 11·7 hours on August 8.

The highest reading of the *Solar Radiation Thermometer* was $143^{\circ}\cdot0$ on August 9; and the lowest reading of the *Terrestrial Radiation Thermometer* was $38^{\circ}\cdot5$ on August 3.

The mean daily distribution of *Ozone* for the 12 hours ending 9^{h} was 1·4; for the 6 hours ending 15^{h} was 0·3; and for the 6 hours ending 21^{h} was 0·2.

The *Proportions of Wind* referred to the cardinal points were N. 5, E. 3, S. 12, and W. 11.

The *Greatest Pressure of the Wind* in the month was 21·0 lbs. on the square foot on August 28. The mean daily *Horizontal Movement of the Air* for the month was 273 miles; the greatest daily value was 531 miles on August 13; and the least daily value was 128 miles on August 19.

Rain fell on 12 days in the month, amounting to $3^{in}\cdot734$, as measured by gauge No. 6 partly sunk below the ground; being $1^{in}\cdot406$ *greater* than the average fall for the 47 years, 1841–1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Of the Air. Lowest.	Of the Air. Daily Range.	Of the Air. Mean of 24 Hourly Values.	Of the Air. Excess above Average of 20 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Of Radiation. Lowest on the Grass.	Of the Water of the Thames at Deptford. Highest.	Of the Water of the Thames at Deptford. Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
Sept. 1	Greatest Declination N.	30·115	68·2	41·5	26·7	54·2	− 5·9	49·7	45·3	8·9	18·7	0·8	72	118·3	35·3	...	...	0·000	0·8	...
2	...	29·855	67·1	53·7	13·4	58·2	− 1·8	56·2	54·4	3·8	8·9	0·6	87	117·0	52·5	...	...	0·049	6·0	...
3	...	29·772	69·5	53·5	16·0	60·0	+ 0·2	58·3	56·8	3·2	9·5	0·2	90	114·1	46·0	...	...	0·045	2·2	...
4	...	29·798	70·4	51·4	19·0	58·4	− 1·3	55·6	53·1	5·3	14·6	0·6	83	128·1	44·2	...	...	0·035	0·5	...
5	...	29·895	66·0	57·0	9·0	59·9	+ 0·4	57·6	55·6	4·3	7·6	0·2	86	99·0	56·6	...	...	0·009	7·8	...
6	New	29·868	65·0	49·5	15·5	58·2	− 1·1	54·7	51·5	6·7	17·5	3·0	78	112·0	43·0	...	...	0·009	3·8	...
7	...	29·894	65·2	48·6	16·6	54·2	− 4·8	51·0	47·9	6·3	16·1	1·7	79	108·6	42·0	...	...	0·009	0·0	...
8	In Equator	30·176	58·3	45·0	13·3	50·7	− 8·1	47·6	44·4	6·3	13·6	1·7	79	97·1	38·7	...	...	0·000	0·0	...
9	Perigee	30·023	62·7	43·5	19·2	51·2	− 7·3	48·4	45·5	5·7	14·6	1·8	81	122·3	37·4	...	...	0·034	0·0	...
10	...	29·950	58·1	43·2	14·9	50·8	− 7·5	49·3	47·7	3·1	5·7	0·7	89	88·2	34·8	...	...	0·028	0·0	...
11	...	30·120	65·1	42·8	22·3	52·5	− 5·6	48·8	45·0	7·5	18·2	0·9	76	110·1	35·0	...	...	0·000	4·0	...
12	First Qr.	30·287	67·9	41·4	26·5	53·8	− 4·2	50·3	46·9	6·9	18·0	0·4	77	111·7	35·0	...	...	0·000	0·0	...
13	...	30·275	67·2	42·3	24·9	54·1	− 3·7	51·3	48·6	5·5	18·0	0·0	81	126·0	36·4	...	...	0·000	0·0	...
14	Greatest Declination S.	30·064	69·1	46·4	22·7	57·3	− 0·3	54·9	52·8	4·5	13·1	0·0	85	121·3	38·5	...	...	0·000	2·0	...
15	...	29·966	74·0	53·0	21·0	60·6	+ 3·2	57·6	55·1	5·5	18·9	0·4	83	115·8	45·4	...	...	0·000	0·0	...
16	...	30·009	62·7	54·3	8·4	58·6	+ 1·3	55·1	51·9	6·7	13·3	2·1	79	92·8	49·8	...	...	0·000	0·0	...
17	...	30·073	64·7	53·1	11·6	56·7	− 0·4	54·8	53·1	3·6	8·6	1·6	88	95·2	52·3	...	...	0·000	0·0	...
18	...	30·099	61·4	52·3	9·1	56·9	0·0	55·2	53·7	3·2	5·7	1·9	89	83·4	48·6	...	...	0·000	0·0	...
19	...	30·094	68·5	48·7	19·8	57·8	+ 1·0	54·5	51·6	6·2	15·5	0·6	80	131·2	41·5	...	...	0·000	1·0	...
20	Full	30·055	67·7	47·2	20·5	56·3	− 0·3	53·2	50·3	6·0	17·1	0·0	80	126·5	39·4	...	...	0·000	1·0	...
21	In Equator	30·027	70·0	47·3	22·7	57·2	+ 0·8	54·3	51·6	5·6	19·6	0·0	82	124·8	38·8	...	...	0·000	0·0	...
22	...	30·031	68·8	47·1	21·7	57·4	+ 1·2	54·7	52·3	5·1	14·0	0·0	83	117·2	38·4	...	...	0·000	0·0	...
23	...	29·964	61·1	50·6	10·5	55·0	− 1·1	54·4	53·8	1·2	4·7	0·0	96	75·6	40·9	...	...	0·000	0·0	...
24	...	29·767	68·2	52·4	15·8	60·0	+ 4·1	58·4	57·0	3·0	7·0	0·4	90	94·9	44·9	...	...	0·011	0·0	...
25	Apogee	29·863	58·5	49·8	8·7	54·2	− 1·6	53·1	52·0	2·2	4·6	0·4	92	59·6	46·5	...	...	0·148	0·0	...
26	...	30·059	62·4	48·1	14·3	53·7	− 2·0	50·4	47·2	6·5	10·6	3·6	78	110·2	44·7	...	...	0·000	0·0	...
27	...	30·018	65·2	45·6	19·6	54·6	− 0·9	51·2	47·9	6·7	15·5	1·3	78	118·7	38·9	...	...	0·000	0·0	...
28	Last Quarter; Great. Dec. N.	29·859	64·2	47·3	16·9	56·4	+ 1·0	55·2	54·1	2·3	5·7	0·0	92	78·2	40·6	...	...	0·088	0·0	...
29	...	29·552	67·0	55·4	11·6	59·8	+ 4·6	58·3	57·0	2·8	8·5	0·0	91	102·3	52·6	...	...	0·260	0·0	...
30	...	29·533	55·4	38·5	16·9	47·8	− 7·1	43·7	39·2	8·6	17·2	1·9	73	105·0	30·0	...	...	0·004	0·0	...
Means	...	29·969	65·3	48·3	17·0	55·9	− 1·6	53·3	50·8	5·1	12·7	0·9	83·2	106·8	42·3	...	...	Sum 0·729	1·0	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, and 15, are derived from eye-readings of self-registering thermometers.

No observations of the temperature of the water of the Thames were made throughout the month.

The mean reading of the *Barometer* for the month was 29^{in}·969, being 0^{in}·182 *higher* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 74°·0 on September 15; the lowest in the month was 38°·5 on September 30; and the range was 35°·5.
The mean of all the highest daily readings in the month was 65°·3, being 2°·0 *lower* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 48°·3, being 0°·8 *lower* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 17°·0, being 1°·2 *less* than the average for the 47 years, 1841–1887.
The mean for the month was 55°·9, being 1°·6 *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Sept. 1	5·8	13·5	N : SW : W	W : SW	1·0	0·0	0·06	174	0, l, m : 2,ci.-cu,cu,h,m	5, cu.-s, li.-cl : 10
2	0·2	13·4	SW	SW	4·3	0·0	0·78	343	10, shs.-r : 10	10, shs.-r : 10, th.-r
3	2·9	13·4	SW	SSW	1·6	0·0	0·13	215	10, r : 10, oc.-slt.-r	p.-cl, cu.-s, li.-cl : 0, d
4	4·5	13·3	SW : WSW	WSW : SW	3·3	0·0	0·41	260	0 : v : 10	8, ci, ci.-cu, cu.-s : 10 : 10, r
5	0·4	13·2	SW : WSW	SW : SSW	3·1	0·0	0·59	316	10, shs.-r : 10	10 : 10
6	4·0	13·2	SW : NW	W : WSW	5·2	0·0	0·81	330	10, l : p.-cl,sc,oc.-slt.-r	v, cu.-s : 0, d
7	6·2	13·1	WSW : WNW	NW : NNW	4·8	0·0	0·40	291	0, d : v, cu.-s, h, glm, slt.-sh	p.-cl,cu,cu.-s,h,slt.-r : 2, th.-cl, d
8	2·6	13·0	N	N : NNE	6·5	0·0	1·20	354	p.-cl, d : 7, cu.-s, li.-cl	9, ci.-cu : v, li.-cl, slt.-r
9	5·3	13·0	N : NE	E : N	8·0	0·0	1·32	330	0 : p.-cl : 10, r, w	v, r : v, li.-cl, l
10	0·4	12·9	WSW : N	SW : WSW	0·6	0·0	0·02	138	v, li.-cl, l : 10, tk.-f, glm, r	10,glm,th.-r : p.-cl : 0, h, slt.-f, d
11	7·2	12·9	WSW : WNW	WNW : WSW : SW	2·0	0·0	0·13	211	0, m, d : 1, li.-cl, m, h	2, cu : 0, m, d
12	8·3	12·8	WSW	WSW : SE	0·3	0·0	0·01	128	0, d : 0, h	0, h : v,li.-cl,cu.-s : 0, d
13	8·5	12·7	E	E : ENE	5·2	0·0	0·57	192	0, tk.-f : p.-cl,th.-cl,tk.-f	0 : 0, d, slt.-f
14	8·5	12·7	ENE : E	E : NE	4·0	0·0	0·32	187	0, slt.-f, d : 3,li.-cl,cu,ci.-cu	1, li.-cl : 2, li.-cl : v, li.-cl, d
15	4·2	12·6	N : W : SW	SW : S	0·0	0·0	0·00	105	10 : 10, f, glm : 8, li.-cl	6, li.-cl, so.-ha : p.-cl, cu.-s, lu.-ha, li.-shs
16	0·1	12·6	SW : NNW	N : NNE	3·4	0·0	0·32	236	10 : 10 : 9, th.-cl	10 : 10
17	0·1	12·5	N : NNE	NNE : NE	1·3	0·0	0·10	166	10 : 10	10 : 10, slt.-r
18	0·2	12·4	NE : NNE	NNE : NE	3·7	0·0	0·14	203	10 : 10	10, m.-r : p.-cl, cu.-s
19	8·8	12·3	NNE : NE : ENE	ENE : NE	5·5	0·0	0·98	299	10 : 7, cu, cu.-s	3, cu, cu.-s, li.-cl : 0 : 0, m, d
20	9·5	12·3	NE : ENE	ENE : NE	3·3	0·0	0·42	251	0, f, d : 4, cu.-s	0 : 0, hy.-d
21	6·8	12·2	NNE : NE	ENE : ESE	1·3	0·0	0·07	170	0, slt.-f, d : p.-cl, f	2, li.-cl : 1, li.-cl : p.-cl, slt.-f, hy.-d
22	7·1	12·2	NE : NNE	NE : NNE	0·9	0·0	0·02	151	10, slt.-f : 10 : v, li.-cl	1, li.-cl : 0 : 0, f, d
23	0·3	12·1	NNE : NE	NE : Calm	0·3	0·0	0·00	112	f : 10, f	10 : 0 : tk.-f, slt.-r
24	1·1	12·0	NNE	N : NNW	0·5	0·0	0·01	106	tk.-f, sh.-r : p.-cl, h, slt.-f	10 slt.-f : v : 10, m.-r
25	0·0	11·9	NNW : NE	NE : NNE	5·7	0·0	0·90	303	10, f : 10, glm, fq.-r	10 : 10
26	2·0	11·9	NNE : ENE	ENE : NE	4·4	0·0	0·34	244	10 : 10 : 6, cu.-s, ci.-cu	9 : 9 : 10
27	8·6	11·8	NE : ENE	E : ESE	1·3	0·0	0·05	146	10 : 1, li.-cl	0, so.-ha : 0 : v,th.-cl,cu.-s,m
28	0·0	11·7	E : ESE	ESE : S	0·8	0·0	0·00	104	10 : 10, slt.-r	10, slt.-r : 10, r
29	0·7	11·7	WSW	WSW : NNW	2·1	0·0	0·20	221	10, li.-shs : 10	9,cu.-s,li.-cl : 10, r : 10, hy.-r
30	8·1	11·6	N : NNW	NNW : WSW	5·7	0·0	1·34	373	10, r : p.-cl, w : 5, cu.-s, w	v, w : 0, d
Means	4·1	12·6	...	...	...	...	0·39	222		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 53°·3, being 1°·0 *lower* than the average for the 20 years, 1849–1868.
The mean *Temperature of the Dew Point* for the month was 50°·8, being 0°·6 *lower* than the average for the 20 years, 1849–1868.
The mean *Degree of Humidity* for the month was 83·2, being 3·1 *greater* than the average for the 20 years, 1849–1868.
The mean *Elastic Force of Vapour* for the month was 0in·371, being 0in·008 *less* than the average for the 20 years, 1849–1868.
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·2, being *the same as* the average for the 20 years, 1849–1868.
The mean *Weight of a Cubic Foot of Air* for the month was 537 grains, being 5 grains *greater* than the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 6·1.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·33. The maximum daily amount of *Sunshine* was 9·5 hours on September 20.

The highest reading of the *Solar Radiation Thermometer* was 131°·2 on September 19; and the lowest reading of the *Terrestrial Radiation Thermometer* was 30°·0 on September 30.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 0·4; for the 6 hours ending 15h. was 0·3; and for the 6 hours ending 21h. was 0·3.

The *Proportions of Wind* referred to the cardinal points were N. 10, E. 7, S. 5, and W. 7. One day was calm.

The *Greatest Pressure of the Wind* was 8·0 lbs. on the square foot on September 9. The mean daily *Horizontal Movement of the Air* for the month was 222 miles; the greatest daily value was 373 miles on September 30; and the least daily value was 104 miles on September 28.

Rain fell on 12 days in the month, amounting to 0in·729, as measured by gauge No. 6 partly sunk below the ground; being 1in·600 *less* than the average fall for the 47 years, 1841-1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Lowest.	Daily Range.	Mean of 24 Hourly Values.	Excess above Average of 20 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Lowest on the Grass.	Of the Water of the Thames at Deptford. Highest.	Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
Oct. 1	...	29·479	54·2	35·3	18·9	43·6	−11·1	40·1	36·0	7·6	16·8	1·6	74	95·6	28·7	...	...	0·000	0·0	...
2	...	29·160	45·3	35·0	10·3	40·2	−14·2	39·6	38·8	1·4	3·1	0·2	95	61·2	28·1	...	...	0·079	0·0	...
3	...	29·246	57·0	30·5	26·5	42·4	−11·6	40·7	38·7	3·7	10·0	0·9	87	119·2	23·5	...	...	0·000	0·0	...
4	...	29·413	54·0	34·6	19·4	44·2	− 9·5	41·9	39·2	5·0	12·6	0·9	82	89·9	28·3	...	...	0·027	3·0	...
5	In Equator: New	29·524	52·2	29·7	22·5	40·4	−13·0	37·0	32·7	7·7	14·5	4·1	74	104·5	24·1	...	...	0·002	0·0	...
6	...	29·699	49·9	31·0	18·9	39·8	−13·2	37·2	33·8	6·0	12·4	1·2	79	88·2	23·4	...	...	0·000	0·0	...
7	Perigee	29·942	49·2	32·5	16·7	40·7	−12·0	36·9	32·1	8·6	15·1	2·7	72	85·2	26·3	...	...	0·000	0·0	...
8	...	30·007	53·1	27·9	25·2	40·3	−12·2	37·6	34·2	6·1	13·6	0·4	79	92·0	21·7	...	...	0·000	0·0	...
9	...	29·926	56·4	32·7	23·7	43·9	− 8·4	41·2	38·0	5·9	15·2	1·0	79	114·3	27·1	...	...	0·000	0·0	...
10	...	29·897	55·6	38·2	17·4	46·9	− 5·2	44·4	41·6	5·3	11·4	1·7	82	72·0	29·6	...	...	0·000	0·0	...
11	Greatest Declination S.	29·933	55·1	42·1	13·0	47·2	− 4·7	45·5	43·6	3·6	7·8	1·1	88	68·9	31·2	...	...	0·000	0·0	...
12	First Qr.	29·832	59·2	41·7	17·5	49·9	− 1·8	46·8	43·5	6·4	12·7	2·2	79	102·1	32·2	...	...	0·024	0·0	...
13	...	29·726	54·6	38·4	16·2	47·9	− 3·7	44·0	39·7	8·2	15·6	1·9	74	104·7	30·8	...	...	0·004	0·0	...
14	...	29·980	50·0	32·7	17·3	41·2	−10·2	37·9	33·8	7·4	13·4	1·3	75	97·5	25·8	...	...	0·000	0·0	...
15	...	30·162	51·0	31·4	19·6	40·3	−11·0	38·4	36·0	4·3	9·2	1·6	85	63·4	24·4	...	...	0·000	0·0	...
16	...	30·186	55·7	34·2	21·5	44·5	− 6·7	43·0	41·2	3·3	9·2	0·0	88	72·6	29·1	...	...	0·000	0·0	...
17	...	30·119	50·6	35·7	14·9	43·6	− 7·5	43·0	42·3	1·3	3·4	0·0	95	72·6	30·2	...	...	0·000	0·0	...
18	In Equator	30·081	55·7	34·9	20·8	44·7	− 6·3	44·0	43·2	1·5	5·4	0·0	94	80·4	30·3	...	...	0·000	0·0	...
19	Full	30·091	55·7	39·7	16·0	46·6	− 4·2	44·8	42·8	3·8	11·2	0·0	87	98·7	30·6	...	...	0·000	0·0	...
20	...	30·184	55·1	32·1	23·0	42·8	− 7·8	40·2	37·1	5·7	15·6	0·5	81	103·0	23·3	...	...	0·000	0·0	...
21	...	30·240	56·2	30·1	26·1	42·3	− 8·1	40·6	38·5	3·8	15·6	0·0	87	97·1	24·3	...	...	0·000	0·0	...
22	Apogee	30·252	53·4	35·5	17·9	43·5	− 6·6	42·3	40·9	2·6	8·4	0·0	90	74·5	27·5	...	...	0·000	0·0	...
23	...	30·114	50·6	29·7	20·9	39·8	− 9·9	39·1	38·2	1·6	6·7	0·0	94	79·5	25·9	...	...	0·000	0·0	...
24	...	29·936	54·0	32·8	21·2	42·8	− 6·6	41·9	40·8	2·0	6·4	0·0	93	86·2	27·3	...	...	0·000	0·0	...
25	...	29·821	63·5	46·1	17·4	54·2	+ 5·1	51·2	48·3	5·9	10·4	1·9	80	112·0	43·9	...	..	0·000	0·0	...
26	Greatest Declination N.	29·916	63·4	54·3	9·1	58·5	+ 9·7	56·7	55·1	3·4	5·9	1·7	88	82·6	48·2	...	...	0·003	0·0	...
27	...	30·077	68·4	56·0	12·4	60·8	+12·3	57·5	54·7	6·1	13·1	2·8	81	105·0	47·5	...	...	0·000	3·0	...
28	Last Qr.	30·036	65·1	55·1	10·0	59·9	+11·7	56·3	53·1	6·8	11·9	2·5	79	96·9	49·4	...	...	0·129	1·2	...
29	...	30·013	57·4	48·3	9·1	52·8	+ 4·9	52·1	51·4	1·4	4·2	0·0	95	58·2	47·2	...	...	0·500	3·8	...
30	...	29·800	52·4	46·1	6·3	49·4	+ 1·8	49·0	48·6	0·8	2·7	0·0	97	63·8	42·5	...	...	0·528	0·0	...
31	...	29·758	55·8	44·1	11·7	49·4	+ 2·1	47·0	44·4	5·0	10·2	2·1	84	88·4	38·4	...	...	0·000	0·0	...
Means	...	29·889	55·2	37·7	17·5	46·0	− 5·1	43·8	41·4	4·6	10·4	1·1	84·4	88·1	31·3	...	...	Sum 1·296	0·4	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, and 15, are derived from eye-readings of self-registering thermometers.

No observations of the temperature of the water of the Thames were made throughout the month.

The reading of the *Barometer* for the month was 29^{in}·889, being 0^{in}·169 *higher* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 68°·4 on October 27; the lowest in the month was 27°·9 on October 8; and the range was 40°·5.
The mean of all the highest daily readings in the month was 55°·2, being 2°·6 *lower* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 37°·7, being 5°·7 *lower* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 17°·5, being 3°·1 *greater* than the average for the 47 years, 1841–1887.
The mean for the month was 46°·0, being 5°·1 *lower* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Oct. 1	7·2	11·6	WSW : NNW	WSW : SSW	1·3	0·0	0·02	206	0, ho.-fr : 1, li.-cl, h, m	1, li.-cl, h : 1, th.-cl, d
2	0·0	11·5	NE : NNE	N : WSW	0·5	0·0	0·00	132	tk.-f : 10, slt.-f, li.-shs : 10, fq.-th.-r	10, oc.-slt.-r : 10, glm, th.-r : 0, f, ho.-fr
3	4·9	11·4	SW : SE	SE : NNE	0·0	0·0	0·00	107	0, ho.-fr : 4, li.-cl	9, ci.-cu, cu.-s : 10, sc : v, slt.-f, d
4	1·3	11·4	NNW : WSW	WSW : NNW	7·7	0·0	0·76	330	0, d : 1, th.-cl, m, h, so.-ha	10, shs.-r, w : v, li.-cl, shs.-r, w
5	8·1	11·3	WSW : W	W : WSW	6·1	0·0	0·80	374	0, ho.-fr : 0, w	6, cu, cu.-s, ci.-cu, li.-cl, oc.-slt.-r : 0, d, m
6	3·4	11·2	WSW : NNW	N : NNW	5·2	0·0	0·12	229	0, fr : 1, li.-cl, ho.-fr : p.-cl, glm, f	v, cu.-s, ci.-cu, cu, slt.-r, glm : v
7	4·2	11·2	NNW : WNW : WSW	N	1·6	0·0	0·08	216	0, ho.-fr : p.-cl, slt.-h, m	6, cu.-s : 0, ho.-fr
8	3·9	11·1	WSW : NNE	NNE	0·3	0·0	0·00	153	0, ho.-fr : 0, ho.-fr, h, m : p.-cl, f	7, ci.-cu, cu, cu.-s : p.-cl : 0, d
9	5·9	11·0	NE : NNE	NE : N	1·5	0·0	0·02	180	0, ho.-fr : 1, li.-cl, slt.-f : 3, li.-cl, slt.-f	4, cu.-s, li.-cl : 0 : v
10	0·2	11·0	N : WSW	N : SW	0·0	0·0	0·00	145	10, f : 10, f : v, h, f	v, cu.-s, th.-cl, glm : 10, f, slt.-r
11	0·1	10·9	SW : WSW	W : WSW	0·0	0·0	0·00	148	10 : 10, f	8, li.-cl, ci.-cu, slt.-f, h : 0, d
12	5·7	10·9	WSW	WSW	5·5	0·0	0·88	376	0 : 3, th.-cl	3, cu.-s, li.-cl : 10 : 10, shs.-r
13	4·6	10·8	WSW : NNW	N	5·2	0·0	0·85	346	v : 0 : p.-cl	7, cu.-s, li.-cl, ci.-cu : 0
14	7·9	10·7	N	N : SW	2·1	0·0	0·12	210	0 : 0, h	1 : 0, f
15	0·0	10·7	WSW	WSW : SW	0·7	0·0	0·00	195	0, ho.-fr : 10, slt.-f	9. cu.-s, li.-cl, slt.-f : 0 : 0, slt.-f, d
16	0·0	10·6	SW : WSW	WSW : SSW	0·0	0·0	0·00	115	0, m : th.-cl, slt.-f : th.-cl, so.-ha	9, th.-cl, so.-ha : 10, slt.-f : 10, m
17	0·1	10·5	WSW : Calm	E : Calm	0·0	0·0	0·00	78	10, f : p.-cl, tk.-f : tk.-f, glm	0, slt.-f, h : 0, tk.-f
18	1·7	10·5	Calm : ENE	E	2·8	0·0	0·07	142	tk.-f : tk.-f	0, h : 10
19	6·8	10·4	E	E : ESE	1·2	0·0	0·05	180	tk.-f : 0, f	0 : 0, d
20	8·0	10·3	E	E	0·5	0·0	0·00	146	0, ho.-fr : 0, ho.-fr : 1, li.-cl	2, li.-cl, so.-ha : 1, li.-cl, h, lu.-ha, slt.-f
21	6·3	10·3	E : ENE	E : ENE	0·5	0·0	0·00	129	0, f : 0, tk.-f	0, slt.-f : 0, slt.-f, ho.-fr
22	1·8	10·2	NE	E : ESE	0·0	0·0	0·00	103	p.-cl, slt.-f : 10, slt.-f	7, cu.-s, ci.-cu, li.-cl : 0, f, ho.-fr
23	4·0	10·2	Calm : WSW	WSW : SW	0·3	0·0	0·00	128	tk.-f : 10, f : v, slt.-f	0, h : p.-cl : 3, th.-cl, f, ho.-fr
24	5·7	10·1	SW : WSW	SW : SSW	0·5	0·0	0·00	142	f, ho.-fr : 0, tk.-f	0 : 0 : 10, m
25	3·5	10·0	SSW	SSW	4·0	0·0	0·31	241	10 : 10 : 9, cu.-s	8, ci.-cu, cu.-s, ci, ci.-s : v : 7, li.-cl
26	0·3	10·0	SSW : SW	SW : SSW	5·7	0·0	1·00	371	10 : 10, slt.-r	p.-cl, cu.-s : v, th.-cl, d
27	3·9	9·9	SW	SW : SSW	6·6	0·0	1·38	412	v, li.-cl, d : 10 : th.-cl	2, th.-cl, s : 0 : v
28	1·3	9·8	SSW	SSW : SW	7·6	0·0	2·12	493	v, li.-cl, d : 8, ci, ci.-s	9, ci.-s, ci.-cu, w : 10, r, w : 10, fq.-r
29	0·0	9·8	SW : WSW	NW : SSE	6·5	0·0	0·32	202	10, r : 10 : 10, r	10, fq.-r, f : 10, fq.-r, m
30	0·0	9·7	Calm : ENE	ENE : WSW	2·6	0·0	0·13	193	v : 10, r	10, r : v, th.-cl, d
31	2·5	9·7	WSW : SW	WSW : SSW	...*	...	...	326	0, d : 1, li.-cl : 2, ci.-cu, li.-cl, h, so.-ha	v, cu, li.-cl, h, so.-ha : v, cu.-s, h
Means	3·3	10·6	...	...	...	...	(30 days) 0·30	218		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 43°·8, being 5°·1 *lower* than
The mean *Temperature of the Dew Point* for the month was 41°·4, being 5°·4 *lower* than
The mean *Degree of Humidity* for the month was 84·4, being 1·7 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·261, being 0in·060 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·0, being 0gr·6 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 547 grains, being 8 grains *greater* than
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 4·8.
The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·31. The maximum daily amount of *Sunshine* was 8·1 hours on October 5.
The highest reading of the *Solar Radiation Thermometer* was 119°·2 on October 3; and the lowest reading of the *Terrestrial Radiation Thermometer* was 21°·7 on October 8.
The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 0·2; for the 6 hours ending 15h. was 0·2; and for the 6 hours ending 21h. was 0·0.
The *Proportions of Wind* referred to the cardinal points were N. 6, E. 6, S. 8, and W. 9. Two days were calm.
The *Greatest Pressure of the Wind* in the month was 7·7 lbs. on the square foot on October 4. The mean daily *Horizontal Movement of the Air* for the month was 218 miles; the greatest daily value was 493 miles on October 28; and the least daily value was 78 miles on October 17.
Rain fell on 6 days in the month, amounting to 1in·296, as measured by gauge No. 6 partly sunk below the ground; being 1in·558 *less* than the average fall for the 47 years, 1841–1887.

* **Osler's Anemometer.**—The pressure apparatus was taken down on October 31 in order to renew the pressure springs.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	TEMPERATURE. Of the Air. Lowest.	TEMPERATURE. Of the Air. Daily Range.	TEMPERATURE. Of the Air. Mean of 24 Hourly Values.	TEMPERATURE. Of the Air. Excess above Average of 20 Years.	TEMPERATURE. Of Evaporation. Mean of 24 Hourly Values.	TEMPERATURE. Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Difference between the Air Temperature and Dew Point Temperature. Greatest.	Difference between the Air Temperature and Dew Point Temperature. Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	TEMPERATURE. Of Radiation. Lowest on the Grass.	TEMPERATURE. Of the Water of the Thames at Deptford. Highest.	TEMPERATURE. Of the Water of the Thames at Deptford. Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
Nov. 1	In Equator	29·449	50·1	43·6	6·5	46·5	− 0·5	46·2	45·9	0·6	1·9	0·0	98	56·3	39·2	...	...	0·597	0·0	...
2	...	29·272	50·1	45·3	4·8	47·0	+ 0·3	46·5	46·0	1·0	3·8	0·2	96	59·0	45·0	...	...	0·587	0·0	...
3	...	29·440	52·1	44·1	8·0	47·4	+ 1·0	46·8	46·1	1·3	4·0	0·0	96	65·5	40·0	...	...	0·332	0·0	...
4	New: Perigee	29·590	55·7	42·1	13·6	48·2	+ 2·2	46·5	44·6	3·6	9·0	0·4	88	99·0	35·0	...	...	0·080	1·0	...
5	...	29·637	55·7	45·0	10·7	49·0	+ 3·4	48·2	47·3	1·7	4·8	0·0	94	94·0	39·4	...	...	0·019	3·0	...
6	...	29·663	45·0	36·5	8·5	39·9	− 5·3	38·0	35·5	4·4	6·9	2·4	85	55·0	31·8	...	...	0·000	0·2	...
7	Greatest Declination S.	29·606	37·5	34·1	3·4	35·8	− 8·9	33·9	31·0	4·8	6·2	3·2	83	52·7	30·3	...	...	0·000	0·8	...
8	...	29·665	42·8	34·3	8·5	39·0	− 5·3	38·1	36·9	2·1	4·9	0·7	93	51·7	29·5	...	...	0·000	0·0	...
9	...	29·615	45·1	38·6	6·5	42·3	− 1·5	41·3	40·1	2·2	4·4	0·0	92	56·1	32·0	...	...	0·104	0·0	...
10	First Qr.	29·677	47·0	33·5	13·5	40·1	− 3·3	38·1	35·5	4·6	9·2	0·8	84	88·6	28·3	...	...	0·002	0·8	...
11	...	29·660	52·9	40·0	12·9	47·4	+ 4·4	47·0	46·6	0·8	3·2	0·0	97	64·0	38·5	...	...	0·218	2·2	...
12	...	29·507	52·9	44·1	8·8	48·8	+ 6·2	48·3	47·7	1·1	2·8	0·0	96	60·5	43·6	...	...	0·128	1·5	...
13	...	29·354	55·3	45·8	9·5	50·0	+ 7·7	48·2	46·3	3·7	8·8	1·0	87	68·3	37·0	...	...	0·000	11·5	...
14	In Equator	29·770	57·2	43·0	14·2	49·8	+ 7·8	48·7	47·6	2·2	6·6	0·0	92	92·6	35·5	...	...	0·000	1·5	...
15	...	29·973	55·6	48·8	6·8	52·7	+10·9	51·7	50·7	2·0	3·6	0·8	94	58·1	43·4	...	...	0·038	5·2	...
16	...	29·940	59·4	48·9	10·5	56·1	+14·5	53·9	51·8	4·3	8·0	1·3	86	67·6	44·0	...	...	0·000	3·5	...
17	...	29·872	54·8	45·6	9·2	49·8	+ 8·3	46·7	43·4	6·4	9·2	3·8	79	73·0	40·5	...	...	0·006	9·8	...
18	Full	29·835	53·5	44·9	8·6	49·5	+ 8·0	47·7	45·8	3·7	5·6	1·3	88	75·0	39·6	...	...	0·034	0·0	...
19	Apogee	29·719	54·1	49·8	4·3	52·5	+11·1	50·1	47·7	4·8	6·2	2·2	84	64·7	44·0	...	...	0·000	0·0	...
20	...	29·630	53·7	40·0	13·7	46·1	+ 4·8	42·6	38·6	7·5	13·4	4·2	76	69·4	32·0	...	...	0·083	0·0	...
21	...	29·924	49·0	39·4	9·6	43·8	+ 2·6	40·7	37·1	6·7	9·7	4·2	77	52·1	31·3	...	...	0·002	0·0	...
22	Greatest Declination N.	30·001	53·1	42·1	11·0	49·2	+ 8·1	46·3	43·2	6·0	9·4	3·5	80	58·6	34·4	...	...	0·000	0·5	...
23	...	30·042	55·8	49·1	6·7	52·4	+11·4	49·6	46·8	5·6	7·4	3·8	82	65·0	43·8	...	...	0·000	2·5	...
24	...	29·936	54·7	49·0	5·7	52·5	+11·5	48·8	45·0	7·5	8·8	4·8	76	58·6	44·0	...	...	0·000	3·8	...
25	...	29·727	55·8	51·3	4·5	53·6	+12·7	50·2	46·9	6·7	9·0	5·0	78	66·8	48·0	...	...	0·010	5·5	...
26	Last Qr.	29·454	52·9	43·3	9·6	48·1	+ 7·3	46·0	43·7	4·4	8·4	0·8	85	87·6	37·6	...	...	0·396	2·0	...
27	...	29·234	53·4	42·3	11·1	48·2	+ 7·4	45·7	43·0	5·2	10·5	1·3	83	63·0	35·0	...	...	0·450	5·2	...
28	...	29·273	45·6	37·5	8·1	42·3	+ 1·4	41·4	40·3	2·0	4·6	0·2	93	54·7	29·6	...	...	0·287	2·5	...
29	In Equator	29·159	47·1	40·5	6·6	44·7	+ 3·7	43·8	42·8	1·9	2·9	0·2	94	55·0	35·0	...	...	0·034	8·0	...
30	...	29·153	46·7	39·7	7·0	44·0	+ 2·8	43·5	42·9	1·1	1·8	0·2	96	46·7	35·0	...	...	0·594	0·0	...
Means	...	29·626	51·5	42·7	8·7	47·2	+ 4·5	45·5	43·6	3·7	6·5	1·5	87·7	66·0	37·4	...	...	Sum 4·001	2·4	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, and 15 are derived from eye-readings of self-registering thermometers.

No observations of the temperature of the water of the Thames were made throughout the month.

The mean reading of the *Barometer* for the month was 29in·626, being 0in·145 *lower* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 59°·4 on November 16; the lowest in the month was 33°·5 on November 10; and the range was 25°·9.
The mean of all the highest daily readings in the month was 51°·5, being 2°·8 *higher* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 42°·7, being 5°·3 *higher* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 8°·7, being 2°·7 *less* than the average for the 47 years, 1841–1887.
The mean for the month was 47°·2, being 4°·5 *higher* than the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-Registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Nov. 1	0·0	9·6	SSW : S	ENE : NNE	...	...	...	178	10 : 10, fq.-th.-r	10, c.-r : 10, c.-r
2	0·0	9·5	N : SE	ENE : SW	...	...	...	152	10, c.-r : 10, fq.-r : 10	10, fq.-r : 10, c.-r : 10, c.-r
3	0·0	9·5	SW : SSE	SE : E	...	...	...	82	10, c.-r : 10, c.-r : 10, fq.-r	10, slt.-r : 10, fq.-th.-r : v, li.-cl
4	5·1	9·4	ESE	SE : ESE	...	...	...	269	0 : 1	6, cu.-s : 10, r, w
5	2·8	9·4	SE : ESE	ESE	...	...	...	263	10, sh.-r : 2, li.-cl, slt.-f	7, ci, ci.-s, cu, cu.-s, ci.-cu : 10, st.-w, oc.-slt.-r
6	0·0	9·3	ENE : E	E	...	...	...	517	10, w : 10, w	10, w : p.-cl, w : 0, w
7	0·0	9·2	E : ESE	E : ESE	...	...	...	381	10 : 10	10, w : 10
8	0·0	9·2	ESE : E	E : ESE	...	...	...	322	v : 10 : 10	10, m.-r : 10, m.-r
9	0·0	9·1	E	E : ESE	...	...	...	327	10, r : 10, shs.-r	10 : v, lu.-co : v, d
10	4·6	9·1	ESE : SE	ESE : SSE	...	...	...	251	p.-cl : 1, cu, th.-cl	1, li.-cl : 10 : 10, r
11	0·0	9·0	SSE	NNE : ENE : ESE	...	...	...	111	10, r : 10, glm : 10	10, glm : 10, f
12	0·0	9·0	ESE	ESE : SE	...	...	...	275	10 : 10	10 : 10, r : 10, sh.-r
13	1·4	8·9	SE : SSW	SSW : SSE	...	...	...	323	10 : 10, sc	7, cu.-s, ci.-cu, sc : 2 : 0, hy.-d
14	4·8	8·9	SSE : S : SSW	SSW	...	...	...	264	0, hy.-d : v, li.-cl	5, cu.-s, th.-cl : v, lu.-ha : 10, li.-cl
15	0·0	8·8	SSW	SSW	...	...	...	383	10 : 10, fq.-th.-r	10, sc, fq.-th.-r : 10
16	0·1	8·8	SSW : SW	SW : WSW	...	...	...	529	10, slt.-r : 10, oc.-slt.-r, w	v, cu.-s, ci.-cu, s, slt.-sh : v, cu.-s, ci.-cu, w
17	2·3	8·7	SW : WSW	WSW	...	...	...	603	v, li.-cl, w : v, cu.-s, li.-cl, st.-w	8, cu.-s, ci.-cu, sc, st.-w : p.-cl, sh.-r : v, li.-cl, lu.-ha
18	1·0	8·7	WSW	WSW : SW	...	...	...	402	p.-cl : 10, r	v, li.-cl : 10
19	0·0	8·6	WSW : SW	WSW	...	...	...	541	10 : 10	10, w : 10, w
20	5·1	8·6	WSW : W : WNW	WSW : W	...	...	...	695	10, w : 10, r : 4, li.-cl, st.-w	4, ci.-cu, cu.-s, li.-cl, st.-w : v, slt.-r, g
21	0·0	8·5	WSW : W	W : WSW	...	...	...	555	0, w : p.-cl, w	10, slt.-r, w : 0 : v, h, m, lu.-ha
22	0·0	8·5	WSW	WSW	...	...	...	618	10 : p.-cl : 10, w	9, ci.-s, cu.-s : v, li.-cl, w
23	0·1	8·4	SW	WSW : SW	...	...	...	615	p.-cl : 10, st.-w	10, st.-w : v, li.-cl, w
24	0·0	8·4	SW	WSW	...	...	...	728	v : 10, w	10, st.-w : 10, w
25	0·1	8·3	SW	SW : SSW	...	...	...	700	v : 10 : 10, slt.-r, st.-w	v, sc, g : 10, g : 10, st.-w, r
26	2·8	8·3	SSW : WSW	WSW : SSW	...	...	...	403	10, hy.-r, w : 10, r : p.-cl, cu.-s	5, cu.-s, th.-cl, slt.-r : 0, l, d
27	0·1	8·2	WSW : SSE	SSW : SW	...	...	...	497	v : 10, sc, r, glm	10, fq.-th.-r, w : 2 : 0
28	0·0	8·2	SW : SSW	ENE : ESE	...	...	...	210	0 : 3, th.-cl, slt.-f, slt.-r	10, cu.-s, glm, hy.-r : v
29	0·0	8·2	ESE	ESE : E	...	...	...	245	v : 10, sh.-r	10 : 10
30	0·0	8·1	ENE : NNE	WSW	...	...	...	254	10 : 10, r : 10, glm, c.-r	10, c.-r : 10, c.-r : v, ci.-cu, li.-cl, d
Means	1·0	8·8	...	...	...	...	...	390		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 45°·5, being 4°·3 *higher* than
The mean *Temperature of the Dew Point* for the month was 43°·6, being 4°·3 *higher* than
The mean *Degree of Humidity* for the month was 87·7, being 0·4 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·284, being 0in·044 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·3, being 0gr·5 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 541 grains, being 8 grains *less* than
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·8.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·11. The maximum daily amount of *Sunshine* was 5·1 hours on November 4 and 20.

The highest reading of the *Solar Radiation Thermometer* was 99°·0 on November 4; and the lowest reading of the *Terrestrial Radiation Thermometer* was 28°·3 on November 10.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·6; for the 6 hours ending 15h. was 0·3; and for the 6 hours ending 21h. was 0·5.

The *Proportions of Wind* referred to the cardinal points were N. 1, E. 10, S. 10, and W. 8. One day was calm.

The apparatus for recording the *Pressure of the Wind* was not in action throughout the month of November. The mean daily *Horizontal Movement of the Air* for the month was 390 miles; the greatest daily value was 728 miles on November 24; and the least daily value was 82 miles on November 3.

Rain fell on 18 days in the month, amounting to 4in·001, as measured by gauge No. 6 partly sunk below the ground; being 1in·723 *greater* than the average fall for the 47 years, 1841–1887.

MONTH and DAY, 1888.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Lowest.	Daily Range.	Mean of 24 Hourly Values.	Excess above Average of 20 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Lowest on the Grass.	Of the Water of the Thames at Deptford. Highest.	Lowest.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	°	°	in.		
Dec. 1	...	29·594	45·7	36·3	9·4	42·0	+ 0·5	40·4	38·4	3·6	6·6	1·6	88	58·3	30·3	...	...	0·000	0·0	...
2	...	29·857	52·9	41·9	11·0	48·7	+ 6·9	46·8	44·8	3·9	6·6	2·7	87	70·6	34·2	44·0	42·9	0·033	1·2	...
3	Perigee: New	29·809	53·1	47·8	5·3	50·5	+ 8·4	48·1	45·6	4·9	7·6	3·0	84	74·2	42·0	44·8	43·7	0·000	5·8	...
4	...	29·881	55·6	49·1	6·5	52·1	+ 9·7	51·1	50·1	2·0	3·2	0·6	93	71·5	43·6	45·0	44·5	0·014	1·2	...
5	Greatest Declination S.	30·005	58·1	49·1	9·0	52·6	+10·0	51·1	49·6	3·0	6·8	0·4	90	77·2	43·8	46·8	45·9	0·003	4·8	...
6	...	30·022	56·7	43·1	13·6	50·5	+ 7·8	49·0	47·4	3·1	7·0	1·2	89	69·6	35·1	47·8	45·9	0·002	4·2	...
7	...	29·881	53·2	38·8	14·4	44·9	+ 2·1	42·1	38·8	6·1	12·0	1·4	79	93·5	28·4	48·6	45·9	0·000	6·8	...
8	...	29·899	48·5	35·6	12·9	42·7	− 0·1	42·5	42·3	0·4	3·4	0·0	98	64·2	27·9	48·1	45·1	0·129	0·0	...
9	...	30·060	45·0	27·5	17·5	39·9	− 2·9	39·0	37·8	2·1	4·6	0·4	93	46·6	23·6	50·0	48·8	0·000	0·0	...
10	First Qr.	30·157	34·8	27·4	7·4	30·4	−12·3	30·4	30·4	0·0	1·9	0·0	100	34·8	23·6	49·7	46·3	0·000	0·0	...
11	...	30·124	39·0	24·8	14·2	31·9	−10·6	31·4	30·4	1·5	5·1	0·0	95	47·0	23·5	48·9	46·7	0·000	2·0	...
12	In Equator	30·169	38·5	29·5	9·0	33·1	− 9·1	31·7	29·0	4·1	6·2	3·2	84	48·0	20·0	47·1	45·3	0·000	0·0	...
13	...	30·142	36·0	26·1	9·9	30·8	−11·0	30·2	28·6	2·2	7·0	0·0	92	49·6	16·7	45·0	41·9	0·000	4·0	...
14	...	30·097	39·3	29·7	9·6	34·4	− 7·1	34·4	34·4	0·0	0·8	0·0	100	47·4	20·3	44·8	39·3	0·003	0·0	...
15	...	30·214	39·0	30·5	8·5	32·8	− 8·3	32·8	32·8	0·0	0·0	0·0	100	39·6	30·5	41·8	39·1	0·002	0·0	...
16	Apogee	30·279	39·2	33·8	5·4	36·5	− 4·3	36·4	36·3	0·2	2·3	0·0	99	39·2	33·8	41·0	38·1	0·000	0·0	...
17	...	30·187	35·7	28·8	6·9	32·9	− 7·6	32·9	32·9	0·0	0·6	0·0	100	37·5	28·8	40·8	37·7	0·000	0·0	...
18	Full	29·991	35·7	26·4	9·3	29·8	−10·4	29·8	29·8	0·0	1·9	0·0	100	55·2	26·4	40·3	36·9	0·000	0·0	...
19	Greatest Declination N.	29·741	49·2	35·7	13·5	43·3	+ 3·3	42·8	42·2	1·1	4·0	0·0	96	58·5	27·9	41·6	38·9	0·000	2·5	...
20	...	29·461	48·5	39·7	8·8	43·8	+ 4·0	42·9	41·8	2·0	5·0	0·2	93	70·0	33·2	41·2	38·5	0·000	7·8	...
21	...	29·065	51·0	45·2	5·8	48·3	+ 8·7	46·6	44·8	3·5	6·7	1·3	88	64·0	40·9	42·1	38·9	0·070	5·5	...
22	...	29·015	51·7	42·5	9·2	47·5	+ 8·1	45·8	44·1	3·4	6·6	1·8	89	69·2	36·0	43·6	40·3	0·064	8·8	...
23	...	29·365	47·8	39·7	8·1	44·0	+ 4·7	43·1	42·0	2·0	4·4	0·9	93	56·4	32·3	44·0	41·5	0·000	5·5	...
24	...	29·351	50·4	42·3	8·1	46·4	+ 7·1	45·3	44·1	2·3	5·0	0·9	92	53·0	33·0	45·1	42·3	0·242	3·5	...
25	...	29·442	49·7	32·6	17·1	41·9	+ 2·7	40·6	39·0	2·9	5·5	0·5	90	57·6	28·7	45·3	41·7	0·075	2·0	...
26	Last Quarter: In Equator	29·619	45·5	34·2	11·3	40·2	+ 1·1	38·8	37·0	3·2	6·8	1·5	89	75·6	27·5	45·5	42·5	0·017	1·5	...
27	...	29·681	49·1	32·9	16·2	42·9	+ 3·9	41·0	38·7	4·2	6·3	2·0	85	52·7	26·0	45·0	42·3	0·000	3·2	...
28	...	29·392	48·9	37·9	11·0	44·6	+ 5·8	43·5	42·2	2·4	4·4	1·1	92	51·3	29·0	44·8	42·8	0·206	3·8	...
29	...	29·671	39·8	36·8	3·0	38·2	− 0·5	37·4	36·3	1·9	2·5	1·2	93	42·5	28·9	45·0	42·6	0·059	0·0	...
30	...	29·880	40·0	31·3	8·7	35·8	− 2·7	35·0	33·8	2·0	4·6	0·3	92	60·0	22·0	44·6	41·6	0·000	0·0	...
31	Perigee	29·955	37·1	25·9	11·2	30·9	− 7·4	30·6	30·1	0·8	3·4	0·0	96	43·3	20·4	44·4	41·4	0·000	0·0	...
Means	...	29·807	45·6	35·6	10·1	40·8	0·0	39·8	38·6	2·2	4·8	0·8	92·2	57·4	29·6	(30 days) 44·6	(30 days) 42·3	Sum 0·919	2·4	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is that determined from the reduction of the photographic records from 1849 to 1868. The temperature of the Dew Point (Column 9) and the Degree of Humidity (Column 13) are deduced from the corresponding temperatures of the Air and Evaporation by means of Glaisher's Hygrometrical Tables. The mean difference between the Air and Dew Point Temperatures (Column 10) is the difference between the numbers in Columns 6 and 9, and the Greatest and Least Differences (Columns 11 and 12) are deduced from the 24 hourly photographic measures of the Dry-bulb and Wet-bulb Thermometers.

The values given in Columns 3, 4, 5, 14, 15, 16, and 17 are derived from eye-readings of self-registering thermometers.

The observations of the temperature of the water of the Thames were resumed on December 2.

The mean reading of the *Barometer* for the month was 29in·807, being 0in·016 *higher* than the average for the 20 years, 1854–1873.

TEMPERATURE OF THE AIR.

The highest in the month was 58°·1 on December 5; the lowest in the month was 24°·8 on December 11; and the range was 33°·3.
The mean of all the highest daily readings in the month was 45°·6, being 1°·4 *higher* than the average for the 47 years, 1841–1887.
The mean of all the lowest daily readings in the month was 35°·6, being 0°·7 *higher* than the average for the 47 years, 1841–1887.
The mean of the daily ranges was 10°·1, being 0°·8 *greater* than the average for the 47 years, 1841–1887.
The mean for the month was 40°·8, being *the same as* the average for the 20 years, 1849–1868.

MONTH and DAY, 1888.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. OSLER'S. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	ROBINSON'S. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Dec. 1	3·0	8·1	WSW	WSW : SW	...	...	...	268	0, hy.-d : 0, m : 1, li.-cl	1, li.-cl, h : 0
2	1·6	8·1	WSW : SW	SSW	...	...	...	392	0 : v, ci.-cu, li.-cl	7, cu.-s, oc.-shs : p.-cl, oc.-shs : v
3	1·8	8·0	SSW	SSW	...	...	...	534	v : p.-cl, w	9, cu.-s, w : 10, st.-w : 10, st.-w
4	0·4	8·0	SSW	SSW	...	...	...	338	10 : 10, slt.-r : p.-cl	7, th.-cl : v : p.-cl, r
5	0·9	8·0	SSW	SSW	...	...	...	360	10 : 10	v, cu, th.-cl : v, th.-cl
6	0·3	8·0	SSW	SSE : ESE	...	...	...	205	10 : 10	8, cu.-s : v : 0, hy.-d
7	6·3	7·9	SE	SSE : S	...	...	...	176	0, d : 0 : 1, li.-cl	0 : 0, ho.-fr
8	0·2	7·9	SSW : Calm	Calm : NNW	...	...	...	133	0, ho.-fr : p.-cl, f	10, fq.-th.-r : 10, slt.-r, f
9	0·0	7·9	NNW : SW	NNW	...	...	...	138	10, f : 10, f : p.-cl, f, glm	p.-cl, f, glm : 0, slt.-f, ho.-fr
10	0·0	7·9	SW : SSW	SW : N	...	...	...	95	0, tk.-f, ho.-fr : 0, tk.-f	0, f : p.-cl, f : 10, f
11	0·0	7·8	Calm : NE	SE : SSE	...	...	...	102	10, f : 10, tk.-f, ho.-fr	9, cu.-s, slt.-f : p.-cl : 4, li.-cl, lu.-ha
12	2·8	7·8	ESE	SE : ESE	1·1	0·0	0·01	139	p.-cl, ho.-fr : 3, th.-cl, ho.-fr, so.-ha	3, th.-cl : 0 : 0, ho.-fr
13	1·0	7·8	ESE : SE	ESE	0·6	0·0	0·01	143	0, ho.-fr : 9, cu.-s	v, cu, cu.-s, slt.-h : 0, slt.-h, ho.-fr : v, sc, ho.-fr
14	0·0	7·8	SSE : ESE	SSE : ENE	0·0	0·0	0·00	83	v : 10, tk.-f	10, tk.-f : 10, f, m.-r
15	0·0	7·8	Calm : SW	SW : Calm	0·0	0·0	0·00	71	10, f, m.-r : 10, tk.-f, glm	10, f, m.-r : 10, f
16	0·0	7·8	N : WNW	WSW	0·0	0·0	0·00	137	10, f : 10, f, glm	10, f, glm : 10, f, glm
17	0·0	7·7	WSW : W	WSW : SW	0·7	0·0	0·02	195	10, f : 10, f	10, f : 10, f, fr
18	0·0	7·7	Calm	NE : SE	0·0	0·0	0·00	73	10, slt.-f, ho.-fr : 10, tk.-f	10, tk.-f : 10, tk.-f : v, f
19	1·8	7·7	SSW : SW	S : SSE	2·5	0·0	0·18	237	p.-cl : p.-cl, cu.-s	10 : 10
20	1·9	7·7	SSE	SSE	1·8	0·0	0·07	241	0, d : 4, li.-cl, cu.-s, ci.-cu	6, ci.-cu, ci.-s, li.-cl : 10 : 10
21	1·2	7·7	SSE : S	SSE : SE	6·7	0·0	1·15	402	10, slt.-r : p.-cl, shs.-r : 8, cu.-s, ci.-s	10, sc, oc.-r, w : 10, r, w
22	1·3	7·7	SSE : S	SSW : SSE	2·6	0·0	0·46	309	v, shs.-r : 10, cu.-s	7, cu, cu.-s, ci.-s : v, slt.-r : 1
23	1·2	7·7	SSE	SSE : SSW	1·0	0·0	0·04	216	0 : p.-cl, cu.-s	p.-cl, cu.-s : v : 2, li.-cl
24	0·0	7·7	SSW	SSW : WNW	5·0	0·0	0·61	356	v : 10, slt.-r, w	10, oc.-slt.-r : 10, fq.-r
25	1·7	7·7	SW : S	S : WSW	6·9	0·0	0·81	376	p.-cl : v, li.-cl, ho.-fr	10, fq.-r, w : v, th.-cl, w
26	1·0	7·8	WSW	WSW	2·7	0·0	0·25	299	0 : 4, li.-cl	7, li.-cl, cu.-s, slt.-r : v, li.-cl : 0, ho.-fr
27	0·7	7·8	SSW	SSW	8·5	0·0	1·57	474	0, fr : 3, li.-cl, cu.-s, ci.-cu, w	10, sc, w : 10, sc, slt.-r, w
28	0·0	7·8	SSW	NNW : N	6·4	0·0	1·22	350	10, w : 10, r, w : 10, sc, fq.-r, w	10, fq.-r : 10 : v, slt.-f
29	0·0	7·8	N : NNE	N	1·9	0·0	0·31	274	10 : 10 : 10, oc.-th.-r	10, fq.-r : 10, slt.-r
30	2·2	7·8	N : NNE	N : NNE	2·3	0·0	0·29	288	10 : 10	p.-cl, ci.-cu : 0 : 0, ho.-fr
31	0·9	7·8	Calm	Calm	0·0	0·0	0·00	57	0, tk.-f, ho.-fr : 2, cu.-s, tk.-f, ho.-fr	1, ci.-cu, li.-cl, f : 0, f : 0, tk.-f
Means	1·0	7·8	...	...	...	...	(20 days) 0·35	241		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 39°·8, being 0°·5 *higher* than
The mean *Temperature of the Dew Point* for the month was 38°·6, being 1°·2 *higher* than
The mean *Degree of Humidity* for the month was 92·2, being 4·4 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·234, being 0in·010 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·8, being 0gr·2 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 552 grains, being 1 grain *greater* than
} the average for the 20 years, 1849–1868.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 6·7.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·13. The maximum daily amount of *Sunshine* was 6·3 hours on December 7.

The highest reading of the *Solar Radiation Thermometer* was 93°·5 on December 7; and the lowest reading of the *Terrestrial Radiation Thermometer* was 16°·7 on December 13.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·7; for the 6 hours ending 15h. was 0·4; and for the 6 hours ending 21h. was 0·3.

The *Proportions of Wind* referred to the cardinal points were N. 4, E. 4, S. 15, and W. 6. Two days were calm.

The apparatus for recording the *Pressure of the Wind* was under adjustment until December 11. The mean daily *Horizontal Movement of the Air* for the month was 241 miles; the greatest daily value was 534 miles on December 3; and the least daily value was 57 miles on December 31.

Rain fell on 10 days in the month, amounting to 0in·919, as measured by gauge No. 6 partly sunk below the ground; being 0in·898 *less* than the average fall for the 47 years, 1841–1887.

HIGHEST and LOWEST READINGS of the BAROMETER, reduced to 32° Fahrenheit, as extracted from the PHOTOGRAPHIC RECORDS.

MAXIMA.

Greenwich Civil Time, 1888.	d h m	Reading. in.
January	3. 21. 40	29·903
	10. 10. 25	30·547
	19. 0. 35	30·494
	24. 10. 45	30·286
	27. 1. 15	30·094
	28. 19. 0	29·816
	30. 2. 0	29·930
February	2. 9. 10	29·995
	4. 22. 0	30·168
	6. 23. 0	30·136
	9. 19. 0	29·860
	13. 16. 45	29·614
	16. 19. 45	29·941
	23. 22. 50	29·861
	28. 11. 30	30·237
March	1. 12. 30	30·154
	3. 21. 5	29·906
	5. 19. 30	29·884
	7. 1. 15	29·944
	10. 22. 15	29·311
	13. 12. 0	29·511
	18. 18. 15	30·020
	21. 20. 45	30·071
	24. 11. 0	29·276
	25. 13. 0	29·005
	26. 13. 0	28·946
April	1. 9. 10	29·885
	3. 20. 10	29·729
	7. 0. 0	30·100
	8. 23. 25	29·866

MINIMA.

Greenwich Civil Time, 1888.	d h m	Reading. in.
January	2. 15. 5	29·143
	5. 5. 15	29·483
	16. 5. 20	30·240
	22. 3. 45	29·648
	26. 6. 20	29·611
	28. 3. 0	29·715
	29. 5. 30	29·746
	31. 17. 35	29·072
February	3. 5. 0	29·830
	6. 3. 20	30·022
	9. 3. 20	29·760
	11. 23. 12	29·258
	14. 12. 50	29·386
	19. 6. 30	29·275
	25. 6. 30	29·741
March	1. 3. 0	30·050
	3. 2. 25	29·725
	4. 15. 30	29·697
	6. 5. 15	29·805
	10. 4. 0	29·134
	11. 14. 50	28·596
	15. 7. 0	29·016
	20. 3. 35	29·750
	23. 16. 25	29·130
	25. 6. 5	28·926
	25. 22. 30	28·822
	28. 14. 35	28·563
April	2. 15. 30	29·578
	4. 11. 10	29·610
	8. 9. 0	29·784

MAXIMA.

Greenwich Civil Time, 1888.	d h m	Reading. in.
April	10. 21. 5	29·934
	14. 10. 28	29·793
	16. 19. 45	29·776
	21. 21. 40	29·565
	27. 0. 0	30·085
May	2. 6. 0	29·728
	5. 23. 40	30·168
	11. 7. 40	30·306
	18. 9. 10	29·627
	21. 21. 45	30·269
	29. 11. 15	29·819
June	1. 21. 30	30·077
	5. 6. 45	29·969
	10. 23. 20	29·964
	15. 8. 30	29·852
	18. 22. 25	30·054
	23. 8. 10	29·986
July	1. 21. 15	29·884
	8. 0. 20	29·911
	10. 11. 55	29·766
	13. 6. 5	29·952
	20. 11. 0	29·758
	25. 0. 0	29·660
	27. 0. 0	29·715
	29. 10. 10	29·641
August	3. 7. 45	30·089
	8. 9. 10	29·982
	11. 7. 50	29·923
	14. 11. 55	30·035
	16. 23. 25	29·994

MINIMA.

Greenwich Civil Time, 1888.	d h m	Reading. in.
April	9. 17. 0	29·753
	13. 5. 40	29·563
	15. 14. 45	29·545
	20. 5. 0	29·383
	22. 15. 5	29·498
May	1. 8. 40	29·228
	2. 18. 50	29·524
	8. 15. 15	30·010
	16. 17. 25	29·356
	19. 7. 0	29·530
	28. 6. 50	29·544
	30. 3. 50	29·506
June	3. 11. 35	29·675
	9. 11. 0	29·392
	12. 17. 0	29·510
	15. 21. 35	29·589
	20. 17. 0	29·713
	29. 15. 45	29·350
July	5. 3. 0	29·300
	9. 20. 10	29·696
	11. 4. 30	29·450
	16. 15. 25	29·258
	23. 0. 45	29·407
	25. 22. 5	29·422
	28. 5. 20	29·213
	30. 15. 15	29·246
August	5. 5. 30	29·500
	10. 12. 50	29·834
	13. 3. 20	29·622
	15. 19. 0	29·860

HIGHEST and LOWEST READINGS of the BAROMETER reduced to 32° Fahrenheit, as extracted from the PHOTOGRAPHIC RECORDS—*continued.*

MAXIMA.		MINIMA.		MAXIMA.		MINIMA.	
Greenwich Civil Time, 1888.	Reading.	Greenwich Civil Time, 1888.	Reading.	Greenwich Civil Time, 1888.	Reading.	Greenwich Civil Time, 1888.	Reading.
d h m	in.	d h m	in.	d h m	in.	d h m	in.
August 18. 23. 0	30·120	August 17. 16. 5	29·897	November 5. 20. 55	29·701	November 4. 23. 35	29·518
22. 23. 3	29·802	21. 8. 45	29·457	8. 10. 5	29·716	7. 3. 50	29·576
26. 23. 25	29·810	24. 17. 55	29·416	10. 7. 0	29·715	9. 3. 0	29·593
September 1. 7. 0	30·166	28. 21. 40	29·314	11. 21. 5	29·696	11. 1. 12	29·607
5. 20. 45	29·950	September 3. 15. 25	29·747	15. 20. 55	30·010	13. 9. 20	29·205
8. 19. 30	30·232	6. 16. 20	29·836	16. 22. 35	29·988	16. 12. 20	29·885
12. 22. 35	30·335	10. 4. 20	29·900	22. 0. 25	30·051	20. 4. 35	29·500
18. 23. 0	30·126	16. 2. 40	29·940	23. 17. 55	30·077	22. 16. 0	29·963
26. 21. 0	30·094	24. 16. 45	29·702	26. 22. 50	29·512	26. 5. 35	29·381
30. 20. 35	29·658	30. 0. 10	29·375	28. 11. 50	29·311	27. 14. 0	29·068
October 4. 8. 55	29·475	October 2. 15. 3	29·099	December 2. 19. 10	29·899	30. 5. 30	29·038
8. 8. 10	30·045	4. 19. 15	29·325	6. 10. 35	30·070	December 3. 18. 0	29·750
11. 11. 5	29·956	10. 4. 40	29·877	10. 20. 40	30·178	7. 14. 30	29·835
16. 10. 55	30·217	13. 4. 40	29·639	12. 21. 20	30·226	11. 14. 30	30·081
22. 10. 25	30·292	18. 16. 30	30·038	16. 10. 25	30·327	14. 4. 5	30·063
27. 21. 40	30·125	25. 14. 25	29·799	23. 22. 35	29·436	22. 4. 50	28·815
29. 8. 20	30·059	28. 19. 30	29·963	25. 7. 25	29·581	24. 19. 0	29·285
31. 8. 35	29·823	30. 13. 40	29·661	27. 1. 50	29·835	25. 17. 30	29·268
November 4. 9. 15	29·629	November 2. 6. 0	29·211	30. 23. 55	29·997	28. 7. 50	29·306
						31. 15. 30	29·909

The readings in the above table are accurate, but the times are occasionally liable to uncertainty, as the barometer will sometimes remain at its extreme reading without sensible change for a considerable interval of time. In such cases the time given is the middle of the stationary period.
The time is expressed in civil reckoning, commencing at midnight and counting from 0^{h} to 24^{h}.
The height of the barometer cistern above mean sea level is 159 feet: no correction has been applied to the readings to reduce to sea level.

HIGHEST AND LOWEST READINGS of the BAROMETER in each Month for the YEAR 1888.
[Extracted from the preceding Table.]

MONTH, 1888.	Readings of the Barometer.		Range.
	Highest.	Lowest.	
	in.	in.	in.
January	30·547	29·072	1·475
February	30·237	29·258	0·979
March	30·154	28·563	1·591
April	30·100	29·383	0·717
May	30·306	29·228	1·078
June	30·077	29·350	0·727
July	29·952	29·213	0·739
August	30·120	29·314	0·806
September	30·335	29·375	0·960
October	30·292	29·099	1·193
November	30·077	29·038	1·039
December	30·327	28·815	1·512

The highest reading in the year was 30in·547 on January 10. The lowest reading in the year was 28in·563 on March 28.
The range of reading in the year was 1in·984.

MONTHLY RESULTS of METEOROLOGICAL ELEMENTS for the YEAR 1888.

MONTH, 1888.	Mean Reading of the Barometer.	TEMPERATURE OF THE AIR. Highest.	Lowest.	Range in the Month.	Mean of all the Highest.	Mean of all the Lowest.	Mean of the Daily Ranges.	Monthly Mean.	Excess of Mean above Average of 20 Years.	Mean Temperature of Evaporation.	Mean Temperature of the Dew Point.	Mean Degree of Humidity. (Saturation = 100.)
	in.	°	°	°	°	°	°	°	°	°	°	
January ...	30.055	51.0	22.1	28.9	41.6	33.6	8.0	37.9	− 0.8	36.7	34.6	88.0
February...	29.774	50.8	18.4	32.4	39.3	30.8	8.4	35.3	− 4.4	33.5	29.7	79.9
March	29.435	56.5	25.4	31.1	44.4	33.0	11.4	38.3	− 3.3	36.3	33.3	82.4
April	29.711	67.7	26.3	41.4	52.6	36.3	16.2	43.5	− 4.0	40.7	37.5	79.9
May.........	29.878	76.8	33.8	43.0	64.7	42.6	22.1	53.0	− 0.1	48.2	43.4	70.3
June	29.755	87.6	45.5	42.1	69.3	49.9	19.4	58.3	− 1.5	54.3	50.7	76.8
July.........	29.595	74.0	42.8	31.2	67.2	51.5	15.8	58.0	− 4.6	55.1	52.4	82.2
August	29.830	87.7	45.2	42.5	69.4	50.9	18.5	59.2	− 2.6	55.6	52.4	78.6
September.	29.969	74.0	38.5	35.5	65.3	48.3	17.0	55.9	− 1.6	53.3	50.8	83.2
October ...	29.889	68.4	27.9	40.5	55.2	37.7	17.5	46.0	− 5.1	43.8	41.4	84.4
November.	29.626	59.4	33.5	25.9	51.5	42.7	8.7	47.2	+ 4.5	45.5	43.6	87.7
December..	29.807	58.1	24.8	33.3	45.6	35.6	10.1	40.8	0.0	39.8	38.6	92.2
Means	29.777	Highest. 87.7	Lowest. 18.4	Annual Range. 69.3	55.5	41.1	14.4	47.8	− 2.0	45.2	42.4	82.1

MONTH, 1888.	Mean Elastic Force of Vapour.	Mean Weight of Vapour in a Cubic Foot of Air.	Mean Weight of a Cubic Foot of Air.	Mean Amount of Ozone.	Mean Amount of Cloud. (0–10.)	RAIN. Number of Rainy Days.	RAIN. Amount collected in Gauge No. 6 whose receiving Surface is 5 inches above the Ground.	WIND. From Osler's Anemometer. Number of Hours of Prevalence of each Wind referred to different Points of Azimuth. N.	N.E.	E.	S.E.	S.	S.W.	W	N.W	Number of Calm or nearly Calm Hours.	Mean Daily Pressure on the Square Foot.	From Robinson's Anemometer. Mean Daily Horizontal Movement of the Air.
	in.	grs.	grs				in.	h	h	h	h	h	h	h	h	h	lbs.	miles.
January ...	0.200	2.4	560	1.4	7.4	11	0.893	49	78	98	56	93	211	79	65	15	0.42	296
February...	0.165	2.0	558	0.6	8.8	15	0.894	158	222	42	9	4	89	104	68	0	0.95	386
March	0.190	2.2	548	3.0	8.4	21	2.782	172	92	30	48	68	207	68	55	4	1.19	377
April	0.225	2.6	547	2.5	7.6	14	1.507	128	156	48	9	63	193	87	31	5	0.49	321
May.........	0.281	3.2	540	4.8	5.6	5	0.646	72	128	67	69	80	185	113	18	12	0.94	317
June	0.370	4.2	531	2.7	7.8	15	3.356	136	99	70	36	77	180	91	12	19	0.44	244
July.........	0.394	4.4	529	2.8	8.5	26	6.748	66	48	60	40	112	275	66	77	0	0.71	267
August ...	0.394	4.4	531	1.9	7.0	12	3.734	70	71	14	36	101	325	80	35	12	0.65	273
September.	0.371	4.2	537	1.0	6.1	12	0.729	129	185	79	10	22	189	64	24	18	0.39	222
October ...	0.261	3.0	547	0.4	4.8	6	1.296	104	57	96	20	60	246	98	23	40	0.30*	218
November.	0.284	3.3	541	2.4	7.8	18	4.001	15	23	168	106	76	228	87	3	14	...	390
December..	0.234	2.8	552	2.4	6.7	10	0.919	77	19	30	124	191	188	45	17	53	0.35*	241
Sums	...	...	...	...	...	165	27.505	1176	1178	802	563	947	2516	982	428	192	...	...
Means	0.281	3.2	543	2.2	7.2	...	...	...	...	...	...	...	...	...	...	...	...	296

The greatest recorded daily horizontal movement of the air in the year was 790 miles on March 11.
The least recorded daily horizontal movement of the air „ „ 57 miles on December 31.

* The mean daily pressures of the wind for October and December are derived from the results for 30 and 20 days respectively.

MONTHLY MEAN READING of the BAROMETER at every HOUR of the DAY, as deduced from the PHOTOGRAPHIC RECORDS.

Hour, Greenwich Civil Time.	1888.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Midnight	30.069	29.762	29.455	29.733	29.881	29.769	29.592	29.831	29.980	29.896	29.644	29.806	29.785
1h.	30.063	29.760	29.452	29.728	29.879	29.766	29.588	29.828	29.975	29.893	29.638	29.803	29.781
2	30.061	29.757	29.447	29.722	29.878	29.761	29.585	29.826	29.971	29.892	29.633	29.805	29.778
3	30.058	29.756	29.434	29.715	29.875	29.754	29.583	29.822	29.965	29.887	29.626	29.804	29.773
4	30.052	29.753	29.427	29.711	29.874	29.755	29.583	29.819	29.961	29.884	29.619	29.798	29.770
5	30.049	29.754	29.427	29.709	29.878	29.757	29.585	29.823	29.962	29.885	29.617	29.798	29.770
6	30.046	29.757	29.423	29.712	29.883	29.759	29.590	29.828	29.968	29.886	29.614	29.799	29.772
7	30.050	29.763	29.425	29.715	29.886	29.764	29.595	29.833	29.974	29.893	29.617	29.804	29.777
8	30.055	29.772	29.430	29.715	29.888	29.768	29.601	29.839	29.978	29.900	29.626	29.814	29.782
9	30.062	29.777	29.433	29.716	29.888	29.765	29.603	29.841	29.983	29.904	29.628	29.819	29.785
10	30.066	29.783	29.437	29.716	29.886	29.763	29.606	29.841	29.982	29.903	29.628	29.826	29.786
11	30.068	29.789	29.438	29.715	29.883	29.759	29.605	29.841	29.980	29.900	29.628	29.820	29.786
Noon	30.061	29.786	29.437	29.712	29.880	29.756	29.606	29.837	29.976	29.894	29.623	29.812	29.782
13h.	30.051	29.779	29.431	29.707	29.873	29.751	29.603	29.835	29.971	29.884	29.618	29.800	29.775
14	30.045	29.773	29.426	29.702	29.868	29.748	29.600	29.832	29.964	29.878	29.612	29.794	29.770
15	30.046	29.769	29.421	29.694	29.862	29.743	29.597	29.826	29.957	29.872	29.611	29.794	29.766
16	30.048	29.770	29.421	29.692	29.860	29.740	29.594	29.821	29.953	29.870	29.614	29.795	29.765
17	30.050	29.774	29.425	29.692	29.859	29.735	29.589	29.818	29.952	29.874	29.620	29.797	29.765
18	30.050	29.782	29.433	29.695	29.861	29.737	29.590	29.818	29.957	29.881	29.628	29.801	29.769
19	30.051	29.786	29.441	29.704	29.868	29.741	29.589	29.823	29.963	29.883	29.631	29.808	29.774
20	30.053	29.788	29.443	29.713	29.878	29.747	29.592	29.832	29.968	29.887	29.634	29.813	29.779
21	30.056	29.791	29.445	29.718	29.890	29.756	29.598	29.836	29.971	29.892	29.637	29.815	29.784
22	30.055	29.793	29.447	29.718	29.897	29.760	29.598	29.839	29.970	29.893	29.636	29.816	29.785
23	30.053	29.793	29.447	29.717	29.902	29.762	29.598	29.843	29.968	29.897	29.639	29.822	29.787
24	30.051	29.791	29.446	29.716	29.903	29.761	29.594	29.843	29.963	29.896	29.637	29.823	29.785
Means 0h.–23h.	30.055	29.774	29.435	29.711	29.878	29.755	29.595	29.830	29.969	29.889	29.626	29.807	29.777
Means 1h.–24h.	30.054	29.775	29.435	29.711	29.879	29.755	29.595	29.831	29.968	29.889	29.626	29.807	29.777
Number of Days employed.	31	29	31	30	31	30	31	31	30	31	30	31	...

MONTHLY MEAN TEMPERATURE of the AIR at every HOUR of the DAY, as deduced from the PHOTOGRAPHIC RECORDS.

Hour, Greenwich Civil Time.	1888.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	36.7	34.4	36.2	39.6	47.3	53.1	54.9	54.5	52.4	42.7	46.4	40.0	44.8
1h.	36.7	34.0	36.0	39.2	46.8	52.7	54.6	54.3	52.2	42.3	46.3	39.9	44.6
2	36.7	33.7	35.9	38.8	46.2	52.5	54.1	54.2	51.8	41.8	46.2	39.7	44.3
3	36.5	33.7	35.7	38.7	45.8	52.4	53.8	53.8	51.6	41.5	46.1	39.7	44.1
4	36.4	33.7	35.7	38.6	45.5	52.1	53.5	53.7	51.4	41.2	46.0	39.5	43.9
5	36.4	33.5	35.7	38.7	45.6	52.3	53.7	53.8	51.3	40.8	45.9	39.4	43.9
6	36.3	33.3	35.8	39.0	46.9	53.5	54.6	54.5	51.4	40.7	46.0	39.5	44.3
7	36.3	33.5	36.0	40.3	49.6	55.3	56.2	56.0	52.2	41.1	46.0	39.2	45.1
8	36.3	34.0	36.8	42.1	52.6	57.3	57.8	58.6	54.1	42.6	46.1	39.3	46.5
9	36.6	34.7	38.1	44.1	54.9	59.4	59.5	61.1	56.7	45.4	46.9	39.5	48.1
10	37.4	35.7	39.4	45.7	57.2	61.8	60.7	63.0	58.8	48.6	48.1	40.7	49.8
11	38.5	36.7	40.5	47.2	58.5	63.1	61.7	64.4	60.5	51.0	49.1	42.1	51.1
Noon	39.5	37.4	41.3	48.1	59.9	64.3	62.3	65.2	61.6	52.5	49.4	43.0	52.0
13h.	40.0	37.8	41.4	49.0	60.8	64.7	62.7	65.3	62.1	53.2	49.7	43.9	52.6
14	39.9	37.9	41.7	49.2	61.3	65.1	63.2	65.6	62.6	53.2	49.6	43.7	52.8
15	39.6	37.6	41.8	49.6	61.3	65.1	62.7	65.8	62.4	52.5	49.0	43.1	52.5
16	39.1	37.4	41.4	49.3	60.6	64.7	62.0	65.3	61.4	50.9	48.2	42.2	51.9
17	38.5	36.7	40.5	48.1	58.9	63.4	60.9	63.9	59.4	49.2	47.6	41.7	50.7
18	38.0	36.1	39.3	46.5	56.8	62.0	59.9	62.2	57.7	47.6	47.2	41.2	49.5
19	37.7	35.6	38.2	44.8	54.7	60.3	58.7	60.1	55.9	46.6	47.1	40.9	48.4
20	37.5	35.2	37.5	43.2	52.5	58.1	57.4	58.2	54.7	45.4	46.8	40.7	47.3
21	37.1	34.9	37.0	41.8	50.7	56.1	56.3	56.8	53.7	44.6	46.7	40.4	46.3
22	37.0	34.8	36.9	40.9	49.3	54.9	55.6	55.8	53.0	44.0	46.4	40.0	45.7
23	36.9	34.6	36.7	40.3	48.2	53.9	55.2	55.1	52.4	43.4	46.4	39.7	45.2
24	37.0	34.2	36.3	39.9	47.3	53.2	55.0	54.4	52.1	43.0	46.2	39.6	44.8
Means 0h.–23h.	37.6	35.3	38.1	43.5	53.0	58.3	58.0	59.2	55.9	46.0	47.2	40.8	47.7
Means 1h.–24h.	37.6	35.3	38.2	43.5	53.0	58.3	58.0	59.2	55.9	46.0	47.2	40.8	47.7
Number of Days employed.	29	29	30	30	31	30	31	31	30	31	30	31	...

MONTHLY MEAN TEMPERATURE of EVAPORATION at every HOUR of the DAY, as deduced from the PHOTOGRAPHIC RECORDS.

Hour, Greenwich Civil Time.	1888. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	35·6	32·8	34·8	38·3	44·9	51·5	53·6	53·1	51·5	41·5	44·9	39·2	43·5
1h.	35·6	32·6	34·8	38·1	44·6	51·1	53·2	53·0	51·2	41·3	44·9	39·1	43·3
2	35·6	32·5	34·7	37·9	44·2	51·0	52·9	52·8	51·0	40·9	44·8	38·9	43·1
3	35·6	32·5	34·7	37·6	43·9	50·9	52·6	52·6	50·9	40·6	44·8	38·9	43·0
4	35·6	32·5	34·8	37·6	43·7	50·7	52·3	52·5	50·5	40·4	44·8	38·8	42·9
5	35·6	32·4	34·8	37·7	43·7	50·8	52·5	52·6	50·6	39·9	44·8	38·7	42·8
6	35·5	32·3	34·8	38·1	44·8	51·8	53·1	53·2	50·5	39·8	44·8	38·8	43·1
7	35·6	32·4	35·0	38·9	46·5	52·9	54·1	54·3	51·2	40·1	44·8	38·6	43·7
8	35·6	32·7	35·6	40·2	48·1	53·5	54·9	55·6	52·6	41·3	44·9	38·5	44·5
9	35·7	33·2	36·3	41·4	49·4	54·9	55·7	56·9	54·3	43·6	45·6	38·8	45·5
10	36·4	33·9	37·0	42·3	50·7	56·3	56·3	57·7	55·4	45·9	46·4	39·8	46·5
11	36·9	34·4	37·6	43·2	51·2	56·8	57·0	58·3	55·9	47·2	47·0	40·7	47·2
Noon	37·7	34·8	37·9	43·6	51·9	57·4	57·4	58·6	56·2	48·1	47·0	41·4	47·7
13h.	38·0	35·1	37·9	44·0	52·2	57·5	57·7	58·7	56·3	48·3	47·1	42·1	47·9
14	38·0	35·1	38·2	44·2	52·5	57·9	57·8	58·9	56·5	48·4	46·8	42·1	48·0
15	37·9	34·9	38·4	44·4	52·6	58·0	57·4	59·1	56·4	48·0	46·5	41·6	47·9
16	37·6	34·7	38·2	43·9	52·2	57·8	57·2	58·6	55·9	47·2	46·0	41·0	47·5
17	37·0	34·3	37·7	43·3	51·6	57·0	56·6	57·9	55·0	46·2	45·5	40·7	46·9
18	36·7	34·0	37·1	42·6	50·6	56·4	56·2	57·3	54·3	45·2	45·3	40·3	46·3
19	36·5	33·7	36·4	41·6	49·5	55·6	55·7	56·2	53·4	44·7	45·2	39·9	45·7
20	36·5	33·4	35·9	40·8	48·3	54·6	55·1	55·3	52·8	43·9	45·1	39·7	45·1
21	36·0	33·1	35·5	40·0	47·3	53·5	54·6	54·6	52·3	43·2	45·0	39·4	44·5
22	35·7	32·9	35·4	39·3	46·3	52·8	54·3	53·9	51·9	42·8	44·8	39·2	44·1
23	35·6	32·8	35·2	39·0	45·5	52·0	53·9	53·5	51·4	42·1	44·8	38·8	43·7
24	35·8	32·6	35·0	38·6	44·9	51·5	53·7	53·0	51·2	41·8	44·7	38·8	43·5
Means { 0h.–23h.	36·4	33·5	36·2	40·7	48·2	54·3	55·1	55·6	53·3	43·8	45·5	39·8	45·2
Means { 1h.–24h.	36·4	33·4	36·2	40·8	48·2	54·3	55·1	55·6	53·2	43·8	45·5	39·8	45·2
Number of Days employed }	29	29	30	30	31	30	31	31	30	31	30	31	...

MONTHLY MEAN TEMPERATURE of the DEW POINT at every HOUR of the DAY, as deduced by GLAISHER'S TABLES from the corresponding AIR and EVAPORATION TEMPERATURES.

Hour, Greenwich Civil Time.	1888. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	34·1	30·1	32·7	36·6	42·3	49·9	52·3	51·7	50·6	40·1	43·2	38·2	41·8
1h.	34·1	30·1	33·0	36·7	42·1	49·5	51·8	51·7	50·2	40·1	43·3	38·1	41·7
2	34·1	30·4	32·9	36·7	41·9	49·5	51·7	51·4	50·2	39·8	43·2	37·9	41·6
3	34·4	30·4	33·2	36·1	41·7	49·4	51·4	51·4	50·2	39·5	43·4	37·9	41·6
4	34·5	30·4	33·4	36·3	41·6	49·3	51·1	51·3	49·6	39·4	43·5	37·9	41·5
5	34·5	30·4	33·4	36·4	41·5	49·3	51·3	51·4	49·9	38·8	43·6	37·8	41·5
6	34·4	30·4	33·3	36·9	42·5	50·1	51·6	51·9	49·6	38·7	43·5	37·9	41·7
7	34·6	30·4	33·5	37·1	43·2	50·6	52·1	52·7	50·2	38·8	43·5	37·8	42·0
8	34·6	30·4	34·0	37·8	43·6	50·0	52·4	52·9	51·1	39·7	43·6	37·5	42·3
9	34·5	30·7	33·9	38·2	44·1	50·9	52·3	53·2	52·1	41·5	44·2	37·9	42·8
10	35·0	31·2	33·9	38·4	44·8	51·6	52·5	53·2	52·3	43·0	44·5	38·7	43·3
11	34·7	31·1	33·9	38·7	44·7	51·5	52·9	53·2	51·9	43·2	44·7	39·0	43·3
Noon	35·4	31·2	33·7	38·7	44·9	51·7	53·2	53·2	51·6	43·6	44·4	39·5	43·4
13h.	35·4	31·4	33·5	38·6	44·7	51·5	53·5	53·3	51·3	43·4	44·3	39·9	43·4
14	35·5	31·3	33·9	38·8	44·8	52·0	53·3	53·4	51·3	43·6	43·8	40·2	43·5
15	35·7	31·2	34·2	38·8	45·0	52·2	52·9	53·6	51·2	43·4	43·8	39·8	43·5
16	35·6	31·0	34·2	38·1	44·9	52·1	53·1	53·1	51·2	43·3	43·6	39·6	43·3
17	35·0	30·8	34·2	38·0	45·1	51·6	52·9	53·0	51·1	43·0	43·2	39·5	43·1
18	34·9	30·9	34·2	38·2	44·9	51·6	53·0	53·1	51·2	42·6	43·2	39·2	43·1
19	34·9	30·8	34·0	37·9	44·5	51·5	53·0	52·8	51·1	42·6	43·1	38·7	42·9
20	35·1	30·5	33·7	37·9	44·0	51·5	53·0	52·7	51·0	42·2	43·2	38·5	42·8
21	34·5	30·2	33·4	37·7	43·7	51·1	53·0	52·6	50·9	41·6	43·1	38·1	42·5
22	33·9	29·8	33·3	37·3	43·1	50·8	53·0	52·1	50·8	41·4	43·0	38·2	42·2
23	33·8	29·9	33·1	37·3	42·5	50·1	52·6	52·0	50·4	40·5	43·0	37·6	41·9
24	34·1	29·8	33·1	36·9	42·3	49·8	52·4	51·6	50·3	40·4	43·0	37·8	41·8
Means { 0h.–23h.	34·7	30·6	33·6	37·6	43·6	50·8	52·5	52·5	50·9	41·4	43·6	38·6	42·5
Means { 1h.–24h.	34·7	30·6	33·6	37·6	43·6	50·8	52·5	52·5	50·9	41·4	43·6	38·5	42·5

MONTHLY MEAN DEGREE of HUMIDITY (Saturation = 100) at every HOUR of the DAY, as deduced by GLAISHER'S TABLES from the corresponding AIR and EVAPORATION TEMPERATURES.

Hour, Greenwich Civil Time.	1888. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
Midnight	91	84	88	90	83	89	91	90	94	90	90	94	89
1^h.	91	85	89	91	85	89	90	91	93	92	90	94	90
2	91	87	89	93	86	90	92	90	94	94	90	94	91
3	92	87	91	92	87	90	92	92	95	93	91	94	91
4	93	87	92	92	87	90	92	92	94	94	92	94	92
5	93	88	92	92	86	90	92	92	95	93	92	94	92
6	93	89	91	93	85	89	90	91	94	93	92	94	91
7	94	88	91	89	79	85	86	89	93	92	92	95	89
8	94	86	90	86	72	77	82	82	90	90	92	94	86
9	92	85	85	79	67	74	77	76	85	87	91	94	83
10	91	83	81	76	63	70	74	71	79	82	88	93	79
11	87	81	78	73	60	66	73	67	73	75	85	89	76
Noon	86	79	75	70	57	63	73	65	70	72	84	87	73
13^h.	84	78	74	67	56	62	72	65	68	70	82	86	72
14	85	78	75	67	55	62	70	65	67	70	81	87	72
15	86	78	76	66	55	63	70	65	67	71	82	88	72
16	88	78	76	65	56	63	73	65	70	76	85	90	74
17	88	80	79	68	60	65	75	68	74	79	86	92	76
18	89	81	82	74	65	69	79	73	79	84	87	93	80
19	90	82	85	76	68	73	82	77	85	87	87	92	82
20	91	83	87	81	73	78	85	82	87	89	88	92	85
21	90	82	87	86	78	83	89	86	90	89	88	92	87
22	89	82	87	87	79	86	91	88	92	90	89	94	88
23	89	82	87	90	81	87	91	90	93	90	89	93	89
24	89	83	89	90	83	88	91	90	94	90	90	94	89
Means 0^h.–23^h.	90	83	84	81	72	77	83	80	84	85	88	92	83
Means 1^h.–24^h.	90	83	84	81	72	77	83	80	84	85	88	92	83

TOTAL AMOUNT of SUNSHINE registered in each HOUR of the DAY in each MONTH, as derived from the RECORDS of the CAMPBELL-STOKES SELF-REGISTERING INSTRUMENT, for the YEAR 1888.

Month, 1888.	Registered Duration of Sunshine in the Hour ending 5^h.	6^h.	7^h.	8^h.	9^h.	10^h.	11^h.	Noon.	13^h.	14^h.	15^h.	16^h.	17^h.	18^h.	19^h.	20^h.	Total registered Duration of Sunshine in each Month.	Corresponding aggregate Period during which the Sun was above Horizon.	Proportion of Sunshine.	Mean Altitude of the Sun at Noon.
	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h		°
January ...	...	...	...	...	...	0·5	2·8	4·9	2·8	2·2	2·0	0·3	...	...	...	...	15·5	259·1	0·060	18
February ...	...	...	...	...	1·0	2·8	4·1	3·6	4·2	2·9	2·7	1·6	...	...	...	...	22·9	288·7	0·079	26
March	...	...	0·1	1·1	2·6	5·0	6·7	6·6	5·4	4·9	5·2	4·1	3·5	0·7	...	...	45·9	366·9	0·125	37
April.........	...	0·3	4·4	6·7	8·0	9·6	10·1	10·7	10·2	8·0	9·4	10·8	9·9	6·7	1·6	...	106·4	414·9	0·256	48
May	0·9	10·4	15·6	15·7	15·6	15·8	14·9	14·4	16·7	18·0	18·0	17·1	15·0	15·5	11·6	1·5	216·7	482·1	0·449	57
June	0·2	5·9	6·3	7·0	7·6	10·1	9·5	10·2	7·8	11·5	12·1	13·2	12·2	10·7	5·2	1·8	131·3	494·5	0·266	62
July	0·1	4·5	7·9	6·4	7·8	7·3	7·1	7·4	7·7	8·9	8·2	6·6	7·0	5·4	3·0	0·4	95·7	496·8	0·193	60
August	...	1·8	6·7	10·4	11·9	15·1	14·4	12·9	11·0	11·0	14·0	12·3	10·8	9·6	3·4	0·2	145·5	449·1	0·324	52
September ..	...	...	0·2	4·6	8·9	11·0	13·2	14·3	13·3	15·1	15·8	13·1	9·5	3·4	...	...	122·4	376·9	0·325	41
October......	...	...	...	2·1	6·4	8·3	15·5	15·6	15·2	14·4	12·6	10·3	2·8	0·1	...	...	103·3	328·7	0·314	30
November...	...	...	...	...	1·8	4·2	5·5	5·8	4·5	4·7	3·3	0·5	...	...	...	...	30·3	264·4	0·115	20
December...	...	...	...	...	0·1	3·2	5·3	6·4	6·5	6·4	3·6	0·7	...	...	...	...	32·2	242·7	0·133	16
For the Year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1068·1	4464·8	0·239	...

The hours are reckoned from *apparent* midnight.

READINGS of DRY-BULB THERMOMETERS placed in a STEVENSON'S SCREEN near the Ordinary Stand, and of those mounted in a louvre-boarded shed on the ROOF of the MAGNET HOUSE at an elevation of 20 feet above the GROUND; and EXCESS of the READINGS above those of the corresponding THERMOMETERS on the ORDINARY STAND, in the YEAR 1888.

(The readings of the maximum and minimum thermometers apply to the twenty-four hours ending at 21^h.)

[No observations have been made on Sundays, Good Friday, and Christmas Day.]

JANUARY.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground. Maximum.	Minimum.	9^h	Noon	15^h	21^h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°
2	45.3	30.0	41.5	44.9	43.0	40.5	−0.7	−0.4	+0.3	+0.1	+0.1	+0.1
3	44.8	32.8	34.3	41.5	43.9	38.7	+0.3	+0.3	−0.1	−0.2	+0.8	+0.3
4	42.6	38.2	40.9	42.0	41.8	39.6	−0.4	+0.5	+0.1	+0.1	0.0	−0.2
5	49.5	38.7	44.6	48.4	46.5	41.6	0.0	+0.3	+0.1	0.0	0.0	+0.2
6	45.1	35.7	37.2	44.3	44.6	44.9	−0.2	+1.0	+0.4	+0.1	0.0	+0.1
7	47.1	44.2	44.9	46.3	47.0	44.8	−0.5	+0.4	0.0	−0.1	+0.1	+0.1
9	50.7	38.2	44.3	44.3	44.5	38.3	−0.3	+0.3	+0.1	−0.2	+0.1	0.0
10	42.6	34.4	35.1	39.3	42.6	34.6	+0.1	+0.1	−0.2	−0.1	+0.1	+0.1
11	37.9	31.9	34.1	36.6	36.7	35.8	0.0	+0.1	−0.2	−0.3	−0.1	−0.1
12	37.4	33.4	34.5	36.6	37.1	36.1	−0.5	+0.1	−0.1	−0.1	−0.2	−0.5
13	37.2	34.8	36.1	37.2	36.5	35.1	−0.3	+0.1	−0.1	−0.1	−0.4	−0.1
14	35.3	29.6	30.5	32.0	33.8	32.0	−0.4	0.0	−0.4	−0.3	0.0	−0.1
16	33.8	31.6	32.4	32.9	32.3	31.9	0.0	0.0	−0.1	−0.1	−0.2	−0.1
17	35.1	29.4	33.1	34.9	35.1	29.7	−0.2	+0.1	+0.1	−0.1	+0.1	−0.1
18	34.0	27.4	32.9	33.8	32.9	33.6	−0.4	+0.3	+0.1	−0.1	−0.1	+0.1
19	34.9	31.2	34.3	33.9	33.4	31.2	0.0	+0.1	−0.2	−0.2	−0.2	−0.2
20	39.5	28.1	29.6	38.1	38.2	39.0	−0.3	+0.3	0.0	+0.2	0.0	+0.1
21	49.3	38.6	44.7	47.4	49.0	48.1	−0.2	+0.2	+0.1	−0.1	0.0	+0.2
23	48.5	41.1	42.3	48.1	47.1	41.3	−0.1	+0.8	−0.1	+0.2	+0.8	+0.3
24	45.0	39.0	40.4	43.1	44.8	41.7	−0.2	+0.6	0.0	+0.1	+0.1	0.0
25	45.2	39.1	41.4	44.5	44.6	42.0	−0.9	+0.2	−0.1	−0.3	+0.2	+0.1
26	45.9	39.0	45.1	45.6	44.9	39.2	−0.2	+0.8	−0.1	−0.2	0.0	+0.2
27	41.9	31.9	34.9	39.9	41.9	32.0	−0.2	0.0	−0.1	+0.1	+0.1	−0.3
28	36.4	29.1	30.2	35.6	36.1	32.3	−0.5	+0.1	−0.1	+0.2	−0.1	−0.1
30	35.0	25.2	25.8	35.0	30.2	30.0	0.0	+0.7	−0.3	+1.1	−0.1	−0.1
31	39.1	29.6	36.2	36.2	38.6	34.9	−0.8	−0.1	−0.1	−0.3	+0.2	+0.1
Means	41.5	33.9	37.0	40.1	40.3	37.3	−0.3	+0.3	0.0	0.0	0.0	0.0

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground. Maximum.	Minimum.	9^h	Noon	15^h	21^h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°
2	46.6	30.2	42.2	44.8	43.4	42.5	+0.6	−0.2	+1.0	0.0	+0.5	+2.1
3	46.5	31.9	34.7	42.9	45.3	39.6	+2.0	−0.6	+0.3	+1.2	+2.2	+1.2
4	43.2	38.5	41.6	42.3	42.3	39.6	+0.2	+0.8	+0.8	+0.4	+0.5	−0.2
5	49.5	38.3	45.1	48.9	47.0	42.0	0.0	−0.1	+0.6	+0.5	+0.5	+0.6
6	45.9	36.1	38.9	45.0	45.2	45.7	+0.6	+1.4	+2.1	+0.8	+0.6	+0.9
7	47.6	43.8	45.2	46.8	47.0	44.8	0.0	0.0	+0.3	+0.4	+0.1	+0.1
9	51.0	38.1	44.3	44.6	44.7	39.3	0.0	+0.2	+0.1	+0.1	+0.3	+1.0
10	43.7	33.9	35.3	39.9	43.3	35.6	+1.2	−0.4	0.0	+0.5	+0.8	+1.1
11	37.3	31.4	34.2	36.9	36.6	36.1	−0.6	−0.4	−0.1	0.0	−0.2	+0.2
12	37.6	32.9	34.7	36.6	37.3	36.4	−0.3	−0.4	+0.1	−0.1	0.0	−0.2
13	37.3	34.4	36.1	37.2	36.7	35.3	−0.2	−0.3	−0.1	−0.1	−0.2	+0.1
14	35.8	29.0	31.0	32.0	34.2	31.9	+0.1	−0.6	+0.1	−0.3	+0.4	−0.2
16	34.0	31.0	32.6	33.2	32.7	32.2	+0.2	−0.6	+0.1	+0.2	+0.2	+0.2
17	35.5	28.8	33.3	35.3	35.5	29.9	+0.2	−0.5	+0.3	+0.3	+0.5	+0.1
18	34.3	26.1	32.9	34.2	33.2	33.6	−0.1	−1.0	+0.1	+0.3	+0.2	+0.1
19	34.9	30.9	34.6	33.9	33.9	31.6	0.0	−0.2	+0.1	−0.2	+0.3	+0.2
20	40.7	28.0	30.5	37.9	39.0	40.3	+0.9	+0.2	+0.9	0.0	+0.8	+1.4
21	49.6	39.4	45.2	47.3	48.9	48.5	+0.1	+1.0	+0.6	−0.2	−0.1	+0.6
23	48.9	40.5	43.7	48.1	47.7	41.9	+0.3	+0.2	+1.3	+0.2	+1.4	+0.9
24	45.5	38.4	40.9	43.1	44.7	41.9	+0.3	0.0	+0.5	+0.1	0.0	+0.2
25	46.0	38.8	41.6	44.5	44.9	42.1	−0.1	−0.1	+0.1	−0.3	+0.5	+0.2
26	46.3	38.8	45.5	46.2	45.3	39.6	+0.2	+0.6	+0.3	+0.4	+0.4	+0.6
27	42.4	30.3	35.7	40.3	42.3	31.5	+0.3	−1.6	+0.7	+0.5	+0.5	−0.8
28	36.6	28.4	30.6	35.3	36.4	32.6	−0.3	−0.6	+0.3	−0.1	+0.2	+0.2
30	34.3	24.0	27.0	34.2	30.6	30.5	−0.7	−0.5	+0.9	+0.3	+0.3	+0.4
31	40.7	29.7	37.0	38.5	39.7	34.9	+0.8	0.0	+0.7	+2.0	+1.3	+0.1
Means	42.0	33.5	37.5	40.4	40.7	37.7	+0.2	−0.1	+0.5	+0.3	+0.5	+0.4

FEBRUARY.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground. Maximum.	Minimum.	9^h	Noon	15^h	21^h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	35.1	25.5	30.9	31.4	30.7	25.5	0.0	+0.1	−0.1	0.0	−0.1	−0.4
2	36.0	19.1	22.6	30.0	33.6	33.2	+1.8	+0.7	+0.1	−0.5	−0.1	+0.1
3	43.4	30.0	36.9	40.7	42.9	42.6	−0.4	−0.1	0.0	−0.3	+0.1	+0.6
4	49.0	40.0	43.5	48.0	48.8	47.0	−0.1	+0.4	−0.5	0.0	0.0	+0.2
6	50.1	41.3	46.5	49.1	50.1	47.2	−0.4	+0.6	−0.3	−0.1	−0.1	−0.1
7	48.4	42.1	44.9	46.3	47.7	42.3	−0.5	+0.7	+0.1	0.0	+0.2	+0.5
8	48.0	40.1	43.2	46.0	48.0	45.2	−0.1	+0.6	−0.2	−0.1	+0.1	+0.2
9	48.7	43.1	47.6	47.0	47.7	43.6	−0.6	+0.6	−0.1	−0.1	−0.1	+0.1
10	46.8	39.2	41.3	45.6	46.2	40.4	−1.0	+0.3	0.0	−0.2	−0.1	−0.1
11	42.5	35.0	36.4	42.3	35.1	37.9	−0.8	+1.5	−0.2	−0.4	−0.3	+0.1
13	39.6	30.6	34.9	37.2	38.6	32.9	−0.9	+0.8	+0.1	+0.1	−0.1	0.0
14	40.3	32.2	32.9	38.3	35.9	33.8	−0.7	+0.1	−0.2	−0.2	−0.4	−0.1
15	37.4	32.2	35.0	36.5	36.0	32.9	−0.5	0.0	−0.1	−0.3	−0.1	+0.1
16	34.6	31.8	33.3	34.4	34.5	33.1	−0.5	+0.1	−0.3	0.0	0.0	0.0
17	34.7	30.3	31.3	33.8	34.4	34.0	−0.2	−0.1	−0.1	−0.3	−0.2	0.0
18	39.4	31.1	33.3	36.2	38.8	32.5	−0.6	+0.2	−0.1	0.0	0.0	+0.1
20	37.1	27.8	29.6	35.8	36.7	34.9	−0.7	+0.4	−0.4	0.0	−0.2	+0.1
21	35.4	32.2	33.3	34.9	34.6	32.4	−0.3	0.0	−0.1	−0.2	−0.2	−0.1
22	32.6	28.2	28.7	29.3	30.1	28.9	−1.0	+0.1	−0.1	−0.1	−0.2	−0.1
23	30.2	25.7	27.0	27.8	27.9	29.3	0.0	−0.1	−0.4	−0.3	−0.3	−0.2
24	30.7	22.2	28.0	27.9	28.0	22.3	−0.8	−0.1	−0.5	−0.6	0.0	−0.5
25	33.8	19.8	30.2	32.2	32.1	28.5	−1.5	0.0	−0.3	−0.3	−0.2	+0.1
27	33.4	30.4	32.1	32.9	33.3	31.8	−0.4	0.0	0.0	−0.1	−0.2	−0.1
28	33.5	28.3	30.8	31.8	32.2	29.1	+0.6	−0.1	−0.3	−0.1	0.0	−0.1
29	33.1	27.6	29.9	32.1	30.1	28.0	−0.7	+0.1	−0.2	−0.7	−0.3	0.0
Means	39.0	31.4	34.6	37.1	37.4	34.8	−0.4	+0.3	−0.2	−0.2	−0.1	0.0

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground. Maximum.	Minimum.	9^h	Noon	15^h	21^h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	35.1	24.6	31.3	31.6	31.0	25.6	0.0	−0.8	+0.3	+0.2	+0.2	−0.3
2	33.9	18.0	22.9	30.5	33.9	33.4	−0.3	−0.4	+0.4	0.0	+0.2	+0.3
3	44.3	29.3	37.5	41.7	43.7	42.9	+0.5	−0.8	+0.6	+0.7	+0.9	+0.9
4	50.1	39.8	44.7	48.6	49.7	47.9	+1.0	+0.2	+0.7	+0.6	+0.9	+1.1
6	50.5	40.9	46.9	49.1	50.3	47.4	0.0	+0.2	+0.1	−0.1	+0.1	+0.1
7	48.7	42.1	45.1	46.8	48.1	43.0	−0.2	+0.7	+0.3	+0.5	+0.6	+1.2
8	48.3	40.1	43.9	46.4	48.3	45.9	+0.2	+0.6	+0.5	+0.3	+0.4	+0.9
9	49.0	43.2	48.2	47.1	47.7	43.9	−0.3	+0.7	+0.5	0.0	−0.1	+0.4
10	46.8	38.8	41.6	45.9	46.3	40.3	−1.0	−0.1	+0.3	+0.1	0.0	−0.2
11	43.0	33.5	36.8	42.7	36.2	38.2	−0.3	0.0	+0.2	0.0	+0.8	+0.4
13	40.0	30.0	34.9	37.1	38.9	32.9	−0.5	+0.2	+0.1	0.0	+0.2	0.0
14	39.3	31.7	34.3	37.5	35.9	33.8	−1.7	−0.4	+1.2	−1.0	−0.4	−0.1
15	37.1	31.9	35.3	36.8	36.2	32.9	−0.8	−0.3	+0.2	0.0	+0.1	+0.1
16	34.6	31.3	32.6	33.1	34.5	33.3	−0.5	−0.4	−1.0	−1.3	0.0	+0.2
17	34.6	30.0	31.5	34.0	34.5	34.1	−0.3	−0.4	+0.1	−0.1	−0.1	+0.1
18	39.6	30.6	33.6	36.4	38.7	31.9	−0.4	−0.3	+0.2	+0.2	−0.1	−0.5
20	37.3	26.6	29.5	35.7	36.9	34.9	−0.5	−0.8	−0.5	−0.1	0.0	+0.1
21	35.2	31.8	33.6	35.2	34.8	32.5	−0.5	−0.4	+0.2	+0.1	0.0	0.0
22	32.9	27.0	28.8	29.5	30.3	28.9	−0.7	−1.1	0.0	+0.1	0.0	−0.1
23	30.2	25.4	27.3	28.1	28.2	29.6	0.0	−0.4	−0.1	0.0	0.0	+0.1
24	30.4	21.4	28.1	27.5	28.6	22.6	−1.1	−0.9	−0.4	−1.0	+0.6	−0.2
25	34.0	19.4	29.9	31.5	31.3	27.9	−1.3	−0.4	−0.6	−1.0	−1.0	−0.5
27	33.8	30.0	32.2	33.1	33.8	32.1	0.0	−0.4	+0.1	+0.1	+0.3	+0.2
28	32.7	27.7	31.1	31.9	32.5	29.2	−0.2	−0.7	0.0	0.0	+0.3	0.0
29	32.9	27.1	30.2	32.7	29.9	28.1	−0.9	−0.4	+0.1	−0.1	−0.5	+0.1
Means	39.0	30.9	34.9	37.2	37.6	34.9	−0.4	−0.3	+0.1	−0.1	+0.1	+0.2

READINGS of DRY-BULB THERMOMETERS in a STEVENSON'S SCREEN and on the ROOF of the MAGNET HOUSE—*continued.*

MARCH.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9h	Noon	15h	21h	Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	34·3	26·1	27·0	31·5	33·9	28·7	−1·0	0·0	−0·6	0·0	−0·3	−0·1
2	40·2	25·8	28·7	38·1	40·1	37·5	−0·2	+0·4	−0·5	+0·1	+0·1	+0·3
3	38·6	31·7	36·7	37·6	36·7	32·1	−1·0	+0·2	−0·2	−0·3	−0·2	+0·2
5	40·0	28·5	34·4	38·2	39·9	32·8	−0·4	+0·5	−0·1	−0·3	0·0	+1·0
6	47·5	31·6	38·9	46·4	47·5	40·7	−0·6	+0·4	−0·2	−0·3	0·0	+0·5
7	50·1	35·7	41·6	48·2	49·2	45·0	−1·5	+0·3	−0·2	−0·6	−0·1	+0·2
8	49·2	42·7	45·7	47·2	48·6	48·1	−0·9	+0·3	−0·3	−0·3	−0·1	+0·2
9	52·3	47·4	50·7	51·7	52·1	48·2	−0·7	+0·6	0·0	−0·1	−0·4	+0·4
10	56·4	46·2	48·7	53·9	53·1	46·9	−0·1	+0·3	−0·1	−0·1	−0·3	+0·2
12	41·0	32·4	38·8	39·9	39·2	32·9	−0·6	+0·1	−0·1	−0·2	−0·2	+0·1
13	35·0	30·4	32·2	33·7	34·9	30·9	−1·0	−0·2	−0·2	−0·4	−0·4	−0·1
14	50·2	30·4	44·1	48·9	46·5	41·9	−2·0	0·0	+0·3	−0·5	−1·0	+0·2
15	50·5	37·1	41·2	46·5	49·9	39·8	−1·2	+0·6	−0·2	+0·4	0·0	+0·2
16	41·7	30·2	34·4	34·9	34·1	30·6	−2·4	−0·2	−0·3	−0·1	−0·2	−0·2
17	34·7	29·1	31·2	31·9	33·9	31·9	−0·9	+0·1	−0·2	−0·2	−0·4	+0·1
19	33·6	27·5	28·7	32·0	33·3	30·1	−1·0	0·0	−0·5	−0·4	−0·1	−0·1
20	34·2	29·2	32·4	33·0	33·1	32·1	−0·4	−0·1	−1·1	−0·1	−0·3	0·0
21	43·4	30·7	34·9	41·5	43·1	33·3	−0·7	+0·2	−0·2	−0·5	+0·1	+0·3
22	45·7	27·9	37·1	40·2	44·0	42·2	−0·7	+0·4	−0·2	−0·3	−0·6	+0·2
23	42·5	36·2	41·3	37·6	37·2	36·9	−0·9	+0·1	−0·2	−0·1	−0·2	0·0
24	45·4	34·4	38·3	44·9	44·8	34·5	−1·8	+0·1	+0·1	+0·1	−0·2	−0·2
26	43·7	31·9	39·3	43·4	42·4	38·7	−1·1	+0·4	−0·1	−0·2	−0·3	0·0
27	41·1	33·3	35·2	40·2	40·2	33·4	−1·3	0·0	−0·2	+0·3	−0·3	+0·1
28	51·2	32·0	41·9	48·5	49·9	44·4	−0·5	+0·4	−1·1	−0·3	0·0	+0·5
29	50·7	39·2	47·9	50·0	43·9	40·3	−1·4	+0·4	0·0	−0·3	−0·8	−0·1
31	44·7	37·7	39·8	43·7	43·0	40·9	−1·1	0·0	+0·2	−0·7	+0·1	+0·1
Means	43·8	33·3	38·1	41·7	42·1	37·5	−1·0	+0·2	−0·2	−0·2	−0·2	+0·2

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9h	Noon	15h	21h	Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	35·5	25·7	28·2	31·9	33·6	29·3	+0·2	−0·4	+0·6	+0·4	−0·6	+0·5
2	40·5	25·2	29·2	37·8	40·5	38·1	+0·1	−0·2	0·0	−0·2	+0·5	+0·9
3	38·0	31·1	36·2	36·6	37·1	32·1	−1·6	−0·4	−0·7	−1·3	+0·2	+0·2
5	40·6	28·0	35·2	38·8	39·9	32·9	+0·2	0·0	+0·7	+0·3	0·0	+1·1
6	47·6	32·9	39·5	45·9	47·5	41·1	−0·5	+1·7	+0·4	−0·8	0·0	+0·9
7	50·2	35·3	41·6	48·0	49·6	45·2	−1·4	−0·1	−0·2	−0·8	+0·3	+0·4
8	49·7	42·6	46·4	47·6	48·9	48·4	−0·4	+0·2	+0·4	+0·1	+0·2	+0·5
9	52·8	47·2	50·9	51·9	52·4	48·3	−0·2	+0·4	+0·2	+0·1	−0·1	+0·5
10	55·4	46·2	49·3	54·0	51·8	47·2	−1·1	+0·3	+0·5	0·0	−1·6	+0·5
12	40·6	32·0	38·9	39·6	39·2	33·0	−1·0	−0·3	0·0	−0·5	−0·2	+0·2
13	35·6	30·0	32·5	34·5	34·9	30·9	−0·4	−0·6	+0·1	+0·4	−0·4	−0·1
14	50·7	29·9	45·2	49·4	47·7	42·7	−1·5	−0·5	+1·4	0·0	+0·2	+1·0
15	51·3	37·3	42·9	46·2	50·5	42·1	−0·4	+0·8	+1·5	+0·1	+0·6	+2·5
16	42·1	30·0	33·5	33·4	34·4	30·6	−2·0	−0·4	−1·2	−1·6	+0·1	−0·2
17	34·5	28·1	31·2	32·0	34·0	32·0	−1·1	−0·9	−0·2	−0·1	−0·3	+0·2
19	33·5	27·0	28·9	31·9	33·5	30·2	−1·1	−0·5	−0·3	−0·5	+0·1	0·0
20	33·2	28·5	32·5	33·0	33·2	31·9	−1·4	−0·8	−1·0	−0·1	−0·2	−0·2
21	44·2	30·3	34·7	41·1	42·9	34·1	+0·1	−0·2	−0·4	−0·9	−0·1	+1·1
22	47·5	27·8	38·1	41·2	44·7	42·6	+1·1	+0·3	+0·8	+0·7	+0·1	+0·6
23	44·1	35·3	42·3	37·0	36·9	37·1	+0·7	−0·8	+0·8	−0·7	−0·5	+0·2
24	45·9	33·8	38·5	44·2	45·0	34·7	−1·3	−0·5	+0·3	−0·6	0·0	0·0
26	44·0	31·0	39·7	43·8	42·9	38·7	−0·8	−0·5	+0·3	+0·2	+0·2	0·0
27	42·6	32·9	35·7	40·7	41·4	33·3	+0·2	−0·4	+0·3	+0·8	+0·9	0·0
28	52·2	31·3	43·2	49·0	50·1	44·9	+0·5	−0·3	+0·2	+0·2	+0·2	+1·0
29	50·6	38·8	46·7	49·7	44·5	40·6	−1·5	0·0	−1·2	−0·6	−0·2	+0·2
31	44·5	37·2	39·8	43·7	42·7	41·0	−1·3	−0·5	+0·2	−0·7	−0·2	+0·2
Means	44·1	32·9	38·5	41·7	42·3	37·8	−0·6	−0·2	+0·1	−0·2	0·0	+0·5

APRIL.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9h	Noon	15h	21h	Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
2	47·1	32·3	42·7	43·9	46·3	37·8	−1·8	+0·5	−0·1	−0·3	−0·1	0·0
3	45·2	30·7	37·3	40·5	44·0	34·1	−2·2	+0·3	0·0	−0·4	−0·7	+0·2
4	42·8	29·4	35·5	37·8	42·2	34·9	−0·9	+0·3	+0·1	+0·3	−0·2	0·0
5	43·5	29·6	37·3	39·5	41·9	32·1	−1·6	+0·7	−0·4	−0·2	+0·1	+0·2
6	44·9	27·6	39·3	41·5	43·3	34·3	−2·1	+0·5	+0·9	−1·8	−0·7	−0·1
7	46·5	27·5	36·4	41·3	44·5	38·4	−1·6	+1·2	−0·1	−0·5	−0·2	−0·1
9	41·5	30·2	38·2	39·3	40·1	37·4	−0·6	+0·9	0·0	+0·2	−0·1	0·0
10	40·5	31·1	38·7	39·0	39·9	37·2	−1·5	+0·4	−0·1	−0·5	−0·3	+0·1
11	52·0	36·2	42·3	47·9	51·6	43·6	−1·1	+0·4	−0·1	−0·1	+0·1	+0·8
12	47·3	38·7	42·1	44·3	47·1	42·9	−1·1	+0·4	−0·1	−0·2	+0·3	+0·1
13	60·5	40·9	52·9	56·0	60·3	50·0	−1·5	+0·1	+0·1	+0·2	−0·1	+0·3
14	61·8	42·9	50·3	57·7	61·7	45·7	−1·9	+0·4	−0·5	−0·3	−0·1	+0·3
16	62·1	42·5	49·6	55·9	61·1	47·8	−0·5	+0·3	−0·2	−0·9	−0·6	+0·3
17	58·1	44·4	47·4	55·5	56·9	47·5	−2·1	0·0	−0·3	−0·5	+0·1	0·0
18	56·9	44·8	48·6	53·4	51·2	45·4	−2·8	+0·3	−0·1	−0·1	0·0	+0·3
19	53·7	40·7	50·2	50·3	48·4	46·1	−2·4	+0·4	−0·6	+0·3	−0·6	+0·4
20	52·3	42·1	44·9	48·8	48·7	44·3	−2·6	+0·2	0·0	+0·3	−0·1	+0·2
21	54·7	39·8	47·9	54·6	52·2	40·7	−2·9	0·0	−1·0	−0·6	−0·8	−0·2
23	47·1	39·2	42·2	44·6	46·0	43·1	−0·8	−0·9	0·0	−0·2	−0·3	0·0
24	46·2	39·2	46·0	45·7	44·6	39·6	−0·8	+0·1	−0·1	−0·2	−0·2	−0·2
25	49·1	37·4	39·9	41·9	47·4	39·2	−0·9	+0·1	−0·2	−0·2	−0·4	−0·1
26	46·3	36·1	39·8	43·2	43·8	38·8	−2·0	0·0	−0·3	−0·7	−0·1	+0·5
27	55·6	30·9	42·5	52·9	54·9	48·8	−2·2	+0·4	−0·3	−0·3	−0·6	0·0
28	60·0	46·1	54·6	58·3	57·4	50·7	−2·6	+0·1	−0·4	−0·5	−0·7	0·0
30	66·0	41·7	54·6	62·1	64·7	50·9	−1·7	+0·7	−0·1	−1·5	−0·2	+0·6
Means	51·3	36·9	44·0	47·8	49·6	42·1	−1·7	+0·3	−0·2	−0·3	−0·3	+0·1

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9h	Noon	15h	21h	Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
2	47·5	31·2	42·4	44·1	46·4	37·1	−1·4	−0·6	−0·4	−0·1	0·0	−0·7
3	44·2	30·2	36·0	40·3	44·1	34·3	−3·2	−0·2	−1·3	−0·6	−0·6	+0·4
4	44·2	28·5	36·0	38·0	41·5	35·2	+0·5	−0·6	+0·6	+0·5	−0·9	+0·3
5	44·4	28·1	37·6	40·1	42·3	31·6	−0·7	−0·8	−0·1	+0·4	+0·5	−0·3
6	45·0	26·6	36·9	41·1	43·2	34·3	−2·0	−0·5	−1·5	−2·2	−0·8	−0·1
7	46·5	26·3	36·3	41·5	44·1	37·5	−1·6	0·0	−0·2	−0·3	−0·6	−1·0
9	41·6	29·6	38·3	39·0	40·1	37·9	−0·5	+0·3	+0·1	−0·1	−0·1	+0·5
10	41·0	30·0	36·2	38·9	39·9	37·8	−1·0	−0·7	−2·6	−0·6	−0·3	+0·7
11	52·1	36·5	42·8	48·5	51·2	44·2	−1·0	+0·7	+0·4	+0·5	−0·3	+1·4
12	47·6	38·4	42·1	44·6	47·0	43·9	−0·8	+0·1	−0·1	+0·1	+0·2	+1·1
13	60·8	41·1	53·1	55·7	60·0	50·1	−1·2	+0·3	+0·3	−0·1	−0·4	+0·4
14	63·3	42·3	50·9	56·0	62·5	45·9	−0·4	−0·2	+0·1	−2·0	+0·7	+0·5
16	62·1	41·8	48·7	54·7	61·2	47·9	−0·5	−0·4	−1·1	−2·1	−0·5	+0·4
17	58·3	44·4	48·3	55·0	56·5	47·9	−1·9	0·0	+0·6	−1·0	−0·3	+0·4
18	56·7	44·4	49·2	53·7	50·9	45·5	−3·0	−0·1	+0·5	+0·2	−0·3	+0·4
19	54·1	40·3	50·9	50·1	49·4	47·0	−2·0	0·0	+0·1	+0·1	+0·4	+1·3
20	53·6	41·7	45·1	49·0	49·2	44·3	−1·3	−0·2	+0·2	+0·5	+0·4	+0·2
21	56·4	39·8	49·6	53·6	52·4	41·2	−1·2	0·0	+0·7	−1·6	−0·6	+0·3
23	47·6	39·6	42·4	44·9	45·9	42·9	−0·3	−0·5	+0·2	+0·1	−0·4	−0·2
24	46·7	38·4	46·4	45·8	44·3	39·2	−0·3	−0·7	+0·3	−0·1	−0·5	−0·6
25	49·2	36·7	40·0	42·2	47·3	39·2	−0·8	−0·6	−0·1	+0·1	−0·5	−0·1
26	45·2	35·1	39·6	42·5	43·3	39·1	−3·1	−1·0	−0·5	−1·4	−0·6	+0·8
27	56·0	30·1	43·0	53·2	55·5	49·1	−1·8	−0·4	+0·2	0·0	0·0	+0·3
28	61·2	46·2	54·6	58·7	58·2	51·0	−1·4	+0·2	−0·4	−0·1	+0·1	+0·3
30	66·6	41·5	55·0	60·6	64·0	51·2	−1·1	+0·5	+0·3	−3·0	−0·9	+0·9
Means	51·7	36·4	44·1	47·7	49·6	42·2	−1·3	−0·2	−0·1	−0·5	−0·3	+0·3

READINGS of DRY-BULB THERMOMETERS in a STEVENSON'S SCREEN and on the ROOF of the MAGNET HOUSE—*continued.*

MAY.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	56.1	47.3	52.5	53.4	52.9	48.5	−1.3	+0.6	−0.4	−0.3	−0.2	+0.6	1	55.8	47.2	53.5	53.8	53.4	48.7	−1.6	+0.5	+0.6	+0.1	+0.3	+0.8
2	53.3	40.3	49.6	52.7	48.1	47.3	−2.1	+0.5	−0.4	−0.8	−0.2	+0.1	2	53.5	39.4	50.0	52.6	48.4	47.8	−1.9	−0.4	0.0	−0.9	+0.1	+0.6
3	54.2	41.2	50.0	53.0	50.0	45.7	−1.9	+0.3	−0.1	−1.0	−1.3	+0.9	3	54.6	40.6	49.5	51.0	50.3	44.9	−1.5	−0.3	−0.6	−3.0	−1.0	+0.1
4	56.9	39.1	48.6	56.0	55.1	46.8	−2.1	+0.6	−0.2	−0.5	+0.3	+0.4	4	57.5	38.2	48.5	53.9	54.4	47.3	−1.5	−0.3	−0.3	−2.6	−0.4	+0.9
5	58.3	38.5	51.7	55.7	58.3	50.1	−2.3	+0.5	−0.2	−0.7	−0.7	−0.1	5	58.6	38.3	50.9	55.9	57.9	49.9	−2.0	+0.3	−1.0	−0.5	−1.1	−0.3
7	68.9	52.0	58.5	63.7	67.9	55.2	−2.4	+0.3	−0.3	−1.3	−0.9	+0.2	7	68.9	52.0	58.9	64.7	68.9	55.2	−2.4	+0.3	+0.1	−0.3	+0.1	+0.2
8	70.2	49.4	59.7	64.8	69.2	59.0	−1.6	+0.5	−0.6	−0.4	−1.1	+0.1	8	69.2	49.0	59.9	64.3	68.3	59.2	−2.6	+0.1	−0.4	−0.9	−2.0	+0.3
9	60.0	43.6	51.9	56.2	59.2	44.9	−0.9	+0.6	0.0	−0.8	−0.6	+0.1	9	59.7	42.9	50.2	55.0	57.3	44.8	−1.2	−0.1	−1.7	−2.0	−2.5	0.0
10	58.5	39.1	49.2	54.1	57.8	41.9	−1.3	+0.8	−0.4	−0.8	−0.6	0.0	10	57.9	38.5	50.5	54.9	55.7	41.9	−1.9	+0.2	+0.9	0.0	−2.7	0.0
11	57.1	35.6	50.6	54.2	56.6	43.9	−1.6	+1.3	+0.3	−1.0	−0.4	+0.1	11	58.6	33.7	49.7	53.3	57.5	43.8	−0.1	−0.6	−0.6	−1.9	+0.5	0.0
12	62.5	34.6	53.6	59.0	62.5	48.3	−2.4	+0.8	+0.8	−0.4	+0.7	+0.3	12	64.7	33.7	51.9	57.0	63.1	49.1	−0.2	−0.1	−0.9	−2.4	+1.3	+1.1
14	60.3	44.4	50.3	55.3	53.6	46.5	+0.2	+0.1	−0.8	+0.1	−0.6	−0.1	14	58.2	44.2	49.5	55.1	53.2	46.6	−1.9	−0.1	−1.6	−0.1	−1.0	0.0
15	61.5	41.4	54.7	60.0	61.5	46.9	−2.1	+0.3	−0.4	−1.4	−1.7	0.0	15	61.9	40.8	53.2	59.3	61.9	46.8	−1.7	−0.3	−1.9	−2.1	−1.3	−0.1
16	62.8	42.1	58.2	60.2	53.1	52.0	−2.9	+1.3	−0.4	−0.3	−0.3	+0.3	16	64.0	40.6	58.6	60.9	53.7	52.5	−1.7	−0.2	0.0	+0.4	+0.3	+0.8
17	61.8	50.2	54.4	57.0	60.6	57.8	−1.3	+0.2	−0.4	−0.8	−0.6	+0.1	17	62.7	50.5	55.2	58.0	61.4	57.9	−0.4	+0.5	+0.4	+0.2	+0.2	+0.2
18	74.4	55.8	58.8	68.7	72.7	62.4	−1.3	+0.4	−0.1	−0.1	−0.2	0.0	18	74.9	55.9	59.3	68.0	72.6	63.2	−0.8	+0.5	+0.4	−0.8	−0.3	+0.8
19	75.3	52.5	68.9	69.9	74.8	53.0	−1.5	0.0	−0.3	−0.5	−0.1	−0.3	19	75.9	52.3	69.6	71.6	74.9	53.2	−0.9	−0.2	+0.4	+1.2	0.0	−0.1
21	68.1	45.0	63.3	65.4	65.4	53.7	−2.0	+0.6	+0.1	−0.1	−0.1	0.0	21	68.5	44.1	62.9	64.3	65.3	53.5	−1.6	−0.3	−0.3	−1.2	−0.2	−0.2
22	56.4	44.2	51.8	52.3	53.5	50.3	−1.3	+0.1	−0.2	−0.2	−0.3	+0.2	22	56.9	44.1	52.1	52.4	53.7	51.5	−0.8	0.0	+0.1	−0.1	−0.1	+1.4
23	66.6	44.2	63.0	66.1	65.5	54.4	−1.5	+0.6	−0.2	−0.7	−0.3	+0.4	23	66.3	43.8	61.9	64.9	65.0	54.5	−1.8	+0.2	−1.3	−1.9	−0.8	+0.5
24	71.0	42.8	49.8	59.6	70.9	53.9	−2.0	+0.9	+0.1	−0.8	−1.1	+0.1	24	70.9	42.5	49.3	59.4	70.9	53.7	−2.1	+0.6	−0.4	−1.0	−1.1	−0.1
25	65.5	42.9	52.4	62.2	64.9	47.8	−2.5	+0.1	−0.5	−2.2	−1.0	−0.4	25	64.7	42.2	51.0	61.5	62.8	48.0	−3.3	−0.6	−1.9	−2.9	−3.1	−0.2
26	54.2	42.5	48.5	51.2	53.2	45.6	−2.1	+0.5	−0.7	−0.1	−0.2	+0.4	26	54.0	41.7	48.3	51.3	52.5	46.3	−2.3	−0.3	−0.9	0.0	−0.9	+1.1
28	62.6	38.8	56.4	61.6	58.6	48.2	−2.0	+0.4	−0.9	−0.5	−0.5	+0.1	28	61.2	38.5	55.9	60.6	58.6	48.3	−3.4	+0.1	−1.4	−1.5	−0.5	+0.2
29	59.2	46.0	52.5	53.6	59.2	49.5	−1.8	+0.2	+0.1	−0.6	0.0	+0.1	29	60.0	45.4	52.9	54.4	59.1	49.5	−1.0	−0.4	+0.5	+0.2	−0.1	+0.1
30	65.1	49.2	59.5	61.3	63.9	54.3	−2.2	+0.3	−0.7	−0.7	−1.2	+0.4	30	65.0	48.7	60.0	61.4	64.0	54.9	−2.3	−0.2	−0.2	−0.6	−1.1	+1.0
31	66.0	46.2	55.4	63.3	62.5	53.9	−3.0	+0.6	−0.1	−1.5	−0.8	+0.1	31	65.4	45.5	55.5	62.0	62.9	53.8	−3.6	−0.1	0.0	−2.8	−0.4	0.0
Means	62.5	44.0	54.6	58.9	60.4	50.4	−1.8	+0.5	−0.3	−0.7	−0.5	+0.2	Means	62.6	43.5	54.4	58.6	60.3	50.6	−1.7	0.0	−0.4	−1.0	−0.7	+0.3

JUNE.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	69.1	46.7	58.2	64.7	67.0	56.9	−2.6	+0.6	−0.4	−0.6	−0.5	+0.2	1	69.0	45.8	58.0	65.2	67.5	57.2	−2.7	−0.3	−0.6	−0.1	0.0	+0.5
2	78.6	51.4	64.0	74.3	75.5	63.2	−4.4	+0.8	−0.4	−1.3	−1.4	0.0	2	79.2	51.2	65.5	72.7	75.3	63.5	−3.8	+0.6	+1.1	−2.9	−1.6	+0.3
4	73.2	51.2	62.5	69.4	72.5	55.9	−2.8	+0.5	−0.4	−1.6	−0.7	0.0	4	74.6	50.5	62.8	69.9	71.9	55.9	−1.4	−0.2	−0.1	−1.1	−1.3	0.0
5	58.3	47.7	51.9	54.9	53.1	48.0	+0.6	0.0	−0.2	−0.1	−0.5	0.0	5	56.3	47.5	51.6	55.2	53.0	48.0	−1.4	−0.2	−0.5	+0.2	−0.6	0.0
6	61.1	47.3	51.4	55.3	59.7	52.5	−3.3	0.0	−0.2	−0.1	−0.4	+0.4	6	62.8	47.1	51.7	55.9	59.6	53.0	−1.6	−0.2	+0.1	+0.5	−0.5	+0.9
7	70.6	47.1	59.9	62.2	70.2	57.0	−3.9	+0.6	−0.9	−0.3	−1.6	+0.1	7	70.9	46.7	59.5	62.5	69.3	57.3	−3.6	+0.2	−1.3	0.0	−2.5	+0.4
8	66.0	52.5	60.9	65.1	62.9	59.6	−2.1	+0.3	−0.3	−0.9	−0.1	−0.1	8	66.9	52.2	61.8	66.0	62.9	59.7	−1.2	0.0	+0.6	0.0	−0.1	0.0
9	66.2	54.0	55.0	58.9	64.1	58.7	−2.8	+0.4	−0.2	−1.1	−0.1	+0.3	9	66.9	53.9	55.5	59.6	64.6	58.9	−2.1	+0.3	+0.3	−0.4	+0.4	+0.5
11	71.8	47.0	65.4	69.2	71.4	55.5	−3.3	+0.7	−0.7	−1.8	−0.8	0.0	11	71.3	46.3	65.6	67.8	70.3	55.4	−3.8	0.0	−0.5	−3.2	−1.9	−0.1
12	74.1	50.5	67.6	73.2	72.3	58.6	−2.9	+0.5	−1.5	−1.6	−2.5	−0.2	12	74.7	50.2	68.5	72.7	72.9	58.8	−2.3	+0.2	−0.6	−2.1	−1.9	0.0
13	69.5	47.7	58.8	65.9	65.4	53.7	−4.1	+0.7	+0.3	−1.3	−0.1	+0.3	13	68.9	46.5	57.9	65.0	65.1	53.9	−4.7	−0.5	−0.6	−2.2	−0.4	+0.5
14	61.3	46.2	49.0	60.9	50.8	49.6	−3.7	−0.4	−0.7	−0.7	−0.4	+0.2	14	62.7	46.1	50.8	61.2	50.9	49.8	−2.3	−0.5	+1.1	−0.4	−0.3	+0.4
15	57.2	47.0	53.0	55.7	51.9	54.6	−2.2	+0.4	−0.3	−0.4	−0.7	−0.2	15	58.0	46.3	53.8	55.9	52.5	54.6	−1.4	−0.3	+0.5	−0.2	−0.1	−0.2
16	63.7	49.1	54.7	62.5	60.4	52.5	−2.0	+0.2	−0.1	−0.1	−0.1	+0.3	16	63.0	48.9	54.7	60.9	60.3	52.6	−2.7	0.0	−0.1	−1.7	−0.2	+0.4
18	54.4	46.2	50.0	50.9	54.4	49.4	−1.0	+0.7	−0.1	−0.3	0.0	0.0	18	53.9	45.7	49.5	51.1	53.9	49.4	−1.5	+0.2	−0.6	−0.1	−0.5	0.0
19	53.4	46.2	49.6	52.0	53.4	48.9	−1.0	0.0	−0.2	−0.1	−0.1	+0.1	19	53.4	45.2	49.4	52.1	53.3	48.9	−1.0	−1.0	−0.4	0.0	−0.2	+0.1
20	54.0	46.1	51.2	52.4	52.9	50.8	−1.0	+0.3	0.0	−0.2	−0.2	+0.1	20	55.2	44.9	51.2	52.5	52.9	50.7	+0.2	−0.9	0.0	−0.1	−0.2	0.0
21	64.4	47.1	56.7	64.2	62.5	58.3	−1.8	+0.7	−0.5	−0.4	+0.3	+0.2	21	65.0	46.8	56.9	64.2	63.1	58.3	−1.2	+0.4	−0.3	−0.4	+0.9	+0.2
22	72.0	54.7	57.9	64.1	70.5	59.5	−1.1	+0.2	−0.2	0.0	+0.1	+0.1	22	71.7	54.2	59.5	64.1	69.5	59.4	−1.4	−0.3	+1.4	+0.1	−0.9	0.0
23	71.1	51.1	63.3	68.4	70.6	55.3	−1.7	+0.2	−1.0	−0.6	−0.6	−0.1	23	69.9	50.7	61.2	67.9	68.4	55.2	−2.9	−0.2	−3.1	−1.1	−2.8	−0.2
25	83.3	58.4	77.0	83.3	81.3	67.2	−1.7	+0.3	−0.1	−0.2	−0.4	+0.2	25	83.1	58.1	74.9	82.3	80.9	67.5	−1.9	0.0	−2.2	−1.2	−0.8	+0.5
26	72.8	60.8	63.9	66.5	72.2	62.6	−0.1	+0.7	+0.1	−0.5	−0.2	−0.3	26	74.1	60.8	64.0	67.9	74.1	62.4	+1.2	+0.7	+0.2	+0.9	+1.7	−0.5
27	67.7	56.3	65.3	67.1	61.2	57.9	−2.0	−0.4	−0.7	−0.7	−0.7	−0.1	27	69.2	56.3	65.5	68.3	61.8	57.9	−0.5	−0.4	−0.5	+0.5	−0.1	−0.1
28	66.1	54.4	62.5	60.8	56.4	56.9	−2.0	0.0	−0.4	+0.1	−0.3	+0.1	28	66.8	54.2	62.4	61.0	56.2	56.7	−1.3	−0.2	−0.5	+0.3	−0.5	−0.1
29	66.4	52.1	61.8	60.4	64.7	56.4	−2.0	+0.3	−0.4	−0.4	0.0	0.0	29	65.8	51.3	61.6	60.3	65.3	56.2	−2.6	−0.5	−0.6	−0.5	+0.6	−0.2
30	62.7	49.5	55.1	60.2	62.5	51.2	−2.0	+0.3	0.0	−0.7	−0.7	−0.1	30	63.4	48.9	55.6	60.5	63.4	51.2	−1.3	−0.3	+0.5	−0.4	+0.2	−0.1
Means	66.5	50.3	58.7	63.2	63.8	55.8	−2.2	+0.3	−0.4	−0.6	−0.5	+0.1	Means	66.8	49.9	58.8	63.2	63.8	55.9	−1.9	−0.1	−0.3	−0.6	−0.5	+0.1

READINGS of DRY-BULB THERMOMETERS in a STEVENSON'S SCREEN and on the ROOF of the MAGNET HOUSE—*continued.*

JULY.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
2	58·0	50·7	56·6	54·4	55·2	57·2	−0·6	+0·4	+0·2	−0·2	−0·6	0·0
3	68·6	55·5	60·6	62·6	64·6	57·2	−2·1	+0·3	0·0	−0·2	−0·2	0·0
4	65·7	52·1	61·7	63·6	62·3	55·8	−2·9	+0·3	−0·8	−1·1	−0·6	+0·1
5	66·3	52·6	63·8	57·2	64·7	55·6	−2·9	+0·3	−1·0	+0·2	+0·2	+0·1
6	64·5	50·8	56·4	57·2	55·9	54·6	−1·8	+0·8	−0·1	−0·1	−0·3	+0·2
~	56·6	50·7	52·3	54·5	56·3	53·0	−1·1	+0·2	−0·1	+0·1	0·0	0·0
9	66·9	49·6	64·1	65·2	62·2	57·9	−2·2	+0·6	−1·3	−0·5	−0·6	−0·1
10	61·4	48·7	54·1	56·3	61·2	54·9	−2·0	+0·4	+0·1	−0·1	0·0	+0·1
11	54·9	42·8	44·6	52·3	52·9	50·3	−0·2	0·0	0·0	−0·2	−0·1	+0·5
12	53·3	47·8	49·9	51·0	51·7	51·0	−0·6	+0·7	+0·1	+0·2	−0·1	0·0
13	69·1	45·4	58·0	64·7	68·9	63·3	−2·2	+0·3	−0·5	−1·1	−0·7	+0·4
14	70·9	55·5	64·2	67·9	67·3	59·4	−2·5	+0·4	−0·3	−0·4	−0·3	+0·1
16	65·3	54·0	63·5	62·7	61·7	54·0	−2·1	+0·6	−0·8	−0·8	−1·0	+0·2
17	68·6	49·2	64·1	67·6	63·4	57·8	−2·8	+0·6	+0·8	−0·3	−0·2	+0·2
18	68·1	55·4	65·5	64·9	61·2	58·9	−1·8	+0·3	+0·1	+0·7	−0·6	+0·1
19	71·1	55·0	57·9	66·7	69·7	58·6	−2·9	+0·2	+0·1	−1·1	+0·3	+0·1
20	65·6	52·5	61·7	62·2	64·2	59·5	−2·6	+0·9	+0·2	−0·2	−0·8	−0·2
21	67·2	55·4	62·0	66·9	66·9	58·2	−3·0	+0·6	−0·3	+0·1	−0·3	+0·4
23	68·5	55·9	62·1	65·9	64·2	57·0	−1·9	+0·3	0·0	+0·1	−0·2	+0·3
24	68·9	54·3	61·5	65·5	66·8	57·8	−1·7	+0·6	−0·2	−0·8	0·0	+0·1
25	62·4	56·4	59·7	60·4	59·1	59·4	−1·3	+0·3	−0·1	−0·7	−0·4	+0·2
26	70·5	53·2	62·5	64·6	69·6	56·9	−1·9	+0·2	−0·5	−0·1	+0·5	+0·1
27	68·2	49·7	61·2	68·0	64·9	57·1	−2·4	+0·5	−0·6	−1·4	−0·4	−0·1
28	66·6	55·6	62·0	62·6	63·9	56·1	−2·4	0·0	+0·1	+0·1	−0·4	0·0
30	70·1	52·6	59·1	67·6	62·6	53·2	−2·6	+0·6	0·0	−0·2	−0·1	−0·2
31	62·2	50·2	54·6	58·6	57·4	53·3	−0·4	+0·1	0·0	+0·2	+0·2	+0·1
Means	65·4	52·0	59·4	62·0	62·3	56·5	−2·0	+0·4	−0·2	−0·3	−0·3	+0·1

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
2	58·2	50·7	57·0	54·9	55·9	56·9	−0·4	+0·4	+0·6	+0·3	+0·1	−0·3
3	69·5	55·4	61·2	63·2	64·9	57·2	−1·2	+0·2	+0·6	+0·4	+0·1	0·0
4	66·4	50·6	61·0	62·9	62·8	56·0	−2·2	−1·2	−1·5	−1·8	−0·1	+0·3
5	67·7	52·3	63·9	57·4	65·7	56·0	−1·5	0·0	−0·9	+0·4	+1·2	+0·5
6	65·4	49·8	57·3	57·5	56·3	53·9	−0·9	−0·2	+0·8	+0·2	+0·1	−0·5
7	57·0	50·2	52·1	54·4	57·0	52·9	−0·7	−0·3	−0·3	0·0	+0·7	−0·1
9	67·6	48·7	63·5	65·1	61·9	57·1	−1·5	−0·3	−1·9	−0·6	−0·9	−0·9
10	63·3	48·2	54·3	56·8	61·9	55·1	−0·1	−0·1	+0·3	+0·4	+0·7	+0·3
11	55·3	41·1	44·6	52·2	53·1	50·4	+0·2	−1·7	0·0	−0·3	+0·1	+0·6
12	53·6	47·2	49·9	50·9	52·0	51·2	−0·3	+0·1	+0·1	+0·1	+0·2	+0·2
13	71·3	44·8	57·3	64·6	68·9	62·8	0·0	−0·3	−1·2	−1·2	−0·7	−0·1
14	72·3	55·2	65·0	64·6	67·9	59·5	−1·1	+0·1	+0·5	−3·7	+0·3	+0·2
16	66·6	53·2	63·3	63·6	62·6	54·1	−0·8	−0·2	−1·0	+0·1	−0·1	+0·3
17	70·9	48·7	62·9	69·5	64·2	58·1	−0·5	+0·1	−0·4	+1·6	+0·6	+0·5
18	70·2	55·4	65·5	65·3	62·5	58·5	+0·3	+0·3	+0·1	+1·1	+0·7	−0·3
19	72·6	54·6	58·1	65·9	69·4	57·9	−1·4	−0·2	+0·3	−1·9	0·0	−0·6
20	67·0	52·3	62·4	63·0	65·1	59·9	−1·2	+0·7	+0·9	+0·6	+0·1	+0·2
21	68·0	53·2	61·9	66·9	66·8	57·9	−2·2	−1·6	−0·4	+0·1	−0·4	+0·1
23	68·1	55·5	61·9	65·9	65·0	57·1	−2·3	−0·1	−0·2	+0·1	+0·6	+0·4
24	69·5	53·8	60·8	66·2	67·9	57·7	−1·1	+0·1	−0·9	−0·1	+1·1	0·0
25	63·2	56·3	60·2	61·2	59·7	59·8	−0·5	+0·2	+0·4	+0·1	+0·2	+0·6
26	71·2	52·8	61·9	64·8	70·3	57·1	−1·2	−0·2	−1·1	+0·1	+1·2	+0·3
27	69·0	49·2	62·9	67·6	65·4	57·1	−1·6	0·0	+1·1	−1·8	+0·1	−0·1
28	67·6	55·2	62·4	63·0	63·9	55·9	−1·4	−0·4	+0·5	+0·5	−0·4	−0·2
30	70·1	52·2	60·2	67·6	62·8	53·2	−2·6	+0·2	+1·1	−0·2	+0·1	−0·2
31	60·5	49·6	54·9	57·9	57·7	53·3	−2·1	−0·5	+0·3	−0·5	+0·5	+0·1
Means	66·2	51·4	59·5	62·0	62·8	56·4	−1·1	−0·2	−0·1	−0·2	+0·2	0·0

AUGUST.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	58·0	50·1	51·7	53·8	57·7	53·9	−1·2	0·0	−0·1	−0·1	−0·4	0·0
2	64·5	51·2	57·8	60·8	62·5	53·8	−1·6	+0·1	0·0	+0·3	−0·7	+0·2
3	70·3	46·6	63·6	67·5	67·7	57·0	−3·0	+0·8	+0·7	−0·8	+0·7	+0·5
4	67·3	52·2	58·2	63·8	67·3	58·2	−2·2	+0·3	0·0	+0·1	−0·6	0·0
6	59·7	48·1	56·4	59·7	56·9	54·8	−1·4	+1·0	−0·3	−0·1	+0·1	+0·1
7	79·0	54·5	65·3	73·8	78·8	64·5	−1·1	+0·4	−0·7	+0·1	+0·7	+0·1
8	79·5	59·2	68·2	76·4	79·5	63·5	−1·6	+0·2	0·0	+0·5	+0·1	+0·1
9	82·7	56·7	77·0	81·5	78·9	69·8	−2·2	+0·6	−0·2	−0·4	−0·5	0·0
10	85·5	62·0	75·1	83·4	81·9	62·3	−2·2	+0·3	0·0	−0·7	−0·5	+0·3
11	65·8	55·8	64·4	64·9	65·8	61·0	−2·3	+0·6	0·0	+0·2	−0·3	+0·1
13	68·4	55·7	63·6	64·5	67·5	56·8	−2·4	+0·4	−0·2	−0·4	−0·6	+0·5
14	67·4	46·5	57·4	65·6	64·9	53·3	−2·6	+0·4	−0·7	−0·2	+0·7	+0·5
15	63·3	46·2	55·2	59·8	62·4	54·5	−1·6	+0·7	−0·3	−0·1	−0·2	+0·1
16	60·0	45·6	56·2	58·1	58·5	52·2	−2·0	+0·4	−0·5	−0·3	+0·2	+0·1
17	60·5	48·6	52·7	56·9	58·3	52·1	−1·5	+0·5	−0·1	+0·1	−0·4	0·0
18	62·8	48·1	52·4	57·2	61·0	52·3	−2·5	0·0	−0·5	−0·2	−0·4	+0·4
20	63·2	52·9	60·1	62·4	63·2	54·9	−1·9	+0·4	−0·6	−0·8	0·0	−0·2
21	69·5	54·3	60·3	63·1	69·3	56·9	−1·6	0·0	−0·5	−0·1	−0·6	0·0
22	69·8	52·6	60·9	64·4	67·3	57·5	+0·1	+0·4	−0·1	+0·3	+0·2	+0·5
23	64·2	50·6	61·2	62·1	63·4	57·9	−1·1	+0·7	+0·2	−0·1	−0·5	+0·3
24	74·3	54·8	65·0	73·5	70·2	59·6	−2·1	+0·3	−0·1	−0·4	−0·2	+0·2
25	72·0	56·6	66·3	71·9	71·2	57·2	−2·0	+0·3	+0·4	−0·8	+0·7	+0·4
27	68·5	52·4	63·1	67·3	65·3	58·6	−2·3	+0·3	−0·3	−0·1	−0·8	+0·1
28	61·3	56·4	56·8	61·2	59·8	57·8	−0·8	+0·4	0·0	−0·1	−0·2	0·0
29	63·6	49·4	59·9	62·5	60·4	52·5	−2·4	+0·3	+0·2	−0·3	+0·1	+0·3
30	62·7	47·5	61·2	59·9	55·1	51·7	−1·8	+0·5	+0·1	+0·3	−0·3	+0·1
31	61·7	47·4	56·1	60·3	61·1	53·7	−1·4	+0·4	0·0	+0·7	0·0	+0·6
Means	67·6	51·9	61·0	65·0	65·8	57·0	−1·8	+0·4	−0·1	−0·1	−0·1	+0·2

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 feet above the ground. Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	58·1	49·3	51·2	53·0	57·7	53·8	−1·1	−0·8	−0·6	−0·9	−0·4	−0·1
2	64·3	50·6	56·5	61·2	62·9	53·6	−1·8	−0·5	−1·3	+0·7	−0·3	0·0
3	71·6	46·4	63·9	68·4	69·2	57·1	−1·7	+0·6	+1·0	+0·1	+2·2	+0·6
4	68·4	52·0	58·8	64·7	68·2	58·4	−1·1	+0·1	+0·6	+1·0	+0·3	+0·2
6	60·8	47·2	56·7	59·8	57·0	53·9	−0·3	+0·1	0·0	0·0	+0·2	−0·8
7	79·6	53·9	66·8	73·3	78·5	65·0	−0·5	−0·2	+0·8	−0·4	+0·4	+0·6
8	80·2	59·1	67·5	76·6	79·2	63·9	−0·9	+0·1	−0·7	+0·7	−0·2	+0·5
9	82·6	56·8	76·8	80·1	79·6	69·6	−2·3	+0·7	−0·4	−1·8	+0·2	−0·2
10	85·5	61·5	75·5	82·5	81·1	62·3	−2·2	−0·2	+0·4	−1·6	−1·3	+0·3
11	67·4	55·1	64·9	64·7	65·8	61·1	−0·7	−0·1	+0·5	0·0	−0·3	+0·2
13	68·6	54·9	62·9	64·6	67·8	56·9	−2·2	−0·4	−0·9	−0·3	−0·3	+0·6
14	68·7	45·1	57·0	65·5	64·9	54·9	−1·3	−1·0	−1·1	−0·3	+0·7	+2·1
15	62·3	45·8	55·3	60·2	61·7	54·5	−2·6	+0·3	−0·2	+0·3	−0·9	+0·1
16	60·3	44·7	54·8	57·9	59·0	52·5	−1·7	−0·5	−1·9	−0·5	+0·7	+0·4
17	59·7	47·9	53·3	56·5	57·8	52·1	−2·3	−0·2	+0·5	−0·3	−0·9	0·0
18	63·2	47·7	52·6	57·6	61·0	53·3	−2·1	−0·4	−0·3	+0·2	−0·4	+1·4
20	64·2	52·7	60·8	63·4	64·0	55·1	−0·9	+0·2	+0·1	+0·2	+0·8	0·0
21	69·6	54·1	61·0	63·6	69·2	57·1	−1·5	−0·2	+0·2	+0·4	−0·7	+0·2
22	69·6	52·2	60·9	64·5	68·0	57·8	−0·1	0·0	−0·1	+0·4	+0·9	+0·8
23	65·1	50·5	61·8	62·5	63·9	58·1	−0·2	+0·6	+0·8	+0·3	0·0	+0·5
24	74·1	54·5	65·9	72·6	70·8	59·6	−2·3	0·0	+0·8	−1·3	+0·4	+0·2
25	72·1	56·4	66·8	71·5	69·9	57·4	−1·9	+0·1	+0·9	−1·2	−0·6	+0·6
27	69·2	51·5	63·4	67·6	65·8	58·8	−1·6	−0·6	0·0	+0·2	−0·3	+0·3
28	62·0	56·2	57·1	61·9	59·9	57·7	−0·1	+0·2	+0·3	+0·6	−0·1	−0·1
29	63·5	48·3	58·9	62·8	60·2	52·5	−2·5	−0·8	−0·8	0·0	−0·1	+0·3
30	62·7	47·2	59·8	59·6	55·2	52·0	−1·8	+0·2	−1·3	0·0	−0·2	+0·4
31	62·2	46·3	55·9	59·4	60·4	53·1	−0·9	−0·7	−0·2	−0·2	−0·7	0·0
Means	68·0	51·4	61·0	65·0	65·9	57·1	−1·4	−0·1	−0·1	−0·1	0·0	+0·3

READINGS of DRY-BULB THERMOMETERS in a STEVENSON'S SCREEN and on the ROOF of the MAGNET HOUSE—*continued.*

SEPTEMBER.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.						Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9^h	Noon	15^h	21^h	Maximum.	Minimum.	9^h	Noon	15^h	21^h		Maximum.	Minimum.	9^h	Noon	15^h	21^h	Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	65.9	42.0	56.5	64.3	63.1	56.0	−2.3	+0.5	+0.5	+0.5	+0.6	+0.1	1	67.2	41.0	55.9	64.3	64.5	56.3	−1.0	−0.5	−0.1	+0.5	+2.0	+0.4
3	68.3	56.6	61.2	61.9	68.3	56.6	−1.2	+0.7	−0.3	−0.4	−0.2	+0.2	3	68.3	56.3	61.6	62.3	67.4	57.2	−1.2	+0.4	+0.1	0.0	−1.1	+0.8
4	67.7	52.1	55.8	65.7	66.5	58.6	−2.7	+0.7	−0.3	−0.5	−0.4	−0.1	4	69.2	51.4	55.7	66.5	67.4	58.9	−1.2	0.0	−0.4	+0.3	+0.5	+0.2
5	64.1	57.1	60.9	63.4	62.8	59.3	−1.9	+0.1	+0.1	−0.3	0.0	0.0	5	65.2	57.0	61.5	63.4	62.9	59.2	−0.8	0.0	+0.7	−0.3	+0.1	−0.1
6	64.0	52.4	61.4	54.9	63.9	52.6	−1.0	+0.8	+0.1	−0.4	+0.6	+0.6	6	64.9	51.9	61.9	54.9	64.7	52.6	−0.1	+0.3	+0.6	−0.4	+1.4	+0.6
7	63.4	48.9	57.5	60.9	61.5	52.5	−1.8	+0.3	0.0	+0.1	−0.3	+0.4	7	64.1	48.2	56.7	61.0	61.6	52.3	−1.1	−0.4	−0.8	+0.2	−0.2	+0.2
8	57.1	46.2	53.8	54.2	55.1	48.9	−1.2	+0.7	0.0	−0.1	0.0	+0.1	8	57.4	44.8	53.5	54.3	55.3	48.8	−0.9	−0.7	−0.3	0.0	+0.2	0.0
10	56.7	43.8	52.7	55.3	55.5	50.2	−1.4	+0.6	−0.8	−0.6	−0.1	0.0	10	58.8	42.6	55.9	56.6	56.3	50.5	+0.7	−0.6	+2.4	+0.7	+0.7	+0.3
11	63.9	43.2	52.9	61.6	63.0	50.1	−1.2	+0.4	+0.1	+0.8	0.0	+0.1	11	64.6	42.2	53.0	60.7	63.3	49.9	−0.5	−0.6	+0.2	−0.1	+0.3	−0.1
12	66.7	42.2	57.1	65.1	65.7	51.1	−1.2	+0.8	+1.1	+0.2	+0.6	+0.2	12	67.7	41.7	57.2	64.0	66.2	52.5	−0.2	+0.3	+1.2	−0.9	+1.1	+1.6
13	66.1	43.1	53.0	66.0	64.8	51.2	−1.1	+0.8	−0.7	+1.0	−0.2	+0.1	13	66.5	42.7	53.8	66.0	64.0	51.7	−0.7	+0.4	+0.1	+1.0	−1.0	+0.6
14	68.6	47.6	60.1	67.7	67.5	53.8	−0.5	+1.2	+0.6	+0.5	+0.6	0.0	14	68.2	47.4	60.2	66.5	67.0	53.7	−0.9	+1.0	+0.7	−0.7	+0.1	−0.1
15	72.4	53.0	55.0	68.5	70.9	62.1	−1.6	+0.9	−0.1	+1.1	+0.9	+0.4	15	74.5	52.7	55.5	68.1	72.5	63.0	+0.5	+0.6	+0.4	+0.7	+2.5	+1.3
17	63.3	53.3	57.4	62.2	59.9	56.3	−1.4	+0.2	0.0	−0.3	−0.2	−0.4	17	62.7	53.1	57.8	62.1	60.1	56.4	−2.0	0.0	+0.4	−0.4	0.0	−0.3
18	60.8	52.4	58.3	59.9	60.3	56.5	−0.6	+0.1	+0.1	+0.1	+0.1	+0.1	18	60.9	52.2	58.2	59.5	60.3	56.7	−0.5	−0.1	0.0	−0.3	+0.1	+0.3
19	67.5	52.1	59.9	67.5	64.5	52.1	−1.0	+0.7	0.0	+0.1	+0.2	+0.1	19	66.9	51.8	59.1	66.9	63.2	52.5	−1.6	+0.4	−0.8	−0.5	−1.1	+0.5
20	67.5	48.0	59.6	67.0	65.6	52.4	−0.2	+0.8	+0.5	+0.6	0.0	+0.3	20	66.2	47.9	58.7	64.9	64.8	53.4	−1.5	+0.7	−0.4	−1.5	−0.8	+1.3
21	70.0	49.3	55.5	67.5	68.7	52.9	0.0	+0.8	−0.2	+0.6	+0.9	+0.1	21	68.5	49.4	55.6	64.9	67.9	52.7	−1.5	+0.9	−0.1	−2.0	+0.1	−0.1
22	68.3	48.1	53.9	66.4	68.0	54.9	−0.5	+1.0	−1.0	+1.8	+0.6	+0.7	22	68.3	47.9	53.8	64.9	66.4	55.6	−0.5	+0.8	−1.1	+0.3	−1.0	+1.4
24	67.5	53.6	60.5	63.7	67.2	58.2	−0.7	+1.2	−0.9	+0.5	−0.4	+0.2	24	68.0	53.8	60.5	64.0	67.3	58.2	−0.2	+1.4	−0.9	+0.8	−0.3	+0.2
25	58.3	51.4	56.5	55.1	53.6	51.6	−0.2	+0.1	−0.2	−0.1	0.0	+0.1	25	58.2	51.2	56.5	54.5	52.6	51.6	−0.3	−0.1	−0.2	−0.7	−1.0	+0.1
26	61.1	48.4	55.9	59.9	59.5	51.2	−1.3	+0.3	0.0	−0.1	+0.2	−0.1	26	61.3	48.2	54.5	60.2	59.6	51.3	−1.1	+0.1	−1.4	+0.2	+0.3	0.0
27	64.9	46.5	59.5	64.9	61.2	49.5	−0.3	+0.9	+1.9	+1.1	−0.3	−0.2	27	64.4	45.6	57.3	62.6	61.9	49.9	−0.8	0.0	−0.3	−1.2	+0.4	+0.2
28	63.4	47.7	56.1	59.9	63.2	59.7	−0.8	+0.4	−0.1	0.0	−0.1	+0.1	28	64.4	47.8	56.6	60.3	64.2	60.0	+0.2	+0.5	+0.4	+0.4	+0.9	+0.4
29	65.4	56.9	57.3	62.8	62.8	58.9	−1.6	+0.1	−0.3	−0.2	+0.2	+0.2	29	65.9	56.9	58.0	63.2	63.0	58.9	−1.1	+0.1	+0.4	+0.2	+0.4	+0.2
Means	64.9	49.4	57.1	62.7	63.3	54.3	−1.1	+0.6	0.0	+0.2	+0.1	+0.1	Means	65.3	49.0	57.2	62.3	63.4	54.6	−0.7	+0.2	0.0	−0.1	+0.2	+0.4

OCTOBER.

Days of the Month.	Maximum.	Minimum.	9^h	Noon	15^h	21^h	Maximum.	Minimum.	9^h	Noon	15^h	21^h	Days of the Month.	Maximum.	Minimum.	9^h	Noon	15^h	21^h	Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	53.0	35.7	43.6	49.6	52.9	40.5	−1.2	+0.4	+0.3	+0.3	0.0	+0.3	1	54.2	34.4	43.2	49.0	54.0	40.9	0.0	−0.9	−0.1	−0.3	+1.1	+0.7
2	44.4	36.2	41.9	43.8	41.8	38.9	−0.9	+0.7	−0.6	+0.1	−0.1	+0.2	2	44.0	35.5	41.9	43.6	42.0	38.3	−1.3	0.0	−0.6	−0.1	+0.1	−0.4
3	56.0	30.9	48.7	54.6	50.0	45.3	−1.0	+0.4	+1.5	+0.4	−0.1	+0.1	3	54.3	30.6	47.4	53.2	50.1	46.1	−2.7	+0.1	+0.2	−1.0	0.0	+0.9
4	52.7	37.2	45.9	51.5	50.3	41.0	−1.3	+0.4	−0.1	+0.1	+0.1	−0.1	4	52.2	36.1	45.6	51.9	50.2	41.1	−1.8	−0.7	−0.4	+0.5	0.0	0.0
5	51.1	30.1	42.1	50.1	49.5	40.3	−1.1	+0.4	−0.3	−0.1	+0.1	+0.2	5	50.5	28.8	41.2	49.4	50.5	39.9	−1.7	−0.9	−1.2	−0.8	+1.1	−0.2
6	48.7	31.6	38.8	48.5	46.3	40.2	−1.2	+0.6	−0.6	+0.2	+0.2	+0.1	6	48.0	30.7	39.3	47.6	46.6	40.3	−1.9	−0.3	−0.1	−0.7	+0.5	+0.2
8	52.1	28.4	36.8	51.4	49.3	41.9	−1.0	+0.5	+0.3	0.0	−0.2	+1.0	8	50.7	27.8	37.5	50.2	49.5	40.9	−2.4	−0.1	+1.0	−1.2	0.0	0.0
9	56.0	33.7	42.3	56.0	52.5	42.6	−0.4	+1.0	−0.5	−0.1	+0.5	+0.2	9	56.0	33.8	43.3	55.9	52.1	43.0	−0.4	+1.1	+0.5	−0.2	+0.1	+0.6
10	55.5	38.9	43.9	52.9	54.2	46.5	−0.1	+0.7	−0.2	+0.3	+0.2	−0.1	10	55.9	38.3	44.1	52.9	54.5	47.5	+0.3	+0.1	0.0	+0.3	+0.5	+0.9
11	54.2	42.8	46.4	51.5	53.2	42.9	−0.9	+0.7	−0.6	0.0	+0.4	0.0	11	53.6	42.9	47.1	51.9	53.0	42.9	−1.5	+0.8	+0.1	+0.4	+0.2	0.0
12	58.5	42.3	48.4	57.8	55.5	50.9	−0.7	+0.6	−0.3	+0.4	+0.3	+0.2	12	59.3	42.2	48.5	57.3	56.6	51.3	+0.1	+0.5	−0.2	−0.1	+1.4	+0.6
13	53.3	41.6	49.6	50.9	48.8	41.6	−1.3	+0.7	+0.5	+0.1	0.0	+0.2	13	52.2	40.4	48.5	50.7	48.9	41.4	−2.4	−0.5	−0.6	−0.1	+0.1	0.0
15	50.2	31.7	39.2	44.3	50.2	39.5	−0.8	+0.3	−0.4	−0.1	−0.1	+0.3	15	51.0	30.8	39.5	44.7	51.0	39.9	0.0	−0.6	−0.1	+0.3	+0.7	+0.7
16	54.4	34.5	42.9	53.4	53.5	46.5	−1.3	+0.3	−0.7	+0.2	+0.3	+0.1	16	55.3	34.0	44.5	53.9	53.5	47.5	−0.4	−0.2	+0.9	+0.7	+0.3	+1.1
17	49.0	37.2	42.4	44.9	48.2	40.5	−1.6	+0.5	−0.2	0.0	+0.4	−0.2	17	50.0	37.3	42.4	45.2	49.2	41.9	−0.6	+0.6	−0.2	+0.3	+1.4	+1.2
18	54.8	35.6	40.2	51.0	54.8	47.7	−0.9	+0.7	−0.3	−0.4	+0.1	−0.1	18	55.4	35.8	40.5	50.2	55.2	47.8	−0.3	+0.9	0.0	−1.2	+0.5	0.0
19	56.1	40.6	44.9	55.6	52.9	43.7	+0.4	+0.5	+0.6	+0.9	−0.4	−0.1	19	54.5	40.2	44.4	53.9	53.5	43.3	−1.2	+0.1	+0.1	−0.8	+0.2	−0.5
20	54.8	33.0	44.4	53.9	51.4	39.8	−0.3	+0.9	+1.1	+1.0	+0.1	+0.4	20	55.0	33.0	44.3	51.9	51.7	40.1	−0.1	+0.9	+1.0	−1.0	+0.4	+0.7
22	52.2	36.2	44.2	50.5	51.4	39.9	−1.2	+0.3	−0.3	−0.5	0.0	+0.4	22	52.9	36.1	44.3	51.5	51.9	41.7	−0.5	+0.2	−0.2	+0.5	+0.5	+2.2
23	50.2	29.7	38.6	47.4	50.2	39.9	−0.4	0.0	−0.7	+0.3	+0.2	+0.5	23	51.5	29.0	39.2	46.9	51.5	40.7	+0.9	−0.7	−0.1	−0.2	+1.5	+1.3
24	55.1	33.0	36.2	50.1	52.5	47.0	+1.1	+0.2	−0.2	−0.1	+0.6	−0.1	24	55.6	33.0	36.5	49.8	52.1	47.1	+1.6	+0.2	+0.1	−0.4	+0.2	0.0
25	62.4	46.6	54.6	60.8	59.4	54.8	−1.1	+0.5	0.0	−0.2	+0.2	+0.3	25	62.6	47.1	55.5	61.3	60.0	55.5	−0.9	+1.0	+0.9	+0.3	+0.8	+1.0
26	62.4	54.5	58.8	62.1	61.6	57.9	−1.0	+0.2	−0.1	0.0	+0.1	+0.4	26	62.9	55.0	59.3	62.3	62.1	58.3	−0.5	+0.7	+0.4	+0.2	+0.6	+0.8
27	67.9	56.6	60.4	65.5	66.8	57.7	−0.5	+0.6	−0.1	+0.1	+0.4	+0.5	27	68.4	57.0	60.8	65.2	67.5	58.4	0.0	+1.0	+0.3	−0.2	+1.1	+1.2
29	58.4	48.4	54.5	53.5	50.5	48.9	−0.3	+0.1	0.0	−0.1	0.0	−0.1	29	59.0	48.4	54.9	54.0	51.0	49.1	+0.3	+0.1	+0.4	+0.4	+0.5	+0.1
30	50.9	46.4	48.6	49.9	50.9	50.0	−1.5	+0.3	−0.1	−0.3	−0.5	+0.1	30	51.9	46.2	48.6	50.0	51.2	50.4	−0.5	+0.1	−0.1	−0.2	−0.2	+0.5
31	54.8	44.6	49.9	54.5	53.2	47.7	−1.0	+0.5	+0.1	−0.3	+0.1	+0.2	31	55.0	44.0	50.0	54.9	53.6	48.2	−0.8	−0.1	+0.2	+0.1	+0.5	+0.7
Means	54.4	38.4	45.5	52.4	52.3	45.0	−0.8	+0.5	−0.1	+0.1	+0.1	+0.2	Means	54.5	38.1	45.6	52.2	52.7	45.3	−0.7	+0.1	+0.1	−0.2	+0.5	+0.5

READINGS of DRY-BULB THERMOMETERS in a STEVENSON'S SCREEN and on the ROOF of the MAGNET HOUSE—*concluded.*

NOVEMBER.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9^h	Noon	15^h	21^h	Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	49.3	43.8	46.7	49.3	47.8	45.5	−0.8	+0.2	−0.1	+0.2	0.0	−0.2
2	49.0	44.8	47.1	48.8	48.9	45.7	−1.1	−0.5	−0.1	−0.6	−0.2	−0.1
3	50.1	45.0	46.5	48.9	49.6	46.6	−2.0	+0.1	−0.3	−1.2	−0.8	−0.3
5	55.0	45.4	50.1	54.3	52.1	46.3	−0.7	+0.4	+1.0	−0.1	0.0	−0.1
6	48.5	37.8	38.9	38.2	39.9	37.9	+1.5	+0.2	−0.2	−0.1	−0.1	+0.1
7	38.1	34.2	34.6	36.2	35.4	36.5	+0.1	+0.1	0.0	−0.1	−0.4	−0.2
8	42.4	34.7	38.2	42.1	41.9	41.8	−0.4	+0.4	0.0	−0.1	+0.1	+0.1
9	44.2	39.3	42.9	43.5	43.9	39.6	−0.9	+0.3	−0.2	−0.3	+0.1	+0.3
10	46.9	34.2	40.1	45.6	42.9	40.2	−0.1	+0.7	0.0	−0.2	+0.1	−0.2
12	52.7	44.2	46.8	50.0	51.9	52.7	−0.2	+0.1	−0.2	−0.1	0.0	+0.2
13	54.3	46.4	52.2	50.9	51.9	47.0	−1.0	+0.6	+0.1	−0.3	+0.3	+0.3
14	57.0	43.7	49.7	55.0	54.1	50.6	−0.2	+0.7	+0.2	+0.1	+0.7	+0.1
15	55.2	48.4	51.0	52.2	53.9	55.2	−0.4	−0.4	0.0	0.0	0.0	−0.1
16	58.8	52.6	58.0	58.1	57.6	52.9	−0.6	+0.5	+0.1	0.0	+0.2	+0.6
17	54.0	47.1	50.7	52.8	51.3	47.9	−0.8	+0.3	−0.1	0.0	+0.3	+0.1
19	53.4	50.1	51.9	52.5	53.0	53.3	−0.7	+0.3	+0.1	−0.2	0.0	+0.1
20	53.8	40.0	43.3	47.1	46.1	41.1	−0.3	+0.6	+0.1	0.0	+0.3	+0.7
21	48.5	40.1	42.7	46.2	48.0	44.9	−0.5	+1.0	0.0	−0.1	0.0	+0.1
22	52.7	42.7	48.3	51.3	52.3	50.9	−0.4	+0.6	+0.1	−0.1	+0.1	+0.1
23	55.1	49.7	52.2	53.9	54.8	51.7	−0.7	+0.6	+0.1	−0.1	0.0	+0.3
24	54.5	49.3	52.0	53.5	54.5	53.0	−0.2	+0.3	+0.2	−0.1	+0.1	0.0
26	53.0	44.1	46.2	51.2	46.9	45.9	−0.3	+0.8	−0.2	−0.2	+0.1	+0.5
27	52.7	43.7	52.0	50.0	50.9	45.3	−0.7	+0.5	−0.1	0.0	+0.1	+0.4
28	45.7	38.2	38.7	44.8	44.6	41.5	+0.1	+0.7	−0.9	+0.4	0.0	+0.1
29	46.3	40.0	44.9	45.6	46.0	46.3	−0.8	−0.5	−0.1	−0.3	0.0	−0.1
30	46.5	40.6	44.5	43.9	43.2	42.0	−0.2	−0.2	−0.2	−0.1	−0.1	0.0
Means	50.7	43.1	46.5	48.7	48.6	46.2	−0.5	+0.3	0.0	−0.1	0.0	+0.1

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9^h	Noon	15^h	21^h	Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	50.0	44.0	47.2	49.6	47.9	45.2	−0.1	+0.4	+0.4	+0.5	+0.1	−0.5
2	49.0	44.4	46.8	48.1	49.0	46.1	−1.1	−0.9	−0.4	−1.3	−0.1	+0.3
3	51.8	44.8	46.8	49.5	50.9	46.9	−0.3	−0.1	0.0	−0.6	+0.5	0.0
5	55.6	45.6	51.0	54.4	52.2	46.3	−0.1	+0.6	+1.9	0.0	+0.1	−0.1
6	46.5	37.0	39.2	38.5	40.0	37.9	−0.5	−0.6	+0.1	+0.2	0.0	+0.1
7	38.1	33.8	34.6	36.3	36.0	36.7	+0.1	−0.3	0.0	0.0	+0.2	0.0
8	42.6	33.9	38.2	42.5	42.0	41.9	−0.2	−0.4	0.0	+0.3	+0.2	+0.2
9	44.9	38.4	43.1	43.9	43.9	39.6	−0.2	−0.6	0.0	+0.1	+0.1	+0.3
10	46.6	33.0	40.2	45.0	42.9	40.5	−0.4	−0.5	+0.1	−0.8	+0.1	+0.1
12	52.9	44.0	47.0	50.3	52.1	52.9	0.0	−0.1	0.0	+0.2	+0.2	+0.4
13	54.7	46.2	52.5	51.2	51.9	46.9	−0.6	+0.4	+0.4	0.0	+0.3	+0.2
14	57.6	44.0	51.6	55.8	54.6	51.3	+0.4	+1.0	+2.1	+0.9	+1.2	+0.8
15	55.8	49.8	51.6	52.8	54.4	55.8	+0.2	+1.0	+0.6	+0.6	+0.5	+0.5
16	59.2	52.5	58.3	58.3	57.8	53.0	−0.2	+0.4	+0.4	+0.2	+0.4	+0.7
17	54.1	46.7	51.2	52.8	51.1	48.0	−0.7	−0.1	+0.4	0.0	+0.1	+0.2
19	53.7	50.2	52.2	52.9	53.3	53.6	−0.4	+0.4	+0.4	+0.2	+0.3	+0.4
20	54.0	39.5	42.3	47.1	46.6	41.5	−0.1	+0.1	−0.9	0.0	+0.8	+1.1
21	48.9	39.0	43.1	46.3	48.8	44.8	−0.1	−0.1	+0.4	0.0	+0.8	0.0
22	53.2	42.4	48.8	51.7	52.7	51.3	+0.1	+0.3	+0.6	+0.3	+0.5	+0.5
23	55.3	49.6	52.5	54.3	55.2	52.1	−0.5	+0.5	+0.4	+0.3	+0.4	+0.7
24	54.7	49.3	52.2	53.9	54.7	53.4	0.0	+0.3	+0.4	+0.3	+0.3	+0.4
26	53.4	44.1	45.8	50.2	47.2	46.2	+0.1	+0.8	−0.6	−1.2	+0.4	+0.8
27	53.2	44.1	53.2	50.6	51.4	45.8	−0.2	+0.9	+1.1	+0.6	+0.6	+0.9
28	45.9	38.7	40.5	44.9	44.6	41.3	+0.3	+1.2	+0.9	+0.5	0.0	−0.1
29	46.6	40.1	45.2	45.9	46.1	46.3	−0.5	−0.4	+0.2	0.0	+0.1	−0.1
30	46.6	40.5	44.6	44.1	43.5	42.3	−0.1	−0.3	−0.1	+0.1	+0.2	+0.3
Means	51.0	42.9	46.9	48.9	48.9	46.4	−0.2	+0.1	+0.3	+0.1	+0.3	+0.3

DECEMBER.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9^h	Noon	15^h	21^h	Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	45.7	36.8	38.4	43.2	45.5	44.3	0.0	+0.5	−0.1	+0.1	+0.3	+1.0
3	52.5	48.2	49.9	51.9	50.6	50.9	−0.6	+0.4	0.0	+0.1	0.0	0.0
4	55.4	49.7	52.2	53.8	53.4	51.2	−0.2	+0.6	+0.1	−0.1	0.0	+0.1
5	57.2	49.8	52.9	54.3	55.1	51.0	−0.9	+0.7	0.0	−0.1	+0.2	+0.2
6	56.0	43.6	51.9	54.9	53.6	44.9	−0.7	+0.5	0.0	−0.2	+0.1	+0.1
7	54.2	40.4	43.8	53.6	50.9	42.7	+1.0	+1.0	+0.3	+1.3	+1.1	+0.4
8	47.7	36.1	39.9	47.1	47.4	46.7	−0.8	+0.5	−0.1	−0.4	+0.1	+0.1
10	38.1	27.4	28.2	30.4	31.2	34.3	+0.1	0.0	−0.8	−0.2	+0.1	−0.5
11	39.0	24.4	26.1	31.5	37.9	36.0	0.0	−0.4	−0.3	−0.6	−0.7	+0.2
12	38.4	30.3	31.4	36.8	38.3	31.5	−0.1	+0.8	+0.2	−0.1	+0.9	−0.3
13	35.6	27.3	30.8	34.9	34.7	29.8	−0.4	+1.2	0.0	+0.1	+0.6	−0.2
14	38.6	29.4	33.4	37.7	36.3	32.5	−0.7	−0.3	−0.3	−0.1	0.0	−0.1
15	37.8	30.2	30.5	31.4	33.4	37.6	−0.2	−0.3	−0.4	−0.4	−0.1	−0.1
17	35.3	29.4	34.1	33.5	33.4	30.0	−0.4	−0.2	−1.1	−0.3	−0.3	−0.1
18	32.9	26.1	27.3	29.2	31.2	32.7	−1.6	−0.3	−0.3	−0.7	−0.1	−0.1
19	48.4	32.4	44.9	48.0	45.9	43.1	−0.8	+0.1	−0.2	−0.9	−0.4	+0.1
20	48.4	40.2	42.1	46.9	45.5	45.8	−0.1	+0.5	+0.1	+0.1	+0.2	+0.1
21	50.1	45.4	46.6	48.8	49.6	48.0	−0.9	+0.2	+0.1	−0.1	−0.1	−0.1
22	51.2	45.2	47.9	49.9	48.9	45.6	−0.5	+0.6	−0.1	0.0	+0.3	+0.4
24	50.1	42.7	46.3	47.7	50.1	43.3	−0.3	+0.4	+0.1	−0.1	+0.1	0.0
26	46.3	35.4	39.9	44.0	41.3	36.0	−0.1	+0.6	0.0	−0.6	−0.1	+0.5
27	49.7	33.6	39.9	46.7	47.9	49.1	+0.6	+0.7	+0.4	−0.1	+0.1	+0.2
28	49.1	38.2	46.9	48.4	42.7	38.6	−0.3	+0.3	−0.1	−0.4	−0.8	+0.1
29	39.3	36.9	37.3	38.2	39.3	38.4	−0.5	+0.1	−0.1	−0.2	0.0	−0.1
31	36.8	26.0	26.2	31.8	36.0	29.0	−0.3	+0.1	−0.6	−0.2	−0.1	+0.8
Means	45.4	36.2	39.6	43.0	43.2	40.5	−0.3	+0.3	−0.1	−0.2	+0.1	+0.1

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9^h	Noon	15^h	21^h	Maximum.	Minimum.	9^h	Noon	15^h	21^h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	46.4	36.2	39.3	43.2	46.1	45.2	+0.7	−0.1	+0.8	+0.1	+0.9	+1.9
3	52.8	48.2	50.3	52.2	50.7	50.9	−0.3	+0.4	+0.4	+0.4	+0.1	0.0
4	55.7	50.0	52.8	54.1	54.3	51.9	+0.1	+0.9	+0.7	+0.2	+0.9	+0.8
5	57.7	49.8	53.5	54.9	55.7	51.5	−0.4	+0.7	+0.6	+0.5	+0.8	+0.7
6	56.5	44.0	52.3	55.9	53.8	44.6	−0.2	+0.9	+0.4	+0.8	+0.3	−0.2
7	54.2	41.1	44.6	53.5	50.5	44.5	+1.0	+1.7	+1.1	+1.2	+0.7	+2.2
8	48.9	37.1	40.3	48.0	47.9	47.1	+0.4	+1.5	+0.3	+0.5	+0.6	+0.5
10	38.3	26.9	28.9	30.4	31.9	34.9	+0.3	−0.5	−0.1	−0.2	+0.8	+0.1
11	38.4	24.0	26.0	31.8	38.4	35.9	−0.6	−0.8	−0.4	−0.3	−0.2	+0.1
12	39.0	29.4	32.0	37.1	39.0	32.1	+0.5	−0.1	+0.8	+0.2	+1.6	+0.3
13	35.8	26.0	30.9	35.0	34.7	30.1	−0.2	−0.1	+0.1	+0.2	+0.6	+0.1
14	38.5	29.3	33.8	37.9	36.5	32.9	−0.8	−0.4	+0.1	+0.1	+0.2	+0.3
15	39.1	30.4	30.6	31.7	33.5	38.9	+1.1	−0.1	−0.3	−0.1	0.0	+1.2
17	35.6	29.2	34.1	33.5	33.4	30.9	−0.1	−0.4	−1.1	−0.3	−0.3	+0.8
18	33.0	25.7	28.5	29.7	31.4	32.9	−1.5	−0.7	+0.9	−0.2	+0.1	+0.1
19	49.9	32.3	45.7	49.3	46.2	43.2	+0.7	0.0	+0.6	+0.4	−0.1	+0.2
20	48.4	39.5	42.3	47.4	45.9	45.9	−0.1	−0.2	+0.3	+0.6	+0.6	+0.2
21	49.7	45.4	47.0	49.5	49.7	47.9	−1.3	+0.2	+0.5	+0.6	0.0	−0.2
22	53.6	45.2	48.6	50.7	49.4	46.1	+1.9	+0.6	+0.6	+0.8	+0.8	+0.9
24	52.1	41.7	47.0	48.2	51.0	42.4	+1.7	−0.6	+0.8	+0.4	+1.0	−0.9
26	48.2	34.7	40.2	44.6	41.9	36.1	+1.8	−0.1	+0.3	0.0	+0.5	+0.6
27	50.1	33.2	41.0	47.5	47.8	49.9	+1.0	+0.3	+1.5	+0.7	0.0	+1.0
28	50.3	38.1	47.4	49.3	42.8	39.5	+0.9	+0.2	+0.4	+0.5	−0.7	+1.0
29	40.6	36.4	37.5	37.9	39.1	37.9	+0.8	−0.4	+0.1	−0.5	−0.2	−0.6
31	38.0	25.0	26.8	32.4	35.4	30.5	+0.9	−0.9	0.0	+0.4	−0.7	+2.3
Means	46.0	36.0	40.1	43.4	43.5	40.9	+0.3	+0.1	+0.4	+0.3	+0.3	+0.5

READINGS of the WET-BULB THERMOMETER placed in a STEVENSON'S SCREEN near the Ordinary Stand; and EXCESS of the READINGS above those of the corresponding THERMOMETER on the ORDINARY STAND, in the YEAR 1888.

[No observations have been made on Sundays, Good Friday, and Christmas Day.]

JANUARY.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
2	39.8	42.1	41.3	40.4	+ 0.1	− 0.3	− 0.2	0.0
3	33.8	39.9	41.5	38.3	− 0.1	− 0.2	+ 0.3	+ 0.2
4	38.7	38.1	37.9	37.3	0.0	− 0.4	− 0.3	− 0.3
5	43.6	46.1	45.0	40.1	− 0.1	+ 0.1	0.0	+ 0.1
6	36.7	43.0	43.4	44.3	+ 0.3	0.0	− 0.2	0.0
7	44.3	45.0	45.6	43.7	− 0.2	0.0	0.0	− 0.1
9	44.1	43.9	44.1	38.3	0.0	− 0.2	− 0.1	0.0
10	35.1	39.2	41.5	34.6	− 0.2	− 0.1	0.0	+ 0.1
11	34.1	36.6	36.7	35.8	− 0.2	− 0.3	− 0.1	− 0.1
12	34.5	36.6	37.1	36.1	− 0.1	− 0.1	− 0.2	− 0.5
13	36.0	37.0	36.1	34.3	− 0.1	− 0.1	0.0	0.0
14	30.2	31.4	32.3	31.4	− 0.3	0.0	0.0	− 0.1
16	31.0	31.0	30.2	30.6	+ 0.1	+ 0.1	− 0.1	− 0.1
17	31.8	32.8	33.1	29.1	+ 0.2	0.0	+ 0.2	0.0
18	31.4	32.0	31.9	32.1	+ 0.1	0.0	0.0	0.0
19	33.1	32.3	32.0	30.2	+ 0.1	0.0	+ 0.1	− 0.1
20	29.2	35.9	36.1	38.5	+ 0.1	+ 0.2	+ 0.1	+ 0.1
21	44.2	46.9	48.2	46.8	0.0	0.0	− 0.1	+ 0.2
23	41.1	44.8	44.4	39.9	0.0	+ 0.3	+ 0.7	+ 0.2
24	38.0	40.4	42.2	40.9	+ 0.2	+ 0.4	+ 0.2	0.0
25	41.2	42.1	42.1	40.3	− 0.1	− 0.2	+ 0.3	+ 0.1
26	41.7	41.7	41.1	36.2	− 0.1	+ 0.1	− 0.1	+ 0.2
27	34.1	36.8	39.0	31.4	+ 0.1	+ 0.2	+ 0.1	− 0.1
28	29.0	31.6	33.1	30.9	0.0	+ 0.6	+ 0.1	+ 0.5
30	25.3	31.3	28.4	28.4	− 0.2	+ 0.8	+ 0.2	− 0.1
31	35.5	35.8	36.7	34.1	0.0	− 0.1	+ 0.2	+ 0.2
Means	36.1	38.2	38.5	36.3	0.0	0.0	0.0	0.0

FEBRUARY.

Days of the Month.	9h	Noon	15h	21h	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
1	28.8	28.7	27.3	24.5	− 0.1	0.0	0.0	− 0.2
2	22.2	27.4	28.8	29.1	+ 0.1	− 0.2	− 0.1	+ 0.2
3	36.6	39.8	41.6	41.8	− 0.1	− 0.2	0.0	+ 0.3
4	42.2	44.9	45.9	45.1	− 0.3	0.0	+ 0.2	+ 0.2
6	44.3	46.1	46.8	44.5	− 0.1	0.0	− 0.1	0.0
7	41.5	43.3	42.8	39.5	+ 0.2	+ 0.1	+ 0.2	+ 0.5
8	42.0	43.6	44.8	43.3	0.0	0.0	+ 0.1	+ 0.3
9	44.8	42.8	43.1	40.1	0.0	+ 0.2	+ 0.2	+ 0.2
10	40.8	42.4	44.0	39.7	+ 0.1	− 0.2	+ 0.1	− 0.1
11	35.1	39.4	34.9	37.3	+ 0.1	− 0.4	− 0.2	0.0
13	33.3	33.3	34.4	32.9	+ 0.1	+ 0.2	+ 0.5	0.0
14	32.8	36.1	34.9	33.2	− 0.1	+ 0.3	− 0.2	− 0.1
15	33.7	34.7	34.4	31.9	0.0	− 0.1	− 0.1	+ 0.2
16	32.0	31.7	31.8	30.3	+ 0.1	0.0	− 0.1	0.0
17	29.3	31.2	32.0	31.7	0.0	− 0.3	− 0.1	0.0
18	32.2	34.3	34.8	31.3	+ 0.2	− 0.1	0.0	+ 0.2
20	29.1	32.4	33.5	33.1	− 0.2	− 0.5	0.0	+ 0.1
21	30.6	31.8	32.2	30.4	+ 0.1	+ 0.1	+ 0.1	+ 0.1
22	27.0	27.7	28.8	28.0	0.0	+ 0.1	0.0	0.0
23	26.4	26.7	26.7	27.8	− 0.3	− 0.2	− 0.1	0.0
24	25.8	25.3	24.8	19.9	− 0.3	− 0.3	0.0	− 0.3
25	29.6	30.6	30.7	26.6	− 0.3	− 0.3	− 0.2	+ 0.2
27	31.5	32.1	32.1	30.7	+ 0.1	+ 0.1	− 0.1	+ 0.1
28	29.5	29.8	29.8	26.8	− 0.1	0.0	0.0	+ 0.1
29	28.3	28.6	29.1	26.8	+ 0.1	− 0.4	− 0.2	+ 0.1
Means	33.2	34.6	34.8	33.1	0.0	− 0.1	0.0	+ 0.1

MARCH.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
1	26.1	28.8	31.1	27.5	− 0.7	− 0.2	+ 0.2	+ 0.1
2	28.4	34.7	35.4	35.1	− 0.3	− 0.1	+ 0.2	+ 0.1
3	33.0	33.3	32.9	30.2	− 0.4	− 0.3	0.0	+ 0.3
5	30.4	33.0	34.2	30.5	0.0	+ 0.1	+ 0.1	+ 0.6
6	37.7	41.5	42.0	38.1	− 0.2	− 0.3	+ 0.1	+ 0.3
7	39.1	43.6	44.3	41.4	− 0.4	+ 0.4	− 0.3	− 0.5
8	45.1	45.6	46.8	47.0	− 0.1	− 0.3	− 0.2	0.0
9	48.9	49.3	49.9	45.7	− 0.2	− 0.3	− 0.3	− 0.2
10	46.6	48.5	49.8	45.9	− 0.4	+ 0.1	− 0.1	0.0
12	36.9	37.5	36.4	31.9	− 0.1	− 0.3	− 0.2	+ 0.1
13	30.9	31.8	32.1	30.5	− 0.1	− 0.2	0.0	0.0
14	42.1	44.5	44.5	41.1	− 0.1	− 0.4	− 0.7	+ 0.2
15	39.8	40.0	41.4	36.7	− 0.1	+ 0.4	+ 0.3	+ 0.4
16	33.3	32.6	32.0	28.4	0.0	+ 0.1	0.0	0.0
17	29.8	30.9	32.0	30.1	0.0	− 0.1	0.0	+ 0.1
19	26.7	28.8	30.0	30.0	− 0.1	0.0	0.0	0.0
20	31.6	31.4	31.6	30.6	− 0.5	− 0.2	+ 0.1	+ 0.2
21	33.4	36.7	38.5	32.4	− 0.2	− 0.5	+ 0.1	+ 0.3
22	34.8	37.8	41.1	41.7	− 0.3	− 0.3	− 0.3	+ 0.1
23	41.0	37.1	36.7	36.1	− 0.2	− 0.1	+ 0.1	0.0
24	35.8	39.4	39.7	34.1	− 0.3	− 0.3	− 0.3	− 0.1
26	38.4	40.4	41.2	38.1	− 0.1	− 0.1	− 0.4	0.0
27	34.3	37.9	36.1	33.1	− 0.2	0.0	− 0.2	+ 0.1
28	41.5	44.3	46.0	41.2	0.0	− 0.1	− 0.2	+ 0.1
29	42.9	44.1	42.6	40.1	− 0.4	− 0.6	− 0.4	+ 0.1
31	38.3	40.2	40.3	38.4	+ 0.2	− 0.8	+ 0.1	+ 0.1
Means	36.4	38.2	38.8	36.0	− 0.2	− 0.2	− 0.1	+ 0.1

APRIL.

Days of the Month.	9h	Noon	15h	21h	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
2	38.7	41.3	43.1	37.0	+ 0.1	− 0.1	+ 0.2	+ 0.1
3	33.7	35.8	38.1	31.7	− 0.1	− 0.2	− 0.4	+ 0.3
4	34.1	35.1	37.1	34.1	+ 0.4	+ 0.6	− 0.1	+ 0.1
5	34.6	35.3	35.5	29.6	− 0.2	− 0.1	+ 0.2	+ 0.3
6	34.2	36.0	37.7	33.3	+ 0.7	− 0.9	− 0.4	+ 0.2
7	35.1	37.6	38.3	37.3	0.0	− 0.3	− 0.5	+ 0.3
9	34.8	35.4	36.1	36.1	+ 0.2	+ 0.5	+ 0.2	+ 0.2
10	35.8	35.8	35.8	35.1	− 0.1	− 0.3	− 0.1	+ 0.2
11	42.1	44.5	46.3	39.1	− 0.1	+ 0.1	+ 0.1	+ 0.9
12	39.6	41.4	43.1	41.9	+ 0.1	+ 0.2	+ 0.6	+ 0.2
13	49.6	48.4	51.2	48.2	+ 0.1	+ 0.2	+ 0.1	+ 0.5
14	47.8	52.3	54.4	44.8	− 0.1	+ 0.1	+ 0.3	+ 0.5
16	45.4	49.5	53.1	45.2	+ 0.1	− 0.7	− 0.1	+ 0.3
17	47.1	51.3	51.4	46.7	0.0	− 0.3	+ 0.1	+ 0.1
18	46.6	49.2	48.4	44.5	+ 0.1	− 0.2	− 0.4	0.0
19	47.0	47.0	47.1	44.3	− 0.6	+ 0.3	− 0.2	+ 0.3
20	43.7	45.7	45.2	42.6	− 0.1	+ 0.3	0.0	+ 0.2
21	43.2	47.1	45.0	39.2	− 1.0	− 0.3	0.0	+ 0.3
23	41.3	43.4	45.0	43.0	+ 0.1	0.0	+ 0.1	+ 0.1
24	45.8	45.2	44.1	39.1	− 0.2	− 0.2	− 0.2	− 0.1
25	38.9	40.4	42.1	37.1	− 0.1	+ 0.1	+ 0.3	+ 0.7
26	36.3	38.8	39.2	35.7	+ 0.2	0.0	+ 0.6	+ 0.7
27	39.7	47.3	49.4	46.8	+ 0.4	+ 0.3	− 0.1	+ 0.3
28	51.4	54.1	53.7	49.4	− 0.1	+ 0.5	− 0.1	+ 0.3
30	49.4	52.9	51.4	46.2	+ 0.7	+ 0.1	− 0.1	+ 0.3
Means	41.4	43.6	44.5	40.3	0.0	0.0	0.0	+ 0.3

READINGS of the WET-BULB THERMOMETER in a STEVENSON'S SCREEN—*continued.*

MAY.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
1	48.5	48.1	48.1	44.8	0.0	0.0	0.0	+ 0.6
2	45.1	46.7	46.8	45.4	− 0.1	− 0.3	+ 0.2	+ 0.4
3	44.4	46.6	45.2	41.2	− 0.4	+ 0.1	− 0.6	+ 0.7
4	43.4	46.5	45.3	43.6	− 0.2	+ 0.3	+ 0.7	+ 0.2
5	45.8	47.0	48.6	45.2	+ 0.2	0.0	+ 0.1	+ 0.1
7	55.4	57.9	59.9	53.3	+ 0.3	− 1.0	− 0.9	+ 0.2
8	55.8	58.3	59.6	54.4	− 0.5	− 0.1	− 0.2	− 0.5
9	43.5	46.1	47.6	41.4	− 0.1	− 0.5	− 0.5	− 0.1
10	42.4	44.7	47.6	39.7	− 0.3	− 0.5	− 0.4	+ 0.1
11	44.5	46.4	48.1	40.1	− 0.1	− 0.6	− 0.6	+ 0.2
12	46.4	50.4	52.9	45.8	− 0.1	− 0.2	+ 0.5	+ 0.6
14	45.3	47.6	46.3	43.8	− 0.2	+ 0.6	0.0	+ 0.2
15	46.4	48.4	48.9	43.2	+ 0.2	− 1.2	− 0.6	0.0
16	51.6	52.7	52.3	50.0	− 0.4	− 0.6	− 0.2	+ 0.1
17	52.8	55.1	57.4	54.9	− 0.3	− 0.8	− 0.9	− 0.1
18	56.1	61.3	63.7	58.5	− 0.2	− 0.7	− 0.2	+ 0.2
19	61.7	61.8	63.2	51.4	+ 0.2	+ 0.1	+ 0.2	− 0.2
21	55.0	55.5	54.7	50.6	− 0.1	− 0.3	+ 0.1	− 0.1
22	49.2	49.7	50.7	48.4	− 0.3	− 0.5	− 0.5	− 0.1
23	53.4	50.1	51.4	47.6	− 0.3	− 1.0	+ 0.5	+ 0.6
24	48.1	54.1	56.6	48.9	+ 0.1	− 1.0	− 0.8	+ 0.1
25	47.1	53.1	54.7	45.6	− 0.2	− 0.8	− 0.2	− 0.1
26	44.3	46.2	47.3	42.2	− 0.9	− 0.1	0.0	+ 0.5
28	52.6	55.1	53.3	45.4	− 0.5	− 0.3	+ 0.1	+ 0.4
29	48.2	48.5	52.6	47.5	+ 0.3	− 0.8	− 0.2	+ 0.2
30	54.6	56.7	55.3	48.1	− 0.6	− 0.4	− 0.8	+ 0.6
31	49.1	51.4	51.9	49.1	0.0	− 1.0	− 0.2	+ 0.2
Means	49.3	51.3	52.2	47.0	− 0.2	− 0.4	− 0.2	+ 0.2

JUNE.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
1	50.2	54.1	56.3	52.1	− 0.5	0.0	0.0	+ 0.1
2	54.5	62.3	62.2	57.5	− 0.4	− 1.2	− 1.3	− 0.1
4	56.7	59.6	60.9	52.6	0.0	− 1.6	− 0.2	− 0.1
5	47.6	49.1	48.9	45.6	− 0.3	− 0.1	− 0.4	0.0
6	50.3	53.5	56.2	51.3	0.0	− 0.4	− 0.3	+ 0.4
7	55.0	55.4	59.8	54.1	− 0.5	− 0.1	− 1.1	− 0.1
8	57.4	58.9	59.1	57.6	− 0.3	− 0.5	0.0	− 0.1
9	53.8	56.2	58.9	55.8	− 0.3	− 1.0	− 0.1	0.0
11	55.7	57.3	59.8	53.0	− 0.1	− 0.6	+ 0.5	+ 0.1
12	60.1	59.3	61.1	54.5	− 0.5	− 0.5	− 0.8	− 0.2
13	52.2	53.7	54.3	49.7	+ 0.5	− 0.8	+ 0.2	+ 0.5
14	47.7	54.2	49.5	48.6	− 0.3	− 0.4	− 0.6	+ 0.2
15	50.4	52.4	51.4	54.1	+ 0.1	− 0.1	− 0.6	− 0.2
16	51.1	54.4	52.2	48.4	− 0.2	+ 0.2	+ 0.1	+ 0.2
18	46.7	48.4	50.2	47.2	+ 0.2	0.0	+ 0.5	+ 0.2
19	47.4	49.4	50.4	47.1	+ 0.3	0.0	+ 0.3	+ 0.2
20	49.7	52.0	52.1	50.1	+ 0.2	+ 0.1	0.0	+ 0.2
21	55.1	60.1	59.6	57.6	− 0.4	− 0.1	+ 0.4	+ 0.3
22	57.1	60.4	63.8	58.6	+ 0.1	+ 0.1	+ 0.6	+ 0.2
23	58.7	61.4	62.9	53.2	− 0.4	− 0.1	− 0.1	0.0
25	69.6	72.2	72.1	64.1	0.0	+ 0.7	+ 0.8	+ 0.4
26	63.1	65.1	67.2	62.3	+ 0.1	− 0.4	− 0.3	− 0.1
27	61.4	60.3	59.6	57.3	− 0.6	− 0.3	− 0.3	− 0.2
28	57.2	56.6	55.1	53.5	+ 0.2	− 0.3	− 0.1	0.0
29	56.3	54.9	56.8	55.6	− 0.2	− 0.6	+ 0.4	+ 0.1
30	51.3	54.1	54.4	47.7	+ 0.1	− 0.3	− 0.4	+ 0.2
Means	54.5	56.7	57.5	53.4	− 0.1	− 0.3	− 0.1	+ 0.1

JULY.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
2	54.4	53.2	54.4	56.1	+ 0.2	+ 0.1	− 0.4	+ 0.2
3	56.4	57.1	59.8	56.4	+ 0.3	− 0.1	− 0.1	+ 0.1
4	57.5	60.6	58.4	55.3	− 0.6	− 0.6	0.0	+ 0.4
5	57.9	55.5	59.1	54.3	− 0.6	+ 0.2	+ 0.3	+ 0.2
6	55.1	55.6	52.8	53.1	+ 0.2	− 0.2	− 0.1	+ 0.2
7	51.5	53.0	54.1	51.4	− 0.1	+ 0.2	− 0.2	− 0.1
9	57.1	57.7	58.1	57.1	− 0.9	− 0.3	− 0.3	+ 0.1
10	50.0	50.6	53.3	47.8	+ 0.1	− 0.3	− 0.2	0.0
11	42.5	48.5	48.0	47.8	− 0.3	− 0.1	− 0.2	0.0
12	48.4	49.5	49.3	50.1	+ 0.1	0.0	− 0.1	0.0
13	52.3	56.2	57.2	57.0	− 0.5	− 0.7	− 0.2	+ 0.2
14	59.5	61.6	62.1	57.7	− 0.4	− 1.0	− 0.3	− 0.2
16	59.0	58.6	58.6	53.1	− 0.9	− 0.9	− 0.8	+ 0.2
17	58.5	60.4	59.2	57.2	+ 0.3	− 0.7	− 0.6	− 0.1
18	61.5	61.1	60.6	58.1	− 0.1	+ 0.3	+ 0.1	+ 0.1
19	56.1	61.1	62.0	57.6	0.0	− 1.1	+ 0.2	+ 0.1
20	59.2	60.1	59.4	58.4	+ 0.1	− 0.2	− 0.7	− 0.1
21	57.3	59.5	60.9	56.6	− 0.3	+ 0.2	− 0.1	+ 0.3
23	59.3	59.2	58.7	55.0	+ 0.1	0.0	− 0.4	+ 0.2
24	57.1	58.6	58.1	54.9	+ 0.7	− 0.3	0.0	0.0
25	57.4	58.3	57.5	58.3	− 0.3	− 0.8	− 0.2	+ 0.1
26	57.7	58.3	60.2	54.2	0.0	− 0.1	+ 0.2	+ 0.1
27	56.3	59.7	56.4	56.2	− 0.5	− 1.3	− 0.4	− 0.3
28	59.7	59.4	59.1	54.8	0.0	+ 0.2	− 0.5	0.0
30	56.7	61.7	60.1	53.0	− 0.4	− 0.3	0.0	− 0.1
31	52.1	54.2	53.3	52.1	− 0.2	+ 0.2	− 0.1	0.0
Means	55.8	57.3	57.3	54.8	− 0.2	− 0.3	− 0.2	+ 0.1

AUGUST.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
1	51.2	53.1	55.8	53.1	− 0.2	− 0.1	− 0.4	0.0
2	54.4	54.4	56.3	52.7	− 0.5	− 0.2	− 0.6	+ 0.2
3	57.9	59.4	58.0	52.6	+ 0.5	0.0	+ 0.3	+ 0.3
4	56.4	59.5	61.3	56.2	0.0	0.0	+ 0.2	+ 0.3
6	51.7	53.5	53.6	54.1	− 0.1	0.0	0.0	+ 0.1
7	63.1	67.1	68.8	63.3	− 0.2	+ 0.1	− 0.2	+ 0.1
8	62.6	68.6	67.5	60.6	+ 0.1	+ 0.1	− 0.2	0.0
9	68.4	65.7	65.7	64.1	− 0.6	− 0.6	− 0.6	+ 0.2
10	67.4	71.4	71.7	59.7	− 0.6	− 0.4	− 0.6	− 0.1
11	60.7	60.1	60.9	58.2	− 0.4	+ 0.2	− 0.2	− 0.1
13	57.1	56.7	56.1	53.1	− 0.2	+ 0.1	− 0.4	+ 0.2
14	51.1	55.2	54.6	50.0	0.0	− 0.3	+ 0.2	+ 0.2
15	53.6	53.5	56.0	50.1	+ 0.6	− 0.5	− 0.4	0.0
16	50.1	52.6	53.8	49.2	− 0.6	− 0.4	0.0	− 0.1
17	49.0	50.4	52.4	48.7	− 0.2	0.0	− 0.5	− 0.1
18	50.4	54.3	55.2	50.3	− 0.5	− 0.2	− 0.6	+ 0.3
20	56.3	57.4	56.7	54.0	− 0.8	− 0.9	+ 0.1	− 0.1
21	59.6	59.5	61.9	55.7	− 0.4	− 0.4	− 0.6	− 0.3
22	57.7	59.1	60.1	54.3	− 0.3	+ 0.3	+ 0.2	0.0
23	58.4	59.5	60.0	55.3	− 0.1	− 0.3	− 0.8	− 0.1
24	59.8	64.0	62.5	59.2	− 0.4	+ 0.2	− 0.3	0.0
25	60.2	63.4	62.1	55.1	− 0.1	− 0.5	+ 0.1	0.0
27	58.4	59.9	59.3	55.9	− 0.2	0.0	− 0.9	0.0
28	56.3	58.7	58.3	56.7	− 0.3	− 0.3	− 0.2	− 0.1
29	54.1	55.9	57.0	50.8	− 0.4	− 0.7	− 0.1	0.0
30	55.4	55.1	54.1	51.3	− 0.2	+ 0.1	− 0.2	+ 0.1
31	51.0	51.3	52.4	49.7	+ 0.1	0.0	− 0.4	+ 0.4
Means	56.8	58.5	59.0	54.6	− 0.2	− 0.2	− 0.3	+ 0.1

READINGS of the WET-BULB THERMOMETER in a STEVENSON'S SCREEN—*concluded.*

SEPTEMBER.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
1	52·3	53·2	53·4	51·9	+ 0·2	+ 0·3	+ 0·4	0·0
3	59·6	59·4	61·9	55·7	− 0·2	− 0·3	− 0·3	+ 0·2
4	54·2	58·2	59·0	56·8	− 0·3	− 0·4	− 0·4	0·0
5	58·4	59·6	59·3	57·5	+ 0·1	− 0·3	− 0·1	+ 0·1
6	58·3	53·1	55·8	49·9	+ 0·1	− 0·5	+ 0·2	+ 0·3
7	53·3	54·3	53·9	50·3	− 0·3	+ 0·1	0·0	+ 0·3
8	50·1	49·0	49·4	45·8	0·0	0·0	+ 0·1	+ 0·1
10	51·8	53·1	52·8	49·3	− 0·4	− 0·1	− 0·2	+ 0·1
11	49·4	54·2	53·5	48·1	− 0·1	+ 0·6	+ 0·1	+ 0·1
12	52·5	55·6	55·8	49·5	+ 0·8	− 0·1	+ 0·6	+ 0·2
13	52·8	57·6	55·7	50·7	− 0·7	+ 0·7	− 0·4	0·0
14	57·7	59·6	60·7	53·3	− 0·1	+ 0·1	+ 0·4	0·0
15	54·3	61·7	61·1	59·5	− 0·1	+ 0·5	+ 0·5	0·0
17	55·3	57·4	56·7	54·4	0·0	− 0·6	− 0·2	− 0·2
18	55·4	57·1	58·0	54·9	− 0·1	+ 0·1	+ 0·1	+ 0·2
19	56·2	58·9	57·1	51·1	− 0·2	+ 0·4	+ 0·7	+ 0·1
20	57·1	58·1	58·3	51·8	+ 0·4	+ 0·2	+ 0·1	+ 0·2
21	55·1	60·2	58·7	52·5	0·0	+ 0·3	+ 0·9	+ 0·1
22	52·3	59·1	61·5	54·1	− 0·1	+ 0·7	+ 0·3	+ 0·3
24	59·1	61·1	63·7	57·3	− 0·5	0·0	− 0·5	0·0
25	56·1	54·6	52·1	49·1	0·0	− 0·1	− 0·1	− 0·1
26	52·5	54·4	53·7	48·9	− 0·5	− 0·1	+ 0·2	+ 0·2
27	53·9	56·1	54·7	48·7	+ 1·0	+ 0·2	− 0·3	− 0·1
28	53·1	57·1	60·7	59·4	− 0·3	− 0·2	− 0·1	0·0
29	56·7	59·3	59·4	58·5	0·0	− 0·2	− 0·2	0·0
Means	54·7	56·9	57·1	52·8	− 0·1	+ 0·1	+ 0·1	+ 0·1

OCTOBER.

Days of the Month.	9h	Noon	15h	21h	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
1	40·9	42·6	46·4	39·6	− 0·1	+ 0·1	− 0·4	+ 0·7
2	41·1	42·7	41·1	38·7	− 0·5	+ 0·1	+ 0·1	+ 0·2
3	44·0	48·5	47·1	44·4	+ 0·8	+ 0·1	+ 0·1	+ 0·2
4	43·1	46·1	46·7	38·7	− 0·2	+ 0·2	+ 0·1	0·0
5	38·6	44·1	44·1	38·7	− 0·3	+ 0·2	+ 0·6	+ 0·3
6	37·8	42·7	41·1	37·4	0·0	− 0·2	+ 0·3	+ 0·3
8	35·7	44·8	43·2	40·1	+ 0·5	− 0·2	− 0·3	+ 0·6
9	40·8	47·8	45·6	40·3	− 0·2	− 0·4	+ 0·2	+ 0·2
10	42·2	48·8	49·6	45·6	− 0·2	+ 0·3	+ 0·4	+ 0·1
11	45·5	48·5	49·0	42·3	− 0·2	− 0·1	+ 0·2	0·0
12	46·7	51·1	50·5	48·2	− 0·2	+ 0·2	0·0	+ 0·1
13	44·5	44·8	43·1	38·3	0·0	+ 0·2	0·0	+ 0·3
15	37·2	41·5	46·1	38·9	− 0·1	0·0	0·0	+ 0·2
16	42·4	49·0	49·0	45·4	0·0	+ 0·4	+ 0·1	0·0
17	42·2	44·1	46·1	40·4	− 0·3	+ 0·1	+ 0·3	+ 0·1
18	40·2	50·2	51·5	46·5	− 0·3	+ 0·1	+ 0·2	0·0
19	44·9	49·4	48·4	42·2	+ 0·6	+ 0·3	− 0·1	0·0
20	41·1	46·9	46·1	39·0	+ 0·8	+ 0·9	+ 0·4	+ 0·5
22	44·0	47·5	46·9	39·4	− 0·1	− 0·5	0·0	+ 0·5
23	38·5	44·8	47·3	39·7	− 0·4	+ 0·2	+ 0·3	+ 0·5
24	36·2	48·2	49·7	46·0	− 0·2	+ 0·2	+ 0·5	+ 0·2
25	51·8	56·7	55·1	52·6	+ 0·2	+ 0·4	+ 0·9	+ 0·7
26	57·5	59·3	59·1	56·7	+ 0·1	+ 0·2	+ 0·3	+ 0·5
27	58·5	59·4	59·0	54·7	0·0	− 0·1	0·0	− 0·1
29	53·3	53·5	49·7	48·2	− 0·1	− 0·1	− 0·1	0·0
30	48·4	49·7	50·2	49·2	0·0	− 0·2	− 0·2	+ 0·1
31	47·2	49·9	49·1	46·8	+ 0·1	− 0·2	+ 0·3	+ 0·4
Means	43·9	48·2	48·2	43·6	0·0	+ 0·1	+ 0·2	+ 0·2

NOVEMBER.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
1	46·6	48·4	47·1	45·1	0·0	− 0·1	− 0·1	0·0
2	46·7	47·3	48·5	45·7	− 0·2	− 0·2	0·0	− 0·1
3	46·3	48·3	48·7	45·8	− 0·3	− 0·5	− 0·3	0·0
5	49·3	52·1	49·8	45·5	+ 0·6	− 0·2	0·0	0·0
6	37·3	36·8	37·3	35·1	+ 0·1	+ 0·2	+ 0·1	+ 0·2
7	32·8	34·1	33·6	35·2	+ 0·2	+ 0·2	+ 0·3	+ 0·5
8	37·8	40·7	40·8	41·1	+ 0·1	0·0	+ 0·2	+ 0·2
9	42·5	42·3	42·1	38·1	− 0·1	− 0·1	+ 0·2	+ 0·4
10	38·1	41·9	40·0	38·7	+ 0·1	0·0	+ 0·4	+ 0·2
12	46·2	49·2	50·5	51·5	− 0·1	− 0·1	− 0·1	+ 0·2
13	50·2	47·1	47·8	46·1	+ 0·1	− 0·3	+ 0·2	+ 0·3
14	48·8	52·0	51·2	49·3	+ 0·2	0·0	+ 0·2	0·0
15	49·8	51·2	52·9	54·6	0·0	− 0·1	− 0·1	− 0·3
16	55·5	56·1	55·4	49·5	− 0·1	− 0·2	0·0	+ 0·1
17	46·8	48·8	47·1	46·1	− 0·1	0·0	+ 0·1	+ 0·2
19	49·4	49·7	50·3	51·0	− 0·2	− 0·2	0·0	− 0·1
20	41·3	41·5	39·5	37·4	0·0	− 0·3	− 0·1	+ 0·2
21	39·8	42·2	44·5	42·3	− 0·1	0·0	+ 0·1	+ 0·3
22	46·1	47·7	47·9	48·0	0·0	0·0	+ 0·1	+ 0·1
23	50·1	51·1	51·5	49·6	+ 0·1	− 0·1	0·0	+ 0·2
24	48·5	50·0	50·8	49·7	0·0	0·0	− 0·1	− 0·1
26	45·8	47·6	43·6	42·7	0·0	− 0·3	− 0·1	0·0
27	50·7	49·7	46·3	42·3	− 0·2	0·0	− 0·1	+ 0·3
28	38·2	43·4	43·3	41·2	− 0·8	0·0	− 0·1	+ 0·1
29	44·1	44·4	45·0	45·0	− 0·1	− 0·2	0·0	0·0
30	44·2	43·7	43·0	41·3	− 0·2	− 0·1	0·0	− 0·1
Means	45·1	46·4	46·1	44·5	0·0	− 0·1	0·0	+ 0·1

DECEMBER.

Days of the Month.	9h	Noon	15h	21h	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°
1	38·0	41·7	43·3	42·4	+ 0·1	− 0·1	+ 0·5	+ 0·6
3	47·5	48·1	47·8	48·8	0·0	− 0·3	0·0	+ 0·1
4	51·7	52·8	52·1	50·1	0·0	− 0·1	0·0	+ 0·2
5	52·1	52·9	52·5	48·2	+ 0·2	0·0	+ 0·1	+ 0·3
6	51·1	53·4	52·1	42·1	+ 0·1	− 0·1	+ 0·1	+ 0·1
7	41·6	46·9	45·7	41·1	+ 0·3	+ 0·6	+ 0·8	+ 0·4
8	39·6	46·1	46·1	46·5	− 0·3	− 0·2	− 0·1	+ 0·1
10	28·2	30·4	31·2	34·1	− 0·8	− 0·2	+ 0·1	− 0·3
11	26·1	31·2	36·6	34·1	− 0·3	− 0·5	− 0·2	+ 0·2
12	30·4	34·6	35·3	30·1	+ 0·1	− 0·1	+ 0·4	0·0
13	30·0	32·2	33·1	29·5	0·0	0·0	+ 0·5	− 0·1
14	33·4	37·5	36·2	32·5	− 0·3	− 0·2	0·0	− 0·1
15	30·5	31·4	33·4	37·6	− 0·4	− 0·4	− 0·1	− 0·1
17	34·1	33·5	33·4	30·0	− 1·1	− 0·1	− 0·2	− 0·1
18	27·3	29·2	31·2	32·6	− 0·3	− 0·7	− 0·1	− 0·1
19	44·5	47·1	45·1	42·3	− 0·1	0·0	− 0·2	− 0·1
20	41·8	44·8	44·1	44·4	+ 0·1	− 0·1	+ 0·1	+ 0·1
21	44·8	46·1	47·2	46·3	− 0·1	0·0	0·0	0·0
22	46·4	47·1	46·1	44·4	− 0·1	0·0	+ 0·1	+ 0·3
24	44·9	46·8	48·7	42·5	0·0	− 0·1	+ 0·1	− 0·1
26	38·8	41·4	40·4	35·2	+ 0·1	0·0	+ 0·1	+ 0·2
27	38·4	43·6	45·3	46·5	+ 0·2	+ 0·1	+ 0·1	+ 0·3
28	46·1	47·9	42·0	37·9	0·0	+ 0·1	− 0·2	+ 0·3
29	36·7	37·6	38·4	37·3	− 0·1	0·0	− 0·1	− 0·1
31	26·2	31·4	35·0	29·0	− 0·6	+ 0·1	+ 0·1	+ 0·8
Means	38·8	41·4	41·7	39·4	− 0·1	− 0·1	+ 0·1	+ 0·1

(I.)—Reading of a Thermometer whose bulb is sunk to the depth of 25·6 feet (24 French feet) below the surface of the soil, at Noon on every Day of the Year.

1888.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	51·77	50·96	50·12	49·26	48·48	48·08	48·30	49·01	49·96	50·81	51·44	51·55
2	51·80	50·95	50·10	49·21	48·46	48·09	48·31	49·08	50·00	50·82	51·45	51·57
3	51·77	50·94	50·07	49·19	48·45	48·08	48·34	49·12	50·02	50·86	51·46	51·57
4	51·75	50·92	50·03	49·14	48·44	48·08	48·35	49·16	50·06	50·88	51·48	51·58
5	51·74	50·89	50·01	49·13	48·40	48·08	48·36	49·19	50·10	50·90	51·50	51·57
6	51·72	50·86	49·99	49·11	48·40	48·06	48·39	49·23	50·11	50·93	51·47	51·56
7	51·69	50·83	49·96	49·07	48·38	48·06	48·40	49·26	50·14	50·94	51·48	51·55
8	51·67	50·80	49·93	49·03	48·36	48·07	48·43	49·30	50·17	50·97	51·50	51·53
9	51·65	50·77	49·90	49·01	48·33	48·07	48·45	49·33	50·20	51·01	51·51	51·53
10	51·60	50·74	49·88	48·98	48·33	48·08	48·46	49·36	50·24	51·03	51·53	51·50
11	51·57	50·70	49·85	48·97	48·30	48·08	48·48	49·37	50·26	51·05	51·55	51·48
12	51·55	50·65	49·83	48·93	48·29	48·09	48·50	49·41	50·30	51·08	51·55	51·49
13	51·52	50·64	49·77	48·93	48·27	48·09	48·53	49·44	50·33	51·09	51·55	51·47
14	51·48	50·60	49·76	48·89	48·25	48·10	48·55	49·45	50·36	51·11	51·57	51·47
15	51·47	50·57	49·73	48·87	48·23	48·11	48·57	49·48	50·39	51·13	51·57	51·46
16	51·44	50·53	49·70	48·87	48·23	48·11	48·59	49·50	50·42	51·15	51·57	51·46
17	51·43	50·51	49·65	48·82	48·20	48·13	48·62	49·53	50·45	51·16	51·58	51·46
18	51·39	50·48	49·63	48·73	48·20	48·14	48·65	49·56	50·47	51·18	51·57	51·43
19	51·36	50·44	49·60	48·76	48·18	48·14	48·67	49·60	50·52	51·24	51·58	51·45
20	51·34	50·42	49·57	48·73	48·17	48·14	48·70	49·63	50·54	51·25	51·57	51·43
21	51·33	50·39	49·56	48·72	48·17	48·16	48·73	49·65	50·56	51·25	51·57	51·45
22	51·30	50·35	49·52	48·68	48·15	48·17	48·75	49·67	50·59	51·27	51·58	51·44
23	51·27	50·32	49·50	48·66	48·15	48·19	48·77	49·71	50·61	51·28	51·60	51·42
24	51·24	50·30	49·47	48·64	48·13	48·20	48·80	49·75	50·60	51·32	51·59	51·42
25	51·21	50·27	49·43	48·61	48·13	48·21	48·83	49·77	50·66	51·35	51·59	51·40
26	51·17	50·24	49·41	48·58	48·12	48·22	48·85	49·79	50·70	51·36	51·57	51·38
27	51·15	50·23	49·38	48·57	48·11	48·23	48·88	49·83	50·72	51·40	51·57	51·38
28	51·10	50·18	49·36	48·57	48·10	48·26	48·92	49·85	50·75	51·41	51·56	51·37
29	51·08	50·15	49·33	48·53	48·10	48·26	48·94	49·88	50·78	51·40	51·56	51·35
30	51·05		49·29	48·52	48·10	48·28	48·91	49·90	50·78	51·42	51·56	51·33
31	51·02		49·27		48·10		49·01	49·93		51·44		51·30
Means	51·44	50·57	49·70	48·86	48·25	48·14	48·61	49·51	50·39	51·14	51·54	51·46

The mean of the twelve monthly values is 49°·97.

(II.)—Reading of a Thermometer whose bulb is sunk to the depth of 12·8 feet (12 French feet) below the surface of the soil, at Noon on every Day of the Year.

1888.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	49·32	47·23	45·97	44·86	45·14	47·40	50·30	52·89	54·36	54·80	53·41	51·88
2	49·30	47·18	45·92	44·81	45·18	47·53	50·40	53·88	54·41	54·79	53·34	51·88
3	49·20	47·17	45·84	44·82	45·23	47·63	50·50	53·54	54·43	54·84	53·28	51·83
4	49·12	47·11	45·79	44·78	45·29	47·74	50·59	53·21	54·49	54·83	53·23	51·80
5	49·06	47·06	45·72	44·78	45·30	47·78	50·67	53·16	54·53	54·84	53·20	51·77
6	48·96	47·01	45·68	44·78	45·37	47·90	50·73	53·15	54·50	54·81	53·08	51·72
7	48·87	46·96	45·62	44·78	45·42	48·01	50·82	53·24	54·55	54·80	53·01	51·66
8	48·77	46·90	45·57	44·77	45·48	48·12	50·95	53·25	54·55	54·82	53·00	51·60

(II.)—Reading of a Thermometer whose bulb is sunk to the depth of 12·8 feet (12 French feet) below the surface of the soil, at Noon on every Day of the Year—*concluded.*

1888.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
9	48·67	46·88	45·50	44·76	45·50	48·20	51·03	53·31	54·60	54·83	52·97	51·53
10	48·55	46·80	45·43	44·78	45·56	48·32	51·08	53·38	54·61	54·80	52·92	51·46
11	48·46	46·73	45·40	44·77	45·60	48·44	51·13	53·30	54·64	54·78	52·91	51·40
12	48·40	46·69	45·33	44·78	45·70	48·57	51·22	53·38	54·70	54·79	52·87	51·40
13	48·31	46·63	45·27	44·78	45·73	48·66	51·34	53·38	54·73	54·70	52·80	51·33
14	48·22	46·58	45·22	44·76	45·80	48·74	51·47	53·41	54·76	54·64	52·80	51·32
15	48·18	46·53	45·17	44·76	45·87	48·86	51·47	53·44	54·78	54·57	52·72	51·27
16	48·11	46·50	45·16	44·75	45·93	48·97	51·53	53·49	54·78	54·54	52·70	51·23
17	48·06	46·49	45·08	44·74	46·00	49·05	51·64	53·53	54·78	54·48	52·60	51·18
18	47·99	46·45	45·10	44·73	46·10	49·16	51·70	53·61	54·79	54·40	52·53	51·10
19	47·93	46·41	45·08	44·73	46·18	49·26	51·77	53·70	54·85	54·38	52·49	51·07
20	47·88	46·39	45·06	44·74	46·25	49·37	51·83	53·77	54·83	54·30	52·41	51·04
21	47·82	46·34	45·06	44·77	46·34	49·50	51·90	53·82	54·84	54·21	52·33	50·97
22	47·80	46·29	45·04	44·79	46·41	49·60	51·94	53·91	54·82	54·16	52·30	50·89
23	47·74	46·26	45·01	44·80	46·52	49·72	52·01	53·96	54·80	54·06	52·28	50·80
24	47·68	46·24	45·01	44·83	46·60	49·80	52·05	54·06	54·81	54·01	52·22	50·72
25	47·61	46·20	45·00	44·87	46·70	49·90	52·09	54·10	54·80	54·00	52·19	50·63
26	47·53	46·13	44·99	44·90	46·78	49·96	52·14	54·14	54·83	53·93	52·13	50·54
27	47·51	46·11	44·94	44·94	46·89	50·02	52·21	54·17	54·84	53·87	52·08	50·48
28	47·41	46·06	44·93	45·00	46·99	50·11	52·28	54·20	54·83	53·79	52·00	50·42
29	47·38	46·00	44·90	45·04	47·07	50·17	52·32	54·21	54·86	53·66	51·99	50·30
30	47·33		44·87	45·11	47·20	50·23	52·40	54·26	54·80	53·58	51·91	50·21
31	47·28		44·84		47·31		53·22	54·30		53·50		50·13
Means	48·21	46·60	45·27	44·82	46·05	48·89	51·51	53·65	54·70	54·40	52·66	51·15
The mean of the twelve monthly values is 49°·83.												

NOTE.—The indications of the Thermometers II., III., and IV. on July 31 and August 2 appear to have been influenced by the heavy rains of July 30 and August 1.

(III.)—Reading of a Thermometer whose bulb is sunk to the depth of 6·4 feet (6 French feet) below the surface of the soil, at Noon on every Day of the Year.

1888.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	45·70	44·50	...	...	45·94	51·63	55·63	58·20	58·66	57·62	53·02	51·10
2	45·58	44·38	...	...	46·08	51·80	55·72	58·72	58·60	57·56	53·02	51·08
3	45·37	44·23	...	...	46·26	52·00	55·88	58·38	58·48	57·53	52·89	51·00
4	45·24	44·10	...	...	46·45	52·12	55·93	58·05	58·40	57·39	52·91	50·90
5	45·11	43·94	...	...	46·57	52·30	56·00	57·86	58·38	57·18	52·90	50·83
6	45·03	43·83	...	...	46·68	52·56	56·01	57·80	58·30	56·92	52·78	50·80
7	44·97	43·80	...	...	46·82	52·86	56·03	57·84	58·34	56·68	52·71	50·77
8	44·91	43·83	...	...	46·96	53·07	56·13	57·80	58·31	56·41	52·70	50·80
9	44·92	43·90	...	...	47·11	53·18	56·17	57·85	58·38	56·18	52·60	50·78
10	44·91	44·00	...	...	47·33	53·23	56·12	57·90	58·31	55·84	52·44	50·70
11	45·06	44·06	...	...	47·58	53·48	56·10	57·88	58·27	55·57	52·30	50·62
12	45·13	44·18	...	...	47·84	53·62	56·11	58·07	58·20	55·35	52·11	50·52
13	45·20	44·24	...	...	48·06	53·72	56·18	58·25	58·10	55·10	51·92	50·30
14	45·21	44·27	...	...	48·20	53·85	56·13	58·40	58·00	54·90	51·83	50·11
15	45·23	44·23	...	...	48·40	54·01	55·99	58·54	57·86	54·73	51·72	49·85

(III.)—Reading of a Thermometer whose bulb is sunk to the depth of 6·4 feet (6 French feet) below the surface of the soil, at Noon on every Day of the Year—*concluded.*

1888.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
16	45·20	44·18	...	43·79	48·58	54·20	56·10	58·65	57·78	54·60	51·71	49·59
17	45·16	44·12	...	43·88	48·74	54·28	56·12	58·71	57·70	54·43	51·66	49·33
18	45·10	44·05	...	44·11	48·97	54·33	56·14	58·72	57·72	54·26	51·67	49·08
19	45·00	43·98	...	44·39	49·16	54·39	56·39	58·75	57·80	54·12	51·70	48·93
20	44·87	43·88	...	44·66	49·32	54·38	56·38	58·71	57·80	53·91	51·69	48·73
21	44·73	43·78	...	44·88	49·55	54·42	56·40	58·62	57·83	53·74	51·68	48·57
22	44·68	43·67	...	45·09	49·80	54·37	56·50	58·58	57·82	53·62	51·70	48·41
23	44·59	...	...	45·26	50·11	54·35	56·60	58·52	57·78	53·45	51·69	48·33
24	44·54	...	...	45·42	50·30	54·30	56·70	58·58	57·82	53·32	51·61	48·30
25	44·58	...	...	45·57	50·50	54·42	56·78	58·53	57·80	53·24	51·54	48·28
26	44·62	...	...	45·67	50·63	54·47	56·95	58·52	57·84	53·09	51·50	48·27
27	44·69	...	...	45·72	50·83	54·98	57·10	58·51	57·82	52·96	51·47	48·25
28	44·68	...	...	45·77	51·06	55·18	57·20	58·53	57·80	52·90	51·37	48·23
29	44·70	...	...	45·79	51·22	55·33	57·31	58·64	57·77	52·81	51·33	48·14
30	44·69		...	45·85	51·36	55·50	57·40	58·69	57·64	52·90	51·30	48·09
31	44·60		...		51·50		58·60	58·70		52·97		48·02
Means	44·97	...	...	...	48·64	53·74	56·41	58·37	58·04	54·88	52·05	49·57

At temperatures below 43°·60 the fluid of this thermometer passes beyond range of the scale and descends into the capillary tube. The readings were out of range from February 23 to April 15 inclusive.

(IV.)—Reading of a Thermometer whose bulb is sunk to the depth of 3·2 feet (3 French feet) below the surface of the soil, at Noon on every Day of the Year.

1888.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	39·80	39·61	37·70	41·22	46·14	54·51	58·90	60·10	59·31	57·93	51·67	48·27
2	39·62	39·30	37·72	41·33	46·72	54·81	58·73	59·50	59·11	57·21	51·35	48·00
3	39·56	39·12	37·70	41·42	46·92	55·50	58·60	59·40	59·14	56·49	50·90	47·89
4	39·73	38·96	37·67	41·31	46·84	56·36	58·47	59·29	59·40	55·62	50·88	48·06
5	39·89	39·24	37·68	41·17	46·86	56·90	58·57	59·30	59·62	55·03	50·81	48·40
6	40·16	39·81	37·73	41·07	47·10	56·96	58·60	59·30	59·72	54·32	50·68	48·72
7	40·42	40·33	37·79	40·91	47·66	56·76	58·53	59·32	59·89	53·60	50·42	49·00
8	40·78	40·79	38·24	40·90	48·22	56·60	58·33	59·51	59·58	53·05	49·80	48·77
9	41·40	41·08	38·90	40·83	48·90	56·60	58·18	60·31	59·20	52·50	49·28	48·30
10	41·83	41·33	39·73	40·72	49·50	56·68	58·10	61·12	58·72	52·16	49·00	47·87
11	41·93	41·53	40·50	40·68	49·70	56·82	57·97	61·63	58·31	52·00	48·70	47·12
12	41·80	41·51	41·00	40·73	49·82	57·19	57·50	62·16	57·95	52·05	48·60	46·37
13	41·73	41·20	41·02	41·00	49·77	57·61	57·08	62·25	57·73	52·00	48·80	45·70
14	41·57	40·74	40·76	41·56	50·11	57·88	56·93	62·34	57·72	52·04	49·09	44·93
15	41·44	40·44	40·60	42·46	50·42	57·77	57·30	62·06	57·91	51·74	49·14	44·40
16	41·14	40·24	40·83	43·28	50·62	57·37	57·80	61·61	58·20	51·30	49·72	44·16
17	40·83	40·07	40·86	43·98	50·80	57·06	57·92	61·12	58·50	50·94	49·79	44·05
18	40·55	39·83	40·59	44·76	51·04	56·80	58·02	60·66	58·64	50·80	49·90	43·82
19	40·22	39·68	40·11	44·98	51·60	56·40	58·42	60·38	58·75	50·62	49·84	43·70
20	40·08	39·50	39·70	45·08	52·41	55·98	58·32	60·13	58·80	50·61	49·88	43·64

(IV.)—Reading of a Thermometer whose bulb is sunk to the depth of 3·2 feet (3 French feet) below the surface of the soil, at Noon on every Day of the Year—*concluded.*

1888.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
21	39·90	39·30	39·38	45·20	53·01	55·62	58·80	60·03	58·80	50·40	49·84	43·94
22	40·20	39·20	39·30	45·37	53·14	55·50	59·08	60·04	58·74	50·19	49·40	44·23
23	40·79	38·96	39·30	45·42	53·25	55·92	59·41	60·16	58·72	50·00	49·17	44·67
24	41·14	38·82	39·62	45·32	53·13	56·56	59·71	60·24	58·76	49·80	49·26	44·82
25	41·23	38·50	39·80	45·20	53·48	57·43	59·79	60·24	58·62	49·66	49·41	44·96
26	41·34	38·30	39·97	45·00	53·81	58·17	59·94	60·52	58·61	49·83	49·63	44·94
27	41·52	38·10	40·00	44·92	54·09	58·87	59·92	60·65	58·32	50·43	49·71	44·78
28	41·27	38·00	40·10	44·87	53·91	59·67	60·02	60·62	58·18	51·09	49·41	44·55
29	40·85	37·83	40·19	45·20	53·88	59·30	60·12	60·50	58·13	51·60	49·00	44·64
30	40·42		40·52	45·76	53·95	59·08	60·11	60·13	58·08	51·92	48·60	44·51
31	40·00		40·92		54·32		60·64	59·68		51·93		44·22
Means	40·75	39·70	39·55	43·05	50·68	56·96	58·70	60·46	58·71	52·22	49·72	45·85
The mean of the twelve monthly values is 49°·70.												

(V.)—Reading of a Thermometer whose bulb is sunk to the depth of 1 inch below the surface of the soil, at Noon on every Day of the Year.

1888.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	31·8	33·3	33·0	41·2	52·0	58·9	58·8	57·3	56·3	50·3	49·0	43·1
2	38·0	32·0	33·9	44·0	49·7	63·0	59·3	58·3	60·2	49·4	49·1	46·0
3	37·2	34·8	35·7	39·4	48·1	67·6	60·0	59·5	61·0	48·5	49·0	48·0
4	38·5	40·2	34·6	38·3	47·2	64·7	61·0	60·6	60·2	49·1	49·3	50·2
5	41·3	41·4	35·0	40·1	49·4	59·3	60·8	58·9	62·1	46·6	50·0	50·3
6	39·3	43·2	37·7	39·4	52·0	57·5	60·0	58·6	60·2	45·4	44·9	50·3
7	42·2	43·1	40·2	39·0	56·0	59·8	57·2	62·8	58·3	45·0	41·7	47·2
8	44·1	43·2	42·6	39·2	57·2	62·3	59·0	66·0	56·0	45·0	44·0	43·0
9	44·0	43·7	46·0	38·7	53·1	59·2	60·0	69·0	56·2	46·3	45·0	41·4
10	41·3	42·0	46·0	38·2	52·7	60·0	57·5	70·4	56·3	47·9	43·4	37·8
11	38·3	40·2	43·6	41·3	51·2	61·6	52·3	66·2	54·3	49·0	46·6	36·1
12	38·0	37·1	40·9	42·0	51·6	64·8	53·0	66·8	55·6	50·0	47·6	35·1
13	37·0	36·3	37·3	46·3	53·4	62·0	56·0	64·5	57·3	50·0	49·3	35·7
14	36·2	36·3	40·6	48·2	54·2	59·2	62·2	61·3	59·0	46·1	49·0	37·3
15	35·8	37·1	41·4	50·0	53·7	57·4	59·6	60·5	59·4	43·3	50·0	37·2
16	35·5	36·2	38·6	48·8	56·2	58·0	60·6	58·9	60·3	45·7	53·3	38·0
17	35·9	35·0	35·7	49·7	55·1	56·1	61·0	58·1	59·5	46·3	50·2	37·7
18	35·0	35·6	34·0	49·3	59·0	54·5	62·1	58·0	59·5	46·0	47·2	35·3
19	36·1	34·0	34·2	48·3	62·8	54·1	60·3	59·3	60·6	48·1	50·2	41·2
20	37·0	35·0	35·7	47·2	58·3	54·0	61·6	60·9	59·4	45·8	47·2	41·3
21	40·2	35·7	36·8	48·0	61·0	57·2	62·0	61·4	59·3	43·2	45·1	44·6
22	42·4	33·5	37·2	46·5	55·2	59·0	63·3	61·6	59·0	46·5	48·2	45·6
23	42·0	32·4	40·3	45·0	56·4	61·8	64·0	61·3	58·0	44·0	49·6	43·0
24	40·0	32·3	39·3	46·0	55·7	63·9	62·2	62·4	60·0	43·3	50·0	44·6
25	41·4	33·0	38·1	43·3	57·3	68·4	62·0	61·9	58·1	51·1	51·2	41·2

(V.)—Reading of a Thermometer whose bulb is sunk to the depth of 1 inch below the surface of the soil, at Noon on every Day of the Year—*concluded.*

1888.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
26	41·6	33·6	39·3	43·3	55·0	65·6	61·6	62·9	57·2	54·1	49·4	42·2
27	37·2	32·9	36·0	45·2	56·5	63·6	62·0	62·1	57·8	56·1	49·2	41·2
28	35·2	32·2	40·9	50·3	58·3	61·4	62·9	60·7	57·4	56·1	45·6	45·0
29	35·8	32·6	43·0	48·4	59·2	60·6	60·9	58·8	59·4	55·4	45·5	41·0
30	33·0		42·2	50·2	58·4	59·0	62·0	58·0	54·0	51·1	44·6	38·0
31	35·1		42·0		58·1		59·2	56·7		50·4		36·0
Means	38·3	36·5	38·8	44·5	55·0	60·5	60·1	61·4	58·4	48·2	47·8	41·8

The mean of the twelve monthly values is 49°·27.

(VI.)—Reading of a Thermometer within the case covering the deep-sunk Thermometers, whose bulb is placed on a level with their scales, at Noon on every Day of the Year.

1888.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	28·9	32·3	34·0	45·1	54·9	66·5	60·2	56·1	62·0	49·4	49·2	42·3
2	44·7	29·8	36·8	44·2	54·0	73·8	57·0	61·8	65·4	46·9	48·6	50·0
3	39·6	40·4	38·0	42·4	52·2	82·6	63·6	68·5	62·6	54·5	49·1	51·3
4	41·0	46·0	36·9	37·9	54·6	71·3	65·0	65·1	64·9	52·3	53·8	53·8
5	47·8	46·3	36·9	42·0	56·4	58·8	61·9	59·5	65·2	50·3	54·5	54·0
6	42·6	48·3	44·2	43·8	60·0	57·3	60·7	61·0	58·0	47·2	39·4	54·1
7	46·1	46·2	48·2	42·0	66·0	66·2	56·5	73·3	60·7	47·6	36·4	48·8
8	48·4	45·4	47·6	39·3	66·3	67·7	64·4	75·0	56·0	51·1	43·2	45·8
9	45·0	47·0	51·0	40·3	57·0	60·7	66·0	81·0	58·8	53·8	44·2	38·3
10	38·2	45·0	52·1	40·0	57·3	64·6	58·0	82·4	55·0	50·2	46·2	31·2
11	37·1	42·3	46·1	46·3	56·3	69·9	51·7	67·2	59·0	51·2	51·7	31·4
12	37·8	34·9	40·5	45·4	59·7	73·3	53·0	69·4	62·0	57·0	50·3	34·2
13	37·9	36·4	34·8	55·7	64·0	67·5	64·0	66·3	66·0	52·7	50·9	33·0
14	32·7	39·4	47·8	57·9	56·5	62·8	71·0	64·8	68·2	48·2	54·5	37·8
15	32·9	36·8	46·9	61·4	61·1	58·6	60·0	61·4	66·3	43·3	52·2	35·6
16	33·3	34·2	35·9	56·1	63·4	62·4	64·0	59·6	61·7	50·7	57·8	37·4
17	34·6	33·9	33·3	56·0	58·5	55·3	67·9	58·1	62·1	46·2	52·8	34·5
18	34·0	35·7	31·6	53·5	68·3	52·3	67·6	57·9	61·6	48·7	50·3	30·5
19	35·0	34·0	33·0	52·8	72·0	53·3	64·2	65·7	68·1	54·1	52·5	47·2
20	37·2	36·7	33·9	48·4	62·5	53·9	64·3	65·1	67·0	51·9	48·3	45·6
21	47·0	35·4	42·2	54·4	66·8	65·0	67·8	64·4	66·4	48·4	45·2	48·3
22	45·1	30·0	40·3	47·3	54·3	65·0	68·6	65·6	65·9	50·4	51·0	49·0
23	46·1	28·7	40·0	44·7	66·6	69·6	67·0	63·6	57·4	46·2	53·6	45·7
24	43·8	29·6	43·8	47·0	60·5	69·9	67·2	72·6	64·5	47·8	53·4	47·2
25	44·3	34·0	38·0	42·0	63·7	82·0	62·1	69·4	57·1	61·4	54·9	41·6
26	44·7	35·1	42·4	44·2	53·6	68·6	66·1	68·7	60·9	61·5	50·6	43·3
27	39·2	33·3	39·8	53·3	61·0	66·6	67·2	67·3	64·9	63·3	50·6	45·3
28	34·6	33·0	46·6	58·6	65·3	63·3	64·8	61·3	60·9	63·2	43·6	47·8
29	37·0	33·6	51·0	51·0	56·3	61·2	63·2	61·7	62·6	55·4	46·0	38·4
30	32·2		47·4	61·0	62·4	60·4	66·0	61·0	51·2	50·6	45·0	37·6
31	37·0		44·5		63·4		60·4	59·0		53·8		31·5
Means	39·5	37·4	41·5	48·5	60·5	65·0	63·3	65·6	62·1	51·9	49·3	42·3

The mean of the twelve monthly values is 52°·24.

ABSTRACT of the CHANGES of the DIRECTION of the WIND, as derived from the Records of OSLER'S ANEMOMETER in the Year 1888.

(It is to be understood that the direction of the wind was nearly constant in the intervals between the times given in the second column and those next following in the first column.)

Note.—The time is expressed in civil reckoning, commencing at midnight and counting from 0^h to 24^h.

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
January.				°	°
d h	d h				
1. 1	1. 5	S.E.	E.S.E.		22½
1. 19	1. 22	E.S.E.	S.	67½	
2. 15	2. 16	S.	S.S.E.		22½
2. 20	2. 23¾	S.S.E.	N.N.W.	180	
3. 0	3. 5	N.N.W.	W.S.W.		90
3. 12	3. 17½	W.S.W.	S.S.E.		90
3. 19	4. 0	S.S.E.	S.	22½	
4. 9	4. 14	S.	S.E.		45
5. 0	5. 12	S.E.	S.W.	90	
6. 6	6. 8	S.W.	S.S.W.		22½
7. 3	7. 5	S.S.W.	W.S.W.	45	
7. 13	7. 14	W.S.W.	S.W.		22½
8. 9	8. 12	S.W.	W.S.W.	22½	
8. 19	9. 0	W.S.W.	W.N.W.	45	
9. 4	9. 5	W.N.W.	W.S.W.		45
9. 12	9. 15	W.S.W.	S.W.		22½
11. 17	11. 20	S.W.	E.N.E.		157½
12. 3	12. 7	E.N.E.	E.	22½	
12. 16	12. 18	E.	E.S.E.	22½	
13. 6	13. 9	E.S.E.	E.		22½
13. 23	14. 2½	E.	N.		90
14. 6	14. 10½	N.	E.	90	
14. 13	14. 17	E.	N.E.		45
15. 4	15. 6	N.E.	E.N.E.	22½	
15. 12	15. 18	E.N.E.	N.E.		22½
15. 21	15. 23	N.E.	E.N.E.	22½	
18. 8	18. 9½	E.N.E.	E.	22½	
19. 8	19. 11	E.	S.E.	45	
19. 17	19. 22	S.E.	S.S.W.	67½	
20. 10	20. 12	S.S.W.	S.W.	22½	
20. 15	20. 22	S.W.	S.S.W.		22½
21. 8	21. 14	S.S.W.	W.S.W.	45	
22. 0	22. 3	W.S.W.	W.N.W.	45	
22. 12	22. 19	W.N.W.	N.N.W.	45	
22. 23	23. 1	N.N.W.	W.N.W.		45
23. 2	23. 5	W.N.W.	N.N.W.	45	
23. 13	23. 17	N.N.W.	W.S.W.		90
24. 15	24. 19	W.S.W.	S.W.		22½
25. 22	26. 13	S.W.	N.W.	90	
26. 21	27. 1	N.W.	W.N.W.		22½
27. 6	27. 14	W.N.W.	W.S.W.		45
27. 18	27. 21	W.S.W.	N.N.W.	90	
29. 7	29. 12	N.N.W.	N.E.	67½	
29. 16	29. 23	N.E.	N.		45
30. 13	30. 14	N.	S.	180	
30. 15	30. 16	S.	S.S.W.	22½	
31. 12	31. 13	S.S.W.	W.S.W.	45	
31. 14	31. 22	W.S.W.	E.N.E.		180
			Sums	1485	1192½

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
February.				°	°
d h	d h				
1. 6	1. 8	E.N.E.	N.E.		22½
2. 2	2. 2¼	N.E.	N.N.W.		67½
2. 3¾	2. 4	N.N.W.	N.	22½	
2. 5	2. 8	N.	S.W.	225	
2. 19	2. 22	S.W.	W.S.W.	22½	
4. 4	4. 10	W.S.W.	W.N.W.	45	
4. 17	4. 18	W.N.W.	W.		22½
4. 22	4. 22½	W.	W.S.W.		22½
5. 0	5. 2	W.S.W.	W.	22½	
5. 6	5. 8	W.	W.S.W.		22½
5. 8½	5. 12	W.S.W.	W.N.W.	45	
5. 21	6. 1	W.N.W.	W.S.W.		45
6. 3	6. 8	W.S.W.	N.N.W.	90	
6. 22	7. 5	N.N.W.	W.		67½
7. 12	7. 15	W.	N.N.W.	67½	
7. 17	8. 1	N.N.W.	W.S.W.		90
8. 3	8. 10	W.S.W.	N.W.	67½	
8. 19	9. 2	N.W.	W.		45
9. 3	9. 8	W.	N.N.W.	67½	
9. 19	9. 23	N.N.W.	W.S.W.		90
10. 17¾	10. 18	W.S.W.	W.	22½	
10. 20	10. 21	W.	W.S.W.		22½
11. 4	11. 8	W.S.W.	S.W.		22½
11. 21	11. 23	S.W.	W.S.W.	22½	
12. 8	12. 13½	W.S.W.	N.W.	67½	
12. 17	12. 18½	N.W.	W.S.W.		67½
12. 23	13. 2	W.S.W.	S.S.W.		45
13. 3	13. 6	S.S.W.	W.S.W.	45	
13. 13	13. 14	W.S.W.	S.W.		22½
13. 16½	13. 18¼	S.W.	E.N.E.		157½
13. 19½	13. 21	E.N.E.	S.E.	67½	
14. 0¾	14. 1	S.E.	E.		45
14. 6½	14. 8	E.	S.	90	
14. 8½	14. 18	S.	N.		180
16. 0	16. 7	N.	N.N.E.	22½	
16. 16½	16. 17	N.N.E.	N.		22½
19. 7	19. 9	N.	N.N.E.	22½	
19. 23	20. 2¼	N.N.E.	E.	67½	
20. 6	20. 9	E.	N.E.		45
22. 1	22. 3	N.E.	E.N.E.	22½	
23. 22	24. 6	E.N.E.	N.N.E.		45
24. 9	24. 11	N.N.E.	E.N.E.	45	
24. 13	24. 15	E.N.E.	N.N.E.		45
25. 9	25. 14	N.N.E.	E.	67½	
25. 19	25. 22	E.	N.E.		45
27. 21	28. 2	N.E.	N.N.E.		22½
28. 16	28. 20	N.N.E.	N.E.	22½	
			Sums	1260	1282½

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
March.				°	°
d h	d h				
1. 2	1. 3	N.E.	E.N.E.	22½	
1. 12	1. 22	E.N.E.	N.N.E.		45
2. 1	2. 5	N.N.E.	N.N.W.		45
2. 11	2. 12	N.N.W.	N.W.		22½
3. 1½	3. 3	N.W.	N.	45	
3. 19½	4. 1¼	N.	W.		90
4. 11	4. 22	W.	N.	90	
4. 23	5. 5½	N.	W.		90
5. 6¾	5. 10	W.	N.N.W.	67½	
5. 11	5. 21	N.N.W.	S.S.W.		135
5. 23	6. 11	S.S.W.	N.W.	112½	
6. 13	6. 19	N.W.	W.S.W.		67½
7. 11	7. 14	W.S.W.	S.W.		22½
10. 23	11. 6	S.W.	S.E.		90
11. 7	11. 9	S.E.	S.S.W.	67½	
11. 12	11. 18	S.S.W.	W.S.W.	45	
12. 2	12. 18	W.S.W.	N.N.E.	135	
13. 2	13. 11	N.N.E.	E.S.E.	90	
13. 22	14. 10	E.S.E.	S.S.W.	90	
15. 2	15. 4½	S.S.W.	S.S.E.		45
15. 6	15. 10	S.S.E.	W.S.W.	90	
15. 17	15. 17½	W.S.W.	S.S.W.		45
16. 1	16. 5½	S.S.W.	N.	157½	
17. 16	18. 0	N.	N.N.E.	22½	
21. 13	21. 20	N.N.E.	S.S.E.	135	
21. 20½	21. 21	S.S.E.	N.N.E.		135
22. 0	22. 1¼	N.N.E.	S.W.		157½
22. 18	22. 22	S.W.	S.S.W.		22½
23. 10½	23. 10¾	S.S.W.	N.	157½	
24. 7¾	24. 10	N.	S.E.	135	
24. 15	24. 22	S.E.	E.N.E.		67½
25. 2	25. 8	E.N.E.	W.S.W.	180	
25. 15	25. 19½	W.S.W.	S.		67½
25. 21	25. 23½	S.	W.S.W.	67½	
26. 2	26. 6	W.S.W.	S.S.W.		45
26. 8	26. 10	S.S.W.	S.W.	22½	
26. 19	26. 22	S.W.	S.W.	360	
27. 11	27. 12½	S.W.	S.W.	360	
27. 13	27. 14	S.W.	S.S.W.		22½
27. 21	28. 0	S.S.W.	S.E.		67½
28. 8	28. 9	S.E.	S.S.E.	22½	
28. 14½	28. 16	S.S.E.	S.S.W.	45	
28. 17	28. 18	S.S.W.	S.		22½
29. 5	29. 7	S.	S.E.		45
29. 16	29. 22½	S.E.	N.		135
30. 1	30. 4	N.	W.N.W.		67½
30. 7½	30. 9	W.N.W.	W.S.W.		45
30. 20	30. 21	W.S.W.	N.	112½	
31. 17	31. 19½	N.	N.N.E.	22½	
			Sums	2655	1597½

ABSTRACT of the CHANGES of the DIRECTION of the WIND—*continued.*

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro-grade.
April.				°	°
d h	d h				
1. 17	1. 18	N.N.E.	N.E.	22½	
1. 21	1. 22	N.E.	W.S.W.	202½	
2. 11	2. 12	W.S.W.	W.N.W.	45	
2. 15	2. 16	W.N.W.	N.E.	112½	
2. 18	2. 20	N.E.	N.		45
2. 21	2. 22	N.	N.N.E.	22½	
3. 3	3. 4	N.N.E.	N.		22½
3. 22	4. 5	N.	S.W.		135
4. 11½	4. 14	S.W.	E.	225	
4. 17	4. 18	E.	N.E.		45
5. 17	5. 18½	N.E.	E.S.E.	67½	
5. 19	6. 6	E.S.E.	N.		112½
6. 7	6. 9	N.	N.E.	45	
6. 14	6. 15	N.E.	N.N.E.		22½
6. 18	6. 20	N.N.E.	E.N.E.	45	
6. 21	7. 3¼	E.N.E.	N.		67½
8. 5	8. 10	N.	N.E.	45	
8. 20	8. 23	N.E.	N.		45
10. 18½	10. 21	N.	S.S.W.	202½	
11. 7	11. 12	S.S.W.	N.W.	112½	
11. 23	12. 2	N.W.	W.N.W.		22½
12. 15	12. 16	W.N.W.	S.W.		67½
12. 18¾	12. 19	S.W.	S.S.W.		22½
13. 1	13. 10	S.S.W.	W.N.W.	90	
13. 12	13. 15	W.N.W.	W.		22½
13. 19¾	13. 20	W.	W.S.W.		22½
14. 15	14. 23	W.S.W.	E.S.E.		135
15. 3½	15. 4	E.S.E.	N.E.		67½
15. 5	15. 6	N.E.	E.	45	
15. 16	15. 18	E.	W.S.W.	157½	
16. 2	16. 3	W.S.W.	W.	22½	
16. 12	16. 16	W.	S.W.		45
16. 19	17. 1	S.W.	S.		45
17. 3	17. 9	S.	S.S.W.	22½	
18. 4	18. 6	S.S.W.	S.W.	22½	
18. 17	18. 20	S.W.	S.S.W.		22½
19. 13	19. 16	S.S.W.	S.W.	22½	
19. 22	20. 1	S.W.	W.S.W.	22½	
20. 16½	20. 17¾	W.S.W.	S.S.W.		45
20. 18	20. 20	S.S.W.	W.S.W.	45	
20. 21	21. 3	W.S.W.	S.S.W.		45
21. 18½	21. 19	S.S.W.	N.E.	202½	
21. 20	21. 21	N.E.	S.	135	
21. 21¼	22. 0	S.	E.		90
22. 12	22. 14	E.	E.N.E.		22½
22. 21	22. 23	E.N.E.	N.E.		22½
23. 15	23. 17	N.E.	N.N.E.		22½
24. 1	24. 6	N.N.E.	S.	157½	
24. 7	24. 8	S.	E.N.E.		112½
24. 13	24. 16	E.N.E.	N.E.		22½
25. 21	26. 1	N.E.	N.N.E.		22½
27. 0½	27. 1¼	N.N.E.	W.S.W.	225	
28. 11	28. 15	W.S.W.	S.W.		22½
29. 17	29. 22	S.W.	S.S.W.		22½
30. 20	30. 21	S.S.W.	S.		22½
			Sums	2317½	1440

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro-grade.
May.				°	°
d h	d h				
1. 2	1. 17	S.	W.S.W.	67½	
2. 2	2. 5	W.S.W.	S.S.W.		45
2. 16	2. 19	S.S.W.	S.W.	22½	
3. 8	3. 13	S.W.	W.	45	
3. 18	3. 21	W.	W.S.W.		22½
4. 6	4. 13	W.S.W.	N.W.	67½	
4. 18	4. 19½	N.W.	S.S.W.		112½
4. 21	4. 23	S.S.W.	W.S.W.	45	
5. 2	5. 4	W.S.W.	S.W.		22½
5. 6	5. 10	S.W.	W.	45	
5. 22	6. 0	W.	W.S.W.		22½
8. 9	8. 10½	W.S.W.	W.	22½	
8. 15	8. 21	W.	N.	90	
9. 16	9. 18	N.	E.S.E.	112½	
9. 22	9. 23	E.S.E.	S.E.	22½	
10. 2	10. 3	S.E.	E.S.E.		22½
10. 6½	10. 8	E.S.E.	E.N.E.		45
10. 15	10. 17	E.N.E.	E.S.E.	45	
11. 0	11. 1	E.S.E.	N.E.		67½
11. 14	11. 22	N.E.	S.S.E.	112½	
12. 0	12. 1	S.S.E.	W.S.W.	90	
12. 4	12. 5	W.S.W.	N.E.	157½	
12. 15	12. 16	N.E.	S.S.W.	157½	
12. 23	13. 8	S.S.W.	W.	67½	
13. 15	13. 16	W.	N.W.	45	
13. 20½	13. 21	N.W.	N.	45	
13. 23	14. 0	N.	N.N.W.		22½
14. 5	14. 14	N.N.W.	N.E.	67½	
14. 15¾	14. 16	N.E.	E.	45	
14. 17½	14. 18	E.	E.S.E.	22½	
14. 20	14. 22	E.S.E.	S.S.E.	45	
15. 5	15. 6	S.S.E.	S.E.		22½
15. 15	15. 23	S.E.	E.		45
16. 5	16. 10	E.	S.S.W.	112½	
18. 7	18. 10	S.S.W.	S.E.		67½
18. 18	18. 19	S.E.	E.		45
18. 20	18. 22	E.	S.S.E.	67½	
19. 6	19. 7	S.S.E.	S.	22½	
19. 16	19. 17	S.	S.W.	45	
19. 21	19. 22	S.W.	W.S.W.	22½	
20. 10	20. 13	W.S.W.	W.	22½	
20. 19	20. 20	W.	S.W.		45
20. 22	21. 0	S.W.	W.S.W.	22½	
21. 5¾	21. 7¼	W.S.W.	N.E.	157½	
21. 10	21. 10½	N.E.	N.		45
21. 15	21. 18	N.	E.S.E.	112½	
21. 19	22. 5	E.S.E.	N.		112½
22. 7	22. 8	N.	N.N.E.	22½	
23. 4	23. 8	N.N.E.	E.N.E.	45	
23. 19	24. 5	E.N.E.	N.N.E.		45
24. 9	24. 11	N.N.E.	E.N.E.	45	
24. 15	24. 16	E.N.E.	E.	22½	
24. 18	24. 21	E.	N.N.E.		67½
25. 17	25. 18	N.N.E.	E.S.E.	90	
25. 20½	25. 21	E.S.E.	N.E.		67½
26. 19	26. 21	N.E.	E.N.E.	22½	
27. 0	27. 2	E.N.E.	S.S.W.	135	
27. 6	27. 7	S.S.W.	W.	67½	
27. 8	27. 12	W.	S.		90
27. 23	28. 0	S.	S.S.E.		22½
May—*cont.*				°	°
d h	d h				
28. 2¾	28. 3	S.S.E.	S.S.W.	45	
28. 6½	28. 7	S.S.W.	N.N.E.		180
29. 3	29. 9	N.N.E.	E.	67½	
29. 17	30. 2½	E.	S.W.	135	
31. 5	31. 9	S.W.	W.S.W.	22½	
			Sums	2745	1237½

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro-grade.
June.					
1. 6	1. 7½	W.S.W.	W.	22½	
1. 14	1. 17	W.	S.W.		45
2. 2	2. 7	S.W.	S.S.E.		67½
2. 11	2. 12	S.S.E.	S.	22½	
2. 19	3. 1	S.	E.N.E.		112½
3. 6	3. 8	E.N.E.	S.W.	157½	
3. 16	3. 16¼	S.W.	W.	45	
4. 0	4. 1	W.	W.S.W.		22½
4. 14	4. 22	W.S.W.	E.N.E.	180	
6. 3	6. 16	E.N.E.	W.	202½	
6. 20	6. 23	W.	S.		90
7. 3	7. 5	S.	S.W.	45	
7. 21	8. 2	S.W.	S.S.E.		67½
8. 21	8. 23	S.S.E.	S.S.W.	45	
9. 4	9. 5	S.S.W.	S.		22½
9. 13	9. 15	S.	W.	90	
10. 2	10. 4	W.	W.S.W.		22½
10. 6	10. 10	W.S.W.	W.N.W.	45	
10. 14	10. 15	W.N.W.	W.S.W.		45
11. 13	11. 14	W.S.W.	S.W.		22½
11. 23	12. 4	S.W.	S.S.E.		67½
12. 5	12. 8	S.S.E.	S.S.W.	45	
12. 14	13. 0	S.S.W.	W.N.W.	90	
13. 2	13. 4	W.N.W.	W.S.W.		45
13. 11	13. 12	W.S.W.	S.W.		22½
14. 1	14. 3	S.W.	W.S.W.	22½	
14. 4	14. 6	W.S.W.	S.S.E.		90
14. 6¾	14. 7	S.S.E.	S.	22½	
14. 10	14. 13	S.	E.N.E.	247½	
14. 13¼	14. 13½	E.N.E.	S.S.E.		270
14. 15½	14. 20	S.S.E.	S.W.	427½	
15. 2	15. 6	S.W.	W.S.W.	22½	
15. 10	15. 14	W.S.W.	S.S.W.		45
15. 18	15. 22	S.S.W.	N.N.E.	180	
16. 19	16. 23	N.N.E.	N.		22½
17. 6	17. 9	N.	N.N.E.	22½	
17. 11	17. 12	N.N.E.	N.		22½
18. 14	18. 17	N.	N.N.E.	22½	
20. 1½	20. 2	N.N.E.	N.		22½
20. 16	20. 18½	N.	E.	90	
20. 22	21. 2	E.	N.E.		45
21. 12	21. 15	N.E.	E.	45	
21. 23	22. 1	E.	N.E.		45
22. 16	22. 17	N.E.	E.N.E.	22½	
22. 19	22. 19¼	E.N.E.	N.		67½
23. 4	23. 7	N.	N.N.E.	22½	
24. 6	24. 11	N.N.E.	E.	67½	

ABSTRACT of the CHANGES of the DIRECTION of the WIND—*continued*.

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
June—*cont*.					
d h	d h				
25. 21	26. 1	E.	S.S.E.	67½	
26. 3	26. 4	S.S.E.	N.N.E.	225	
26. 4½	26. 8	N.N.E.	E.N.E.		315
26. 9½	26. 13	E.N.E.	W.S.W.	180	
26. 15	26. 15¼	W.S.W.	W.N.W.	45	
26. 16½	26. 17	W.N.W.	S.W.		67½
26. 18	26. 20	S.W.	S.W.	360	
27. 2	27. 3	S.W.	S.S.W.		22½
27. 11	27. 18¾	S.S.W.	S.E.		67½
27. 19	27. 23	S.E.	S.W.	90	
28. 11	28. 12	S.W.	W.S.W.	22½	
29. 19½	29. 20	W.S.W.	N.N.E.	135	
30. 3	30. 5¾	N.N.E.	W.N.W.		90
30. 6½	30. 11	W.N.W.	N.	67½	
			Sums	3397½	1845
July.					
1. 17	1. 18	N.	S.E.	135	
1. 20	1. 23¾	S.E.	S.W.	90	
2. 0	2. 4	S.W.	S.		45
2. 5½	2. 7	S.	S.W.	45	
2. 8½	2. 9	S.W.	S.S.W.		22½
2. 18	2. 22	S.S.W.	S.W.	22½	
5. 19	5. 21	S.W.	S.S.W.		22½
6. 0	6. 4	S.S.W.	W.S.W.	45	
6. 8	6. 8½	W.S.W.	W.	22½	
6. 10½	6. 10¾	W.	N.	90	
6. 13	6. 14	N.	S.W.	225	
6. 16½	6. 17	S.W.	E.S.E.	247½	
6. 18	6. 19	E.S.E.	N.N.E.		90
7. 0	7. 4	N.N.E.	N.E.	22½	
7. 17	8. 0	N.E.	E.	45	
8. 8	8. 11	E.	S.E.	45	
8. 13	8. 13½	S.E.	S.	45	
8. 17½	8. 19	S.	S.W.	45	
9. 20	9. 22½	S.W.	N.W.	90	
10. 1	10. 2	N.W.	W.		45
10. 5	10. 7	W.	N.W.	45	
10. 10½	10. 11	N.W.	W.N.W.		22½
10. 21¾	10. 23	W.N.W.	S.W.		67½
11. 1½	11. 3	S.W.	N.N.W.	112½	
11. 17	11. 20	N.N.W.	W.N.W.		45
12. 8	12. 10	W.N.W.	N.N.W.	45	
12. 12½	12. 13	N.N.W.	W.N.W.		45
12. 14½	12. 16	W.N.W.	N.N.W.	45	
12. 18	12. 20½	N.N.W.	W.S.W.		90
12. 23	13. 0	W.S.W.	W.	22½	
13. 6	13. 7	W.	W.N.W.	22½	
13. 15	13. 21	W.N.W.	N.N.W.	45	
14. 1	14. 7	N.N.W.	S.W.		112½
14. 10½	14. 11	S.W.	N.E.		180
14. 15	14. 17	N.E.	E.S.E.	67½	

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
July—*cont*.					
d h	d h				
15. 1	15. 5	E.S.E.	E.		22½
15. 12	15. 13	E.	E.N.E.		22½
15. 19	15. 21	E.N.E.	E.S.E.	45	
16. 4	16. 7	E.S.E.	S.	67½	
16. 16	16. 18	S.	S.S.W.	22½	
17. 0	17. 1	S.S.W.	S.E.		67½
17. 4	17. 8	S.E.	E.N.E.	292½	
17. 10	17. 10¼	E.N.E.	E.	22½	
17. 12	17. 12¼	E.	N.		90
17. 14½	17. 15	N.	S.S.W.		157½
17. 16½	17. 17	S.S.W.	S.S.E.		45
17. 18	17. 18½	S.S.E.	E.N.E.	270	
17. 19¼	17. 19½	E.N.E.	S.S.W.	135	
18. 7	18. 8	S.S.W.	S.S.E.		45
18. 9	18. 10	S.S.E.	N.N.E.		135
18. 12½	18. 13½	N.N.E.	S.W.		157½
18. 19	18. 19½	S.W.	N.N.E.	157½	
19. 4	19. 5	N.N.E.	N.		22½
19. 17½	19. 18½	N.	S.W.		135
19. 23	20. 0	S.W.	S.S.W.		22½
21. 2	21. 6	S.S.W.	W.S.W.	45	
21. 10	21. 12	W.S.W.	S.W.		22½
21. 18	22. 3	S.W.	S.S.W.		22½
22. 19	22. 21	S.S.W.	E.N.E.		135
23. 0¾	23. 1	E.N.E.	S.W.		202½
24. 18	25. 2	S.W.	S.S.W.		22½
25. 22	25. 23	S.S.W.	S.W.	22½	
26. 13	26. 16	S.W.	W.S.W.	22½	
26. 18	26. 19	W.S.W.	S.W.		22½
27. 2	27. 2½	S.W.	S.		45
27. 5	27. 7	S.	S.S.W.	22½	
27. 10	27. 17	S.S.W.	E.S.E.		90
27. 23	28. 1	E.S.E.	S.S.E.	45	
28. 3½	28. 8	S.S.E.	W.N.W.		225
28. 10½	28. 11	W.N.W.	N.W.	22½	
28. 18	29. 0	N.W.	W.S.W.		67½
29. 12	29. 14	W.S.W.	S.S.W.		45
29. 17	29. 20¼	S.S.W.	E.		112½
29. 20¾	29. 22	E.	S.E.	45	
30. 0	30. 10	S.E.	S.W.	90	
30. 11	30. 12	S.W.	S.S.W.		22½
30. 15¼	30. 16	S.S.W.	E.	247½	
30. 17¾	30. 18½	E.	W.S.W.		202½
30. 18¾	30. 19½	W.S.W.	N.N.W.	90	
31. 6	31. 11	N.N.W.	N.E.	67½	
31. 14	31. 16	N.E.	E.	45	
			Sums	3397½	2947½
August.					
1. 3	1. 5	E.	N.E.		45
1. 16¾	1. 17½	N.E.	N.N.E.		22½
2. 10¾	2. 11	N.N.E.	N.		22½

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
Aug.—*cont*.					
d h	d h				
2. 12¾	2. 13	N.	E.N.E.	67½	
2. 19	2. 21	E.N.E.	S.E.	67½	
2. 23	3. 1	S.E.	S.S.E.	22½	
3. 3	3. 4½	S.S.E.	W.S.W.	90	
3. 16	3. 18	W.S.W.	S.W.		22½
5. 4	5. 7	S.W.	N.N.W.	112½	
6. 1	6. 3	N.N.W.	W.S.W.		90
6. 5	6. 6	W.S.W.	W.	22½	
6. 12	6. 15	W.	S.W.		45
7. 3	7. 7	S.W.	W.S.W.	22½	
7. 19	7. 20½	W.S.W.	S.S.W.		45
7. 21½	7. 23	S.S.W.	W.S.W.	45	
8. 14	8. 19	W.S.W.	S.S.W.		45
9. 4½	9. 5	S.S.W.	N.E.		157½
9. 6¾	9. 8	N.E.	S.S.W.	157½	
10. 14	10. 20	S.S.W.	S.W.	22½	
11. 22	12. 3	S.W.	S.S.W.		22½
12. 19	12. 22	S.S.W.	S.W.	22½	
13. 6	13. 10	S.W.	W.S.W.	22½	
13. 13	13. 15	W.S.W.	W.	22½	
13. 19	13. 21	W.	W.S.W.		22½
14. 7	14. 8	W.S.W.	W.	22½	
14. 10	14. 23	W.	S.	270	
15. 0	15. 1	S.	N.N.E.		157½
15. 7	15. 11½	N.N.E.	E.	67½	
15. 14	15. 15	E.	E.N.E.		22½
15. 18	16. 0	E.N.E.	N.N.E.		45
17. 20	18. 0	N.N.E.	N.N.W.		45
18. 6	18. 8	N.N.W.	N.	22½	
18. 16	18. 20	N.	N.E.	45	
18. 23	19. 9	N.E.	S.S.W.	157½	
19. 21	19. 22	S.S.W.	S.S.E.		45
20. 6	20. 8	S.S.E.	S.	22½	
20. 11	20. 12	S.	S.S.E.		22½
20. 16	20. 23	S.S.E.	E.S.E.		45
21. 1½	21. 8	E.S.E.	W.S.W.	135	
21. 14	21. 18	W.S.W.	S.W.		22½
21. 22	22. 1	S.W.	W.S.W.	22½	
22. 6	22. 9	W.S.W.	W.	22½	
22. 18	23. 3	W.	S.S.W.		67½
23. 16	23. 20	S.S.W.	S.S.E.		45
24. 8	24. 9	S.S.E.	S.	22½	
24. 14½	24. 17	S.	S.W.	45	
24. 21	25. 0	S.W.	S.S.W.		22½
26. 1	26. 2	S.S.W.	S.W.	22½	
28. 1	28. 6	S.W.	S.S.W.		22½
28. 21	28. 22¾	S.S.W.	W.N.W.	90	
28. 23	29. 3	W.N.W.	W.S.W.		45
29. 10	29. 12	W.S.W.	S.W.		22½
29. 18	29. 21	S.W.	S.S.W.		22½
30. 6	30. 7	S.S.W.	S.W.	22½	
30. 20	31. 2	S.W.	W.N.W.	67½	
31. 4	31. 5	W.N.W.	W.S.W.		45
31. 6¾	31. 9	W.S.W.	N.W.	67½	
31. 19½	31. 22	N.W.	N.N.W.	22½	
			Sums	1845	1237½

ABSTRACT of the CHANGES of the DIRECTION of the WIND—*continued.*

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
September.					
d h	d h				
1. 2	1. 3	N.N.W.	S.W.		112½
1. 9	1. 10	S.W.	W.N.W.	67½	
1. 11	1. 16	W.N.W.	S.W.		67½
3. 9	3. 11	S.W.	S.S.W.		22½
3. 23	4. 1	S.S.W.	S.W.	22½	
6. 10½	6. 10¾	S.W.	N.W.	90	
6. 11½	6. 12	N.W.	W.S.W.		67½
6. 14	6. 15	W.S.W.	W.	22½	
6. 18	6. 19	W.	W.S.W.		22½
7. 6	7. 11	W.S.W.	W.N.W.	45	
7. 15	7. 18	W.N.W.	N.	67½	
9. 7	9. 13½	N.	E.	90	
9. 17	9. 21	E.	N.		90
9. 22½	10. 0	N.	E.N.E.	67½	
10. 1	10. 1½	E.N.E.	W.N.W.	225	
10. 2½	10. 3	W.N.W.	W.S.W.		45
10. 8¼	10. 10	W.S.W.	N.	112½	
10. 12	10. 13½	N.	S.W.		135
10. 19	10. 21	S.W.	W.S.W.	22½	
11. 7	11. 9	W.S.W.	W.	22½	
11. 15	11. 21	W.	S.W.		45
12. 14	12. 17	S.W.	S.E.	270	
12. 23¾	13. 1	S.E.	E.		45
13. 18	14. 0	E.	N.E.		45
14. 5½	14. 10	N.E.	E.	45	
14. 18	14. 20	E.	N.E.		45
15. 0	15. 1	N.E.	N.		45
15. 4½	15. 5	N.	W.		90
15. 7	15. 8	W.	S.W.		45
15. 16	15. 18	S.W.	S.		45
15. 20½	15. 23	S.	S.W.	45	
16. 2	16. 6	S.W.	N.	135	
16. 17	16. 19	N.	N.N.E.	22½	
17. 15	17. 17	N.N.E.	N.E.	22½	
19. 8	19. 11	N.E.	E.N.E.	22½	
19. 18	19. 20	E.N.E.	N.E.		22½
20. 8	20. 10	N.E.	E.N.E.	22½	
20. 17	20. 19	E.N.E.	N.E.		22½
21. 4	21. 5	N.E.	N.N.E.		22½
21. 8	21. 10	N.N.E.	N.E.	22½	
21. 16	21. 17	N.E.	E.S.E.	67½	
21. 19	22. 0	E.S.E.	N.E.		67½
24. 2	24. 3	N.E.	N.N.E.		22½
24. 10	24. 10¾	N.N.E.	W.N.W.		90
24. 13	24. 15	W.N.W.	N.	67½	
24. 21	25. 0	N.	N.N.W.		22½
25. 3	25. 3½	N.N.W.	W.N.W.		45
25. 4½	25. 7¼	W.N.W.	N.E.	112½	
26. 0	26. 3	N.E.	N.N.E.		22½
26. 9	26. 10	N.N.E.	E.N.E.	45	
26. 18	26. 21	E.N.E.	N.E.		22½
27. 7	27. 11	N.E.	E.	45	
28. 8	28. 9	E.	E.S.E.	22½	
28. 14	28. 16	E.S.E.	S.	67½	
29. 0	29. 2	S.	W.S.W.	67½	
29. 21	29. 23	W.S.W.	N.N.W.	90	
30. 2	30. 3	N.N.W.	N.	22½	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Sept.—*cont.*					
d h	d h				
30. 11	30. 13	N.	N.N.W.		22½
30. 19½	30. 22	N.N.W.	W.S.W.		90
			Sums	2070	1440
October.					
1. 8	1. 10½	W.S.W.	N.N.W.	90	
1. 11	1. 19	N.N.W.	S.S.W.		135
2. 1	2. 2	S.S.W.	E.	247½	
2. 3	2. 3½	E.	N.E.		45
2. 10	2. 12	N.E.	N.		45
2. 20	2. 20¼	N.	W.S.W.		112½
2. 22	3. 0	W.S.W.	S.W.		22½
3. 3	3. 7	S.W.	S.E.		90
3. 17¾	3. 21	S.E.	N.		135
4. 0	4. 3	N.	W.S.W.		112½
4. 19½	4. 20	W.S.W.	N.N.W.	90	
5. 0	5. 3	N.N.W.	W.S.W.		90
5. 7	5. 11	W.S.W.	W.	22½	
5. 15	5. 16	W.	W.S.W.		22½
6. 4	6. 5	W.S.W.	S.W.		22½
6. 7½	6. 10	S.W.	N.	135	
7. 0	7. 5	N.	W.S.W.		112½
7. 6	7. 12	W.S.W.	N.	112½	
7. 22	8. 0	N.	W.S.W.		112½
8. 8½	8. 11	W.S.W.	N.N.E.	135	
9. 15	9. 17	N.N.E.	N.		22½
10. 2	10. 3½	N.	W.S.W.		112½
10. 12	10. 12½	W.S.W.	N.	112½	
10. 17	10. 17¼	N.	N.E.	45	
10. 18½	11. 1	N.E.	W.S.W.	202½	
13. 4¾	13. 5	W.S.W.	N.	112½	
14. 19	14. 20	N.	W.S.W.		112½
15. 17	15. 21	W.S.W.	S.W.		22½
16. 19¾	16. 20	S.W.	S.		45
16. 22½	16. 23½	S.	W.S.W.	67½	
17. 8¾	17. 13	W.S.W.	E.	202½	
17. 20¼	17. 21	E.	S.E.	45	
18. 0	18. 1¼	S.E.	E.N.E.		67½
18. 8	18. 8¼	E.N.E.	E.	22½	
21. 19	21. 22	E.	N.E.		45
22. 12	22. 12¼	N.E.	E.	45	
22. 14½	22. 15	E.	E.S.E.	22½	
22. 20	22. 23	E.S.E.	S.S.W.	90	
23. 2	23. 4½	S.S.W.	S.W.	382½	
24. 15	24. 17	S.W.	S.S.W.		22½
27. 1	27. 2	S.S.W.	S.W.	22½	
27. 13	27. 17	S.W.	S.S.W.		22½
28. 21	28. 23	S.S.W.	S.W.	22½	
29. 9	29. 13	S.W.	N.W.	90	
29. 14	29. 18	N.W.	S.S.E.		157½
30. 1	30. 4	S.S.E.	E.N.E.		90

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Oct.—*cont.*					
d h	d h				
30. 15¾	30. 17	E.N.E.	W.S.W.	180	
31. 12	31. 17	W.S.W.	S.S.W.		45
			Sums	2497½	1822½
November.					
1. 2	1. 3	S.S.W.	S.		22½
1. 10	1. 12	S.	N.E.		135
1. 12½	1. 14	N.E.	E.	45	
1. 15	1. 16	E.	N.N.E.		67½
2. 0	2. 3	N.N.E.	N.		22½
2. 7	2. 8½	N.	S.E.	135	
2. 11	2. 14	S.E.	E.N.E.		67½
2. 20¼	2. 21	E.N.E.	S.W.	157½	
3. 7½	3. 9	S.W.	S.S.E.		67½
3. 12	3. 15	S.S.E.	E.		67½
3. 17	3. 18	E.	S.E.	45	
3. 21¾	3. 22	S.E.	E.S.E.		22½
5. 0	5. 2	E.S.E.	S.S.E.	45	
5. 5	5. 6	S.S.E.	S.E.		22½
5. 10¼	5. 13	S.E.	E.		45
7. 4	7. 7	E.	E.S.E.	22½	
8. 4	8. 7	E.S.E.	E.		22½
9. 17	9. 20	E.	E.S.E.	22½	
10. 15	10. 20	E.S.E.	S.S.E.	45	
11. 13¼	11. 13½	S.S.E.	N.N.E.		135
11. 16	11. 21	N.N.E.	E.S.E.	90	
12. 18	12. 20	E.S.E.	S.E.	22½	
13. 9	13. 11	S.E.	S.S.W.	67½	
13. 15	13. 17	S.S.W.	S.		22½
14. 9	14. 10	S.	S.S.W.	22½	
16. 3	16. 9	S.S.W.	S.W.	22½	
17. 10	17. 12	S.W.	W.S.W.	22½	
18. 13	18. 18	W.S.W.	S.W.		22½
18. 21	19. 1	S.W.	W.S.W.	22½	
20. 4¾	20. 5	W.S.W.	W.N.W.	45	
20. 8	20. 9	W.N.W.	W.		22½
21. 21	21. 22	W.	W.S.W.		22½
22. 17	23. 1	W.S.W.	S.W.		22½
24. 12	24. 14	S.W.	W.S.W.	22½	
24. 21	25. 1	W.S.W.	S.W.		22½
25. 14	25. 16	S.W.	S.S.W.		22½
26. 5	26. 7	S.S.W.	W.S.W.	45	
26. 15	26. 17	W.S.W.	S.S.W.		45
26. 19	26. 20	S.S.W.	S.W.	22½	
26. 22½	26. 23	S.W.	S.S.W.		22½
27. 1	27. 4	S.S.W	S.S.E.		45
27. 8	27. 9	S.S.E.	S.S.W.	45	
27. 12	27. 16	S.S.W.	S.W.	22½	
28. 6	28. 7	S.W.	S.S.W.		22½
28. 10½	28. 11	S.S.W.	S.E.		67½
28. 11½	28. 13	S.E.	E.N.E.		67½

ABSTRACT of the CHANGES of the DIRECTION of the WIND—*continued.*

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Nov.—*cont.*					
d h	d h				
28. 16	28. 19	E.N.E.	E.S.E.	45	
29. 12	29. 15	E.S.E.	E.		22½
29. 22	30. 3	E.	E.N.E.		22½
30. 6	30. 7	E.N.E.	N.N.E.		45
30. 11	30. 12	N.N.E	W.S.W.		135
			Sums	1035	1350
December.					
1. 16	1. 19	W.S.W.	S.W.		22½
2. 12	2. 16	S.W.	S.S.W.		22½
6. 12	6. 17½	S.S.W.	E.S.E.		90
6. 22	7. 2	E.S.E.	S.E.	22½	
7. 11	7. 12	S.E.	S.S.E.	22½	
7. 15	7. 16	S.S.E.	S.	22½	
7. 23	8. 0	S.	S.S.W.	22½	
8. 6	8. 6¼	S.S.W.	S.S.E.		45
8. 7½	8. 8	S.S.E.	E.N.E.		90
8. 9½	8. 12	E.N.E.	S.S.W.	135	
8. 14¼	8. 15	S.S.W.	S.E.		67½
8. 18	8. 19½	S.E.	S.W.	90	
8. 20½	8. 21	S.W.	N.N.W.	112½	
Dec.—*cont.*					
d h	d h				
9. 9½	9. 10½	N.N.W.	W.S.W.		90
9. 13½	9. 14	W.S.W.	N.N.W.	90	
9. 23	10. 2	N.N.W.	S.		157½
10. 3	10. 7	S.	S.W.	45	
10. 16	10. 18	S.W.	N.	135	
11. 0½	11. 2¼	N.	W.S.W.	247½	
11. 3¾	11. 4	W.S.W.	S.S.W.		45
11. 6	11. 7	S.S.W.	N.E.		157½
11. 11	11. 16	N.E.	S.S.E.	112½	
11. 19	11. 21	S.S.E.	S.E.		22½
12. 0	12. 3	S.E.	E.S.E.		22½
12. 11	12. 13	E.S.E.	S.S.E.	45	
12. 16	12. 18	S.S.E.	E.S.E.		45
13. 8	13. 10	E.S.E.	S.E.	22½	
13. 12	13. 15	S.E.	E.		45
13. 21	14. 1½	E.	S.	90	
14. 4	14. 7	S.	E.S.E.		67½
14. 19¾	14. 20	E.S.E.	N.E.		67½
14. 22	14. 22¼	N.E.	E.S.E.	67½	
15. 3	15. 4	E.S.E.	S.W.	112½	
15. 17	15. 18	S.W.	S.		45
15. 19	15. 20	S.	N.	180	
16. 9	16. 11	N.	W.S.W.		112½
17. 16	17. 17	W.S.W.	S.W.		22½
18. 10	18. 11	S.W.	S.S.E.		67½
18. 12¾	18. 13	S.S.E.	N.E.		112½
Dec.—*cont.*					
d h	d h				
18. 17½	18. 20	N.E.	S.E.		270
18. 23	19. 2	S.E.	S.W.	90	
19. 5	19. 6	S.W.	S.		45
19. 18	19. 21	S.	S.S.E.		22½
21. 3	21. 6	S.S.E.	S.	22½	
21. 9	21. 10	S.	S.S.E.		22½
22. 4	22. 5	S.S.E.	S.	22½	
22. 10	22. 12	S.	S.S.W.	22½	
22. 16	22. 18	S.S.W.	S.S.E.		45
23. 18	23. 22	S.S.E.	S.S.W.	45	
24. 18	24. 20	S.S.W.	N.W.	112½	
24. 22	25. 8	N.W.	S.		135
25. 16	25. 20	S.	W.S.W.	67½	
27. 1	27. 5	W.S.W.	S.		67½
27. 9	27. 11	S.	S.S.W.	22½	
28. 12	28. 17	S.S.W.	N.	157½	
30. 19¼	30. 19½	N.	N.N.E.	22½	
30. 22¾	30. 23	N.N.E.	N.		22½
31. 2	31. 5	N.	S.E.		225
31. 10	31. 10¼	S.E.	N.E.		90
31. 12	31. 13	N.E.	S.E.	90	
31. 19¼	31. 19½	S.E.	N.		135
31. 20	31. 20¼	N.	W.S.W.		112½
			Sums	2250	2610

ABSTRACT of the CHANGES of the DIRECTION of the WIND—*concluded.*

EXCESS of MOTION in each MONTH.

1888.	Direct. °	Retrograde. °	1888.	Direct. °	Retrograde. °
January	292½		July	450	
February		22½	August	607½	
March	1057½		September	630	
April	877½		October	675	
May	1507½		November		315
June	1552½		December		360

The whole excess of direct motion for the year was 6952½°.

MEAN HOURLY MEASURES of the HORIZONTAL MOVEMENT of the AIR in each MONTH, and GREATEST and LEAST HOURLY MEASURES, as derived from the Records of ROBINSON'S ANEMOMETER.

Hour ending	1888.												Mean for the Year.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
h	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1	12·2	15·2	14·6	11·2	11·2	9·6	10·3	9·5	7·6	8·3	16·2	9·9	11·3
2	12·3	14·9	13·9	10·6	10·6	9·2	9·4	8·9	7·3	7·6	16·0	9·6	10·9
3	12·5	14·9	13·7	10·9	10·4	8·2	9·2	8·7	7·6	7·3	15·7	9·0	10·7
4	12·0	15·3	14·9	10·8	10·7	8·2	9·3	8·5	7·7	7·6	14·8	9·2	10·7
5	12·9	15·3	14·6	10·6	10·5	8·6	9·7	8·5	7·6	7·2	14·7	9·5	10·8
6	12·8	15·2	14·5	11·5	10·4	7·8	9·5	8·5	7·8	7·5	14·3	9·2	10·8
7	12·8	15·2	15·2	12·7	10·5	8·8	10·1	9·2	8·1	7·3	14·4	9·6	11·2
8	12·6	15·1	15·9	13·6	12·2	9·9	10·8	10·4	8·8	7·5	14·3	9·9	11·7
9	12·2	16·0	16·3	15·2	13·9	10·1	11·5	11·5	9·6	8·1	13·8	9·7	12·3
10	11·8	16·0	16·6	14·8	14·4	10·5	12·1	11·9	10·2	8·7	15·9	10·1	12·8
11	12·0	17·0	17·5	15·4	14·8	10·8	12·0	13·5	10·4	10·4	17·0	10·4	13·4
Noon.	12·1	18·0	17·1	15·4	15·5	11·1	12·4	12·8	10·6	10·5	16·8	9·3	13·5
h 13	13·1	17·9	17·7	15·1	15·7	10·6	12·8	14·5	10·7	11·4	18·4	11·1	14·1
14	14·2	18·5	18·7	16·2	16·6	12·1	14·1	14·5	11·7	12·1	18·9	11·5	14·9
15	12·8	17·4	17·8	16·3	16·0	11·7	13·5	14·6	11·7	11·3	19·0	10·5	14·4
16	12·9	17·7	18·2	17·0	16·9	12·5	13·6	14·5	11·8	10·5	17·3	10·1	14·4
17	12·2	16·8	17·1	15·7	16·1	11·9	12·7	13·8	11·1	9·4	17·5	10·4	13·7
18	11·5	15·9	16·1	15·0	15·3	11·6	11·8	13·0	10·2	9·8	16·6	10·2	13·1
19	12·3	16·1	15·1	14·4	14·3	11·5	11·7	12·4	9·8	9·6	16·5	10·7	12·9
20	11·5	16·2	14·5	12·7	13·1	10·7	10·2	11·1	9·2	9·5	16·8	10·4	12·2
21	10·8	15·6	14·1	11·9	12·7	10·0	9·8	11·1	8·7	9·4	16·4	10·6	11·8
22	11·9	15·3	14·6	11·8	12·0	9·5	10·5	10·8	8·3	8·8	16·5	10·3	11·7
23	12·0	15·1	14·5	11·5	12·0	9·5	10·0	11·0	8·0	9·2	16·0	9·6	11·5
Midnight.	12·3	14·9	14·1	11·0	11·3	9·6	9·6	10·0	7·3	8·5	15·9	9·9	11·2
Means	12·3	16·1	15·7	13·4	13·2	10·2	11·1	11·4	9·2	9·1	16·2	10·0	12·3
Greatest Hourly Measures	42	39	50	31	40	25	31	38	24	27	39	31	...
Least Hourly Measures	0	1	0	1	1	0	1	0	0	0	0	0	...

MEAN ELECTRICAL POTENTIAL of the ATMOSPHERE, from THOMSON'S ELECTROMETER, for each CIVIL DAY.

(Each result is the mean of Twenty-four Hourly Ordinates from the Photographic Register. The scale employed is arbitrary : the sign + indicates positive potential.)

1888.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d												
1	+ 576	+ 467	+ 536	+ 517	+ 103	+ 239	+ 177	...	..	...	...	...
2	+ 216	+ 662	+ 624	+ 280	+ 116	+ 306	+ 47	...	...	...	...	...
3	+ 437	+ 500	+ 584	+ 575	+ 210	+ 262	− 15	...	...	...	...	...
4	+ 452	+ 303	+ 581	+ 428	+ 289	+ 142	− 76	...	...	...	...	...
5	+ 390	+ 334	+ 473	+ 529	+ 347	+ 111	+ 52	...	...	...	...	...
6	+ 444	+ 222	+ 528	+ 549	+ 391	+ 74	− 19	...	...	...	...	...
7	+ 401	+ 317	+ 600	+ 527	+ 334	+ 180	+ 93	...	...	...	...	...
8	+ 324	+ 153	+ 358	+ 453	+ 305	+ 147	+ 171	...	...	...	...	...
9	+ 422	+ 192	+ 305	+ 360	+ 326	− 29	+ 199	...	...	...	...	...
10	+ 656	+ 304	+ 271	+ 372	+ 264	+ 165	+ 242	...	...	...	...	...
11	+ 657	+ 428	− 414	+ 274	+ 356	+ 190	− 258	...	...	...	...	...
12	+ 558	+ 686	+ 229	+ 255	+ 285	+ 45	...	...	...	...	...	...
13	+ 431	+ 301	+ 395	+ 247	+ 330	+ 153	...	...	...	...	...	...
14	+ 407	+ 693	− 300	+ 265	+ 298	− 520	...	...	...	...	...	...
15	+ 342	+ 452	+ 233	+ 186	+ 216	+ 243	...	...	...	...	...	...
16	+ 331	+ 175	+ 152	+ 381	+ 206	+ 131	...	...	...	...	...	...
17	+ 457	+ 566	+ 313	+ 262	+ 51	+ 197	...	...	...	...	...	...
18	+ 474	+ 486	+ 298	+ 69	+ 190	+ 129	...	...	...	...	...	...
19	+ 579	+ 400	+ 280	− 60	+ 121	+ 125	...	...	...	...	...	...
20	+ 696	+ 239	+ 218	− 480	+ 204	+ 153	...	...	...	...	...	...
21	+ 374	+ 391	+ 510	+ 240	+ 124	+ 77	...	...	...	...	...	...
22	+ 297	+ 350	+ 545	− 151	+ 233	+ 76	...	...	...	...	...	...
23	+ 432	+ 235	+ 128	− 404	+ 96	+ 135	...	...	...	...	...	...
24	+ 602	+ 167	+ 218	+ 116	+ 313	+ 155	...	...	...	...	...	...
25	+ 472	+ 345	− 241	+ 246	+ 302	+ 252	...	...	...	...	...	...
26	+ 306	+ 434	− 220	+ 463	+ 274	...	...	...	...	...	...	...
27	+ 278	+ 366	+ 216	+ 473	+ 198	+ 101	...	...	...	...	...	...
28	+ 456	+ 510	+ 43	+ 348	+ 183	+ 9	...	...	...	...	...	...
29	+ 613	+ 570	+ 243	+ 321	+ 149	+ 132	...	...	...	...	...	...
30	+ 604		+ 7	+ 352	+ 195	+ 131	...	...	...	...	...	...
31	+ 210		+ 323		+ 87		...	...		...		...
Means ...	+ 448	+ 388	+ 259	+ 266	+ 229	+ 121	...	...	...	...	...	...

On July 12 the electrometer was taken away to be cleaned and was not again brought into use during the remainder of the year.

MONTHLY MEAN ELECTRICAL POTENTIAL of the ATMOSPHERE, from THOMSON'S ELECTROMETER, at every HOUR of the DAY.

(The results depend on the Photographic Register, using all days of complete record. The scale employed is arbitrary : the sign + indicates positive potential.)

Hour, Greenwich Civil Time.	1888.												Means, January to June.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 425	+ 359	+ 382	+ 363	+ 286	+ 175	...	...	...	..	...	...	+ 332
1^h.	+ 364	+ 400	+ 345	+ 337	+ 276	+ 182	...	...	...	...	...	...	+ 317
2	+ 404	+ 333	+ 228	+ 366	+ 280	+ 159	...	...	...	...	...	...	+ 295
3	+ 425	+ 316	+ 141	+ 315	+ 285	+ 157	...	...	...	...	...	...	+ 273
4	+ 405	+ 327	+ 219	+ 386	+ 280	+ 147	...	...	...	...	...	...	+ 294
5	+ 415	+ 327	+ 163	+ 379	+ 285	+ 121	...	...	...	...	...	...	+ 282
6	+ 418	+ 291	+ 233	+ 267	+ 309	+ 92	...	...	...	...	...	...	+ 268
7	+ 371	+ 347	+ 201	+ 358	+ 330	+ 99	...	...	...	...	...	...	+ 284
8	+ 445	+ 370	+ 200	+ 420	+ 314	+ 96	...	...	...	...	...	...	+ 307
9	+ 425	+ 380	+ 162	+ 347	+ 265	+ 104	...	...	...	...	...	...	+ 280
10	+ 365	+ 418	+ 133	+ 241	+ 192	+ 127	...	...	...	...	...	...	+ 246
11	+ 361	+ 402	+ 232	+ 60	+ 135	+ 116	...	..	...	...	...	...	+ 218
Noon.	+ 443	+ 473	+ 343	+ 95	+ 109	+ 53	...	...	...	...	...	...	+ 253
13^h.	+ 459	+ 411	+ 198	+ 116	+ 9	+ 9	...	...	...	...	...	...	+ 200
14	+ 470	+ 387	+ 220	− 40	+ 22	+ 11	...	...	...	...	...	...	+ 178
15	+ 502	+ 449	+ 73	+ 60	+ 67	− 73	...	...	...	...	...	...	+ 180
16	+ 556	+ 423	+ 260	+ 259	+ 110	+ 8	...	...	...	...	...	...	+ 269
17	+ 568	+ 451	+ 312	+ 222	+ 75	+ 108	...	...	...	...	...	...	+ 289
18	+ 548	+ 381	+ 262	+ 209	+ 245	+ 167	...	...	...	...	...	...	+ 302
19	+ 468	+ 433	+ 372	+ 194	+ 275	+ 174	...	...	...	...	...	...	+ 319
20	+ 504	+ 380	+ 430	+ 194	+ 298	+ 206	...	...	...	...	...	...	+ 335
21	+ 471	+ 384	+ 307	+ 356	+ 338	+ 218	...	...	...	...	...	...	+ 346
22	+ 465	+ 429	+ 395	+ 443	+ 361	+ 238	...	..	...	...	...	...	+ 388
23	+ 479	+ 438	+ 411	+ 446	+ 346	+ 211	...	...	...	...	...	...	+ 388
24	+ 416	+ 369	+ 386	+ 349	+ 288	+ 182	...	...	...	...	...	...	+ 332
Means 0^h.–23^h.	+ 448	+ 388	+ 259	+ 266	+ 229	+ 121	...	...	...	...	...	...	+ 285
Means 1^h.–24^h.	+ 448	+ 388	+ 259	+ 266	+ 229	+ 121	...	...	...	...	...	...	+ 285
Number of Days employed.	31	29	31	30	31	29	...	...	...	...	...	...	...

MONTHLY MEAN ELECTRICAL POTENTIAL of the ATMOSPHERE, from THOMSON'S ELECTROMETER, on RAINY DAYS, at every HOUR of the DAY.

(The results depend on the Photographic Register, using all days on which the rainfall amounted to or exceeded $0^{in}\cdot020$. The scale employed is arbitrary: the sign + indicates positive potential.)

Hour, Greenwich Civil Time.	1888.												Means, January to June.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 197	+ 238	+ 259	+ 278	− 5	+ 186	...	...	...	...	...	...	+ 192
1^h.	− 25	+ 379	+ 252	+ 203	+ 60	+ 189	...	...	...	...	...	...	+ 176
2	+ 262	+ 206	+ 62	+ 280	+ 107	+ 143	...	...	...	...	...	...	+ 177
3	+ 403	+ 214	− 93	+ 193	+ 158	+ 147	...	...	...	...	...	...	+ 170
4	+ 443	+ 316	+ 44	+ 372	+ 192	+ 139	...	...	...	...	...	...	+ 251
5	+ 447	+ 322	− 55	+ 340	+ 253	+ 45	...	...	...	...	...	...	+ 225
6	+ 442	+ 179	+ 64	+ 66	+ 287	− 52	...	...	...	...	...	...	+ 164
7	+ 212	+ 290	+ 21	+ 238	+ 298	− 75	...	...	...	...	...	...	+ 164
8	+ 400	+ 344	+ 47	+ 356	+ 227	− 67	...	...	...	...	...	...	+ 218
9	+ 392	+ 351	− 9	+ 263	+ 200	− 16	...	...	...	...	...	...	+ 198
10	+ 180	+ 417	− 93	+ 172	+ 143	+ 122	...	...	...	...	...	...	+ 157
11	+ 40	+ 353	+ 84	− 152	+ 150	+ 153	...	...	...	...	...	...	+ 105
Noon.	+ 363	+ 490	+ 266	− 82	+ 105	− 9	...	...	...	...	...	...	+ 189
13^h.	+ 447	+ 285	− 5	− 118	− 78	− 129	...	...	...	...	...	...	+ 67
14	+ 507	+ 217	+ 45	− 493	− 245	− 126	...	...	...	...	...	...	− 16
15	+ 540	+ 414	− 182	− 241	− 115	− 309	...	...	...	...	...	...	+ 18
16	+ 578	+ 276	+ 151	+ 185	− 85	− 220	...	...	...	...	...	...	+ 148
17	+ 537	+ 369	+ 223	+ 39	− 32	+ 45	...	...	...	...	...	...	+ 197
18	+ 425	+ 216	+ 101	− 2	+ 277	+ 185	...	...	...	...	...	...	+ 200
19	+ 22	+ 392	+ 236	− 76	+ 320	+ 161	...	...	...	...	...	...	+ 176
20	+ 287	+ 201	+ 304	− 213	+ 258	+ 187	...	...	...	...	...	...	+ 171
21	+ 230	+ 188	+ 102	+ 108	+ 357	+ 171	...	...	...	...	...	...	+ 193
22	+ 192	+ 285	+ 252	+ 274	+ 390	+ 173	...	...	...	...	...	...	+ 261
23	+ 315	+ 381	+ 276	+ 285	+ 185	+ 141	...	...	...	...	...	...	+ 264
24	+ 177	+ 427	+ 253	+ 103	− 23	+ 145	...	...	...	...	...	...	+ 180
Means $0^h.-23^h.$	+ 326	+ 305	+ 98	+ 95	+ 142	+ 49	...	...	...	...	...	...	+ 169
Means $1^h.-24^h.$	+ 326	+ 313	+ 98	+ 88	+ 141	+ 48	...	...	...	...	...	...	+ 169
Number of Days employed.	6	10	18	13	4	11	...	...	...	...	...	...	...

MONTHLY MEAN ELECTRICAL POTENTIAL of the ATMOSPHERE, from THOMSON'S ELECTROMETER, on NON-RAINY DAYS, at every HOUR of the DAY.

(The results depend on the Photographic Register, using only those days on which no rainfall was recorded. The scale employed is arbitrary: the sign + indicates positive potential.)

Hour, Greenwich Civil Time.	1888.												Means, January to June.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 475	+ 460	+ 560	+ 440	+ 328	+ 199	...	...	...	...	...	...	+ 410
1h.	+ 437	+ 453	+ 481	+ 461	+ 311	+ 214	...	...	...	...	...	...	+ 393
2	+ 411	+ 429	+ 482	+ 456	+ 310	+ 197	...	...	...	...	...	...	+ 381
3	+ 412	+ 375	+ 496	+ 423	+ 309	+ 175	...	...	...	...	...	...	+ 365
4	+ 348	+ 338	+ 479	+ 422	+ 305	+ 161	...	...	...	...	...	...	+ 342
5	+ 378	+ 340	+ 471	+ 439	+ 295	+ 177	...	...	...	...	...	...	+ 350
6	+ 397	+ 347	+ 484	+ 454	+ 315	+ 204	...	...	...	...	...	...	+ 367
7	+ 379	+ 365	+ 481	+ 483	+ 335	+ 227	...	...	...	...	...	...	+ 378
8	+ 455	+ 386	+ 446	+ 499	+ 328	+ 231	...	...	...	...	...	...	+ 391
9	+ 418	+ 412	+ 403	+ 432	+ 277	+ 190	...	...	...	...	...	...	+ 355
10	+ 378	+ 442	+ 438	+ 336	+ 204	+ 146	...	...	...	...	...	...	+ 324
11	+ 407	+ 439	+ 427	+ 231	+ 152	+ 126	...	...	...	...	...	...	+ 297
Noon.	+ 446	+ 476	+ 442	+ 238	+ 126	+ 108	...	...	...	...	...	...	+ 306
13h.	+ 441	+ 487	+ 461	+ 303	+ 117	+ 128	...	...	...	...	...	...	+ 323
14	+ 444	+ 486	+ 437	+ 318	+ 90	+ 139	...	...	...	...	...	...	+ 319
15	+ 477	+ 450	+ 388	+ 306	+ 99	+ 153	...	...	...	...	...	...	+ 312
16	+ 537	+ 441	+ 389	+ 348	+ 138	+ 170	...	...	...	...	...	...	+ 337
17	+ 561	+ 438	+ 427	+ 401	+ 98	+ 165	...	...	...	...	...	...	+ 348
18	+ 560	+ 424	+ 486	+ 404	+ 237	+ 167	...	...	...	...	...	...	+ 380
19	+ 556	+ 432	+ 576	+ 420	+ 260	+ 195	...	...	...	...	...	...	+ 406
20	+ 544	+ 425	+ 613	+ 509	+ 297	+ 238	...	...	...	...	...	...	+ 438
21	+ 513	+ 430	+ 608	+ 529	+ 328	+ 259	...	...	...	...	...	...	+ 444
22	+ 514	+ 452	+ 619	+ 559	+ 346	+ 286	...	...	...	...	...	...	+ 463
23	+ 502	+ 403	+ 618	+ 563	+ 362	+ 277	...	...	...	...	...	...	+ 454
24	+ 439	+ 349	+ 602	+ 534	+ 331	+ 252	...	...	...	...	...	...	+ 418
Means 0h.–23h.	+ 458	+ 422	+ 488	+ 416	+ 249	+ 189	...	...	...	...	...	...	+ 370
Means 1h.–24h.	+ 456	+ 417	+ 490	+ 419	+ 249	+ 191	...	...	...	...	...	...	+ 370
Number of Days employed.	15	12	10	14	25	10	...	...	...	...	...	...	...

AMOUNT of RAIN COLLECTED in EACH MONTH of the YEAR 1888.

MONTH, 1888.	Number of Rainy Days.	Monthly Amount of Rain collected in each Gauge.							
		Self-registering Gauge of Osler's Anemometer.	Second Gauge at Osler's Anemometer.	On the roof of the Octagon Room.	On the roof of the Magnetic Observatory.	On the roof of the Photographic Thermometer Shed.	Gauges partly sunk in the ground.		
		No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.
		in.	in.	in.	in.	in.	in.	in.	in.
January	11	0·472	0·508	0·657	0·822	0·832	0·893	0·909	0·916
February	15	0·428	0·453	0·556	0·706	0·835	0·894	0·892	0·883
March	21	1·627	1·715	2·084	2·388	2·655	2·782	2·778	2·801
April	14	0·848	0·859	1·166	1·482	1·518	1·507	1·475	1·527
May	5	0·336	0·338	0·478	0·617	0·632	0·646	0·648	0·684
June	15	2·385	2·611	2·966	3·200	3·355	3·356	3·199	3·315
July	26	5·397	5·680	6·019	6·419	6·705	6·748	6·525	6·669
August	12	2·627	2·718	3·157	3·652	3·789	3·734	3·716	3·726
September	12	0·382	0·409	0·558	0·739	0·783	0·729	0·690	0·730
October	6	0·921	0·964	1·153	1·318	1·376	1·296	1·300	1·313
November	18	2·804	2·874	3·547	3·707	3·976	4·001	4·004	4·125
December	10	0·425	0·427	0·631	0·776	0·918	0·919	0·862	0·961
Sums	165	18·652	19·556	22·972	25·826	27·374	27·505	26·998	27·650
Height of receiving Surface above the ground	...	ft. in. 50. 8	ft. in. 50. 8	ft. in. 38. 4	ft. in. 21. 6	ft. in. 10. 0	ft. in. 0. 5	ft. in. 0. 5	ft. in. 0. 5
Height of receiving Surface above mean sea level	...	ft. in. 205. 6	ft. in. 205. 6	ft. in. 193. 2	ft. in. 176. 4	ft. in. 164. 10	ft. in. 155. 3	ft. in. 155. 3	ft. in. 155. 3

ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS

OF

LUMINOUS METEORS.

1888.

Month and Day, 1888.		Greenwich Civil Time.	Observer.	Apparent Size of Meteor in Star-Magnitudes.	Colour of Meteor.	Duration of Meteor in Seconds of Time.	Appearance and Duration of Train.	Length of Meteor's Path in Degrees.	No. for Reference.
		h m s				s		°	
August	9	22. 29. 12	N.	> 1	White	1·5	Fine and enduring	25 to 30	1
August	10	21. 14. 8	N.	2	White	Rapid	Train	10	2
	„	21. 32. 24	H.	1	Bluish-white	0·5	None	...	3
	„	21. 32. 28	H.	3	Bluish-white	0·5	None	8	4
	„	21. 48. 12	H.	2	Bluish-white	0·8	Slight	20	5
	„	21. 52. 52	H.	3	Bluish-white	0·4	None	12	6
	„	21. 56. 38	H.	1	Bluish-white	0·3	Slight	5	7
	„	22. 8. 53	H.	2	Bluish-white	0·8	Slight	20	8
	„	22. 18. 43	H.	1	Bluish-white	0·5	Slight	...	9
	„	22. 19. 10	H.	2	Bluish-white	0·5	Slight	10	10
	„	22. 23. 23	H.	2	Bluish-white	0·8	None	15	11
	„	22. 24. ±	H.	3	Bluish-white	0·3	None	10	12
	„	22. 35. 59	H.	2	Bluish-white	0·5	None	10	13
	„	22. 44. 0	H.	1	Yellowish	1·5	Slight	15	14
	„	22. 48. 24	H.	2	Bluish-white	0·3	None	5	15
	„	22. 52. 31	H.	1	Bluish-white	0·8	None	15	16
	„	22. 56. 10	H.	1	Bluish-white	0·4	Slight	8	17
	„	22. 59. 11	H.	2	Bluish-white	0·4	None	10	18
	„	23. 2. 46	N.	1	White	0·5	Train	8	19
	„	23. 6. 28	H.	2	Bluish-white	0·6	Slight	20	20
	„	23. 9. 36	H.	> 1	Yellowish	1·0	Slight	15	21
	„	23. 9. 49	H.	2	Bluish-white	0·5	None	10	22
	„	23. 13. 3	H.	1	Bluish-white	0·6	Slight	20	23
	„	23. 13. 51	H.	2	Bluish-white	0·5	Slight	10	24
	„	23. 19. 25	H.	1	Bluish-white	0·6	None	10	25
	„	23. 27. 15	M.	2	Bluish-white	0·5	None	8	26
	„	23. 31. 14	H.	1	Bluish-white	0·3	Slight	5	27
	„	23. 33. 16	M.	2	Bluish-white	0·3	None	5	28
	„	23. 35. 3	H.	1	Bluish-white	0·2	None	5	29
	„	23. 37. 52	H.	2	Bluish-white	0·3	None	5	30
	„	23. 38. 53	M.	2	Bluish-white	0·5	None	7	31
	„	23. 39. 19	H.	< 1	Bluish-white	1·0	Slight	20	32
	„	23. 39. 51	M.	1	Bluish-white	0·7	Slight	15	33
	„	23. 51. 10	M.	2	Bluish-white	0·5	None	10	34
	„	23. 53. 4	H.	2	Bluish-white	0·2	Slight	5	35
	„	23. 54. 16	H.	1	Bluish-white	0·5	Slight	12	36
	„	23. 56. 52	M.	2	Bluish-white	0·3	None	5	37
August	11	0. 4. 45	M.	1	Bluish-white	0·6	None	12	38
	„	0. 7. 22	H.	> 1	Bluish-white	...	3 seconds	...	39
	„	0. 11. 10	M.	3	Bluish	0·2	None	3	40
	„	0. 13. 17	H.	2	Bluish-white	0·3	None	7	41
	„	0. 16. 1	M.	1	Bluish-white	0·7	Train	12	42
	„	0. 17. 13	H.	> 1	Bluish-white	...	Slight	15	43
	„	0. 17. 21	M.	1	Bluish	0·7	Fine	15	44
	„	0. 19. 24	M.	1	Bluish	0·6	Train	12	45
	„	0. 20. 38	H.	2	Bluish-white	0·2	None	3	46
	„	0. 26. 7	H.	1	Bluish-white	...	Slight	...	47
	„	0. 27. 23	M.	1	Bluish-white	0·5	Train	10	48
	„	0. 29. 46	H.	1	Bluish-white	0·6	Slight	25	49
	„	0. 30. 5	H.	1	Bluish-white	0·5	Slight	15	50
	„	0. 31. 27	M.	2	Bluish-white	0·4	None	8	51
	„	0. 38. 47	H.	2	Bluish-white	0·2	None	5	52
	„	0. 40. 32	H.	1	Bluish-white	0·5	Slight	20	53
	„	0. 41. 0	M.	2	Bluish-white	0·4	None	8	54
	„	0. 46. 29	H.	1	Bluish-white	0·6	None	10	55
	„	0. 49. 11	H.	2	Bluish-white	0·5	Slight	15	56
	„	0. 51. 5	M.	1 × 2	White	0·8	Fine 3 or 4 seconds.	18	57
	„	0. 51. 20	H.	1	Bluish-white	0·8	Slight	10	58

The time is expressed in civil reckoning commencing at midnight and counting from 0^h to 24^h.

No. for Reference.	Path of Meteor through the Stars.
1	From direction of a point midway between ζ and ϵ Cygni passed about 1° above γ and δ Aquilæ.
2	Passed across ϵ Ursæ Majoris from direction of κ Draconis.
3	From direction of Arcturus towards a point a few degrees from ζ Boötis.
4	The path was parallel to that of preceding meteor, about 5° nearer to horizon.
5	Passed across α and γ Cygni in direction of β Cygni.
6	From between γ and δ Cygni towards β Cygni.
7	From midway between γ Cassiopeiæ and Polaris towards the latter.
8	From near γ Cassiopeiæ towards ζ Cephei.
9	From direction of ϵ Cassiopeiæ towards β Camelopardali.
10	Passed across ζ Cassiopeiæ in direction of μ Cassiopeiæ.
11	From direction of ι Draconis towards β Boötis.
12	From direction of ι Draconis towards γ Boötis.
13	From direction of γ Andromedæ towards α Trianguli.
14	From near λ Draconis towards 23 Ursæ Majoris. Path slightly curved.
15	From direction of γ Persei towards β Camelopardali.
16	From near γ Boötis towards Arcturus.
17	From near 23 Ursæ Majoris in direction of ι Ursæ Majoris.
18	From near β Capricorni towards π Sagittarii.
19	From γ Ursæ Majoris pursued a path in continuation of line joining α and γ Ursæ Majoris.
20	From near ζ Cygni towards α Sagittæ.
21	Directed from γ Piscium towards ψ Aquarii.
22	Path parallel to preceding one, but a few degrees nearer to horizon.
23	From direction of π Pegasi towards α Aquilæ.
24	From about 4° below γ Pegasi towards ω Piscium.
25	Passed between ι Boötis and η Ursæ Majoris towards a point a few degrees below γ Boötis.
26	From a few degrees above α Aquilæ towards η Aquilæ.
27	Passed across ϵ Cassiopeiæ in direction of γ Persei.
28	Shot from α Arietis to β Arietis.
29	From near 26 Cygni in direction of δ Cygni.
30	From about 2° above α Ophiuchi towards 72 Ophiuchi.
31	From a few degrees above α Coronæ towards ψ Boötis.
32	Directed from α Coronæ towards ζ Boötis.
33	From direction of α Coronæ towards ϵ Boötis.
34	From a little to right of γ Cygni towards η Cygni.
35	From 9 Aurigæ to a point near Capella.
36	From a few degrees below β Ursæ Majoris to ψ Ursæ Majoris.
37	Shot from β Pegasi towards α Pegasi.
38	From direction of α Aquilæ to θ Aquilæ.
39	From direction of Polaris, passed between δ and ϵ Ursæ Majoris and disappeared some distance beyond.
40	From γ Cassiopeiæ towards α Cassiopeiæ.
41	From near β Andromedæ towards α Trianguli.
42	Shot from near Polaris towards β Ursæ Minoris.
43	From direction of α and γ Pegasi towards ι Piscium.
44	From near α Lyræ to β Cygni.
45	Appeared near α Pegasi, moved towards and disappeared a little above γ Pegasi.
46	Appeared near α Persei travelling towards Capella.
47	From direction of ω Ursæ Majoris, disappeared in direction of α Canum Venaticorum.
48	From direction of α Aquilæ to η Aquilæ.
49	From direction of Polaris passed across and disappeared beyond γ Ursæ Minoris. Broke in two pieces at end of path.
50	From direction of δ Ursæ Majoris travelled towards Leo Minor.
51	From α Persei to β Persei.
52	From Polaris, disappeared in direction of γ Ursæ Minoris.
53	From direction of σ Herculis towards δ Boötis.
54	From δ Persei towards β Persei.
55	From about 5° above o Ursæ Majoris towards 23 Ursæ Majoris.
56	From near δ Draconis towards ι Cygni.
57	Shot from near Capella to the Pleiades.
58	From direction of γ Persei towards a point near 7 Camelopardali.

Month and Day, 1888.		Greenwich Civil Time.	Observer.	Apparent Size of Meteor in Star-Magnitudes.	Colour of Meteor.	Duration of Meteor in Seconds of Time.	Appearance and Duration of Train.	Length of Meteor's Path in Degrees.	No. for Reference.
		h m s				s		°	
August	11	0. 54. 41	M.	1	Bluish-white	0·5	Train	12	1
„		0. 58. 30	H.	1	Bluish-white	0·6	Slight	10	2
„		1. 1. 34	M.	1	Bluish-white	0·5	Train	10	3
„		1. 3. 38	H.	>1	Bluish-white	0·8	Train	25	4
„		1. 7. 18	M.	1	Bluish	0·8	Fine	15	5
„		1. 7. 50	M.	2	Bluish-white	0·4	Slight	7	6
„		1. 11. 30	M.	2	Bluish-white	0·4	Slight	7	7
„		1. 15. 40	M.	3	Bluish-white	0·3	None	4	8
„		1. 17. 4	H.	3	Bluish-white	0·5	None	20	9
„		1. 17. 49	M.	2	White	0·4	Train	7	10
„		1. 20. 12	H.	2	Bluish-white	0·3	None	12	11
„		1. 23. 20	H.	1 increasing	Bluish-white	0·8	Train	25	12
„		1. 24. 11	M.	2	Bluish-white	0·5	Train	10	13
„		1. 30. 17	H.	1	Bluish-white	0·6	Slight	25	14
„		1. 36. 10	H.	1	Bluish-white	0·5	None	15	15
„		1. 37. 37	M.	1	Bluish-white	0·7	Fine	15	16
„		1. 40. 25	H.	3	Bluish-white	0·3	None	10	17
„		1. 40. 50	M.	2	Bluish	0·4	Slight	8	18
„		1. 43. 9	M.	3	Bluish-white	0·3	...	5	19
„		1. 47. 43	H.	3	Bluish-white	0·3	None	15	20
„		1. 51. 10	H.	3	Bluish-white	0·3	None	8	21
„		1. 52. 34	M.	2	White	0·3	...	8	22
„		1. 54. 24	M.	3	Bluish-white	0·3	...	5	23
„		1. 55. 46	M.	2	Bluish-white	0·3	...	5	24
„		1. 55. 54	M.	1	Bluish-white	0·6	Train	10	25
„		1. 59. 0	M.	1 × 2	Bluish	0·8	Fine 6 seconds.	25	26
„		1. 59. 54	H.	1	Bluish-white	0·5	Slight	10	27
„		2. 4. 17	H.	>1	Bluish-white	0·6	Slight	15	28
„		2. 6. 10	H.	3	Bluish-white	0·3	None	10	29
„		2. 8. 37	M.	1	Bluish-white	0·8	Fine	15	30
„		2. 12. 26	M.	1	Yellowish	1·0	Train	25	31
„		2. 13. 17	H.	2	Bluish-white	0·3	None	10	32
„		2. 17. 52	H.	3	Bluish-white	0·2	None	10	33
„		2. 19. 24	M.	2	Bluish-white	0·4	...	5	34
„		2. 20. 20	M.	2	Bluish-white	0·4	...	7	35
„		2. 20. 30	H.	2	Bluish-white	0·4	None	15	36
„		2. 22. 57	M.	1	Bluish	0·6	Train	12	37
„		2. 29. 50	M.	2	Bluish-white	0·3	...	8	38
„		2. 30. 17	H.	1	Bluish-white	0·5	Slight	15	39
„		2. 34. 1	M.	1	Bluish	0·6	Train	12	40
„		2. 34. 22	H.	2	Bluish-white	0·5	None	12	41
„		2. 37. 58	H.	2	Bluish-white	0·3	None	10	42
„		2. 38. 31	M.	1	Bluish-white	0·6	Train	10	43
„		2. 44. 30	H.	1	Bluish-white	0·4	Slight	12	44
„		2. 45. 18	M.	1	Bluish-white	0·6	Fine	10	45
„		2. 47. 36	H.	2	Bluish-white	0·5	None	10	46
„		2. 49. 2	H.	1	Bluish-white	0·8	Slight	15	47
„		2. 50. 17	M.	1	Bright bluish	0·8	Train	12	48
August	13	21. 38. 10	H.	2	Bluish-white	0·8	Slight	20	49
„		21. 53. 22	H.	3	Bluish-white	0·4	None	8	50
„		22. 6. 58	H.	1	Bluish-white	0·3	None	5	51
„		22. 21. 59	H.	2	Bluish-white	0·5	None	10	52
„		22. 53. 39	H.	1	Bluish-white	0·8	None	15	53
„		23. 20. 53	H.	>1	White	1·0	Slight	...	54
October	1	21. 18. 13	F.	3	Bluish-white	0·3	None	5	55
„		22. 23. 12	F.	1	Bluish-white	0·6	None	10	56

The time is expressed in civil reckoning commencing at midnight and counting from 0^h to 24^h.

No. for Reference.	Path of Meteor through the Stars.
1	Appeared near γ Cygni moved towards α Lyræ.
2	From a little below ε Cassiopeiæ towards γ Cephei.
3	From about midway between α and δ Andromedæ towards γ Pegasi.
4	From direction of β Cassiopeiæ towards η Pegasi.
5	From about 2° to right of Capella towards β Tauri.
6	From direction of θ Ceti to η Ceti.
7	Shot from near γ Andromedæ to β Trianguli.
8	From α to β Arietis.
9	From near β Cygni fell vertically downwards.
10	From α Aquarii towards β Aquarii.
11	From near α Draconis, disappeared in direction of δ Ursæ Majoris.
12	From direction of ε Cygni passed across and disappeared a little beyond α Aquilæ.
13	From near γ Cygni towards θ Lyræ.
14	From near ε Cassiopeiæ towards α Camelopardali.
15	From direction of β Delphini towards β Aquilæ.
16	From the Pleiades towards Aldebaran.
17	Flashed from ζ towards β Lyræ.
18	Shot from near α Persei towards β Persei.
19	From β Ceti towards ζ Ceti.
20	From θ Aquilæ dropped nearly vertically downwards.
21	From direction of η towards δ Aquilæ.
22	Shot from near ξ Ceti to γ Ceti.
23	Dropped from λ Tauri perpendicularly downwards.
24	From a little to left of α Arietis to β Arietis.
25	Appeared above Capella disappeared near β Aurigæ.
26	Appeared near α Persei moved towards and disappeared near the Pleiades.
27	From direction of β Persei towards ε Arietis.
28	From near λ Boötis fell almost vertically downwards.
29	From a point near θ Aquilæ fell nearly vertically downwards.
30	Appeared above ζ Pegasi disappeared near θ Piscium.
31	Appeared near α Cassiopeiæ and moved slowly towards α Andromedæ.
32	From direction of Polaris towards 23 Ursæ Majoris.
33	From direction of θ Andromedæ towards η Pegasi.
34	From β Aurigæ towards θ Aurigæ.
35	From β Aurigæ fell perpendicularly downwards.
36	From direction of δ towards ξ Draconis.
37	From about 4° to left of Aldebaran moved towards γ Orionis.
38	From ζ Persei towards the Pleiades.
39	From near θ Ursæ Majoris fell almost vertically downwards.
40	From a point about 3° left of δ Cygni to α Lyræ.
41	From direction of Lacerta towards η Pegasi.
42	From one or two degrees above α Cygni towards a point between ε and γ Cygni.
43	From direction of γ Andromedæ disappeared a little to left of α Arietis.
44	From near δ Cygni towards β Lyræ.
45	From direction of ζ Cygni towards γ Delphini.
46	From direction of η Pegasi passed between α Andromedæ and β Pegasi.
47	From a point between ζ Cygni and α Aquilæ moved towards the latter star.
48	Shot from a point a little to left of β Cygni towards ζ Aquilæ.
49	From direction of ζ Cygni towards β Delphini.
50	From near β Delphini towards α Aquilæ.
51	Appeared a few degrees below ζ Ursæ Majoris travelling in the direction of β Canum Venaticorum.
52	Passed between β and γ Andromedæ towards a point between α and β Trianguli.
53	Passed between ζ and π Draconis in the direction of ζ Ursæ Majoris.
54	From direction of ε Ophiuchi towards Western horizon. Disappeared behind trees.
55	From direction of α Draconis towards η Ursæ Majoris.
56	From π Herculis passed over and disappeared beyond ζ Herculis.

Month and Day, 1888.		Greenwich Civil Time.	Observer.	Apparent Size of Meteor in Star-Magnitudes.	Colour of Meteor.	Duration of Meteor in Seconds of Time.	Appearance and Duration of Train.	Length of Meteor's Path in Degrees.	No. for Reference.
		h m s				s		°	
October	3	21. 46. 34	H.	2	Bluish-white	0·4	None	8	1
	,,	21. 47. 14	H.	1	White	0·6	Slight	10	2
	,,	21. 57. 7	H.	3	Bluish-white	0·3	None	10	3
	,,	22. 27. 8	H.	3	Bluish-white	0·3	None	12	4
December	6	21. 47. 11	M.	2	Bluish-white	0·5	None	8	5
December	12	17. 27. 5	N.	> 1	White	0·5	None	7	6
	,,	21. 35. 51	F.	1	White	0·5	None	8	7
	,,	21. 49. 57	F.	1	Bluish-white	0·3	None	8	8
	,,	22. 6. 9	F.	1	White	0·5	None	7	9
	,,	22. 42. 4	F.	> 1	Blue	1·0	Train	7	10

The time is expressed in civil reckoning commencing at midnight and counting from 0^h to 24^h.

No. for Reference.	Path of Meteor through the Stars.
1	From direction of a point between α and β Aquarii towards δ Capricorni.
2	From direction of α Equulei towards μ Aquarii.
3	From direction of β Camelopardali towards δ Aurigæ.
4	Shot from near δ Aquarii towards δ Capricorni.
5	From direction of ι Ursæ Majoris to θ Ursæ Majoris.
6	Fell vertically, passing close to β Aquilæ.
7	From near θ Ceti passed close to η Ceti towards a point a few degrees above β Ceti.
8	From δ Draconis towards α Lyræ.
9	From τ Cygni to ζ Cygni.
10	From a little below 23 Ursæ Majoris to 24 Ursæ Majoris.