RESULTS

OF THE

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS

MADE AT

THE ROYAL OBSERVATORY, GREENWICH,

IN THE YEAR

1891:

UNDER THE DIRECTION OF

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ASTRONOMER ROYAL.

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ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS.

1891.

GREENWICH MAGNETICAL AND METEOROLOGICAL OBSERVATIONS, 1891.

Introduction.

§ 1. *Personal Establishment and Arrangements.*

During the year 1891 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 five Computers. The Computers employed at different times during the year were, Ernest E. McClellan, Edward Finch, Richard R. Tweed, George A. Allworth, Thomas F. Claxton, and Henry James MacManus.

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. In January of the year 1889 two additional gas stoves were provided with the object of maintaining a higher temperature during the winter and so rendering the Basement temperature more uniform throughout the year. One of these stoves is placed in the northern corner of the eastern arm, and the other in the middle of the western wall of the western arm. 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 5 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, used only in case of temporary interruption of the new apparatus. The old apparatus was taken down in February, 1891, and the new apparatus (*see page vi*) was removed from the South Ground, and re-erected on the site of the old 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. It was removed to the Magnet Ground in February, 1891 (*see page v*).

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* 1891.

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 $10\frac{1}{2}$ 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 $1^{\text{div}}\cdot3$, 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, 1890 December 24, to be $100^{\text{r}}\cdot358$, and by ten double observations, 1891 November 25, $100^{\text{r}}\cdot337$. The value used throughout the year 1891 was $100^{\text{r}}\cdot350$.

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 1889 December 2, which showed that in the ordinary position of the glass the theodolite readings were diminished by 19″·4. Each of two other sets of observations, made on 1890 August 11 and 1891 November 25, gave 19″·7 and 19″·1 respectively. The mean of these, 19″·4 has been added to all readings throughout the year 1891.

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 1891 was 26′. 1″·5, being the mean of determinations made on 1887 December 8, 1888 December 3, 1889 December 4, 1890 August 12, and 1891 November 26, giving respectively 26′. 9″·5, 26′. 0″·6, 25′. 54″·2, 26′. 8″·2, and 25′. 55″·1. With the collimator in its usual position, above the magnet, the quantity 26′. 1″·5 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. This ratio was, on 1889 December 4, found to be $\frac{1}{149}$, on 1890 August 12, $\frac{1}{152}$, and on 1891 November 26, $\frac{1}{150}$. During the year 1891 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 required.

The time of vibration of the upper declination magnet under the influence of terrestrial magnetism was found on 1889 December 2, to be $30^{s}\cdot88$, on 1890 August 13, $31^{s}\cdot08$, and on 1891 November 25, $31^{s}\cdot03$.

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 June 1, was $27°.\ 5'.\ 47''\cdot8$, and from June 2 to the end of the year, $27°.\ 6'.\ 8''\cdot0$.

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 prearranged 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.

The accuracy of the measure of absolute declination by the upper declination-magnet depends on the condition that this magnet should be vertically over the lower magnet. But the arrangements are such that with the gradual decrease of declination, the upper magnet has to be shifted more and more to the west in order that it may be viewed by its theodolite, the position of which on its pier cannot be altered. In order to determine whether the consequent change in the relative position of the two magnets has in late years increased to such an extent that any measurable mutual influence would exist, the upper magnet has on two different occasions (once in the year 1887 and once in the year 1889) been temporarily removed to the ante-room, where its influence would be quite insensible. On both occasions the photographic register of the lower magnet showed no perceptible change of position. Conversely, the removal of the lower magnet would not influence the position of the upper one, which is used for absolute measure.

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 $11\frac{1}{2}$ inches long and $14\frac{1}{4}$ 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 $0^{in.}{\cdot}3$ long and $0^{in.}{\cdot}01$ 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 carried by the magnet 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 *xxxi*) are measured.

On January 7 the driving clock of the declination and horizontal force registering cylinder having stopped was taken to Messrs. E. Dent & Co. for repair. It was returned on January 26.

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, $1\frac{1}{2}$ inch broad, and about $\frac{1}{4}$ 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 1890 August 6 the following observations were made for determination of the angle of torsion :—

1890, 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
Aug. 6	146	48·83	8·11	21·26	230	46·65	7·86	20·64
	147	56·94	8·46	21·00	231	54·51	7·89	20·92
	148	65·40		20·80	232	62·40		21·04

From these observations it appeared that the times of vibration and scale readings were sensibly the same when the torsion circle read 147°. 8′, marked end west, and 231°. 27′, marked end east, the difference being 84°. 19′. Half this difference, or 42°. 9′·5, is therefore the angle of torsion when the magnet is transverse to the meridian. Another set of observations made 1892 January 1, gave 42°. 8′·5. The value adopted in the reduction of the observations during the year 1891 was 42°. 10′.

The adopted reading of torsion-circle, for transverse position of the magnet, the marked end being west, was 147° 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 $30^{div}\cdot85$ 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 0·002364, which value has been used throughout the year 1891 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, 16^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°. 10′ the movement of the spot of light on the cylinder for a change of 0·01 of horizontal force is thus found to be 2·478 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 *xxxi*) 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°.

The registration of the variations of horizontal force was interrupted from January 7 to 26 the driving clock having been, during this period, in the hands of Messrs. E. Dent and Co. (*see page xv*).

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 $52\frac{3}{4}°$ 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 66 observations made during the course of the year this was found to be $19^{s}{\cdot}496$.

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 1889 December 30 gave for the time of vibration of the magnet in the horizontal plane, $16^{s}\cdot934$. This value has been used throughout the year 1891.

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 $52\frac{3}{4}°$, therefore dividing the result just obtained, $3'.\ 35''\cdot6$, by Sin. $52\frac{3}{4}°$, 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 $T' = 16^{s}\cdot934$, $T = 19^{s}\cdot496$, and dip = $67°.\ 21\frac{1}{2}'$, the change of vertical force corresponding to change of one division of scale reading was found to be 0·0004133, and this value has been used throughout the year 1891 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}, 16^{h}, and 21^{h}, Greenwich civil time. An index correction of $-0°\cdot3$, 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 of the magnet 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 $= 200{\cdot}4 \times \text{tan. dip} \times \left(\frac{T}{T'}\right)^2 \times 0{\cdot}01$. 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, 6·368 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 *xxxi*) 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 the late 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, $9\frac{3}{4}$ 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.

The observed dip given by the 9-inch needles is as usual smaller than that given by the 6-inch needles, and that given by the 6-inch needles smaller than that given by the 3-inch needles. In the *Philosophical Magazine* for March 1891, Professor Schuster, referring to a remark of Dr. Joule's, that the flexure of a dip needle tends to diminish the apparent dip, has estimated the effect on the observed dip of the displacement of the centre of gravity by the flexure of the needle, for the Greenwich needles of 3 inches, 6 inches, and 9 inches in length, and finds that a great part of the difference observed at Greenwich could be thus accounted for. It would appear that for absolute determination of dip empirical corrections should be applied to the results found from the longer needles, but there is at present much uncertainty as to the data for computing these corrections.

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, Gibson No. 3, which, with the exception of some slight modification of the mechanical arrangements, is similar to those issued from the Kew Observatory. The instrument is adapted to the determination of horizontal force in British (foot-grain-second) measure. 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 $= \mu = 0{\cdot}00015587$.

The correction for decrease of the magnetic moment of the deflecting magnet required in order to reduce to the temperature 35° Fahrenheit $= c = 0{\cdot}00013126\ (t - 35) + 0{\cdot}000000259\ (t-35)^2$: 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. $K = 0{\cdot}66643$: at temperature 90°, log. $K = 0{\cdot}66679$.

The distance on the deflexion rod from $1^{ft}\cdot0$ east to $1^{ft}\cdot0$ west of the engraved scale, at temperature 62°, is too long by 0·0034 inch, and the distance from $1^{ft}\cdot3$ east to $1^{ft}\cdot3$ 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.

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

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

$P=\dfrac{A_1-A_2}{\dfrac{A_1}{r_1^2}-\dfrac{A_2}{r_2^2}}$ [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 $\dfrac{\text{Log. } A_1-\text{Log. } A_2}{\text{modulus}}\times\dfrac{r_1^2\times r_2^2}{r_2^2-r_1^2}=(\text{Log. } A_1-\text{Log. } A_2)\times 5{\cdot}64$.

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 (millimètre-milligramme-second) 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.

In the year 1891 an additional unifilar instrument, Elliott No. 75, fitted also as a declinometer, was obtained. The instrument is adapted to the determination of horizontal force in C.G.S. measure: it is of portable character, and, when employed, is mounted on the tripod stand furnished with it. The deflecting and deflected magnets, 75 A and 75 C, respectively, are generally similar in dimension and construction to those of the Gibson instrument. In observations of deflexion the deflecting magnet is placed on the transverse rod at the distances of 30 and 40 centimètres of the engraved scale from the deflected magnet, the observations being otherwise made as with the Gibson instrument. The horizontal circle is 6 inches in diameter: it is graduated to 20′, and read by two verniers to 20″.

The instrumental constants of Elliott No. 75, kindly determined, as for the Gibson instrument, at the Kew Observatory, are as follows:—

The increase in the magnetic moment of the deflecting magnet produced by the inductive action of unit magnetic force in the C.G.S. system of absolute measurement = μ. Log. μ = 0·77768.

The correction for decrease of the magnetic moment of the deflecting magnet required in order to reduce to the temperature 0° centigrade = c = 0·000433 $(t - 0)$ + 0·00000148 $(t - 0)^2$: t representing the temperature (in degrees centigrade) at which the observation is made.

Moment of inertia of the deflecting magnet = K. At temperature 0° centigrade, log. K = 2·44750: at temperature 30° = 2·44782.

The distance on the deflexion rod, from 30$^{cms.}$ east to 30$^{cms.}$ west, and from 40$^{cms.}$ east to 40$^{cms.}$ west of the engraved scale, at temperature 0° centigrade, is in each case too short by 0$^{cms.}$·020. The coefficient of expansion of the scale for 1° centigrade is ·000018.

The value of P is calculated from the expression P = (Log. A_1 − Log. A_2) × 4737. In other respects the formulæ, as before given, are employed.

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, 49°; in the Blackheath—North Kent East Junction circuit the direct distance is 2½ miles, and the azimuth, from magnetic north towards west, 47°. 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 measurement being 7·3 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 1·33 ohms. The amplitude of the movement, having regard to the diminution of resistance in the circuit due to the shunt, is by this reduced in the ratio of 6·3 to 1 nearly in both circuits. On a few 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, on account of the difficulty of eliminating the effect of certain small dislocations of the Angerstein Wharf—Lady Well register, which occur usually shortly after sunset and before sunrise. It is suspected that these are due to electric lighting in the neighbourhood of the Angerstein Wharf earth-plate. 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.

Towards the end of the year 1890 serious disturbances began to be experienced in both earth current registers. These interruptions were found in the early part of the year 1891 to be due to the passage of trains on the new City and South London Electric Railway, distant about $2\frac{1}{2}$ miles from the nearest earth plate (at the North Kent East Junction of the South Eastern Railway), and about $4\frac{1}{2}$ miles from the Observatory. The abnormal excursions recorded indicate frequent changes of potential, varying from a small fraction of a volt to one-third of a volt or more, and the amount of change is approximately the same both in the Blackheath—North Kent East Junction circuit, which is perpendicular to the course of the electric railway, and in the Angerstein Wharf—Lady Well circuit, which is parallel to the line of railway, with one earth plate (Angerstein Wharf) near the river. At night when the trains cease running the interruptions entirely cease.

§ 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 five days in the year 1891 which have been classed as days of great disturbance, viz.: April 8, 12-13, May 14–15, 15–16, 16–17. Other days of lesser disturbance are February 11–12, 12–13, 13–14, 14–15, March 2–3, 31, April 1, 9, May 13–14, June 14, August 28–29, 29–30, September 9–10, 10–11, 11–12, 28–29, October 23–24, 24–25, 25–26, 26–27, November 20, 21, December 6–7. 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 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, and Tables III. to VI. for horizontal force, are January 7 to 26, April 8, 12, May 14, 15, 16, 23, November 27 ; and in Tables VII. to X. for vertical

force, are April 8, 12, May 14, 15, 16, December 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. By means of the two additional stoves placed in the basement at the beginning of the year 1889, as mentioned on page *v*, the temperature of the basement has also been kept nearly constant throughout the year, the endeavour being to keep the temperature as near to 67° as possible. In years preceding 1883 the results for horizontal and vertical force were 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 $(t-32) \times \cdot0000936 + (t-32)^2 \times \cdot000002074$ (page *xx*) where t is the temperature in degrees Fahrenheit, and to those of vertical force, Tables VII. and IX., the correction $-(t-32) \times \cdot000212$ (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, 16^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 nine 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 values of u and c are each comparative throughout, remarking only that in certain cases it is to be understood that the values are to be taken 1000 greater or less for comparison with adjacent values. See, for example, c in Table III. on May 1, which should be taken as 1002 for comparison with preceding and following values, and similarly in other cases. The excess of the value of c above that of u on any day (supposing c, when the smaller value, to be increased by 1000) shows the correction for temperature that has been actually applied. 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

$$\text{H.F. in metrical measure} \times \sin 1' = 1{\cdot}8251 \times \sin 1' = 0{\cdot}0005309.$$

For variation of horizontal force, the factor is

$$\text{H.F. in metrical measure} = 1{\cdot}8251,$$

and for variation of vertical force

$$\text{V.F. in metrical measure} = \text{H.F. in metrical measure} \times \tan \text{dip},$$
$$= 1{\cdot}8251 \times \tan 67°.21\tfrac{1}{2}' = 4{\cdot}3756.$$

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 *xxxi*), 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.

$$m = \frac{1}{24}\,(0+1+2\ldots\ldots 22+23).$$

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

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

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

$$\begin{aligned}12\,b_2 = (3+15)-(9+21) &+ \{(2+4+14+16)-(8+10+20+22)\}\sin 60^\circ\\ &+ \{(1+5+13+17)-(7+11+19+23)\}\sin 30^\circ.\end{aligned}$$

$$12\,a_3 = (0+8+16)-(4+12+20)+\{(1+7+9+15+17+23)-(3+5+11+13+19+21)\}\cos 45^\circ.$$

$$12\,b_3 = (2+10+18)-(6+14+22)+\{(1+3+9+11+17+19)-(5+7+13+15+21+23)\}\sin 45^\circ.$$

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

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

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—

$$\begin{aligned}\alpha' &= \alpha + h\\ \beta' &= \beta + 2h\\ \&c. &= \&c.,\end{aligned}$$

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 :—

1891.	a_5.	b_5.
Declination	−0′·08	−0′·01
Horizontal Force.....	+0·3	−1·2
Vertical Force	+0·3	−0·3

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 1891.	Declination.	Horizontal Force.	Vertical Force.
Sums of Squares of Observed Values (Table XII.)	281′·76	323532·7	13318·4
Sums of Squares of Residuals after the introduction of m	133·36	55266·1	4059·3
" " a_1 and b_1	48·04	14976·2	1961·4
" " a_2 and b_2	7·59	2595·9	227·5
" " a_3 and b_3	0·81	444·9	29·5
" " a_4 and b_4	0·11	37·7	6·5
" " a_5 and b_5	0·02	19·3	4·1

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 instruments employed. The observed result in each month has been also given as reduced to the mean value for the month, by application of the difference between the horizontal force ordinate at the time of observation and the mean value for the month, as obtained from the photographic register, excepting for the observation on January 15, there being no photographic register on that day. (See page *xx*.)

In order to facilitate the comparison of the diurnal inequalities of magnetism at the different British and other magnetic observatories an arrangement has been made with the Sub-Committee of the Kew Committee of the Royal Society by which five quiet days are to be selected at Greenwich in each month of every year, for adoption at all these observatories for determination of the monthly diurnal inequalities of declination, horizontal force, and vertical force; thus providing for further discussion results which should be strictly comparable. The particular days selected are given on page (xviii), and the results found for Greenwich are contained in Tables XX., XXI., and XXII., which it is interesting to compare with the values found from the records of all days, as given in Tables II., V., IX. and XII.

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. In the present year 1891 no copies of earth-current curves have been given because of the interruption produced by the trains running on the City and South London Electric Railway. The registers thus exhibited are those for the days of great and of lesser disturbance mentioned on page *xxxi*.

The list of these days since the year 1889 has been selected in concert with M. Mascart, so that the two Observatories of the Parc Saint Maur and Greenwich should publish the magnetic registers for the same days of disturbance with a view to the comparison of the results. It is proposed to follow this plan in future years, and if other magnetic observatories should eventually join in the scheme for concerted action, in regard to the publication of their registers, the discussion of magnetic perturbations would be much facilitated.

The plates are preceded by a brief description of *all* other 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 1891, 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 three distinct registers are usually given, viz.: declination, horizontal force and vertical force; all necessary information for proper understanding of the plates being added in the notes on page (xxii).

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 *xxxii*, 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	2·478	62·94	6·368	161·74
On the Plates -	2·580	65·53	1·363	34·62	3·502	88·96

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, the numbers being in some cases increased by 1000 to avoid negative quantities. At the foot of each plate equivalent scales, in C. G. S. Measure, are given for each of the magnetic registers. (See page *xxxvii*).

Since the preceding scale values are not immediately comparable for the different elements, it therefore becomes 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

$$= \cdot 0175 \text{ of Horizontal Force}$$

and Vertical Force = Horizontal Force × tan. dip [dip = 67°. 21½′]

$$= \text{Horizontal Force} \times 2 \cdot 3974$$

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	2·48	62·9	2·66	67·5
On the Plates -	1·47	37·4	1·36	34·6	1·46	37·1

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 1891	=	3·9583
Millimètre-milligramme-second,	or Metric unit,	„	„	=	1·8251
Centimètre-gramme-second,	or C. G. S. unit,	„	„	=	0·18251

Dividing therefore the scale values last given by 3·9583, 1·8251, and 0·18251 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	0·63	15·9	0·34	8·7	0·67	17·0	0·37	9·4
Metric - -	1·47	37·3	0·81	20·5	1·36	34·5	0·75	19·0	1·46	37·0	0·80	20·3
C. G. S. - -	14·7	373·	8·1	205·	13·6	345·	7·5	190·	14·6	370·	8·0	203·

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 $9^h.\ 30^m$, $13^h.\ 30^m$, and $20^h.\ 30^m$, Greenwich civil time, and at somewhat different times on Sundays. A weekly clearing of the gas pipes also causes a somewhat longer interruption, usually at about 10^h, as on February 14. 10^h.

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 one 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 $0^{in}·565$ in diameter and the depression of the mercury due to capillary action is $0^{in}·002$, 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 $0^{in}·05$, sub-divided by vernier to $0^{in}·002$.

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 in the spring of the year 1877, under the direction of the Kew Committee, by the late Mr. Whipple, 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 read at 9^h, 12^h (noon), 15^h, 21^h (civil reckoning) on week days, and at 10^h, noon and 20^h on Sundays. 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 plunger, floating on the mercury in the shorter arm of the siphon 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 = $4^{in}\cdot39$ 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 *liv*) 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 the late 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 on days of extreme heat 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 effect of radiation with the circular board removed was found to be insensible.

The corrections to be applied to the thermometers in ordinary use 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 to wet bulb readings − 0°·1 until February 28, and from March 1, − 0°·2.

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 throughout. The readings of No. 68726 for maximum temperature of evaporation, required a correction of + 0°·7 until February 28, and + 0°·4 from March 1. Those of No. 3627 for minimum temperature of evaporation required a correction of + 2°·0 throughout.

The dry and wet bulb thermometers are read at 9^h, 12^h (noon), 15^h, 21^h (civil reckoning) on week days, and at 10^h, noon, and 20^h on Sundays. Readings of the maximum and minimum thermometers are taken at 9^h and 21^h on week days, and at 10^h and 20^h on Sundays. 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, to the readings of which a correction of − 0°·1 has been applied. The wet-bulb is Hicks No. 268525, to the readings of which a correction of + 0°·2 was applied until February 28, and + 0°·1 from March 1. The maximum thermometer is Hicks No. 233036, to the readings of which a correction of + 0°·1 has been applied. The minimum thermometer is Hicks No. 262739, to the readings of which until February 28 corrections as follows were applied: below 33° 0°·0, 33° to 36° + 0°·1, 36° to 40° + 0°·2, 40° to 44° + 0°·3, 44° to 51° + 0°·4, and above 51° + 0°·5: from March 1 the following corrections were applied: below 33° 0°·0, 33° to 35° + 0°·1, 35° to 38° + 0°·2, 38° to 41° + 0°·3,

41° to 43° + 0°·4, 43 to 48° + 0°·5, 48° to 54° + 0°·6, 54° to 62° + 0°·7, and above 62° + 0°·8. The observation of the dry and wet bulb thermometers is omitted on Sundays and a few other days.

Experiments were made in the summer of the year 1887 on days of extreme heat 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. The effect of radiation with the door of the screen open was found to be insensible.

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°·2. No. 37467, also by Negretti and Zambra, is a self-registering maximum thermometer, and required a correction of − 0°·4 until February 28, and − 0°·5 from March 1. 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. The bulbs of all these thermometers are 4 feet above the platform, and about 20 feet above the ground. The observation of the thermometer No. 45356 is omitted on Sundays and a few other days.

The order of reading the thermometers in the Stevenson screen and on the roof of the Magnet House is reversed on successive days, the readings being taken alternately before and after those of the thermometers on the revolving stand, in order that the diurnal change may not produce any systematic difference in the comparison of the results.

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. Until February 1891 it stood nearly in the centre of the South Ground: it was then removed to the Magnet Ground, being placed in the position formerly occupied by the old apparatus, which had been previously dismantled. It is placed 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 $11\frac{1}{2}$ inches high and $14\frac{1}{4}$ 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 $\frac{1}{2}$ 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 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 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 for 1887 and previous years. 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°·2, and No. 6 by 0°·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, but the observations were finally discontinued on June 13, 1891. 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 the Meteorological Observations," page (xxx), 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.

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 ($9^{ft.}$ $2^{in.}$ in length), 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 25 feet above the roof of the Octagon Room, 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. The vane, which had been in use since the year 1841, began in the autumn of 1891 to show signs of weakness ; it was taken down in December 1891 and thoroughly repaired, causing an interruption of the register from December 2 to 26. It was satisfactory to find that the anti-friction bearings of the vane, on which the sensitiveness of its motion depends, were in excellent condition, after having been continuously in action for 25 years.

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.

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, made by Mr. Browning, 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. It was brought into use in 1866, October. 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 21 feet above the roof of the Octagon Room, 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 by Negretti and Zambra, which was in use from 1859 until the introduction of the larger instrument by Browning in 1866 October. 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 these experiments were made were each $3\frac{3}{4}$ inches in diameter, the distance between the centres of the opposite cups being 13·45 inches.

From 1889 April 22 to May 8, both of the above instruments were sent to Mr. W. H. Dines, who kindly tested them on his whirling machine then erected at Hersham. The particulars of these experiments are given at the end of the Introduction for 1889. The results appear to show that the instrumental results in the case of high velocities of the wind are too great for both anemometers, but it has been thought better for the sake of continuity not to apply any corrections to the recorded values, which consequently indicate velocities corresponding to three times the space described by the centres of the cups.

RAIN GAUGES.—During the year 1891 eight rain-gauges were employed, placed at different elevations above the ground, complete information in regard to which will be found at page (xcii) 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. This 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 passing through a slit and falling 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 1888 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 year 1888, and it was finally sent to the maker, Mr. White of Glasgow, who restored it to its normal state, excepting that the amplitude of motion of the spot of light is considerably increased. The instrument was brought into use again in October 1889.

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, about 21 feet above the ground, and 176 feet above mean sea level. A range of trees in Greenwich Park between east and south-east cause a little interruption of the record very shortly after sunrise from early in September to early in November. But very little record is obtained near to sunrise at any part of the year.

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 *xxxi*), 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, neither are they corrected for the effect of gravity, by reduction to the latitude of 45°.

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 (lix) and (lx)) have been calculated from the corresponding mean hourly values of air and evaporation temperatures (pages (lviii) and (lix)).

The excess of the mean temperature of the air on each day above the average of 50 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 daily means deduced from the observations for the fifty years 1841–1890. In this series the mean daily

temperature from 1841 to 1847 depends usually on 12 observations daily, in 1848 on 6 observations daily, and from 1849 to 1890 on 24 hourly readings from the photographic record. The smoothed numbers are given in the following table.

ADOPTED VALUES of MEAN TEMPERATURE of the AIR, deduced from the OBSERVATIONS for the Fifty Years 1841–1890.

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

The mean of the twelve monthly values is 49°·5.

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 (lvii) and (xcii), is formed from the records of this gauge. In this numeration only those days are counted on which the fall amounted to or exceeded $0^{in}{\cdot}005$.

The indications of atmospheric electricity are derived from Thomson's Electrometer. Occasionally, during interruption of photographic registration, the results depend on eye-observations.

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 (lvii), 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 showers*
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 comparison is in all cases made with mean values determined from the observations for the fifty years 1841–1890.

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 (lviii) and (lix), do not in some cases agree with the monthly means given in the daily results, pages (xxx) to (lii), and in the table on page (lvii), 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 (lxxxi), exhibits every change of direction of the wind occurring throughout the year whenever such change amounted to two nautical points or $22\frac{1}{2}°$. 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 $11\frac{1}{4}°$. From the numbers given in this table the monthly and yearly excess of motion, page (lxxxvi), 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 the Meteorological Observations" being adopted in selecting the days. These additional tables are given on pages (xc) and (xci) 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 1891 were Mr. Nash, Mr. McClellan, Mr. Finch, Mr. Tweed and Mr. Allworth; their observations are distinguished by the initials N, M, F, T, and A respectively.

W. H. M. CHRISTIE.

Royal Observatory, Greenwich,
1893 June 20.

ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

MAGNETICAL OBSERVATIONS

(EXCLUDING THE DAYS OF GREAT MAGNETIC DISTURBANCE).

1891.

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

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

1891.

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

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

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

1891.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	′	′	′	′	′	′	′	′	′	′	′	′
Midn.	0·4	0·0	0·6	2·4	3·0	3·9	3·8	2·7	0·9	1·3	0·0	0·5
1h	0·7	0·0	0·9	2·7	2·5	3·5	3·9	2·7	0·8	1·7	0·5	1·1
2	1·1	0·5	1·2	2·8	2·5	3·5	3·7	2·5	0·6	2·0	1·3	1·6
3	1·5	0·8	1·3	2·3	2·9	3·2	3·5	2·4	0·4	2·3	1·6	2·0
4	1·8	1·2	1·2	1·9	2·5	2·6	2·6	2·1	0·6	2·2	1·7	1·8
5	1·6	1·0	1·3	1·8	1·5	1·2	1·1	1·3	0·5	2·5	1·5	2·0
6	1·1	0·8	1·2	1·5	0·6	0·2	0·3	0·4	0·3	2·8	1·8	2·2
7	0·9	1·1	0·7	0·5	0·0	0·0	0·0	0·0	0·0	2·0	2·1	2·1
8	0·8	1·0	0·1	0·0	0·5	0·1	0·3	0·3	0·4	1·0	1·4	2·0
9	0·6	1·1	0·8	0·7	2·0	1·1	1·2	1·8	1·6	1·1	1·2	1·9
10	1·6	1·9	2·8	3·1	4·7	3·2	3·4	4·5	4·0	2·7	2·4	2·6
11	2·7	3·4	5·3	6·1	7·6	5·9	6·2	7·4	7·0	5·8	4·4	3·7
Noon.	3·9	4·8	7·6	8·8	10·1	8·2	8·9	9·7	8·8	8·4	6·1	4·3
13h	4·6	5·5	8·6	9·9	11·1	9·5	10·4	10·5	9·3	9·5	6·8	4·9
14	3·7	5·3	7·8	9·2	10·6	9·6	11·0	10·0	8·3	8·8	6·2	5·1
15	2·8	4·2	6·5	7·4	9·3	9·0	10·3	8·7	6·0	6·9	5·1	4·6
16	2·5	3·0	4·5	5·9	7·7	7·8	8·9	6·5	4·4	4·9	3·7	3·9
17	2·4	2·2	3·2	4·3	6·6	6·6	7·2	4·6	3·0	3·4	2·7	3·6
18	1·9	1·9	2·4	3·0	5·5	5·5	5·6	3·4	1·6	3·1	2·1	2·8
19	1·5	1·6	1·5	2·2	4·4	4·6	4·6	2·9	1·5	2·3	1·1	2·0
20	1·0	1·0	0·8	2·4	3·7	4·6	4·7	3·2	1·2	0·7	0·6	1·1
21	0·4	0·6	0·4	2·3	3·4	4·5	4·6	3·2	0·7	0·5	0·3	0·5
22	0·0	0·3	0·3	1·9	3·1	4·5	4·3	2·6	0·6	0·0	0·2	0·2
23	0·2	0·1	0·0	2·1	3·2	4·3	4·1	2·3	0·6	0·3	0·1	0·0
Means	1·65	1·80	2·54	3·55	4·54	4·46	4·78	3·99	2·63	3·18	2·29	2·35

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.*)

1891.

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	511	838	304	852	280	850	082	671	410	002	410	038	588	189	548	135	448	064	391	004	538	125	577	181
2	439	827	247	819	240	860	153	730	391	980	447	070	545	134	565	159	383	977	398	973	549	138	659	241
3	391	835	271	846	148	730	142	755	342	922	472	085	563	150	460	044	410	009	386	958	523	115	698	280
4	360	842	277	861	122	706	235	831	352	944	460	056	413	007	447	039	390	979	350	956	526	118	700	299
5	313	834	257	861	160	761	264	834	381	958	492	076	477	066	476	058	433	027	357	951	507	091	700	299
6	244	790	220	809	181	763	263	859	379	944	475	047	563	159	504	081	452	034	398	002	560	144	735	303
7	...	...	245	829	240	808	249	843	334	911	430	005	506	090	485	053	483	070	430	019	576	160	540	122
8	...	...	263	852	235	807	...	...	333	915	432	016	498	082	492	088	491	083	434	021	565	128	586	175
9	...	...	260	820	203	787	134	740	361	960	430	022	531	125	515	114	415	007	435	048	620	195	590	184
10	...	...	161	733	153	773	211	805	375	967	412	989	550	130	523	117	267	885	455	051	660	235	619	201
11	...	...	212	758	218	788	207	803	415	019	433	013	548	132	499	083	280	905	470	059	637	238	592	155
12	...	...	134	738	173	772	...	...	441	054	413	997	570	164	512	125	343	980	504	086	644	228	580	181
13	...	...	145	705	137	721	154	750	450	066	428	032	570	176	510	114	403	019	477	061	646	240	634	247
14	...	...	077	664	203	773	188	782	...	...	505	111	566	160	524	152	448	088	450	061	660	249	630	222
15	...	...	158	677	205	775	240	827	...	...	414	006	515	121	485	120	395	001	464	058	624	211	664	241
16	...	...	207	796	189	761	211	815	...	...	427	021	548	154	485	101	442	029	468	060	638	227	683	277
17	...	...	198	780	177	783	193	765	209	772	483	082	456	079	447	060	420	026	487	076	582	181	650	234
18	...	...	184	771	178	762	189	776	259	846	491	131	401	046	508	128	486	106	493	068	652	234	646	235
19	...	...	197	772	159	760	206	802	299	893	494	151	472	100	516	117	542	170	414	008	727	326	579	154
20	...	...	238	782	159	763	278	874	330	914	440	092	511	115	485	065	547	175	387	981	580	167	567	142
21	...	...	205	780	218	788	273	867	355	947	412	042	516	127	502	084	497	084	430	029	487	064	568	103
22	...	...	217	792	197	757	294	874	353	928	404	056	544	145	485	060	508	083	455	042	506	095	569	088
23	...	...	192	762	185	777	295	884	...	...	483	135	528	136	521	091	430	024	445	051	563	147	607	132
24	...	...	173	772	120	743	313	876	390	958	491	123	570	154	540	112	478	062	356	933	560	147	641	164
25	...	...	243	818	206	790	283	867	358	947	510	160	474	063	548	132	519	115	355	942	545	132	610	161
26	...	...	220	800	220	809	300	872	360	949	475	145	515	111	519	123	507	103	348	961	520	121	627	219
27	222	816	239	823	157	765	293	894	420	004	480	105	524	137	558	162	454	043	405	004	...	...	590	225
28	305	861	261	824	202	791	330	914	418	988	470	083	501	059	584	164	357	946	400	982	471	075	625	219
29	301	861			217	785	311	900	393	985	521	132	522	085	433	025	320	924	383	960	495	120	684	276
30	287	862			182	771	336	944	396	004	528	141	525	107	391	975	381	985	415	014	571	163	685	272
31	289	854			155	742			404	993			527	123	389	995			508	061			681	270

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.

1891.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d												
1	55°1	65°6	66°5	67°3	67°4	68°9	67°8	67°2	68°4	68°3	67°2	67°9
2	58·2	66·6	68·6	66·8	67·3	68·7	67·3	67·5	67·5	66·7	67·3	67·0
3	60·9	66·7	67·0	68·3	66·9	68·3	67·2	67·1	67·7	66·6	67·4	67·0
4	62·7	67·1	67·1	67·6	67·4	67·6	67·5	67·4	67·3	68·0	67·4	67·7
5	64·4	67·9	67·8	66·5	66·8	67·1	67·3	67·0	67·5	67·5	67·1	67·7
6	65·5	67·3	67·0	67·6	66·3	66·6	67·6	66·8	67·0	67·9	67·1	66·4
7	...	67·1	66·4	67·5	66·8	66·7	67·1	66·4	67·2	67·3	67·1	67·0
8	...	67·3	66·6	...	67·0	67·1	67·1	67·6	67·4	67·2	66·2	67·3
9	...	66·1	67·1	68·0	67·7	67·4	67·5	67·7	67·4	68·3	66·7	67·5
10	...	66·6	68·6	67·5	67·4	66·8	66·9	67·5	68·5	67·6	66·7	67·0
11	...	65·5	66·5	67·6	67·9	66·9	67·1	67·1	68·8	67·3	67·8	66·2
12	...	67·9	67·7	...	68·3	67·1	67·5	68·3	69·3	67·0	67·1	67·8
13	...	66·1	67·1	67·6	68·4	67·9	68·0	67·9	68·4	67·1	67·5	68·3
14	...	67·2	66·5	67·5	...	68·0	67·5	68·9	69·4	68·2	67·3	67·4
15	...	64·3	66·5	67·2	...	67·4	68·0	69·2	68·0	67·5	67·2	66·8
16	...	67·3	66·6	67·9	...	67·5	68·0	68·4	67·2	67·4	67·3	67·5
17	...	67·0	68·0	66·6	66·2	67·7	68·7	68·3	68·0	67·3	67·7	67·1
18	...	67·2	67·1	67·2	67·2	69·4	69·6	68·6	68·6	66·7	67·0	67·3
19	...	66·7	67·8	67·6	67·5	70·1	68·9	67·8	68·9	67·5	67·7	66·7
20	...	65·4	67·9	67·6	67·1	69·9	67·9	66·9	68·9	67·5	67·2	66·7
21	...	66·7	66·5	67·5	67·4	69·0	68·2	67·0	67·2	67·7	66·8	65·0
22	...	66·7	66·1	66·9	66·7	69·9	67·8	66·7	66·7	67·2	67·3	64·7
23	...	66·5	67·4	67·3	...	69·9	68·1	66·5	67·5	68·0	67·1	64·6
24	...	67·7	68·7	66·2	66·4	69·1	67·1	66·6	67·1	66·8	67·2	64·5
25	...	66·7	67·1	67·1	67·3	69·8	67·3	67·1	67·6	67·2	67·2	65·7
26	...	66·9	67·3	66·6	67·3	70·6	67·6	67·9	67·6	68·3	67·8	67·4
27	67·5	67·1	68·1	67·8	67·1	68·8	68·3	67·9	67·3	67·7	...	69·2
28	65·9	66·2	67·3	67·1	66·5	68·3	66·0	66·9	67·3	67·0	67·9	67·5
29	66·1		66·4	67·3	67·4	68·2	66·2	67·4	67·9	66·8	68·8	67·4
30	66·7		67·3	68·1	68·1	68·3	67·0	67·1	67·9	67·7	67·4	67·2
31	66·3		67·2		67·3		67·6	68·0		65·8		67·3
Means	63°57	66°69	67°22	67°35	67°23	68°30	67°60	67°51	67°85	67°39	67°29	66°93

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.)*

1891.

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.	15	23	38	70	94	122	152	174	134	146	143	158	162	181	201	213	184	203	175	197	104	128	1	32
1h	20	26	40	69	87	113	154	176	121	133	134	146	159	178	202	214	180	197	169	188	96	118	5	34
2	31	35	37	61	84	105	145	162	114	124	125	135	154	171	194	204	188	205	169	186	94	113	15	39
3	35	34	49	69	93	109	150	165	105	113	119	124	146	160	188	198	177	189	175	189	99	116	33	52
4	49	45	66	81	99	113	144	154	101	106	118	123	147	156	189	194	178	188	180	192	117	132	46	65
5	65	59	76	88	105	114	143	151	84	87	101	104	140	147	177	180	183	190	183	193	131	143	62	77
6	64	56	81	89	103	110	135	140	70	73	68	71	114	119	148	151	168	173	178	183	132	142	73	85
7	64	54	75	83	91	95	115	120	39	42	30	33	82	87	96	96	128	133	168	173	130	137	74	86
8	53	43	61	66	65	69	73	76	13	13	14	14	40	42	44	44	67	69	126	128	100	107	66	76
9	24	14	30	35	23	25	21	24	0	0	1	1	9	11	2	2	24	26	50	52	45	50	33	40
10	14	6	11	16	0	0	0	0	7	5	0	0	0	0	0	0	0	0	11	11	6	9	9	14
11	13	0	0	0	6	3	2	2	28	26	17	15	18	20	28	26	5	3	0	0	0	0	1	4
Noon.	29	10	16	16	33	25	43	41	59	55	55	53	58	60	86	84	65	65	35	33	27	25	0	0
13h	52	28	39	39	69	61	96	94	92	88	94	94	101	106	154	152	114	114	81	81	57	55	1	1
14	65	44	57	62	105	100	138	136	123	121	119	119	137	144	193	193	160	162	113	115	67	70	11	14
15	73	54	68	80	116	113	182	182	146	146	162	165	177	186	212	215	173	178	132	137	77	84	9	16
16	59	42	56	73	115	115	194	197	169	172	192	195	211	220	212	217	183	190	134	141	90	97	16	23
17	57	47	46	66	113	113	201	206	190	195	219	224	230	239	218	225	187	197	159	169	105	112	15	27
18	53	52	37	57	108	110	195	200	209	217	224	229	247	259	239	246	210	222	173	183	101	113	25	42
19	45	49	40	60	117	121	197	202	198	203	223	233	241	255	245	252	225	237	168	182	90	105	32	54
20	39	49	43	65	121	130	202	207	184	189	209	219	229	243	227	234	226	240	186	203	84	103	12	36
21	29	46	41	65	105	117	198	206	161	169	189	199	206	223	226	236	217	231	184	201	87	109	12	41
22	12	31	31	55	92	108	194	206	147	155	162	174	193	210	218	230	209	226	184	201	98	120	3	32
23	0	27	28	57	89	115	180	200	147	159	155	170	173	192	203	215	196	213	182	201	101	125	5	36
Means corrected for Temperature.	36·4		59·3		91·9		142·5		114·0		124·9		150·4		167·5		160·5		147·5		96·4		38·6	

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

1891.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December	For the Year.
Midnight.	64°·1	67°·4	68°·1	68°·0	67°·6	68°·7	68°·0	67°·8	68°·3	67°·9	67°·8	67°·6	67°·61
1h	64·0	67·3	68·0	68·0	67·6	68·6	68·0	67·8	68·2	67·8	67·7	67·5	67·54
2	63·9	67·1	67·8	67·8	67·5	68·5	67·9	67·7	68·2	67·7	67·6	67·3	67·42
3	63·7	66·9	67·6	67·7	67·4	68·3	67·8	67·7	68·0	67·6	67·5	67·1	67·28
4	63·6	66·7	67·5	67·5	67·3	68·3	67·6	67·5	67·9	67·5	67·4	67·1	67·16
5	63·5	66·6	67·3	67·4	67·2	68·2	67·5	67·4	67·8	67·4	67·3	66·9	67·04
6	63·4	66·4	67·2	67·3	67·2	68·2	67·4	67·4	67·7	67·2	67·2	66·8	66·95
7	63·3	66·4	67·1	67·3	67·2	68·2	67·4	67·3	67·7	67·2	67·1	66·8	66·92
8	63·3	66·3	67·1	67·2	67·1	68·1	67·3	67·3	67·6	67·1	67·1	66·7	66·85
9	63·3	66·3	67·0	67·2	67·1	68·1	67·3	67·3	67·6	67·1	67·0	66·6	66·82
10	63·4	66·3	66·9	67·1	67·0	68·1	67·2	67·3	67·5	67·0	66·9	66·5	66·77
11	63·2	66·1	66·8	67·1	67·0	68·0	67·3	67·2	67·4	67·0	66·8	66·4	66·69
Noon.	62·9	66·1	66·6	67·0	66·9	68·0	67·3	67·2	67·5	66·9	66·7	66·3	66·62
13h	62·7	66·1	66·6	67·0	66·9	68·1	67·4	67·2	67·5	67·0	66·7	66·3	66·63
14	62·8	66·3	66·7	67·0	67·0	68·1	67·5	67·3	67·6	67·1	66·9	66·4	66·72
15	62·9	66·6	66·8	67·1	67·1	68·2	67·6	67·4	67·7	67·2	67·1	66·6	66·86
16	63·0	66·8	66·9	67·2	67·2	68·2	67·6	67·5	67·8	67·3	67·1	66·6	66·93
17	63·3	66·9	66·9	67·3	67·3	68·3	67·6	67·6	67·9	67·4	67·1	66·8	67·03
18	63·7	66·9	67·0	67·3	67·4	68·3	67·7	67·6	68·0	67·4	67·3	67·0	67·13
19	63·9	66·9	67·1	67·3	67·3	68·5	67·8	67·6	68·0	67·6	67·4	67·2	67·22
20	64·2	67·0	67·3	67·3	67·3	68·5	67·8	67·6	68·1	67·7	67·6	67·3	67·31
21	64·5	67·1	67·4	67·4	67·4	68·5	67·9	67·7	68·1	67·7	67·7	67·5	67·41
22	64·6	67·1	67·6	67·6	67·4	68·6	67·9	67·8	68·2	67·7	67·7	67·5	67·48
23	64·9	67·3	68·0	67·9	67·6	68·7	68·0	67·8	68·2	67·8	67·8	67·6	67·63

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.)*

1891.

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	747	266	999	284	945	213	912	164	914	161	968	190	018	282	962	218	969	204	935	172	796	060	732	975
2	827	284	002	270	032	269	887	137	924	178	972	196	006	279	979	224	957	209	925	189	812	062	736	986
3	891	282	020	276	014	276	913	142	918	184	976	213	028	292	985	249	953	196	902	162	810	064	739	001
4	932	292	011	265	995	245	925	175	912	166	960	218	017	273	973	223	945	199	900	135	813	060	753	998
5	966	286	029	270	009	250	907	175	893	157	947	205	018	272	975	231	946	189	889	136	820	078	772	024
6	992	296	032	279	975	231	912	153	896	171	949	196	053	307	978	240	945	201	886	136	800	052	760	039
7	992	27/	023	277	968	230	947	190	901	161	959	206	033	293	964	237	939	189	894	150	798	058	792	048
8	995	272	013	265	956	214	...	...	899	159	957	213	024	280	971	216	945	211	885	143	788	056	789	041
9	965	265	010	285	957	209	960	197	907	159	955	209	014	259	987	230	949	222	888	121	767	025	794	044
10	922	248	989	253	984	221	943	195	922	180	945	197	011	275	995	238	941	182	892	137	777	039	780	038
11	874	227	965	244	937	193	939	191	925	168	936	202	010	274	005	259	005	242	903	159	788	029	759	040
12	880	219	993	236	957	202	...	...	933	170	937	203	007	261	016	253	009	242	898	154	787	043	763	004
13	937	214	981	254	945	201	904	145	981	218	934	177	019	262	010	253	022	274	878	134	796	039	761	996
14	027	264	018	278	931	195	918	165	...	...	977	222	023	281	019	243	007	244	894	127	803	053	768	022
15	956	256	957	257	928	194	910	157	...	...	977	233	031	264	050	262	015	258	881	128	808	070	756	014
16	939	239	980	227	931	193	930	173	...	...	981	233	035	276	056	276	978	234	877	129	809	067	753	003
17	942	255	994	244	943	186	967	231	955	240	974	215	055	288	032	256	962	195	862	114	819	069	743	999
18	924	228	001	251	945	199	934	184	935	182	001	215	075	295	040	269	978	202	843	101	814	066	726	980
19	933	242	976	236	966	205	941	201	949	194	044	249	067	302	014	257	980	209	832	079	815	065	713	975
20	948	227	927	208	957	194	924	165	932	186	043	261	045	303	002	266	985	214	850	100	841	099	681	947
21	988	246	953	211	916	180	919	162	940	198	041	270	029	276	997	257	964	226	851	096	830	092	645	937
22	977	235	961	221	897	168	912	172	935	199	045	241	036	288	976	234	936	196	845	111	806	064	635	942
23	956	248	956	224	915	160	912	157	937	216	058	261	030	261	970	241	944	189	850	091	788	042	600	913
24	975	231	970	211	939	168	897	159	922	203	042	258	030	290	966	234	919	175	852	110	782	038	588	901
25	012	247	945	203	927	181	895	151	928	180	058	267	014	266	944	196	912	157	840	098	774	024	594	879
26	015	267	947	203	927	183	898	164	949	199	074	275	017	260	968	207	933	178	865	096	773	023	635	889
27	009	259	952	206	932	177	908	155	934	196	065	287	027	262	972	217	908	168	868	113	765	025	670	873
28	983	266	941	212	923	179	897	155	929	197	050	285	983	258	956	227	906	149	853	109	751	994	666	913
29	983	258			901	167	895	147	911	165	038	292	963	242	944	198	902	141	834	094	766	990	...	...
30	005	278			909	165	913	154	944	183	037	299	956	210	951	217	919	154	835	091	738	990	...	...
31	010	285			905	159			942	189			960	207	958	191			806	079			...	...

At the end of the year 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.

1891.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	54·7	65·7	66·5	67·3	67·5	68·7	66·7	67·1	68·1	68·0	66·7	67·7
2	57·6	66·5	68·0	67·4	67·2	68·6	66·3	67·6	67·3	66·7	67·4	67·4
3	60·7	67·1	66·8	68·4	66·6	68·0	66·7	66·7	67·7	66·9	67·2	66·8
4	62·2	67·2	67·4	67·4	67·2	67·0	67·1	67·4	67·2	68·1	67·5	67·6
5	64·1	67·8	67·8	66·5	66·7	67·0	67·2	67·1	67·7	67·5	67·0	67·3
6	64·8	67·5	67·1	67·8	66·2	67·5	67·2	66·8	67·1	67·4	67·3	66·0
7	65·7	67·2	66·8	67·7	66·9	67·5	66·9	66·3	67·4	67·1	66·9	67·1
8	66·1	67·3	67·0	...	66·9	67·1	67·1	67·6	66·6	67·0	66·5	67·3
9	65·0	66·2	67·3	68·0	67·3	67·2	67·6	67·7	66·3	68·2	67·0	67·4
10	63·8	66·7	68·0	67·3	67·0	67·3	66·7	67·7	67·8	67·6	66·8	67·0
11	62·5	66·0	67·1	67·3	67·7	66·6	66·7	67·2	68·0	67·1	67·8	65·9
12	63·2	67·7	67·6	...	68·0	66·6	67·2	68·0	68·2	67·1	67·1	67·8
13	66·1	66·3	67·1	67·8	68·0	67·7	67·7	67·7	67·3	67·1	67·7	68·1
14	68·0	66·9	66·7	67·5	...	67·6	67·0	68·6	68·0	68·2	67·4	67·2
15	65·0	65·0	66·6	67·5	...	67·1	68·2	69·2	67·7	67·5	66·8	67·0
16	65·0	67·5	66·8	67·7	...	67·3	67·8	68·8	67·1	67·3	67·0	67·4
17	64·4	67·4	67·7	66·7	65·7	67·8	68·2	68·6	68·2	67·3	67·4	67·1
18	64·8	67·4	67·2	67·4	67·5	69·1	68·8	68·4	68·6	67·0	67·3	67·2
19	64·6	66·9	67·9	66·9	67·6	69·5	68·1	67·7	68·4	67·5	67·4	66·8
20	66·0	65·9	68·0	67·8	67·2	68·9	67·0	66·7	68·4	67·4	67·0	66·6
21	67·0	67·0	66·7	67·7	67·0	68·4	67·5	66·9	66·8	67·6	66·8	65·4
22	67·0	66·9	66·4	66·9	66·7	69·9	67·3	67·0	66·9	66·6	67·0	64·7
23	65·4	66·5	67·6	67·6	66·0	69·6	68·3	66·4	67·6	67·8	67·2	64·4
24	67·1	67·8	68·4	66·8	65·9	69·0	66·9	66·5	67·1	67·0	67·1	64·4
25	68·1	67·0	67·2	67·1	67·3	69·3	67·3	67·3	67·6	67·0	67·4	65·7
26	67·3	67·1	67·1	66·6	67·4	69·7	67·7	67·9	67·6	68·3	67·4	67·2
27	67·4	67·2	67·6	67·5	66·8	68·7	68·1	67·6	66·9	67·6	66·9	69·6
28	65·8	66·4	67·1	67·0	66·5	68·1	66·2	66·4	67·7	67·1	67·7	67·5
29	66·2		66·6	67·3	67·2	67·2	66·0	67·2	67·9	66·9	68·6	...
30	66·3		67·1	67·8	67·9	66·8	67·2	66·6	68·1	67·1	67·3	...
31	66·2		67·2		67·5		67·5	68·2		66·3		...
Means	64°78	66°86	67°24	67°38	67°05	68°03	67°30	67°45	67°58	67°33	67°22	66°84

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.)

1891.

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.	33	0	36	5	47	16	43	20	50	36	54	38	50	37	35	22	17	4	22	3	20	6	25	6
1h	29	0	31	2	41	10	41	18	43	29	52	38	44	33	28	15	12	1	20	3	15	3	19	2
2	23	1	23	1	37	12	39	22	41	29	49	37	40	31	28	17	11	0	19	4	10	0	12	0
3	18	0	21	1	37	16	34	19	40	28	48	40	41	35	26	17	7	0	17	4	7	2	8	2
4	16	2	16	0	34	15	32	21	40	32	49	41	44	40	26	20	6	1	12	2	7	4	5	1
5	13	6	14	2	35	23	34	28	41	35	50	44	48	46	28	24	5	2	17	9	5	4	4	4
6	11	6	10	2	32	20	36	32	41	35	49	43	47	49	30	26	9	9	15	11	5	6	3	5
7	12	9	9	1	37	29	42	38	41	35	47	41	45	47	33	33	18	20	18	14	6	9	4	6
8	11	11	8	5	34	26	38	38	37	33	37	33	39	43	32	32	18	22	19	17	5	10	3	7
9	7	9	7	4	22	18	27	27	24	20	24	20	26	30	24	24	11	15	17	15	2	9	1	8
10	6	8	1	0	10	8	12	12	9	7	13	11	14	18	11	11	3	9	9	9	0	9	0	11
11	3	9	0	1	0	0	0	0	0	0	0	0	4	6	1	1	0	6	0	0	1	12	0	11
Noon.	0	6	2	1	5	5	0	0	0	0	2	0	0	0	0	0	2	6	7	5	4	15	4	15
13h	6	12	7	4	16	14	9	9	10	10	16	12	11	9	12	10	15	17	17	13	12	21	8	19
14	16	18	19	11	32	28	32	30	30	26	31	25	29	25	31	25	32	32	31	25	25	30	15	22
15	19	16	30	16	50	44	53	49	48	42	46	38	45	41	50	41	47	44	47	39	35	38	24	28
16	19	14	38	20	59	51	68	62	64	58	61	51	61	55	61	52	60	55	54	46	38	39	27	29
17	21	14	38	18	62	54	78	70	76	68	75	63	76	70	68	57	64	57	50	40	33	34	26	24
18	25	9	37	17	64	52	80	72	83	73	78	66	81	72	71	60	62	53	46	36	34	31	29	23
19	30	8	37	15	64	52	74	63	83	75	79	67	79	70	66	55	55	46	45	32	34	26	30	20
20	36	5	38	14	62	43	64	53	76	68	73	61	72	63	58	47	50	39	43	28	36	24	31	19
21	39	4	35	9	59	38	57	44	66	56	67	55	62	51	53	40	39	28	35	20	35	21	31	14
22	39	2	31	5	54	31	54	37	61	51	61	47	57	46	45	30	29	16	26	11	25	11	27	10
23	42	5	35	6	52	21	53	32	59	45	61	45	53	40	40	25	21	8	23	6	23	9	26	7
Means corrected for Temperature.	7·2		6·7		26·1		33·2		37·1		38·2		39·9		28·5		20·4		16·3		15·5		12·2	

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

1891.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight.	65·7	67·6	68·1	68·1	67·4	68·4	67·7	67·7	68·0	67·8	67·8	67·6	67·66
1h	65·5	67·5	68·1	68·1	67·4	68·3	67·6	67·7	67·9	67·7	67·7	67·5	67·58
2	65·2	67·2	67·8	67·8	67·3	68·2	67·5	67·6	67·9	67·6	67·6	67·3	67·42
3	65·0	67·1	67·6	67·7	67·3	68·0	67·4	67·5	67·7	67·5	67·4	67·0	67·27
4	64·8	66·9	67·5	67·5	67·1	68·0	67·3	67·4	67·6	67·4	67·3	66·9	67·14
5	64·5	66·7	67·2	67·3	67·0	67·9	67·2	67·3	67·5	67·3	67·2	66·7	66·98
6	64·4	66·5	67·2	67·2	67·0	67·9	67·0	67·3	67·4	67·1	67·1	66·6	66·89
7	64·3	66·5	67·0	67·2	67·0	67·9	67·0	67·1	67·3	67·1	67·0	66·6	66·83
8	64·2	66·3	67·0	67·0	66·9	67·8	66·9	67·1	67·2	67·0	66·9	66·5	66·73
9	64·1	66·3	66·8	67·0	66·9	67·8	66·9	67·1	67·2	67·0	66·8	66·4	66·69
10	64·1	66·2	66·7	67·0	66·8	67·7	66·9	67·1	67·1	66·9	66·7	66·2	66·62
11	63·9	66·1	66·6	67·0	66·7	67·6	67·0	67·1	67·1	66·9	66·6	66·2	66·57
Noon.	63·9	66·2	66·6	67·0	66·7	67·7	67·1	67·1	67·2	67·0	66·6	66·2	66·61
13h	63·9	66·3	66·7	67·0	66·7	67·8	67·2	67·2	67·3	67·1	66·7	66·2	66·68
14	64·1	66·5	66·8	67·1	66·9	67·9	67·3	67·4	67·4	67·2	66·9	66·4	66·82
15	64·3	66·8	66·9	67·2	67·0	68·0	67·3	67·5	67·5	67·3	67·0	66·5	66·94
16	64·4	67·0	67·0	67·3	67·0	68·1	67·4	67·5	67·6	67·3	67·1	66·6	67·03
17	64·5	67·1	67·0	67·4	67·1	68·2	67·4	67·6	67·7	67·4	67·1	66·8	67·11
18	64·9	67·1	67·2	67·4	67·2	68·2	67·5	67·6	67·8	67·4	67·3	67·0	67·22
19	65·2	67·2	67·2	67·5	67·1	68·2	67·5	67·6	67·8	67·5	67·5	67·2	67·29
20	65·6	67·3	67·5	67·5	67·1	68·2	67·5	67·6	67·9	67·6	67·7	67·3	67·40
21	65·8	67·4	67·6	67·6	67·2	68·2	67·6	67·7	67·9	67·6	67·8	67·5	67·49
22	65·9	67·4	67·7	67·8	67·2	68·3	67·6	67·8	68·0	67·6	67·8	67·5	67·55
23	65·9	67·5	68·1	68·0	67·4	68·4	67·7	67·8	68·0	67·7	67·8	67·6	67·66

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, 1891.	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.	HORIZONTAL FORCE (diminished by a Constant).	VERTICAL FORCE (diminished by a Constant).
				in terms of GAUSS'S METRICAL UNIT.		
January	17° 25'·8	838	1257	1370	1529	5500
February	17. 24·7	789	1245	1311	1440	5448
March	17. 24·5	775	1200	1301	1414	5251
April	17. 24·8	827	1168	1317	1509	5111
May	17. 24·4	954	1184	1295	1741	5181
June	17. 24·2	1072	1233	1285	1957	5395
July	17. 23·3	1117	1272	1237	2039	5566
August	17. 23·1	1093	1236	1226	1995	5408
September	17. 22·2	1033	1202	1179	1885	5259
October	17. 21·8	1015	1122	1157	1852	4909
November	17. 21·2	1166	1048	1126	2128	4586
December	17. 20·5	1210	979	1088	2208	4284
Means	17° 23'·4	.....	.....	1241	.....	.....
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 1·8251 and 0·18251 respectively for the year, and of whole Vertical Force (applicable to column 6) are 4·3756 and 0·43756 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.—At the end of the year 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 1891.

(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	HORIZONTAL FORCE	VERTICAL FORCE
				in terms of GAUSS'S METRICAL UNIT.		
Midnight.	0'97	132·2	12·3	51·5	241·3	53·8
1h	1·09	127·6	9·0	57·9	232·9	39·4
2	1·28	123·2	9·0	68·0	224·9	39·4
3	1·36	121·4	9·9	72·2	221·6	43·3
4	1·19	124·0	11·1	63·2	226·3	48·6
5	0·78	122·6	15·1	41·4	223·8	66·1
6	0·44	110·9	16·5	23·4	202·4	72·2
7	0·12	89·8	19·7	6·4	163·9	86·2
8	0·00	57·1	19·3	0·0	104·2	84·4
9	0·60	18·2	12·8	31·9	33·2	56·0
10	2·41	0·0	5·6	127·9	0·0	24·5
11	4·80	3·2	0·0	254·8	5·8	0·0
Noon.	6·81	33·8	0·6	361·5	61·7	2·6
13h	7·72	71·0	8·7	409·9	129·6	38·1
14	7·31	101·6	21·0	388·1	185·4	91·9
15	6·07	124·6	32·5	322·3	227·4	142·2
16	4·65	135·1	40·5	246·9	246·6	177·2
17	3·49	146·6	43·6	185·3	267·6	190·8
18	2·57	155·7	43·2	136·4	284·2	189·0
19	1·86	157·6	40·3	98·7	287·6	176·3
20	1·42	154·7	34·9	75·4	282·3	152·7
21	1·12	148·5	27·9	59·5	271·0	122·1
22	0·84	140·6	21·0	44·6	256·6	91·9
23	0·78	137·4	16·9	41·4	250·8	73·9
Means . . .	2'49	105·7	19·6	132·0	193·0	85·9
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 1·8251 and 0·18251 respectively, and of whole Vertical Force (applicable to column 6) are 4·3756 and 0·43756 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.*)

1891.

Day of Month.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.
d	′		′		′		′		′		′		′		′		′		′		′		′	
1	3·7	40	5·8	189	4·4	108	14·0	378	10·3	130	13·3	358	11·4	210	12·6	294	13·9	243	8·6	216	6·7	217	4·0	69
2	5·7	40	3·9	126	10·2	493	11·0	285	11·5	191	12·9	275	11·5	265	13·5	415	13·6	419	8·5	300	9·5	185	5·9	120
3	3·2	80	5·6	129	12·5	299	11·2	303	13·6	169	10·6	245	14·2	384	15·9	427	14·8	303	11·1	252	8·8	239	3·8	145
4	4·2	86	5·3	128	10·0	194	7·4	236	14·9	230	9·7	304	15·5	342	10·5	393	14·8	392	11·3	314	7·6	165	5·1	100
5	4·9	108	6·9	110	16·4	251	9·7	175	14·6	218	9·6	330	11·4	378	9·4	292	12·5	307	12·2	366	11·5	205	4·2	107
6	4·1	137	9·5	137	7·2	185	9·5	239	15·8	155	10·6	320	13·2	452	8·3	265	10·9	230	12·2	320	7·7	184	5·6	133
7	...	...	6·2	165	9·2	237	13·2	287	11·5	305	9·6	305	13·3	407	12·9	302	9·1	272	12·6	269	7·6	222	15·9	602
8	...	...	6·7	53	8·6	117	...	...	15·2	312	12·1	313	11·3	378	12·8	330	8·9	325	16·7	219	8·3	207	4·0	194
9	...	...	7·6	319	8·9	175	13·9	362	13·7	250	10·5	251	9·2	320	13·6	293	13·9	296	11·2	297	7·1	207	15·3	240
10	...	...	12·2	178	11·3	143	10·2	325	10·0	207	10·1	289	12·0	227	11·2	377	16·5	624	13·0	508	6·6	182	9·9	149
11	...	...	11·0	289	9·0	163	14·7	378	9·5	223	8·9	169	11·2	317	13·4	317	22·5	462	10·4	318	9·1	150	7·7	125
12	...	...	16·0	189	13·9	172	...	...	7·2	325	9·6	264	9·6	229	9·2	297	15·5	335	14·1	240	5·5	146	6·1	124
13	...	...	8·0	150	11·7	222	7·1	325	12·7	220	11·5	297	9·2	257	9·9	314	9·2	295	13·5	319	10·0	137	10·4	167
14	...	...	10·4	226	9·9	241	10·2	267	...	...	15·4	270	11·0	259	10·2	317	8·9	276	9·0	267	13·0	132	9·5	155
15	...	...	14·1	383	12·4	206	8·1	232	...	...	6·5	235	10·3	287	12·3	267	10·8	399	6·6	187	10·5	161	6·9	128
16	...	...	4·1	159	12·5	251	12·3	237	...	...	10·9	210	8·1	304	12·8	232	8·6	274	8·5	213	8·7	160	4·0	42
17	...	...	7·5	157	10·0	348	17·7	276	13·1	352	11·4	322	14·9	277	8·7	262	11·9	302	9·4	127	9·5	212	4·6	78
18	...	...	5·0	138	10·9	259	15·3	314	9·7	272	7·4	275	10·0	297	10·1	257	10·0	279	11·0	179	7·4	199	3·8	97
19	...	...	7·3	82	10·1	156	7·5	188	14·0	297	6·3	180	11·6	313	17·0	310	10·2	232	13·4	277	6·9	212	11·0	288
20	...	...	5·6	52	10·8	208	13·2	198	12·5	301	11·1	265	11·2	290	14·4	232	9·0	245	12·0	349	15·6	507	9·3	244
21	...	...	5·1	108	9·2	164	10·5	286	12·4	316	10·4	254	12·7	282	14·0	297	14·0	222	9·5	200	15·2	276	12·7	245
22	...	...	4·8	127	10·9	200	11·0	352	13·1	182	10·1	360	13·2	252	12·7	274	11·1	244	9·2	291	9·1	226	7·8	253
23	...	...	8·7	190	13·0	237	12·6	302	...	...	13·7	285	11·2	239	9·3	285	15·0	297	17·0	230	7·1	179	5·2	168
24	...	...	8·0	225	14·4	385	10·8	251	10·7	287	13·7	262	18·8	409	9·8	269	8·6	337	17·8	376	7·0	173	5·1	55
25	...	...	11·2	111	10·9	300	9·7	210	10·2	231	11·6	305	15·0	242	10·9	237	10·2	267	10·1	292	8·5	140	5·0	170
26	...	...	5·6	176	10·4	275	9·1	248	12·2	330	11·9	357	11·9	314	11·7	282	18·1	270	13·6	314	11·0	315	4·0	79
27	5·9	123	4·8	83	10·1	241	13·8	333	8·9	256	14·7	407	11·9	260	9·6	280	9·0	325	11·1	225	...	...	4·9	150
28	11·1	160	4·4	133	9·6	149	10·6	247	15·8	385	10·7	280	10·0	280	9·0	358	19·3	419	13·5	197	12·8	176	6·2	180
29	6·9	112			10·5	229	7·6	315	11·3	263	10·5	197	10·7	241	16·4	463	10·2	362	11·5	339	7·9	121	5·4	98
30	4·1	112			14·6	185	9·4	221	12·8	384	10·2	220	8·5	232	9·4	290	10·4	293	10·5	230	5·4	136	12·7	485
31	4·7	101			17·5	430			14·1	415			11·7	220	11·0	368			8·0	270			3·6	70
Means.....	5·3	100	7·5	161	11·0	233	11·1	277	12·3	267	10·8	280	11·8	296	11·7	310	12·4	318	11·5	274	9·0	199	7·1	170

The mean of the twelve monthly values is, for Declination 10′·12, and for Horizontal Force 240·4.

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, 1891.	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	4·6	59	18	23·1	334	100
February.....	5·5	89	20	31·9	400	136
March.....	8·6	130	54	51·6	736	322
April	9·9	207	72	54·0	1297	388
May	11·1	217	75	64·4	1293	403
June.....	9·6	233	67	53·5	1496	336
July.....	11·0	259	72	60·8	1537	349
August.....	10·5	252	60	60·1	1567	326
September	9·3	240	57	59·3	1431	382
October	9·5	203	46	51·2	1261	270
November	6·8	143	39	38·3	767	251
December	5·1	86	29	28·9	466	181
Means.....	8′·46	176·5	50·8	48′·09	1048·7	287·0

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, 1891.	m	a_1	b_1	a_2	b_2	a_3	b_3	a_4	b_4
	DECLINATION WEST.								
	′	′	′	′	′	′	′	′	′
January	1·65	− 1·22	− 0·38	+ 0·25	+ 0·85	− 0·53	− 0·08	+ 0·25	+ 0·11
February	1·80	− 1·89	− 0·71	+ 0·47	+ 0·80	− 0·50	− 0·37	+ 0·10	+ 0·21
March	2·54	− 2·75	− 1·11	+ 1·20	+ 1·59	− 0·74	− 0·51	+ 0·35	+ 0·22
April	3·55	− 2·27	− 1·61	+ 1·71	+ 1·78	− 0·81	− 0·64	+ 0·35	+ 0·19
May	4·54	− 2·73	− 2·60	+ 1·71	+ 1·65	− 0·86	− 0·28	+ 0·20	− 0·12
June	4·46	− 1·51	− 2·89	+ 1·55	+ 1·60	− 0·56	− 0·39	− 0·01	− 0·05
July	4·78	− 1·89	− 3·11	+ 1·66	+ 1·96	− 0·49	− 0·47	− 0·14	+ 0·06
August	3·99	− 2·66	− 2·02	+ 2·05	+ 1·54	− 0·91	− 0·46	+ 0·01	+ 0·06
September	2·63	− 3·19	− 1·26	+ 1·85	+ 1·09	− 0·84	− 0·42	+ 0·35	+ 0·10
October	3·18	− 2·79	− 0·75	+ 1·02	+ 1·89	− 0·78	− 0·62	+ 0·62	+ 0·45
November	2·29	− 2·30	− 0·44	+ 0·61	+ 1·19	− 0·51	− 0·46	+ 0·22	+ 0·24
December	2·35	− 1·74	− 0·38	+ 0·01	+ 0·98	− 0·17	− 0·03	+ 0·11	+ 0·15
For the Year	2·49	− 2·25	− 1·44	+ 1·18	+ 1·41	− 0·64	− 0·39	+ 0·20	+ 0·13
	HORIZONTAL FORCE.								
January	36·4	+ 5·5	− 3·6	− 18·1	+ 6·3	+ 0·7	− 8·9	− 0·8	+ 5·1
February	59·3	+ 15·6	+ 2·3	− 18·3	+ 12·1	+ 8·0	− 12·7	− 2·1	+ 5·0
March	91·9	+ 37·7	− 17·8	− 21·7	+ 18·6	+ 6·1	− 16·3	0·0	+ 8·2
April	142·5	+ 64·3	− 50·3	− 30·8	+ 25·6	+ 8·9	− 20·5	− 1·3	+ 4·1
May	114·0	+ 46·7	− 71·0	− 19·3	+ 22·2	− 2·2	− 1·5	+ 7·2	+ 0·6
June	124·9	+ 55·6	− 81·8	− 24·7	+ 24·2	− 4·1	− 1·3	+ 3·5	− 0·9
July	150·4	+ 65·1	− 75·5	− 33·8	+ 28·3	− 2·4	− 8·2	+ 4·8	+ 3·0
August	167·5	+ 70·5	− 66·1	− 21·5	+ 43·8	− 7·7	− 20·8	+ 5·4	+ 7·4
September	160·5	+ 76·4	− 47·3	− 31·1	+ 29·0	− 3·8	− 23·5	+ 3·4	+ 10·8
October	147·5	+ 75·1	− 13·2	− 35·4	+ 15·8	+ 7·5	− 22·1	+ 1·8	+ 10·7
November	96·4	+ 41·5	+ 4·5	− 28·2	+ 11·2	+ 11·8	− 17·0	+ 5·9	+ 5·1
December	38·6	+ 13·7	+ 18·5	− 24·3	− 4·0	+ 3·1	− 5·7	+ 1·7	+ 4·5
For the Year	105·7	+ 47·3	− 33·5	− 25·6	+ 19·4	+ 2·2	− 13·2	+ 2·5	+ 5·3
	VERTICAL FORCE.								
January	7·2	− 5·6	− 2·5	− 1·7	+ 0·9	+ 1·8	− 1·4	− 0·6	+ 0·3
February	6·7	− 0·9	− 7·7	− 3·7	+ 1·0	+ 2·1	+ 0·2	− 0·7	+ 0·1
March	26·1	+ 1·4	− 15·8	− 14·7	+ 0·2	+ 4·4	− 1·7	− 2·4	+ 0·8
April	33·2	+ 4·0	− 17·4	− 20·1	− 0·9	+ 8·0	+ 0·4	− 2·0	+ 0·6
May	37·1	+ 13·4	− 18·6	− 18·6	− 2·0	+ 4·3	− 0·4	− 0·5	+ 0·6
June	38·2	+ 15·4	− 11·6	− 17·3	+ 0·6	+ 3·3	− 0·5	− 0·3	+ 0·9
July	39·9	+ 11·3	− 10·9	− 20·8	− 2·0	+ 5·3	+ 0·7	+ 0·1	0·0
August	28·5	+ 3·5	− 14·5	− 16·7	− 1·3	+ 6·1	+ 0·3	− 1·8	+ 1·0
September	20·4	− 7·1	− 20·7	− 13·5	+ 0·1	+ 5·6	+ 0·8	− 2·0	+ 1·7
October	16·3	− 5·3	− 13·6	− 10·3	+ 2·1	+ 4·9	− 0·2	− 3·0	+ 0·9
November	15·5	− 7·0	− 13·9	− 4·5	+ 2·5	+ 1·9	− 1·5	− 1·4	+ 0·1
December	12·2	− 6·1	− 10·2	− 2·2	+ 1·2	+ 0·9	− 0·9	− 0·5	− 0·1
For the Year	19·6	+ 1·4	− 13·1	− 12·0	+ 0·2	+ 4·0	− 0·4	− 1·3	+ 0·6

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, 1891.	m	c_1	α	α'	c_2	β	β'	c_3	γ	γ'	c_4	δ	δ'
	DECLINATION WEST.												
	′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′
January	1·65	1·28	252. 42	255. 5	0·89	16. 23	21. 9	0·53	261. 11	268. 20	0·28	66. 55	76. 27
February	1·80	2·02	249. 25	252. 55	0·93	30. 41	37. 41	0·62	233. 0	243. 30	0·23	24. 37	38. 37
March	2·54	2·96	248. 0	250. 10	1·99	36. 54	41. 14	0·89	235. 31	242. 1	0·41	58. 14	66. 54
April	3·55	2·78	234. 46	234. 49	2·47	43. 50	43. 56	1·03	231. 23	231. 32	0·40	61. 49	62. 1
May	4·54	3·77	226. 24	225. 32	2·38	46. 1	44. 17	0·90	251. 49	249. 13	0·23	120. 5	116. 37
June	4·46	3·26	207. 30	207. 35	2·23	44. 5	44. 15	0·68	235. 17	235. 32	0·05	193. 49	194. 9
July	4·78	3·64	211. 16	212. 38	2·57	40. 11	42. 55	0·68	225. 48	229. 54	0·15	292. 5	297. 33
August	3·99	3·34	232. 46	233. 43	2·56	53. 6	55. 0	1·02	242. 52	245. 43	0·06	8. 15	12. 3
September	2·63	3·43	248. 24	247. 9	2·15	59. 40	57. 10	0·94	243. 49	240. 4	0·36	73. 56	68. 56
October	3·18	2·89	254. 56	251. 26	2·15	28. 31	21. 31	1·00	231. 45	221. 15	0·76	54. 2	40. 2
November	2·29	2·34	259. 14	255. 33	1·34	27. 15	19. 53	0·69	228. 3	217. 0	0·32	42. 49	28. 5
December	2·35	1·78	257. 48	256. 46	0·98	0. 44	358. 40	0·18	260. 8	257. 2	0·19	36. 34	32. 26
For the Year	2·49	2·67	237. 21	237. 21	1·84	39. 49	39. 49	0·75	238. 23	238. 23	0·24	56. 14	56. 14
	HORIZONTAL FORCE.												
	′	′	° ′	′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′
January	36·4	6·6	123. 28	125. 51	19·2	289. 3	293. 49	9·0	175. 38	182. 47	5·2	351. 13	0. 45
February	59·3	15·8	81. 43	85. 13	21·9	303. 24	310. 24	15·0	147. 46	158. 16	5·4	336. 54	350. 54
March	91·9	41·7	115. 18	117. 28	28·6	310. 29	314. 49	17·4	159. 38	166. 8	8·2	0. 18	8. 58
April	142·5	81·7	128. 1	128. 4	40·0	309. 45	309. 51	22·3	156. 26	156. 35	4·3	342. 35	342. 47
May	114·0	85·0	146. 41	145. 49	29·4	318. 59	317. 15	2·7	236. 25	233. 49	7·3	85. 28	82. 0
June	124·9	98·9	145. 47	145. 52	34·6	314. 22	314. 32	4·3	252. 24	252. 39	3·6	103. 54	104. 14
July	150·4	99·7	139. 14	140. 36	44·1	309. 56	312. 40	8·5	196. 18	200. 24	5·7	57. 53	63. 21
August	167·5	96·7	133. 11	134. 8	48·8	333. 55	335. 49	22·1	200. 21	203. 12	9·1	36. 21	40. 9
September	160·5	89·8	121. 47	120. 32	42·5	312. 59	310. 29	23·8	189. 4	185. 19	11·4	17. 31	12. 31
October	147·5	76·2	99. 59	96. 29	38·8	293. 59	286. 59	23·3	161. 9	150. 39	10·8	9. 44	355. 44
November	96·4	41·7	83. 45	80. 4	30·3	291. 44	284. 22	20·7	145. 21	134. 18	7·8	49. 31	34. 47
December	38·6	23·0	36. 28	35. 26	24·7	260. 37	258. 33	6·5	151. 34	148. 28	4·8	20. 26	16. 18
For the Year	105·7	57·9	125. 17	125. 17	32·1	307. 12	307. 12	13·4	170. 42	170. 42	5·8	25. 6	25. 6
	VERTICAL FORCE.												
	′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′
January	7·2	6·2	245. 45	248. 8	1·9	299. 28	304. 14	2·3	127. 0	134. 9	0·7	296. 34	306. 6
February	6·7	7·8	186. 29	189. 59	3·8	285. 46	292. 46	2·1	85. 19	95. 49	0·7	276. 3	290. 3
March	26·1	15·9	175. 8	177. 18	14·7	270. 35	274. 55	4·8	110. 57	117. 27	2·5	288. 26	297. 6
April	33·2	17·9	167. 8	167. 11	20·2	267. 19	267. 25	8·0	87. 5	87. 14	2·1	288. 22	288. 34
May	37·1	22·9	144. 22	143. 30	18·7	263. 42	261. 58	4·3	95. 38	93. 2	0·8	324. 49	321. 21
June	38·2	19·3	127. 1	127. 6	17·3	271. 51	272. 1	3·3	98. 35	98. 50	0·9	338. 58	339. 18
July	39·9	15·7	134. 11	135. 33	20·9	264. 31	267. 15	5·3	82. 41	86. 47	0·1	90. 0	95. 28
August	28·5	15·0	166. 19	167. 16	16·7	265. 39	267. 33	6·1	86. 42	89. 33	2·0	299. 57	303. 45
September	20·4	21·9	198. 54	197. 39	13·5	270. 25	267. 55	5·7	82. 14	78. 29	2·6	310. 15	305. 15
October	16·3	14·6	201. 11	197. 41	10·6	281. 20	274. 20	4·9	92. 50	82. 20	3·1	287. 39	273. 39
November	15·5	15·6	206. 52	203. 11	5·1	298. 47	291. 25	2·5	128. 9	117. 6	1·4	273. 7	258. 23
December	12·2	11·8	210. 53	209. 51	2·5	299. 11	297. 7	1·3	135. 48	132. 42	0·5	254. 11	250. 3
For the Year	19·6	13·2	173. 51	173. 51	12·0	270. 51	270. 51	4·1	95. 9	95. 9	1·4	294. 59	294. 59

TABLE XVII.—SEPARATE RESULTS of OBSERVATIONS of MAGNETIC DIP made in the Year 1891.

Greenwich Civil Time, 1891.	Needle.	Magnetic Dip.	Observer.	Greenwich Civil Time, 1891.	Needle.	Magnetic Dip.	Observer.	Greenwich Civil Time, 1891.	Needle.	Magnetic Dip.	Observer.
d h		° ′ ″		d h		° ′ ″		d h		° ′ ″	
Jan. 3. 13	C 1	67. 22. 39	N	May 4. 15	C 2	67. 21. 24	N	Sept. 3. 13	B 1	67. 20. 56	N
5. 13	D 1	67. 23. 49	N	5. 14	B 2	67. 19. 4	N	3. 15	B 2	67. 18. 22	N
5. 14	D 2	67. 24. 13	N	7. 12	B 1	67. 20. 23	N	7. 15	C 2	67. 19. 6	N
8. 13	C 2	67. 23. 9	N	9. 12	C 1	67. 21. 58	N	9. 14	D 1	67. 22. 41	N
13. 13	B 1	67. 20. 12	N	12. 14	D 1	67. 23. 30	N	12. 13	D 2	67. 23. 23	N
14. 14	B 2	67. 20. 24	N	17. 16	D 2	67. 25. 38	M	14. 15	C 1	67. 20. 36	N
16. 14	B 2	67. 19. 30	N	19. 15	D 2	67. 25. 31	M	17. 13	C 1	67. 20. 3	N
19. 14	B 1	67. 21. 52	N	20. 14	D 1	67. 25. 28	M	18. 13	D 2	67. 22. 26	N
23. 13	C 2	67. 22. 43	N	22. 15	C 1	67. 22. 7	M	22. 13	D 1	67. 22. 18	N
26. 14	D 2	67. 26. 25	N	25. 15	B 1	67. 20. 34	M	23. 14	C 2	67. 22. 16	N
27. 15	D 1	67. 24. 59	N	26. 14	B 2	67. 21. 19	M	28. 13	B 2	67. 20. 44	N
29. 14	C 1	67. 23. 38	N	27. 15	C 2	67. 21. 54	M	28. 15	B 1	67. 21. 53	N
				June 2. 14	B 1	67. 20. 25	N				
				3. 15	B 2	67. 20. 3	N				
Feb. 2. 14	C 2	67. 22. 8	N	5. 15	C 2	67. 20. 56	N	Oct. 1. 15	C 1	67. 20. 23	N
3. 15	B 2	67. 19. 35	N	11. 12	D 1	67. 21. 26	N	3. 13	D 1	67. 21. 18	N
6. 14	B 1	67. 21. 17	N	12. 12	D 1	67. 23. 27	N	7. 15	D 2	67. 23. 23	N
10. 14	C 1	67. 23. 17	N	12. 13	D 2	67. 24. 12	N	9. 15	C 2	67. 19. 50	N
11. 14	D 2	67. 24. 43	N	12. 15	C 1	67. 21. 12	N	12. 15	B 1	67. 21. 1	M
12. 14	D 1	67. 25. 10	N	18. 13	C 1	67. 19. 33	N	13. 15	B 2	67. 18. 27	M
16. 15	D 1	67. 25. 11	N	18. 15	D 2	67. 22. 2	N	17. 13	B 2	67. 17. 48	N
17. 15	D 2	67. 24. 8	N	19. 15	D 1	67. 20. 10	N	19. 15	B 1	67. 19. 15	N
18. 13	C 1	67. 22. 5	N	20. 13	D 1	67. 21. 21	N	23. 15	C 2	67. 20. 32	N
23. 14	B 1	67. 20. 58	N	22. 14	C 1	67. 19. 13	N	24. 13	D 2	67. 24. 35	N
25. 14	B 2	67. 21. 47	N	25. 14	C 2	67. 19. 53	N	27. 14	D 1	67. 23. 14	N
27. 14	C 2	67. 22. 14	N	27. 13	B 2	67. 16. 7	N	30. 15	C 1	67. 21. 8	N
				29. 12	B 1	67. 20. 28	N				
				29. 14	B 2	67. 17. 46	N				
Mar. 2. 15	B 1	67. 22. 3	N	July 2. 15	C 1	67. 18. 50	N	Nov. 3. 16	C 2	67. 19. 59	N
4. 15	B 2	67. 20. 56	M	3. 15	D 1	67. 22. 20	N	5. 14	B 2	67. 18. 0	M
6. 15	C 2	67. 22. 42	N	7. 16	D 2	67. 22. 26	N	6. 15	B 1	67. 19. 23	M
10. 15	D 1	67. 23. 52	N	8. 16	C 2	67. 19. 35	N	9. 13	C 1	67. 20. 23	M
12. 15	D 2	67. 24. 1	M	10. 15	B 1	67. 19. 22	N	11. 15	D 2	67. 23. 13	M
13. 14	C 1	67. 23. 10	N	13. 15	B 2	67. 17. 3	N	12. 15	D 1	67. 21. 30	M
18. 14	C 1	67. 23. 18	M	14. 15	C 2	67. 19. 40	N	17. 14	D 1	67. 24. 47	N
19. 15	D 2	67. 25. 41	N	15. 12	D 2	67. 22. 21	N	19. 15	D 2	67. 22. 46	N
20. 13	D 1	67. 25. 36	N	16. 12	B 1	67. 18. 17	N	23. 14	C 1	67. 21. 25	N
25. 15	C 2	67. 22. 33	N	18. 12	B 2	67. 18. 7	M	25. 14	B 1	67. 19. 55	N
26. 13	B 2	67. 21. 32	N	22. 15	B 1	67. 18. 41	M	27. 13	B 2	67. 20. 9	N
31. 14	B 1	67. 21. 47	N	23. 15	C 2	67. 20. 6	M	28. 12	C 2	67. 21. 21	N
				25. 12	D 2	67. 23. 20	M				
				29. 15	D 1	67. 22. 16	M				
Apr. 2. 14	C 1	67. 22. 43	M	30. 15	C 1	67. 19. 26	M	Dec. 2. 15	B 1	67. 19. 43	M
4. 12	D 1	67. 24. 3	M					3. 15	B 2	67. 17. 39	N
9. 15	D 2	67. 25. 14	N	Aug. 1. 13	C 2	67. 17. 51	N	8. 15	C 2	67. 19. 19	N
10. 15	C 2	67. 22. 47	N	5. 15	B 2	67. 16. 43	N	9. 15	D 1	67. 21. 8	N
11. 13	B 1	67. 22. 15	N	7. 15	B 1	67. 19. 6	N	11. 14	D 2	67. 19. 52	N
14. 15	B 2	67. 22. 24	N	8. 13	C 1	67. 19. 40	N	14. 14	C 1	67. 19. 26	N
17. 15	B 2	67. 22. 52	M	10. 15	D 2	67. 22. 1	N	17. 14	C 1	67. 19. 52	N
20. 12	B 1	67. 21. 6	N	12. 15	D 1	67. 19. 58	N	21. 14	D 2	67. 23. 24	N
21. 14	C 2	67. 21. 43	N	19. 15	D 1	67. 21. 11	M	22. 12	D 1	67. 24. 6	M
22. 15	D 2	67. 24. 40	M	20. 14	D 2	67. 21. 54	M	23. 12	C 2	67. 21. 25	M
25. 13	D 1	67. 24. 52	N	24. 15	C 1	67. 20. 9	M	28. 13	B 2	67. 18. 31	N
30. 15	C 1	67. 20. 9	M	25. 15	B 1	67. 20. 10	M	29. 12	B 1	67. 18. 12	N
				26. 15	B 2	67. 16. 39	M				
				27. 15	C 2	67. 18. 4	M				

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 initials N and M are those of Mr. Nash and Mr. McClellan.

TABLE XVIII.—MONTHLY and YEARLY MEANS of MAGNETIC DIP in the YEAR 1891.

Monthly Means of Magnetic Dip.

Month, 1891.	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. 21. 2	2	67. 19. 57	2	67. 23. 8	2
February	67. 21. 7	2	67. 20. 41	2	67. 22. 41	2
March	67. 21. 55	2	67. 21. 14	2	67. 23. 14	2
April	67. 21. 41	2	67. 22. 38	2	67. 21. 26	2
May	67. 20. 28	2	67. 20. 12	2	67. 22. 2	2
June	67. 20. 26	2	67. 17. 59	3	67. 19. 59	3
July	67. 18. 47	3	67. 17. 35	2	67. 19. 8	2
August	67. 19. 38	2	67. 16. 41	2	67. 19. 54	2
September	67. 21. 24	2	67. 19. 33	2	67. 20. 20	2
October	67. 20. 8	2	67. 18. 8	2	67. 20. 45	2
November	67. 19. 39	2	67. 19. 5	2	67. 20. 54	2
December	67. 18. 57	2	67. 18. 5	2	67. 19. 39	2
Means	67. 20. 22	Sum 25	67. 19. 16	Sum 25	67. 21. 3	Sum 25

Month, 1891.	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. 22. 56	2	67. 24. 24	2	67. 25. 19	2
February	67. 22. 11	2	67. 25. 11	2	67. 24. 25	2
March	67. 22. 37	2	67. 24. 44	2	67. 24. 51	2
April	67. 22. 15	2	67. 24. 27	2	67. 24. 57	2
May	67. 21. 39	2	67. 24. 29	2	67. 25. 35	2
June	67. 20. 25	2	67. 21. 36	4	67. 23. 7	2
July	67. 19. 47	3	67. 22. 18	2	67. 22. 42	3
August	67. 17. 58	2	67. 20. 34	2	67. 21. 58	2
September	67. 20. 41	2	67. 22. 29	2	67. 22. 55	2
October	67. 20. 11	2	67. 22. 16	2	67. 23. 59	2
November	67. 20. 40	2	67. 23. 8	2	67. 22. 59	2
December	67. 20. 22	2	67. 22. 37	2	67. 21. 38	2
Means	67. 20. 56	Sum 25	67. 23. 4	Sum 26	67. 23. 40	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 1891.

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. 20. 22	67. 19. 49	67. 21. 24
	B 2	25	67. 19. 16		
6-inch Needles	C 1	25	67. 21. 3	67. 21. 0	
	C 2	25	67. 20. 56		
3-inch Needles	D 1	26	67. 23. 4	67. 23. 22	
	D 2	25	67. 23. 40		

TABLE XIX.—DETERMINATIONS OF THE ABSOLUTE VALUE OF HORIZONTAL MAGNETIC FORCE IN THE YEAR 1891.

Abstract of the Observations of Deflexion of a Magnet for Absolute Measure of Horizontal Force made with the Gibson Instrument.

Greenwich Civil Time, 1891.	Distances of Centres of Magnets.	Temperature Fahrenheit.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature Fahrenheit.	Observer.
	ft.	°	° ′ ″	s		°	
January d h 15. 15	1·0	41·5	10. 14. 52	5·705	100	40·9	N
	1·3		4. 39. 22	5·706	100	41·1	
February 13. 14	1·0	49·3	10. 15. 5	5·715	100	47·4	N
	1·3		4. 39. 21	5·712	100	49·4	
March 16. 15	1·0	48·2	10. 15. 14	5·713	100	47·3	N
	1·3		4. 39. 11	5·712	100	47·5	
April 15. 15	1·0	47·0	10. 14. 46	5·707	100	46·8	N
	1·3		4. 38. 57	5·712	100	47·2	
May 23. 16	1·0	52·5	10. 13. 9	5·713	100	52·6	E
	1·3		4. 38. 5	5·710	100	54·4	
June 15. 14	1·0	62·4	10. 12. 45	5·728	100	62·4	N
	1·3		4. 38. 5	5·720	100	62·8	
July 15. 15	1·0	64·8	10. 11. 11	5·725	100	65·1	N
	1·3		4. 37. 33	5·724	100	66·3	
August 17. 16	1·0	64·0	10. 11. 22	5·723	100	64·4	N
	1·3		4. 37. 34	5·724	100	65·2	
September 15. 16	1·0	63·4	10. 11. 22	5·729	100	63·1	N
	1·3		4. 37. 36	5·724	100	64·2	
October 16. 15	1·0	54·9	10. 11. 52	5·725	100	55·1	N
	1·3		4. 37. 42	5·727	100	55·8	
November 16. 15	1·0	52·9	10. 11. 52	5·724	100	51·3	N
	1·3		4. 37. 43	5·720	100	52·1	
December 15. 15	1·0	52·8	10. 12. 0	5·718	100	51·1	N
	1·3		4. 37. 39	5·728	100	52·1	

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 initials E and N are those of Mr. Ellis and 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.

Greenwich Civil Time, 1891.	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 Horizontal Force X.	Value of Horizontal Force. As observed.	Value of Horizontal Force. Reduced to Mean of Month.
						s					
Jan. d h 15. 15	0·08904	0·08925	−0·00575	−0·00338	8·95125	5·7055	0·14644	0·3539	3·9590	1·8255	1·8255
Feb. 13. 14	0·08918	0·08936	−0·00479		8·95189	5·7135	0·14571	0·3538	3·9528	1·8226	1·8241
Mar. 16. 15	0·08919	0·08929	−0·00271		8·95173	5·7125	0·14576	0·3538	3·9538	1·8231	1·8244
Apr. 15. 15	0·08910	0·08920	−0·00259		8·95130	5·7095	0·14617	0·3538	3·9576	1·8248	1·8247
May 23. 16	0·08896	0·08900	−0·00130		8·95047	5·7115	0·14632	0·3535	3·9621	1·8268	1·8252
June 15. 14	0·08905	0·08916	−0·00293		8·95107	5·7240	0·14579	0·3535	3·9569	1·8245	1·8267
July 15. 15	0·08886	0·08902	−0·00440		8·95028	5·7245	0·14593	0·3533	3·9611	1·8264	1·8254
Aug. 17. 16	0·08888	0·08902	−0·00384		8·95030	5·7235	0·14599	0·3533	3·9614	1·8265	1·8264
Sept. 15. 16	0·08887	0·08902	−0·00406		8·95028	5·7265	0·14543	0·3531	3·9589	1·8254	1·8249
Oct. 16. 15	0·08881	0·08892	−0·00305		8·94989	5·7260	0·14497	0·3527	3·9586	1·8252	1·8242
Nov. 16. 15	0·08878	0·08889	−0·00316		8·94976	5·7220	0·14545	0·3529	3·9613	1·8265	1·8248
Dec. 15. 15	0·08880	0·08887	−0·00203		8·94974	5·7230	0·14533	0·3528	3·9609	1·8263	1·8255
Means ...	...	...	...	...	...	...	...	...	3·9587	1·8253	1·8251

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 value in Metric Measure must be divided by 10.

TABLE XIX.—*continued*—DETERMINATIONS OF THE ABSOLUTE VALUE OF HORIZONTAL MAGNETIC FORCE IN THE YEAR 1891.

Abstract of the Observations of Deflexion of a Magnet for Absolute Measure of Horizontal Force made with the Elliott Instrument.

Greenwich Civil Time. 1891.	Distances of Centres of Magnets.	Temperature Centigrade.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature Centigrade.	Observer.
d h	cms.	°	° ′ ″	s		°	
June 4. 14	30	17·2	20. 22. 42	4·200	100	16·6	N
	40		8. 26. 4	4·200	100	17·1	
July 16. 15	30	20·4	20. 13. 22	4·207	100	20·3	N
	40		8. 22. 7	4·211	100	21·1	
August 15. 14	30	19·2	20. 19. 45	4·209	100	18·4	N
	40		8. 23. 45	4·211	100	19·2	
September 16. 15	30	16·5	20. 19. 12	4·209	100	15·9	N
	40		8. 24. 5	4·212	100	16·1	
October 20. 15	30	13·8	20. 20. 18	4·211	100	12·7	N
	40		8. 24. 27	4·211	100	13·3	
November 20. 15	30	12·9	20. 16. 8	4·214	100	12·6	N
	40		8. 23. 20	4·212	100	12·4	
November 24. 14	30	8·9	20. 20. 47	4·208	100	7·8	N
	40		8. 25. 13	4·208	100	8·6	
December 16. 15	30	10·6	20. 17. 2	4·210	100	10·1	N
	40		8. 23. 5	4·216	100	10·6	

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 0° Centigrade.

Computation of the Values of Horizontal Force in Absolute Measure.

Greenwich Civil Time, 1891.	In C.G.S. 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 Horizontal Force X.	Value of Horizontal Force. As Observed.	Value of Horizontal Force. Reduced to Mean of Month.
d h						s					
June 4. 14	4739·8	4732·4	+ 3·22	+ 4·98	3·67354	4·2000	2·19822	862·7	0·18295	1·8295	1·8298
July 16. 15	4713·1	4703·9	+ 4·03		3·67100	4·2090	2·19726	859·3	0·18329	1·8329	1·8315
Aug. 15. 14	4733·9	4716·1	+ 7·77		3·67252	4·2100	2·19661	860·1	0·18283	1·8283	1·8273
Sept. 16. 15	4725·1	4712·3	+ 5·59		3·67194	4·2105	2·19585	858·8	0·18279	1·8279	1·8281
Oct. 20. 15	4722·3	4708·9	+ 5·83		3·67166	4·2110	2·19510	857·8	0·18269	1·8269	1·8279
Nov. 20. 15	4704·7	4696·3	+ 3·65		3·67027	4·2130	2·19460	855·9	0·18288	1·8288	1·8299
Nov. 24. 14	4712·3	4704·1	+ 3·55		3·67098	4·2080	2·19470	856·7	0·18275	1·8275	1·8282
Dec. 16. 15	4702·4	4688·3	+ 6·16		3·66979	4·2130	2·19414	855·0	0·18289	1·8289	1·8279
Means ...	...	...	...	...	...	...	...	...	0·18288	1·8288	1·8288

Comparison of the Results for Absolute Horizontal Force in Metric Measure (reduced to Mean of Month) as determined from the Gibson and Elliott Instruments respectively.

Day.	Gibson Instrument.	Elliott Instrument.	Day.	Gibson Instrument.	Elliott Instrument.
1891. June 4	...	1·8298	1891. Oct. 20	...	1·8279
15	1·8267	...	Nov. 16	1·8248	...
July 15	1·8254	...	20	..	1·8299 }
16	...	1·8315	24	...	1·8282 }
Aug. 15	...	1·8273	Dec. 15	1 8255	...
17	1·8264	...	16	...	1·8279
Sept. 15	1·8249	...			
16	...	1·8281			
Oct. 16	1·8242	...	Mean ...	1·8254	1·8288

The excess of value as determined by the Elliott Instrument is therefore 0·0034.

MONTHLY MEAN DIURNAL INEQUALITIES OF MAGNETIC ELEMENTS FROM HOURLY ORDINATES, ON FIVE SELECTED DAYS, IN EACH MONTH.

Each result is the mean of the corresponding hourly ordinates from the photographic register, on five quiet days in each month, selected for comparison with results at other British Observatories. The days included are January 4, 6, 27, 30, 31, February 4, 8, 18, 21, 22, March 8, 11, 19, 20, 29, April 5, 15, 19, 25, 30, May 1, 8, 21, 25, 31, June 1, 9, 17, 22, 30, July 2, 8, 12, 26, 31, August 5, 10, 18, 22, 27, September 5, 6, 18, 19, 25, October 6, 15, 16, 17, 22, November 2, 8, 12, 19, 30, December 3, 6, 18, 26, 29.

The results for Declination are given in minutes of arc: those for Horizontal Force and Vertical Force are given both in terms of the whole Horizontal or Vertical Force and in terms of the Millimètre-Milligramme-Second (Metric) Unit. The letter *f* indicates values in terms of the whole Horizontal or Vertical Force, and the letter *m* values in terms of the Metric Unit, the unit for the former values being ·00001 of the whole Horizontal or Vertical Force, and for the latter ·00001 of the Metric Unit, or ·000001 of the Centimètre-Gramme-Second (C.G.S.) Unit. The values of the whole Horizontal and Vertical Forces expressed in terms of the Metric Unit are 1·8251 and 4·3756 respectively for the year.

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

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

1891.

Hour Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
	′	′	′	′	′	′	′	′	′	′	′	′	′
Midnight	0·4	0·3	2·1	3·2	2·6	4·0	4·1	2·8	2·6	2·5	1·4	0·4	1·96
1h	0·7	0·1	2·7	3·0	2·7	3·8	4·3	2·5	2·8	2·6	1·6	1·1	2·09
2	1·1	0·1	2·8	3·1	2·0	3·8	4·1	2·4	2·8	2·6	1·6	1·2	2·06
3	1·4	0·4	2·5	2·1	1·8	3·9	3·6	2·2	2·1	3·1	1·6	1·6	1·95
4	1·5	0·5	2·2	2·3	1·6	3·3	2·9	1·9	1·6	2·6	1·7	1·8	1·75
5	1·3	0·5	2·1	2·3	1·1	2·3	1·5	1·3	1·5	2·5	1·7	1·5	1·39
6	0·8	0·0	1·8	1·7	0·6	1·1	0·6	0·5	1·0	2·3	1·7	1·0	0·85
7	0·5	0·2	1·0	0·5	0·0	0·0	0·3	0·0	0·3	1·7	1·4	1·1	0·34
8	0·2	0·1	0·0	0·0	0·6	0·0	0·0	0·1	0·0	0·3	0·7	0·9	0·00
9	0·0	0·3	0·7	1·1	2·2	1·3	0·2	1·2	1·3	0·0	0·6	0·5	0·54
10	1·2	1·2	2·7	2·9	5·2	3·2	2·3	3·8	4·4	1·6	1·9	1·4	2·41
11	2·4	2·7	5·6	5·6	8·2	5·9	5·3	6·8	8·0	4·6	4·2	2·8	4·93
Noon	3·6	3·9	8·2	7·6	10·6	9·1	8·3	9·6	9·9	7·6	6·3	3·2	7·09
13h	4·0	4·3	9·1	8·7	11·4	10·3	10·2	9·8	10·1	9·0	6·7	3·9	7·88
14	3·2	3·9	8·3	7·6	10·6	10·2	10·9	9·2	8·8	8·5	6·3	3·8	7·37
15	2·2	2·9	6·9	6·1	8·7	9·4	10·0	7·6	6·7	6·9	5·4	3·2	6·09
16	1·8	1·9	4·4	4·8	6·6	7·6	8·1	5·6	4·9	5·2	4·0	2·9	4·58
17	1·6	1·6	3·3	4·1	5·2	6·2	6·2	4·0	4·2	4·5	3·1	1·8	3·58
18	1·5	1·6	3·1	3·3	4·5	5·3	4·9	3·0	3·2	3·8	3·0	1·6	2·99
19	1·2	1·4	2·8	2·6	4·2	5·0	4·1	3·4	3·2	3·2	2·5	1·1	2·65
20	1·0	1·2	2·9	3·2	3·5	5·1	4·3	3·7	3·4	2·8	2·0	0·8	2·59
21	0·6	0·9	2·8	3·4	3·9	5·1	4·1	3·6	3·3	2·5	1·5	0·3	2·43
22	0·1	0·7	2·3	3·1	4·3	5·2	4·2	2·9	3·2	2·6	1·2	0·2	2·26
23	0·2	0·5	2·2	3·1	4·2	5·2	4·3	2·9	3·2	2·4	0·8	0·1	2·18
24	0·3	0·9	2·5	3·3	3·5	4·7	4·1	3·0	2·7	2·3	0·0	0·0	2·04
Means 0h—23h	1·35	1·30	3·44	3·56	4·43	4·85	4·53	3·78	3·85	3·56	2·62	1·59	3·00
Means 1h—24h	1·35	1·32	3·45	3·56	4·47	4·87	4·53	3·79	3·86	3·55	2·56	1·58	3·00

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

(*The results are corrected for temperature and in each case diminished by the smallest hourly value.*)

1891.

Hour Greenwich Civil Time.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		For the Year.	
	f	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*
Midn.	63	115	88	161	143	261	152	277	156	285	192	350	181	330	191	349	191	349	168	307	120	219	9	16	131·0	239·2
1h	65	119	106	193	143	261	156	285	164	299	174	318	191	349	186	339	189	345	170	310	122	223	14	26	133·2	243·2
2	70	128	63	115	126	230	143	261	154	281	163	297	170	310	184	336	186	339	166	303	128	234	13	24	123·7	225·8
3	71	130	64	117	116	212	125	228	148	270	157	287	156	285	168	307	160	292	167	305	123	224	25	46	116·5	212·8
4	84	153	72	131	115	210	113	206	121	221	163	297	160	292	183	334	162	296	169	308	137	250	23	42	118·4	215·9
5	91	166	81	148	120	219	112	204	99	181	149	272	156	285	157	287	159	290	167	305	132	241	37	68	114·9	209·8
6	93	170	89	162	114	208	108	197	89	162	119	217	119	217	145	265	131	239	181	330	146	266	59	108	109·3	199·4
7	89	162	91	166	104	190	100	183	52	95	78	142	87	159	84	153	97	177	169	308	136	248	63	115	89·0	162·4
8	77	141	75	137	58	106	60	110	20	37	48	88	46	84	48	88	49	89	135	246	101	184	63	115	58·2	106·3
9	45	82	39	71	27	49	4	7	0	0	0	0	10	18	4	7	3	5	69	126	47	86	37	68	16·9	30·9
10	21	38	13	24	0	0	0	0	16	29	6	11	0	0	0	0	0	0	16	29	0	0	10	18	0·0	0·0
11	0	0	0	0	20	37	21	38	47	86	20	37	19	35	22	40	34	62	0	0	14	26	2	4	9·8	18·0
Noon	12	22	9	16	45	82	41	75	81	148	64	117	43	78	92	168	122	223	23	42	30	55	0	0	40·0	73·1
13h	42	77	25	46	87	159	89	162	131	239	110	201	105	192	144	263	165	301	79	144	50	91	7	13	79·4	144·9
14	67	122	60	110	117	214	113	206	167	305	182	332	145	265	203	370	203	370	127	232	72	131	27	49	116·8	213·1
15	84	153	79	144	144	263	155	283	200	365	216	394	197	360	223	407	193	352	139	254	111	203	34	62	141·1	257·6
16	87	159	78	142	114	208	165	301	230	420	232	423	238	434	227	414	190	347	160	292	124	226	32	58	149·6	272·9
17	101	184	70	128	116	212	167	305	249	454	274	500	248	453	231	422	196	358	174	318	128	234	45	82	159·8	291·8
18	87	159	65	119	115	210	183	334	264	482	280	511	254	464	247	451	208	380	194	354	128	234	55	100	166·5	304·1
19	83	151	76	139	134	245	181	330	256	467	278	507	244	445	267	487	244	445	199	363	152	277	60	110	174·4	318·1
20	77	141	89	162	137	250	177	323	231	422	264	482	230	420	244	445	237	433	217	396	162	296	46	84	169·1	308·8
21	69	126	91	166	151	276	173	316	223	407	244	445	218	398	244	445	233	425	207	378	139	254	41	75	162·6	296·8
22	66	120	88	161	154	281	168	307	218	398	224	409	204	372	220	402	227	414	195	356	131	239	38	69	154·3	281·6
23	61	111	67	122	155	283	176	321	200	365	230	420	195	356	222	405	227	414	200	365	143	261	33	60	152·3	277·9
24	71	130	79	144	150	274	171	312	186	339	217	396	212	387	205	374	227	414	194	354	162	296	21	38	151·1	275·8
Means 0h—23h	66·9	122·0	65·7	120·0	106·5	194·4	120·1	219·1	146·5	267·4	161·1	294·0	150·7	275·0	164·0	299·3	158·6	289·4	145·5	265·5	107·3	195·9	32·2	58·8	112·0	204·3
1h—24h	67·2	122·7	65·4	119·3	106·7	195·0	120·9	220·6	147·8	269·7	162·2	296·0	152·0	277·4	164·6	300·4	160·1	292·1	146·5	267·4	109·1	199·1	32·7	59·7	112·8	205·9

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

(The results are corrected for temperature and in each case diminished by the smallest hourly value.)

1891.

Hour Greenwich Civil Time.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		For the Year.	
	f	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*	*f*	*m*
Midn.	2	9	13	57	31	136	41	179	39	171	42	184	43	188	17	74	20	88	19	83	16	70	9	39	17·2	75·5
1h	2	9	3	13	27	118	39	171	35	153	38	166	43	188	17	74	18	79	19	83	14	61	6	26	14·7	64·1
2	0	0	0	0	25	109	33	144	30	131	40	175	40	175	19	83	20	88	21	92	14	61	7	31	13·6	59·8
3	4	18	4	18	25	109	32	140	32	140	40	175	40	175	19	83	20	88	18	79	15	66	9	39	14·4	63·2
4	7	31	6	26	26	114	36	158	38	166	44	193	46	201	21	92	22	96	20	88	17	74	13	57	17·6	77·0
5	11	48	6	26	30	131	38	166	42	184	44	193	48	210	24	105	24	105	22	96	17	74	17	74	19·8	86·7
6	9	39	2	9	28	123	42	184	38	166	40	175	52	228	26	114	26	114	20	88	19	83	15	66	19·3	84·7
7	11	48	6	26	34	149	48	210	44	193	38	166	56	245	34	149	34	149	26	114	23	101	21	92	24·1	105·8
8	13	57	8	35	34	149	48	210	42	184	28	123	56	245	32	140	26	114	28	123	25	109	18	79	22·7	99·7
9	17	74	8	35	22	96	36	158	22	96	14	61	42	184	24	105	18	79	24	105	23	101	14	61	14·9	65·2
10	17	74	6	26	16	70	18	79	10	44	12	53	32	140	12	53	10	44	10	44	22	96	12	53	7·7	33·7
11	24	105	15	66	2	9	0	0	0	0	0	0	8	35	2	9	6	26	0	0	17	74	11	48	0·0	0·0
Noon	26	114	15	66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	18	21	92	20	88	0·1	0·5
13h	23	101	19	83	10	44	10	44	16	70	6	26	12	53	5	22	6	26	10	44	21	92	18	79	5·9	26·0
14	21	92	20	88	20	88	30	131	32	140	18	79	28	123	25	109	16	70	18	79	27	118	21	92	15·9	69·8
15	22	96	22	96	42	184	46	201	48	210	34	149	32	140	37	162	28	123	26	114	33	144	21	92	25·5	111·6
16	16	70	18	79	50	219	52	228	64	280	44	193	48	210	37	162	32	140	34	149	27	118	21	92	29·8	130·7
17	10	44	14	61	46	201	58	254	72	315	58	254	62	271	41	179	34	149	30	131	23	101	17	74	31·7	138·5
18	10	44	9	39	40	175	58	254	74	324	64	280	64	280	47	206	32	140	28	123	25	109	18	79	32·0	140·1
19	8	35	3	13	36	158	58	254	73	319	62	271	64	280	37	162	32	140	22	96	12	53	14	61	28·0	122·5
20	12	53	5	22	33	144	52	228	67	293	56	245	60	263	33	144	30	131	24	105	10	44	10	44	25·6	112·0
21	12	53	3	13	25	109	48	210	53	232	48	210	52	228	31	136	26	114	19	83	6	26	8	35	20·5	89·8
22	10	44	5	22	19	83	48	210	49	214	46	201	50	219	29	127	24	105	15	66	2	9	6	26	18·1	79·5
23	12	53	1	4	16	70	41	179	45	197	46	201	47	206	27	118	22	96	15	66	4	18	0	0	15·9	69·7
24	10	44	9	39	12	53	39	171	45	197	42	184	48	210	27	118	20	88	15	66	0	0	3	13	15·4	67·6
Means 0h—23h	12·5	54·6	8·8	38·5	26·5	116·2	38·0	166·3	40·2	175·9	35·9	157·2	42·7	187·0	24·8	108·7	21·9	96·0	19·7	86·2	18·0	78·9	13·6	59·5	18·1	79·4
1h—24h	12·8	56·1	8·6	37·7	25·7	112·7	37·9	166·0	40·5	177·0	35·9	157·2	42·9	187·9	25·3	110·5	21·9	96·0	19·5	85·5	17·4	76·0	13·3	58·4	18·0	79·1

ROYAL OBSERVATORY, GREENWICH.

MAGNETIC DISTURBANCES

AND

EARTH CURRENTS.

1891.

MAGNETIC DISTURBANCES in DECLINATION, HORIZONTAL FORCE, and VERTICAL FORCE, recorded at the ROYAL OBSERVATORY, GREENWICH, in the Year 1891.

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.

Magnetic movements which do not admit of brief description in this way are exhibited on accompanying plates.

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

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January
5. 15^h to 6. 1^h Small fluctuations in Dec. (± 2′): in H.F. (± ·001).
6. 22^h to 26. 14^h No register of Dec. or H.F.
16. 16^h to 19^h Wave in V.F. (+ ·001).
17. 17^h to 18. 1^h Small fluctuations in V.F.
18. 19^h to 19. 1^h Small fluctuations in V.F.
27. 22^h to 23^h Wave in Dec. (− 4′).
28. 20^h to 29. 6^h Fluctuations in Dec. (± 6′): in H.F. (± ·002): in V.F. (± ·0003).

February
1. 11^h to 23^h Fluctuations in Dec. (± 2′): in H.F. (± ·001): in V.F. small.
5. 22^h to 6. 5^h Fluctuations in Dec. (± 3′): in H.F. (± ·0006): in V.F. small.
6. 20^h to 7. 3^h Fluctuations in Dec. (± 3′): in H.F. and V.F. small.
9. 15^h to 10. 5^h Fluctuations in Dec. (± 6′): in H.F. (± ·002): in V.F. (± ·0003).
10. 16^h to 11. 2^h Fluctuations in Dec. (± 5′): in H.F. (± ·0015): in V.F. (± ·0002).
11. 12^h to 15. 12^h. See Plates I. and II.
15. 13^h to $14\frac{1}{2}^h$ Wave in Dec. (− 6′). 12^h to 18^h Fluctuations in H.F. (± ·0015). $13\frac{1}{2}^h$ to 15^h Wave in V.F. (+ ·0003).
16. 20^h to 17. 2^h Fluctuations in Dec. (± 4′): in H.F. (± ·0008).
17. $17\frac{3}{4}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 13′). $17\frac{3}{4}^h$ to 19^h Wave in H.F. (− ·0013). 17. 23^h to 18. 4^h Fluctuations in Dec. (± 2′): in H.F. (± ·001): in V.F. (± ·0001).
18. 18^h to 19. 3^h Fluctuations in Dec. (± 2′): in H.F. (± ·001): in V.F. small.
23. 3^h to 9^h Fluctuations in Dec. (± 3′).
24. 22^h to 25. 2^h Fluctuations in Dec. (± 4′): in H.F. (± ·0008): in V.F. small.
26. 23^h to 27. 6^h Fluctuations in Dec. (± 3′). 26. 15^h to 27. 6^h Fluctuations in H.F. (± ·001).

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March

2. 1^h to 3. 1^h. See Plate II.

3. 2^h to 5^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. and V.F. small. $7\frac{1}{2}^h$ to 10^h Rapid fluctuations in Dec. ($\pm$ 5′) : in H.F. ($\pm$ ·002) : in V.F. ($\pm$ ·0002). 3. 11^h to 4. 7^h Fluctuations in Dec. ($\pm$ 8′) : in H.F. ($\pm$ ·002) : in V.F. ($\pm$ ·0003).

4. 12^h to 5. 2^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·001) : in V.F. ($\pm$ ·0002).

5. 17^h to 6. 2^h Fluctuations in Dec. ($\pm$ 6′), with wave 5. $18\frac{1}{4}^h$ to $19\frac{3}{4}^h$ ($-$ 16′) : fluctuations in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0002).

6. 18^h to 7. 6^h Fluctuations in Dec. ($\pm$ 2′) : in H.F. small.

7. 19^h to 8. 3^h Fluctuations in Dec. ($\pm$ 2′) : in H.F. ($\pm$ ·001).

9. 21^h to 10. 3^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·002) : in V.F. small.

12. 23^h to 13. 4^h Fluctuations in Dec. ($\pm$ 8′) : in H.F. ($\pm$ ·002) : in V.F. ($\pm$ ·0005).

14. 22^h to 15. 7^h Fluctuations in Dec. ($\pm$ 6′) : in H.F. ($\pm$ ·0007), with wave 14. $22\frac{1}{2}^h$ to 23^h (+ ·003) : fluctuations in V.F. ($\pm$ ·0002).

15. $18\frac{1}{2}^h$ to 22^h Double crested wave in Dec. ($-$ 15′ and $-$ 8′) : fluctuations in H.F. ($\pm$ ·0025) : in V.F. small.

16. 5^h to 17. 4^h Fluctuations in Dec. ($\pm$ 6′) : in H.F. ($\pm$ ·002) : in V.F. ($\pm$ ·0001).

17. 15^h to 18. 6^h Fluctuations in Dec. ($\pm$ 5′) : in H.F. ($\pm$ ·0025) : in V.F. ($\pm$ ·0002).

19. 19^h to 24^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) : in V.F. small.

23. 9^h to 14^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001). 23. 20^h to 24. 1^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·002) : in V.F. ($\pm$ ·0003).

24. 4^h to 25. 1^h Fluctuations in Dec. ($\pm$ 7′) : in H.F. ($\pm$ ·0025) : in V.F. ($\pm$ ·0002).

26. $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0015).

27. 19^h to 28. 1^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0002).

30. 17^h to 31. 7^h Fluctuations in Dec. ($\pm$ 8′) : in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0003).

31. 12^h to Apr. 1. 12^h. See Plate II.

April

1. 18^h to 2. 9^h Fluctuations in Dec. ($\pm$ 6′) : in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0003).

2. 17^h to 3. 3^h Fluctuations in Dec. ($\pm$ 5′) : in H.F. ($\pm$ ·001) : in V.F. ($\pm$ ·0002).

6. $18\frac{3}{4}^h$ to $20\frac{1}{4}^h$ Wave in Dec. ($-$ 4′).

7. 15^h to 8. 15^h Fluctuations in Dec. ($\pm$ 5′), with wave 7. $16\frac{1}{2}^h$ to 19^h ($-$ 15′) : fluctuations in H.F. ($\pm$ ·002) : in V.F. ($\pm$ ·0003).

8. 15^h to 9. 0^h. See Plate III.

9. 12^h to 10. 0^h. See Plate III.

10. 2^h to 4^h Wave in Dec. (+ 8′). 17^h to 21^h Fluctuations in Dec. ($\pm$ 5′) : in H.F. ($\pm$ ·001) : in V.F. small.

11. 17^h to 12. 4^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0002).

12. 12^h to 13. 12^h. See Plate III.

13. 16^h to 24^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·001) : in V.F. ($\pm$ ·0001).

14. 23^h to 15. 4^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) : in V.F. small.

16. 20^h to 17. 7^h Small fluctuations in Dec., H.F. and V.F.

17. 12^h to 18. 3^h Frequent fluctuations in Dec. ($\pm$ 5′) : in H.F. ($\pm$ ·002). 17. 12^h to 23^h Long wave in V.F. (+ ·0025), with superposed fluctuations ($\pm$ ·0004).

18. 7^h to 21^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0002).

20. 12^h to 21. 3^h Fluctuations in Dec. ($\pm$ 3′), with wave 20. $18\frac{1}{4}^h$ to $19\frac{3}{4}^h$ ($-$ 11′) : fluctuations in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0002).

21. 19^h to 22. 5^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·001).

22. 21^h to 23. 3^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) : in V.F. ($\pm$ ·0001).

24. 12^h to 21^h Fluctuations in H.F. ($\pm$ ·001).

26. $20\frac{3}{4}^h$ to $22\frac{1}{2}^h$ Wave in Dec. ($-$ 5′).

29. 2^h to 9^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·0008).

May

2. 20^h to 23^h Fluctuations in Dec. ($\pm$ 2′) : in H.F. ($\pm$ ·0008).

3. 20^h to 23^h Fluctuations in Dec. ($\pm$ 3′). 14^h to 22^h Small fluctuations in H.F.

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May

4. 14^h to 5. 6^h Fluctuations in Dec. ($\pm$ 5′) : in H.F. ($\pm$ ·0025) : in V.F. ($\pm$ ·0003).
6. 13^h to 23^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·002) : in V.F. small.
7. 17^h to 8. 3^h Fluctuations in Dec. ($\pm$ 5′) : in H.F. ($\pm$ ·001) : in V.F. ($\pm$ ·0001).
8. 16^h to 9. 6^h Fluctuations in Dec. ($\pm$ 2′) : in H.F. ($\pm$ ·001) : in V.F. small.
13. 6^h to 17. 6^h. See Plates III., IV. and V.
17. 20^h to 18. 3^h Small fluctuations in Dec., with wave 17. 23^h to 18. 1^h (+ 10′). 17. 17^h to 18. 5^h Fluctuations in H.F. ($\pm$ ·001) : in V.F. ($\pm$ ·0002).
19. 21^h to 20. 5^h Fluctuations in Dec. ($\pm$ 3′). 19. 12^h to 20. 5^h Fluctuations in H.F. ($\pm$ ·0015) : in V.F. small.
21. 19^h to 22. 1^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. and V.F. small.
27. 16^h to 29. 5^h Fluctuations in Dec. ($\pm$ 8′) : in H.F. ($\pm$ ·002) : in V.F. ($\pm$ ·0003).
29. 19^h to 30. 6^h Fluctuations in Dec. ($\pm$ 5′). 29. 11^h to 30. 6^h Fluctuations in H.F. ($\pm$ ·0015) : in V.F. small.
30. 16^h to 31. 2^h Small fluctuations in Dec. and H.F.

June

3. 23^h to 4. 9^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·0008).
5. 20^h to 6. 7^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·001) : in V.F. small.
14. 8^h to 18^h. See Plate V.
18. 19^h to 19. 9^h Fluctuations in Dec. ($\pm$ 3′). 18. 12^h to 19. 9^h Fluctuations in H.F. ($\pm$ ·0008) : in V.F. small.
19. 14^h to 20. 23^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0002).
21. 13^h to 22. 2^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) : in V.F. small.
23. 13^h to 14^h Wave in Dec. (+ 3′) : in H.F. (+ ·003) : in V.F. (+ ·0002).
25. 21^h to $22\frac{1}{2}^h$ Wave in Dec. (− 6′).
26. 16^h to 27. 22^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0001).

July

3. 15^h to 4. 4^h Fluctuations in Dec. ($\pm$ 7′) : in H.F. ($\pm$ ·002) : small fluctuations in V.F. with wave 3. $22\frac{1}{2}^h$ to 4. 4^h (− ·0013).
6. 13^h to 23^h. Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·0025) : in V.F. ($\pm$ ·0002).
7. $2\frac{2}{3}^h$ to 4^h Wave in Dec. (+ 3′). 14^h to 18^h Fluctuations in H.F. ($\pm$ ·001), with wave $17\frac{1}{4}^h$ to $17\frac{3}{4}^h$ (− ·004) : small fluctuations in Dec. and V.F.
14. $1\frac{1}{2}^h$ to 19^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·0008) : in V.F. small.
16. 17^h to 17. 21^h Fluctuations in Dec. ($\pm$ 5′) : in H.F. ($\pm$ ·002) : in V.F. ($\pm$ ·0002), with wave 17. 12^h to 20^h (+ ·0015).
24. 14^h to 25. 7^h Fluctuations in Dec. ($\pm$ 6′) : in H.F. ($\pm$ ·002) : in V.F. ($\pm$ ·0003).
25. 12^h to 17^h Fluctuations in H.F. ($\pm$ ·0015).
28. $1\frac{1}{2}^h$ to 3^h Wave in H.F. (+ ·0015).
29. 13^h to 21^h Fluctuations in H.F. ($\pm$ ·001).

August

1. 19^h to 2. 1^h Fluctuations in H.F. ($\pm$ ·001) : in Dec. and V.F. small.
2. 17^h to 20^h Fluctuations in Dec. ($\pm$ 2′) : in H.F. ($\pm$ ·001). 2. $23\frac{1}{2}^h$ to 3. 1^h Wave in Dec. (+ 10′). 3. $0\frac{1}{4}^h$ to 1^h Wave in H.F. (+ ·002) : 3. $0\frac{1}{4}^h$ to $0\frac{3}{4}^h$ Decrease of V.F. (− ·0008).
3. 6^h to 4. 1^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·002), with wave 3. $6\frac{1}{2}^h$ to 10^h (− ·0045) : small fluctuations in V.F.
9. 14^h to 10. 5^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) : in V.F. ($\pm$ ·0001).
13. 0^h to $1\frac{1}{4}^h$ Wave in Dec. (+ 4′) : in H.F. (+ ·001) : in V.F. + ·0001). 13. 21^h to 14. 5^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001).
14. 19^h to 15. 2^h Fluctuations in Dec. ($\pm$ 4′). 14. 16^h to 15. 2^h Fluctuations in H.F. ($\pm$ ·001).
16. 19^h to 17. 6^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·0015) : in V.F. ($\pm$ ·0002).
19. 20^h to 20. 1^h Fluctuations in Dec. ($\pm$ 3′) : 19. 21^h to 23^h Irregular wave in H.F. (+ ·003).
21. 21^h to 24^h Fluctuations in Dec. ($\pm$ 4′) : in H.F. ($\pm$ ·001). 23^h to $23\frac{1}{2}^h$ Decrease of V.F. (− ·0004).
28. 19^h to 30. 6^h. See Plates V. and VI.

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August 30. 14^h to 31. 4^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0012) : in V.F. small.

31. 18^h to $19\frac{1}{4}^h$ Wave in Dec. (− 8′). $18\frac{1}{4}^h$ to $18\frac{3}{4}^h$ Wave in H.F. (− ·0012). 31. 23^h to Sept. 1. 3^h Fluctuations in Dec. (± 3′). 31. $23\frac{1}{2}^h$ to Sept. 1. 3^h Wave in H.F. (+ ·003). 31. $23\frac{1}{2}^h$ to 24^h Decrease of V.F. (− ·0003).

September 1. 12^h to 2. 6^h Fluctuations in Dec. (± 5′), with waves 1. 17^h to $18\frac{1}{2}^h$ (− 7′), and 1. $21\frac{1}{4}^h$ to $22\frac{1}{4}^h$ (−8′): fluctuations in H.F. (± ·002) : in V.F. (± ·0002).

2. $17\frac{1}{3}^h$ to 18^h Wave in Dec. (− 5′). 17^h to $17\frac{2}{3}^h$ Wave in H.F. (− ·002). 21^h to 22^h Wave in Dec. (− 4′).

3. $2\frac{1}{2}^h$ to 4^h Wave in Dec. (+ 5′). 3. 15^h to 4. 4^h Fluctuations in Dec. (± 6′), with wave 4. 1^h to $2\frac{3}{4}^h$ (+ 15′) : fluctuations in H.F. (± ·0015) : in V.F. (± ·0003).

8. 22^h to 9. 8^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001) : in V.F. (± ·0003).

9. 8^h to 12. 8^h. See Plates VI. and VII.

12. 12^h to 18^h Small rapid fluctuations in H.F. (± ·001).

13. 19^h to 14. 4^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001) : in V.F. (± ·0002).

14. $17\frac{1}{2}^h$ to $19\frac{3}{4}^h$ Wave in Dec. (− 7′) : $21\frac{2}{3}^h$ to $22\frac{2}{3}^h$ Wave in Dec. (+ 5′).

15. 16^h to 24^h. Fluctuations in Dec. (± 2′) : in H.F. (± ·001).

16. 19^h to 24^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001).

20. 22^h to 21. 5^h Fluctuations in Dec. (± 4′) : in H.F. (± ·0008).

21. $17\frac{3}{4}^h$ to 20^h. Wave in Dec. (− 5′). 17^h to 20^h Fluctuations in H.F. (± ·0008).

22. 18^h to 20^h Wave in Dec. (− 6′).

24. 17^h to 25. 3^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001) : in V.F. small.

26. 12^h to 24^h. Fluctuations in Dec. (± 6′) : in H.F. (± ·0015) : in V.F. (± ·0002).

27. 18^h to 28. 5^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001) : in V.F. small.

28. 12^h to 29. 12^h. See Plate VII.

29. 12^h to Oct. 1. 6^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001) : in V.F. (± ·0001).

October 1. 13^h to 23^h. Fluctuations in Dec. (± 3′) : in H.F. (± ·001) : in V.F. (± ·0001).

2. $14\frac{3}{4}^h$ to 19^h Irregular wave in Dec. (− 7′). 2. 21^h to 3. 6^h Fluctuations in Dec. (± 2′). 2. 14^h to 3. 6^h Fluctuations in H.F. (± ·001), with wave 2. $17\frac{1}{4}^h$ to 19^h (+ ·002).

4. 17^h to 5. 4^h Fluctuations in Dec. (± 3′).

7. 21^h to 8. 8^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0008).

8. 12^h to 23^h Fluctuations in Dec. (± 4′), with wave $19\frac{1}{4}^h$ to $20\frac{1}{2}^h$ (− 18′) : fluctuations in H.F. (± ·002) : in V.F. (± ·0001).

10. $5\frac{1}{3}^h$ to $7\frac{1}{2}^h$ Wave in Dec. (+ 12′). $6\frac{1}{4}^h$ to $7\frac{1}{2}^h$ Wave in H.F. (+ ·003).

11. $14\frac{3}{4}^h$ to $15\frac{1}{2}^h$ Small fluctuations in Dec., H.F. and V.F.

12. 20^h to 13. 7^h Fluctuations in Dec. (± 6′), with wave 13. $4\frac{1}{2}^h$ to $6\frac{3}{4}^h$ (+ 9′) : fluctuations in H.F. (± ·0015) : in V.F. (± ·0001).

13. $19\frac{1}{2}^h$ to 22^h Fluctuations in Dec. (± 3′). $19\frac{1}{2}^h$ to 21^h Wave in H.F. (+ ·0025).

14. $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (+ ·003).

18. 20^h to 19. 6^h Fluctuations in Dec. (± 5′) : in H.F. (± ·002) : in V.F. (± ·0002).

19. 19^h to 20. 2^h Fluctuations in Dec. (± 7′) : in H.F. (± ·0025) : in V.F. (± 0003).

20. $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 6′) : in H.F. (+ ·0015).

23. 12^h to 27. 12^h. See Plates VII., VIII. and IX.

27. $16\frac{3}{4}^h$ to 18^h Wave in Dec. (− 12′). $19\frac{1}{2}^h$ to $20\frac{1}{4}^h$ Wave in Dec. (− 8′). 16^h to 23^h Fluctuations in H.F. (± ·001) : in V.F. (± ·0001).

28. 14^h to 29. 4^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001) : in V.F. (± ·0001).

29. 13^h to 30. 4^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001) : in V.F. small.

30. 21^h to 22^h Wave in Dec. (− 6′). $20\frac{1}{2}^h$ to 22^h Fluctuations in H.F. (± ·001).

November 10. 12^h to 11. 4^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001).

13. 21^h to 14. 2^h Fluctuations in Dec. (± 3′).

15. $1\frac{1}{4}^h$ to $3\frac{1}{2}^h$ Wave in Dec. (+ 15′). $0\frac{1}{2}^h$ to 3^h Fluctuations in H.F. (± ·0015) : in V.F. (± ·0002). 15. 12^h to 16. 5^h Fluctuations in Dec. (± 4′) : small fluctuations in H.F., with wave 15. $14\frac{1}{2}^h$ to 16^h (− ·0025).

1891.

November 16. 17^h to 17. 4^h Fluctuations in Dec. (± 3′), with waves 16. $18\frac{1}{2}^h$ to $20\frac{1}{2}^h$ (− 18′), and 17. $1\frac{1}{2}^h$ to $2\frac{3}{4}^h$ (+ 6′): fluctuations in H.F. (± ·0015): in V.F. (± ·0001).

17. 15^h to $17\frac{1}{2}^h$ Wave in Dec. (− 13′). 15^h to 18^h Fluctuations in H.F. (± ·0015): in V.F. small.

20. 0^h to 22. 0^h. See Plates IX. and X.

22. $17\frac{1}{2}^h$ to 19^h Wave in Dec. (− 11′). $17\frac{1}{2}^h$ to 18^h Wave in H.F. (− ·002): in V.F. (− ·0001).

25. 18^h to 26. 6^h Fluctuations in Dec. (± 4′): in H.F. (± ·0008).

26. 11^h to 27. 11^h No register of Dec. or H.F.

27. 13^h to 28. 2^h Fluctuations in Dec. (± 3′): in H.F. and V.F. small.

28. 12^h to 22^h Fluctuations in Dec. (± 3′): in H.F. (± ·0008).

29. $18\frac{1}{2}^h$ to 20^h Wave in Dec. (− 5′): in H.F. (− ·001).

December 6. 22^h to 7. 22^h. See Plate X.

8. 13^h to 21^h. Fluctuations in H.F. (± ·0008): in Dec. and V.F. small.

9. 12^h to 10. 11^h Fluctuations in Dec. (± 4′), with wave 10. 3^h to 5^h (+ 11′): fluctuations in H.F. (± ·0015): in V.F. small.

10. 16^h to 11. 5^h Fluctuations in Dec. (± 5′): in H.F. (± ·001): in V.F. small.

11. 12^h to 12. 2^h Fluctuations in Dec. (± 5′): in H.F. (+ ·0015): in V.F. small.

12. 18^h to $19\frac{1}{2}^h$ Wave in Dec. (− 8′): 17^h to 20^h Fluctuations in H.F. (± ·0012).

13. 19^h to 14. 1^h Fluctuations in Dec. (± 5′): in H.F. (± ·001): in V.F. small.

14. 17^h to 15. 2^h Fluctuations in Dec. (± 5′): in H.F. (± ·001): in V.F. small.

15. 17^h to 21^h Fluctuations in Dec. (± 3′): in H.F. and V.F. small.

19. 16^h to 20. 5^h Fluctuations in Dec. (± 3′): in H.F. (± ·001).

20. 21^h to 21. 8^h Fluctuations in Dec. (± 3′): in H.F. (± ·001): in V.F. small.

21. 13^h to 22. 4^h Fluctuations in Dec. (± 3′): in H.F. (± ·001): in V.F. small.

22. 12^h to 23. 1^h Fluctuations in Dec. (± 3′): in H.F. (± ·001): in V.F. small.

30. 1^h to 8^h. Fluctuations in Dec. (± 5′): in H.F. (± ·001): in V.F. small. 12^h to 21^h Fluctuations in Dec. (+ 3′): in H.F. (± ·001): in V.F. (± ·0002).

EXPLANATION OF THE PLATES

The magnetic motions figured on the Plates are—

(1.) Those for days of great disturbance—April 8, 12–13, May 14–15, 15–16, 16–17.

(2.) Those for days of lesser disturbance—February 11–12, 12–13, 13–14, 14–15, March 2–3, 31–April 1, April 9, May 13–14, June 14, August 28–29, 29–30, September 9–10, 10–11, 11–12, 28–29, October 23–24, 24–25, 25–26, 26–27, November 20, 21, December 6–7.

(3.) Those for four quiet days, January 30, April 27, August 7, November 9, which are given as types of the ordinary diurnal movement at four seasons of the year.

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 $0^{in.}{\cdot}81 = 20{\cdot}5^{mm.}$ in the declination curve, by $0^{in.}{\cdot}75 = 19{\cdot}0^{mm.}$ in the horizontal force curve, and by $0^{in.}{\cdot}80 = 20{\cdot}3^{mm.}$ in the vertical force curve.

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

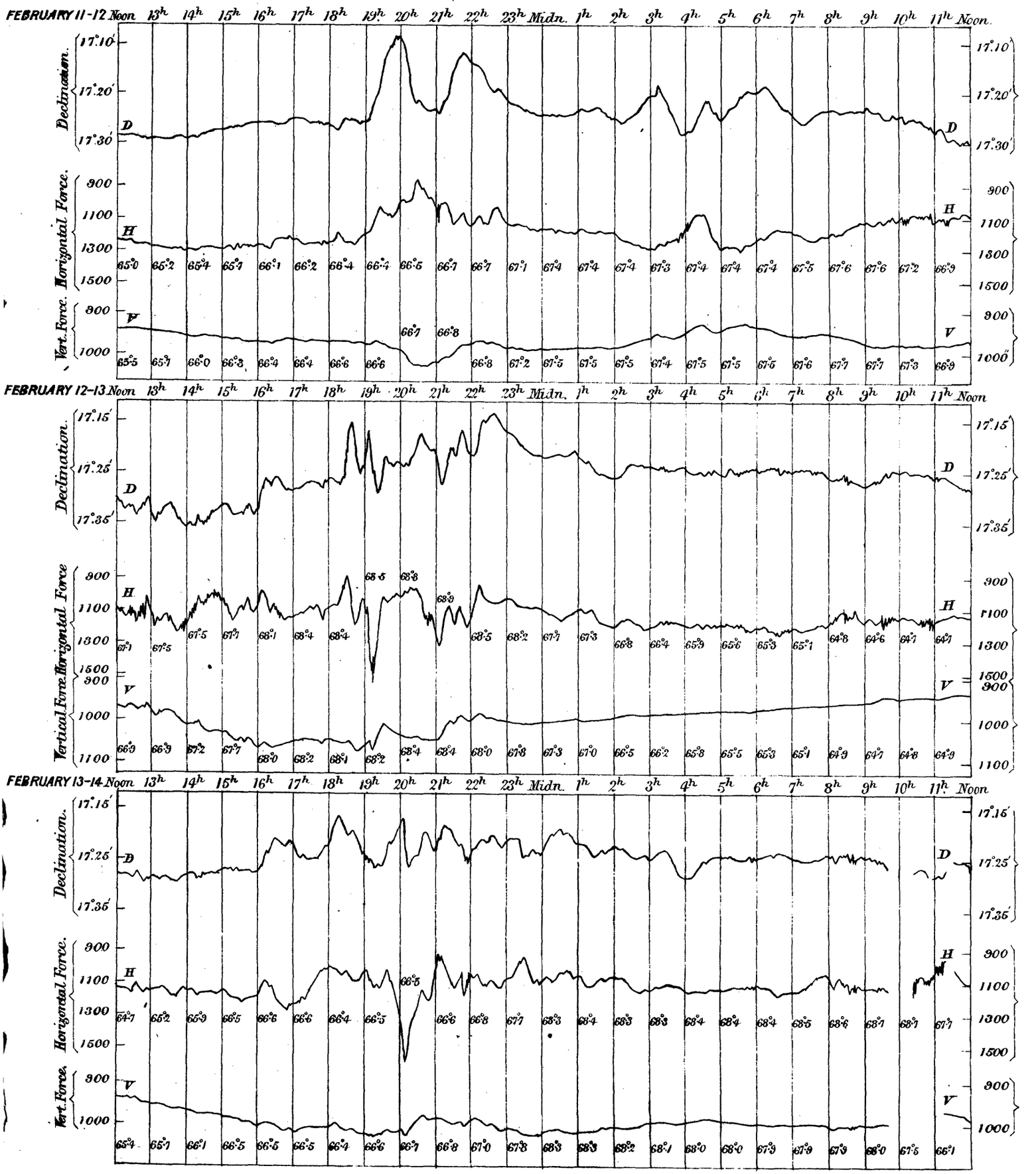
The earth current registers are not given on the plates in consequence of interference with the records caused by the running of trains on the City and South London Electric Railway.

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

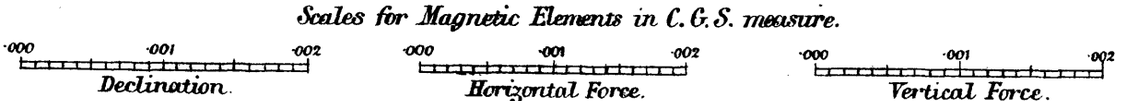
The temperatures (Fahrenheit) of the horizontal and vertical force magnets at each hour are given in small figures on the Diagrams.

Plate I.

Magnetic Disturbances recorded at the Royal Observatory. Greenwich. 1891.

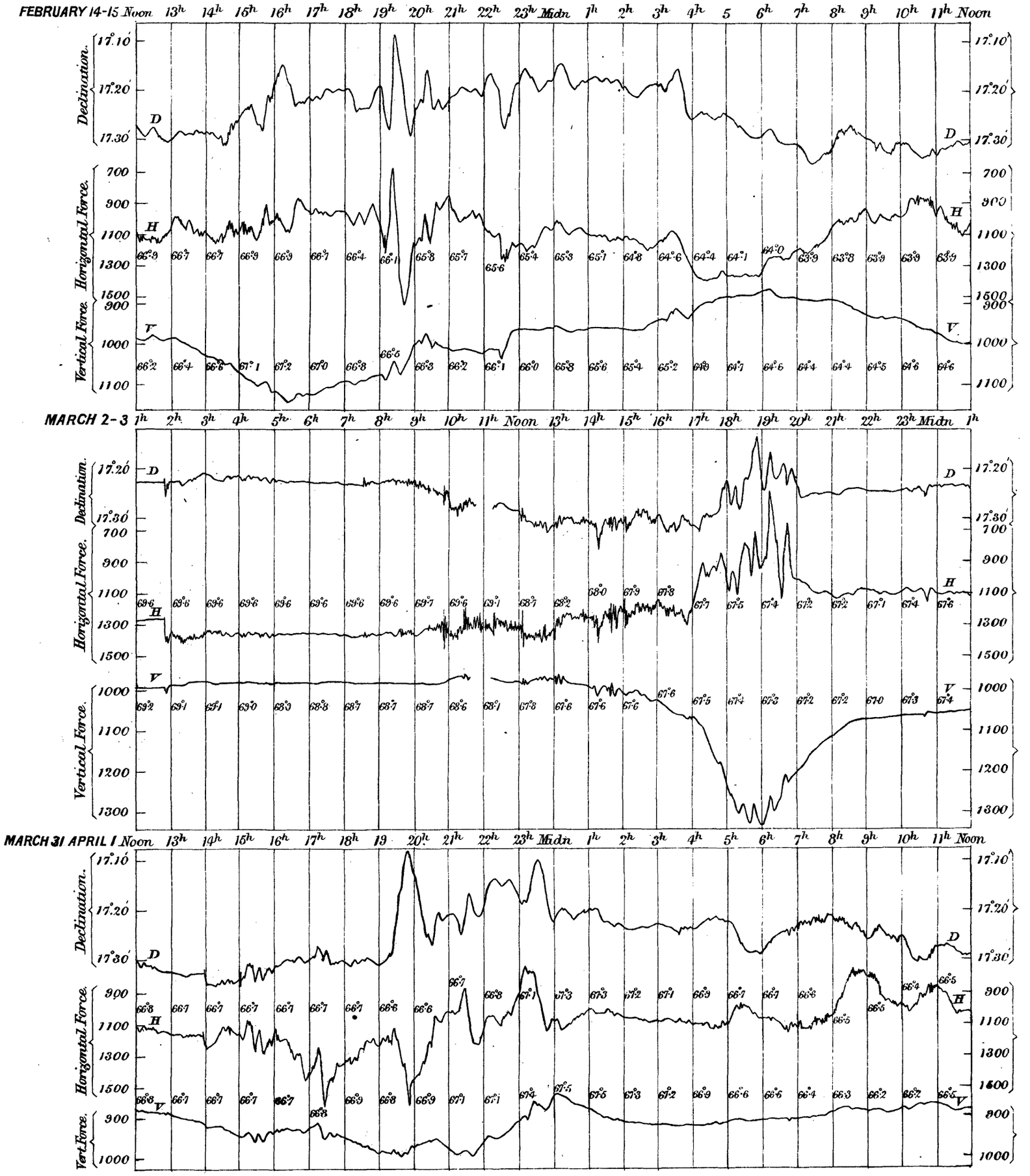


Scales for Magnetic Elements in C. G. S. measure.



JUDD AND Co LTD LITH. 63 CARTER LANE, DOCTORS COMMONS 4285.1.93.

Magnetic Disturbances recorded at the Royal Observatory Greenwich. 1891.



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

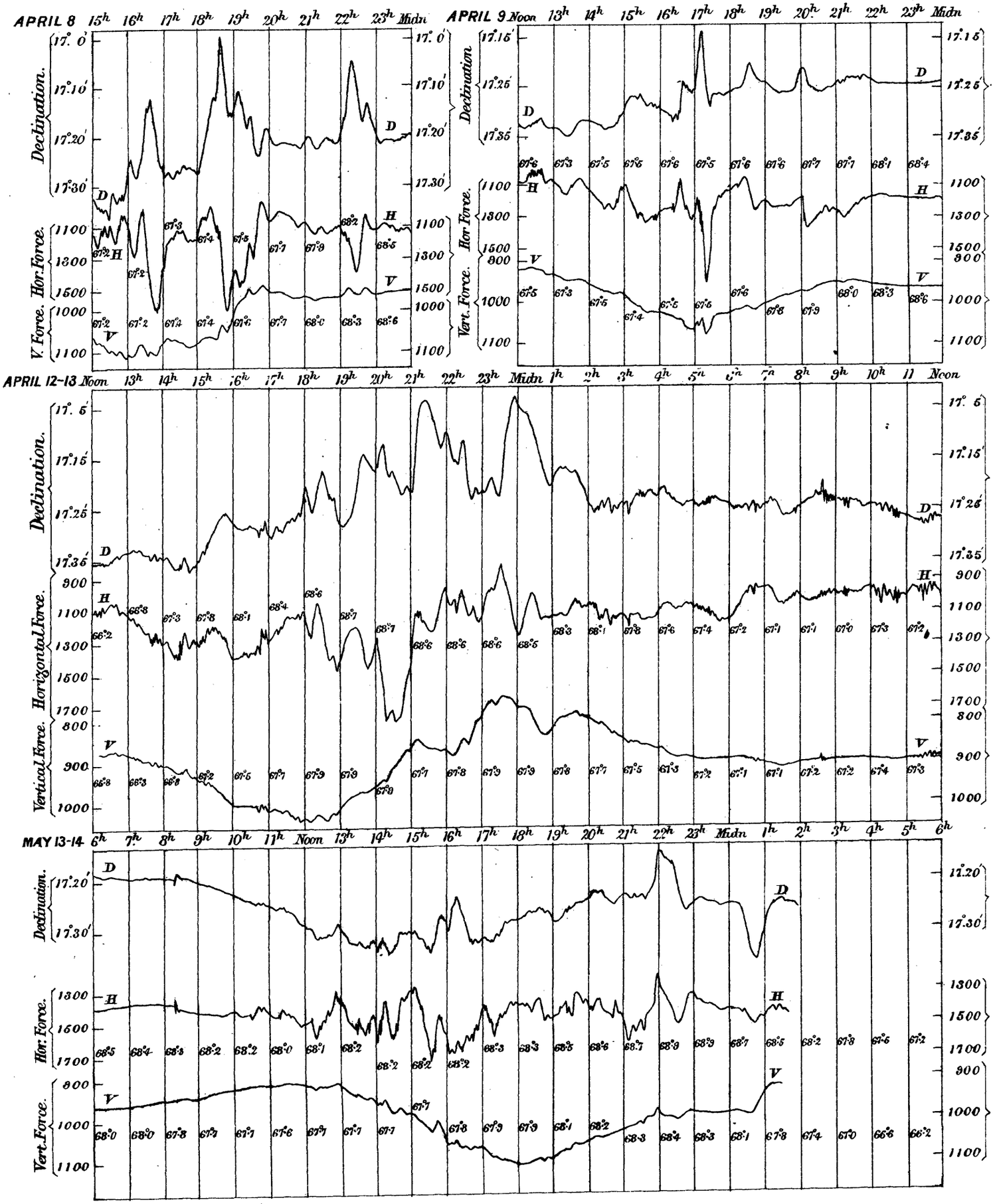
·000 ·001 ·002 *Declination.*

·000 ·001 ·002 *Horizontal Force.*

·000 ·001 ·002 *Vertical Force.*

JUDD AND Co LTD LITH 63 CARTER LANE, DOCTORS COMMONS 4289 193

Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1891.



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

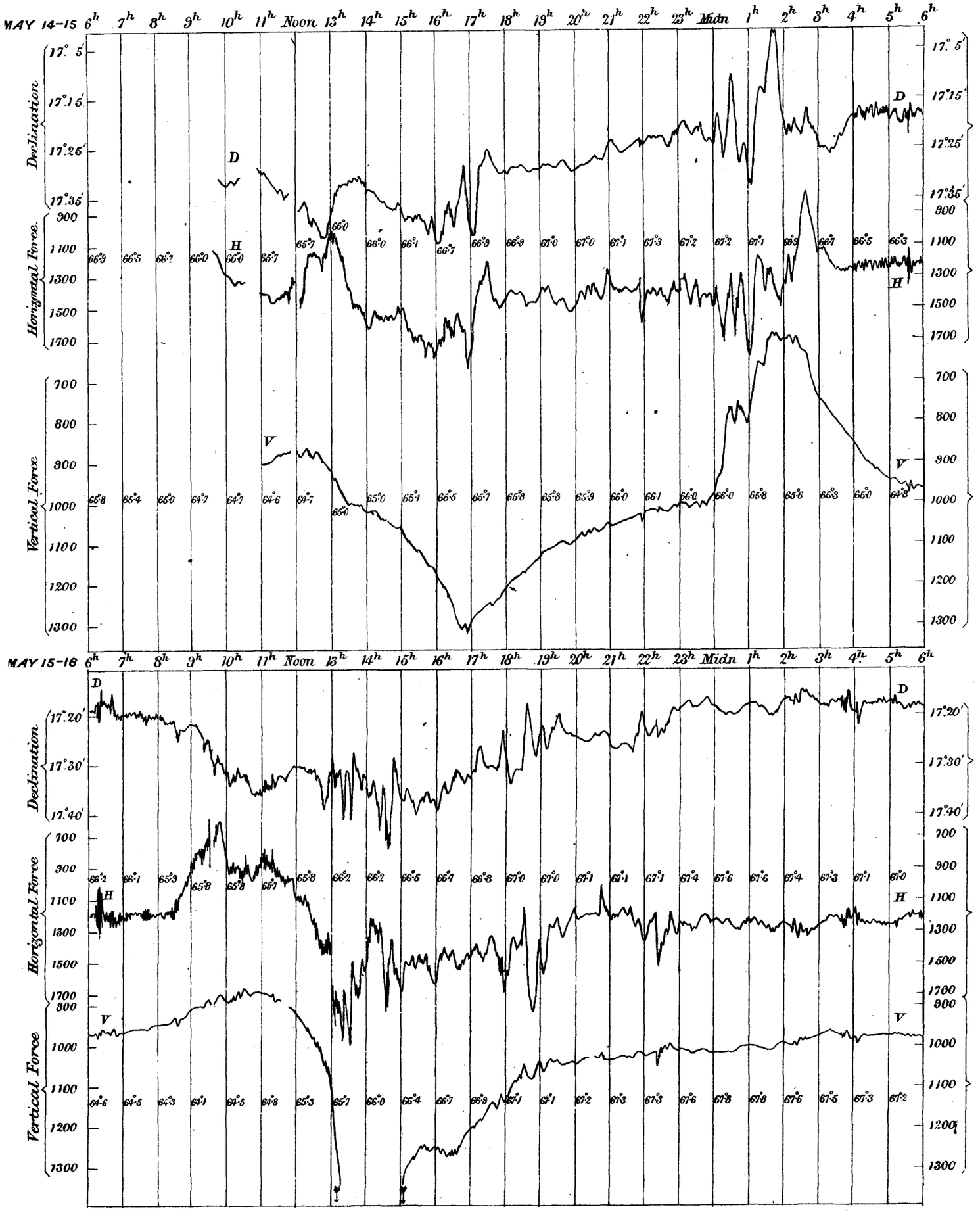
·000 ·001 ·002 — Declination.

·000 ·001 ·002 — Horizontal Force.

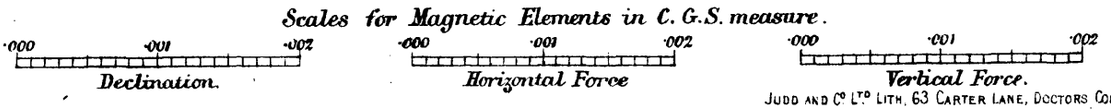
·000 ·001 ·002 — Vertical Force.

JUDD AND Co Ltd LITH. 63 CARTER LANE, DOCTORS COMMONS. 4289.133.

Magnetic Disturbances recorded at the Royal Observatory, Greenwich. 1891.

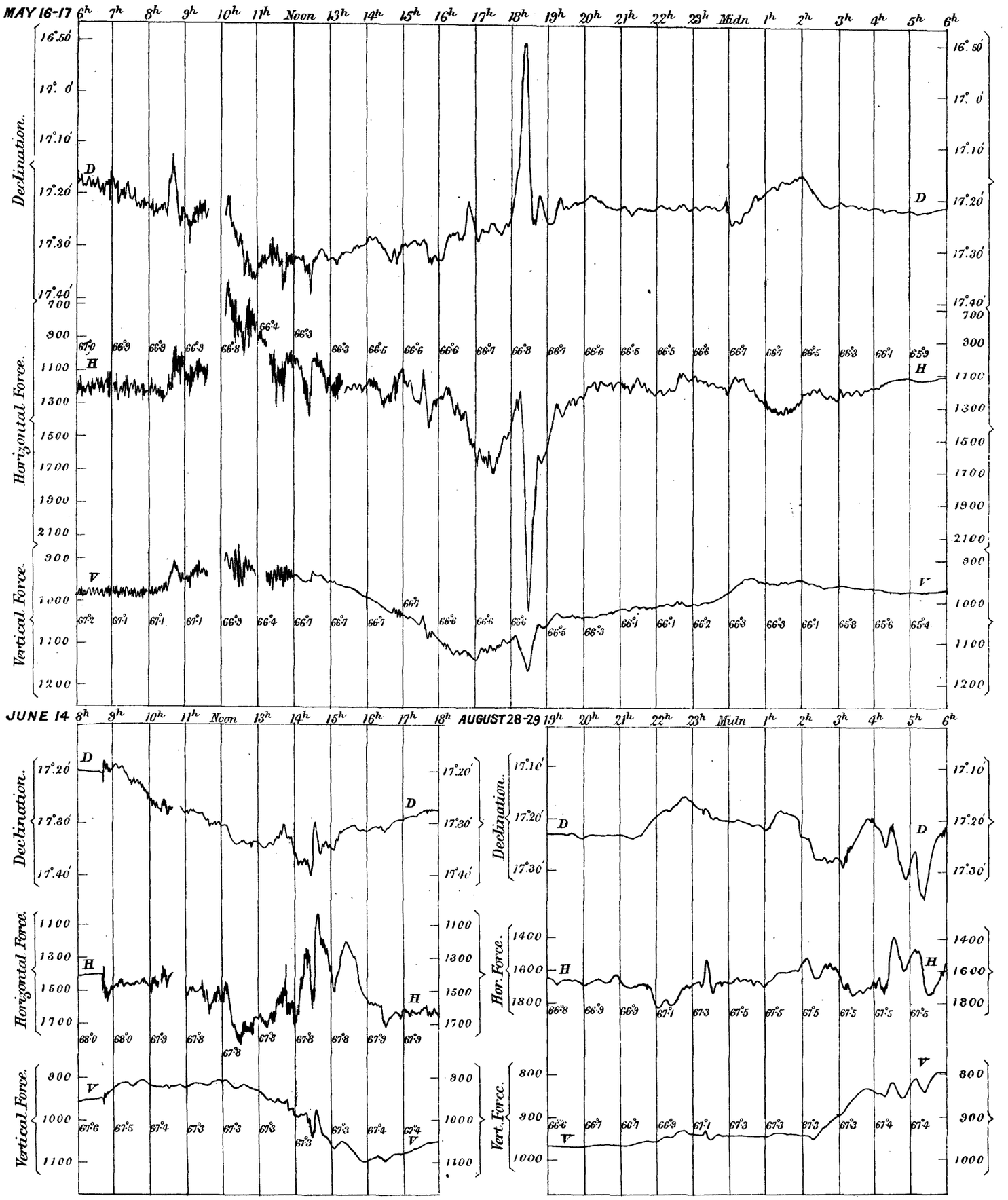


Scales for Magnetic Elements in C. G. S. measure.



Judd and Co Ltd Lith. 63 Carter Lane, Doctors Commons. 4289. 1.93.

Magnetic Disturbances recorded at the Royal Observatory Greenwich. 1891.



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

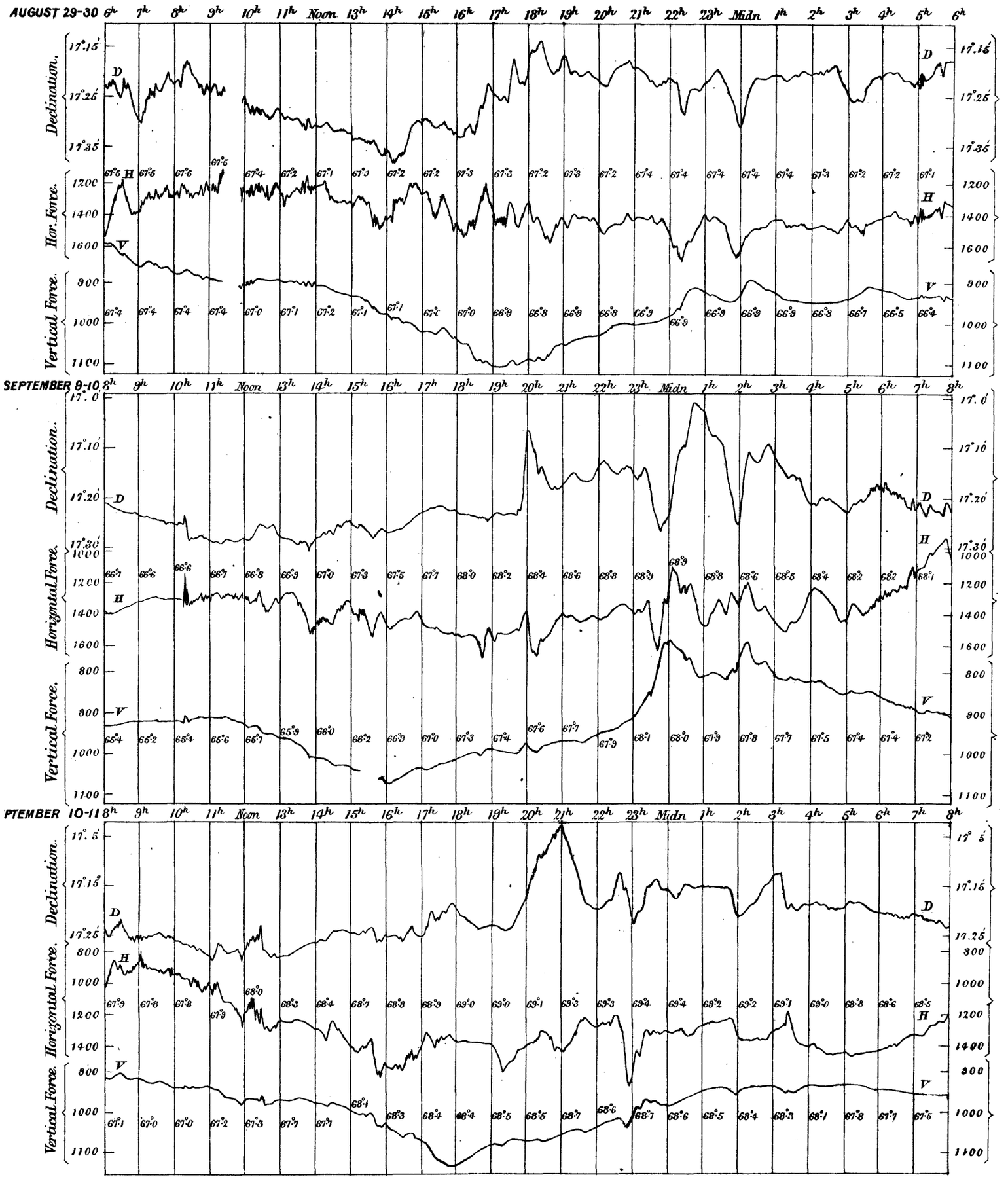
·000 ·001 ·002 Declination

·000 ·001 ·002 Horizontal Force.

·000 ·001 ·002 Vertical Force.

JUDD AND Co Ltd LITH. 63 CARTER LANE, DOCTORS COMMONS 4289 / 93.

Magnetic Disturbances recorded at the Royal Observatory Greenwich. 1891.



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

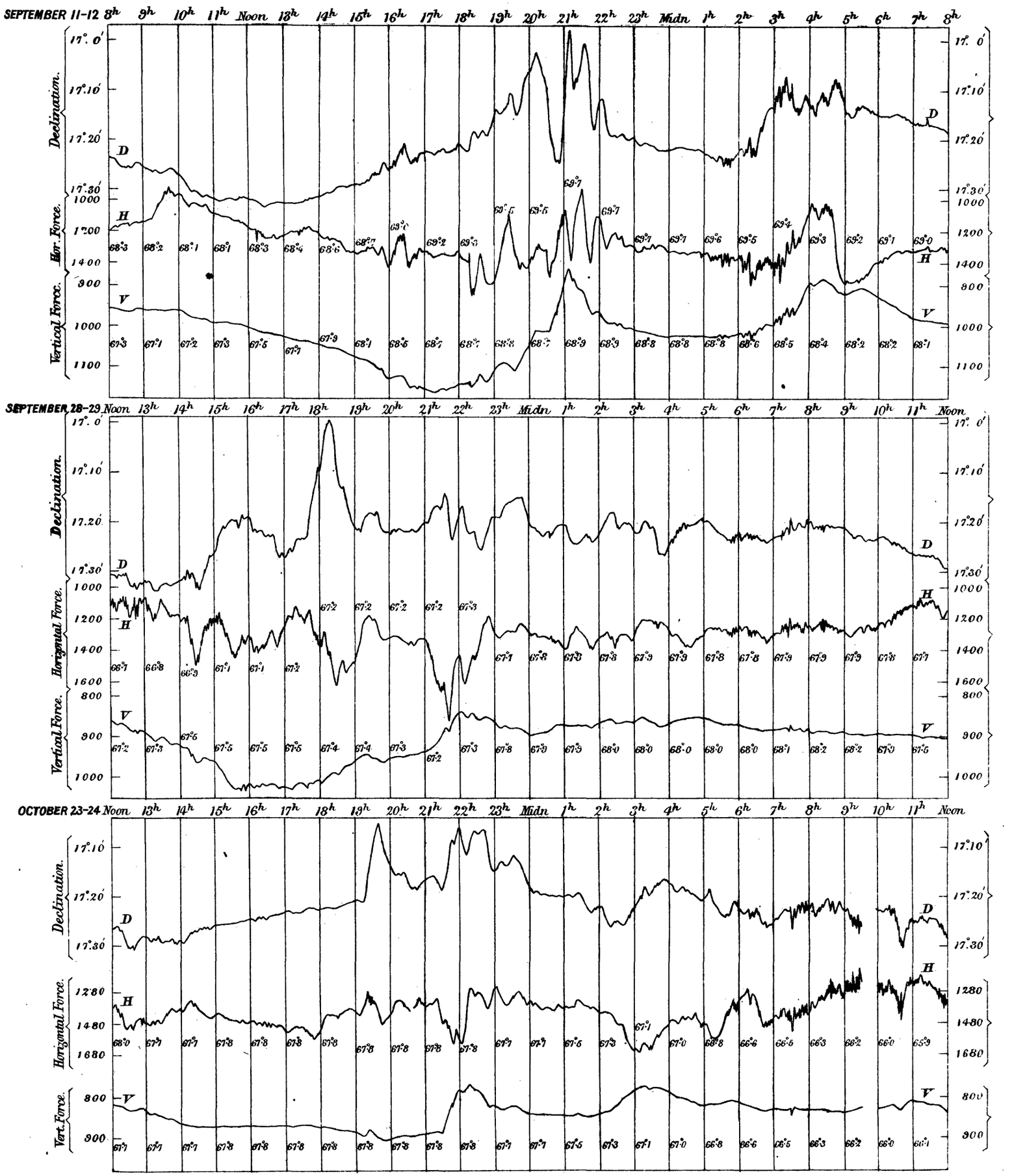
·000 ·001 ·002 — Declination.

·000 ·001 ·002 — Horizontal Force.

·000 ·001 ·002 — Vertical Force

JUDD AND Co. LTD LITH. 63 CARTER LANE, DOCTORS COMMONS. 4289./.33.

Magnetic Disturbances recorded at the Royal Observatory Greenwich. 1891.



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

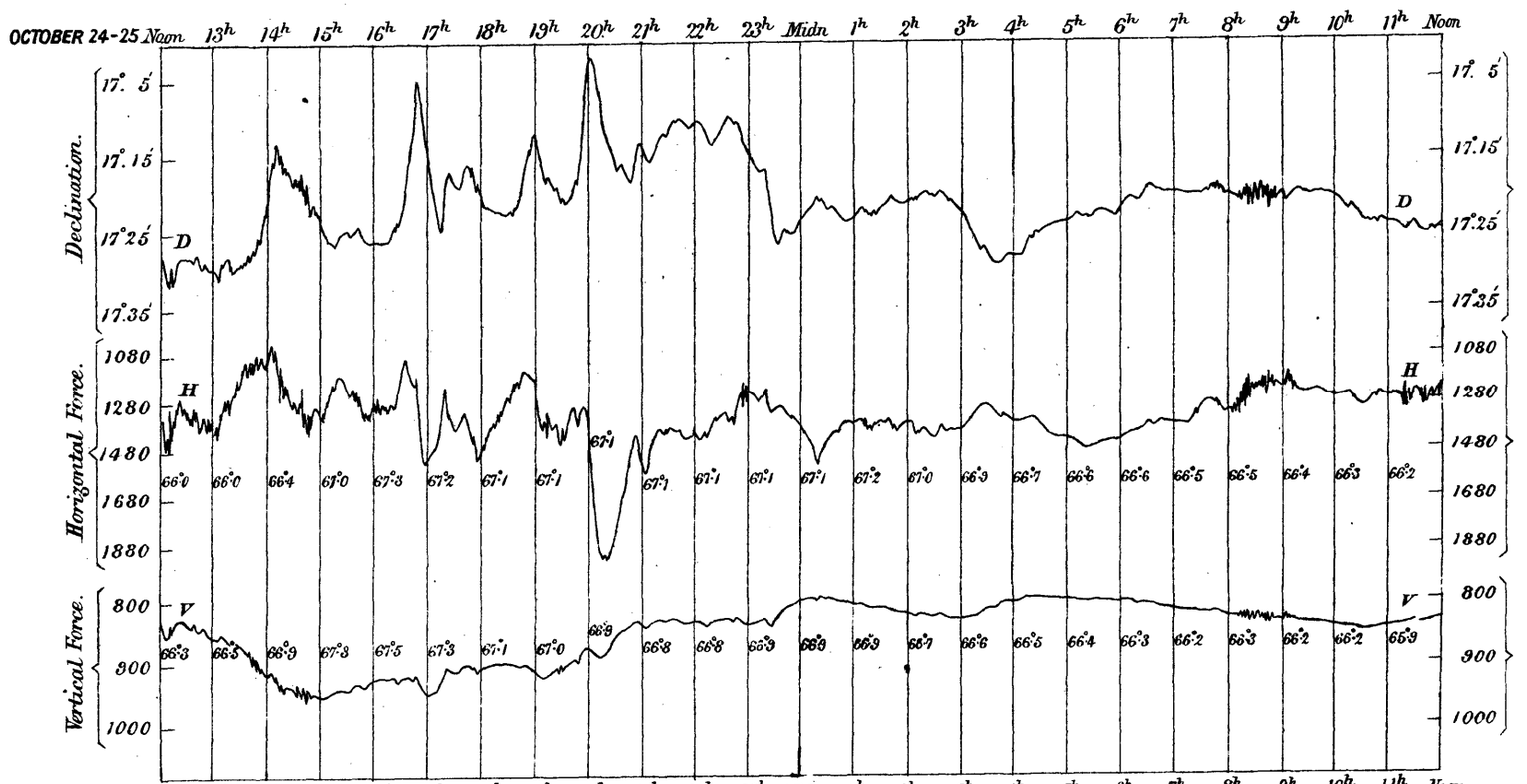
·000 ·001 ·002 Declination.

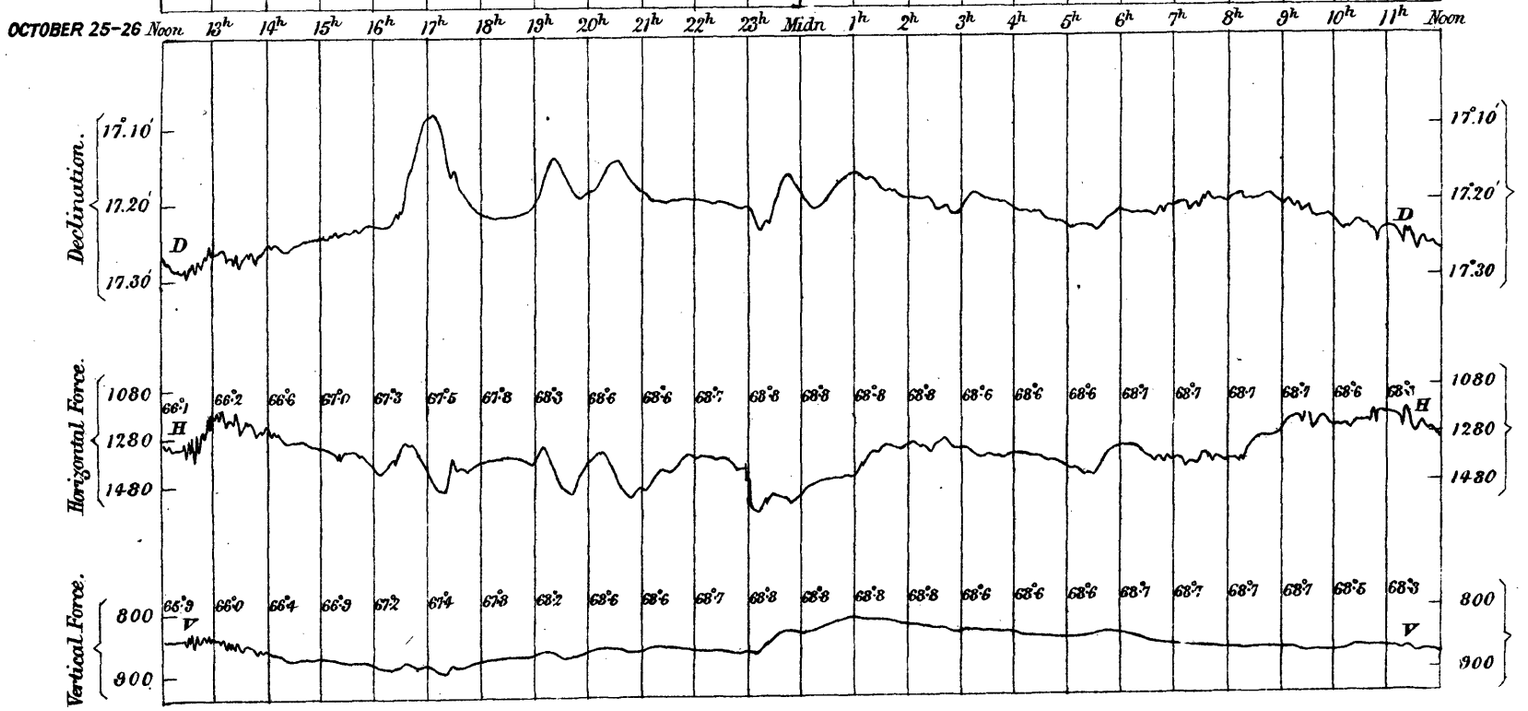
·000 ·001 ·002 Horizontal Force.

·000 ·001 ·002 Vertical Force.

Judd and Co. Ltd. Lith 63 Carter Lane, Doctors Commons. 4289. 1. 93.

Magnetic Disturbances recorded at the Royal Observatory, Greenwich. 1891.





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

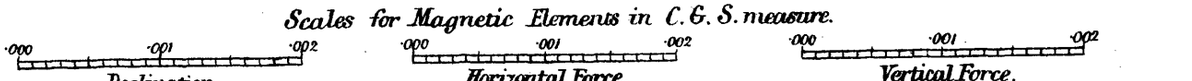


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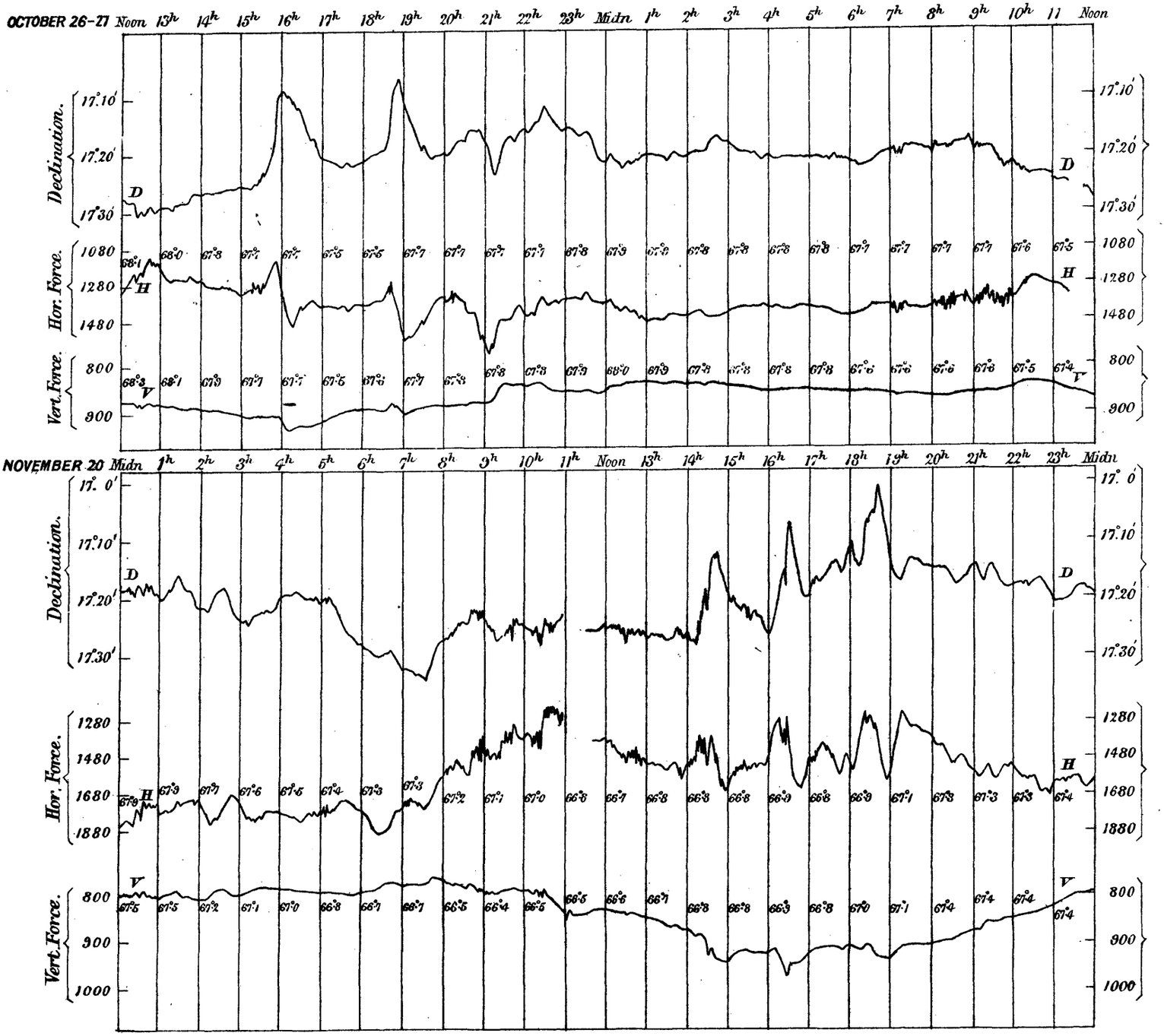
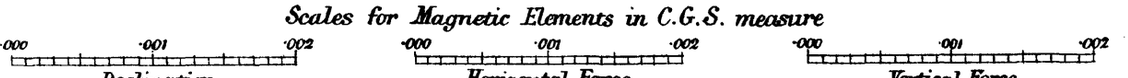
Plate IX.

Magnetic Disturbances recorded at the Royal Observatory, Greenwich. 1891.

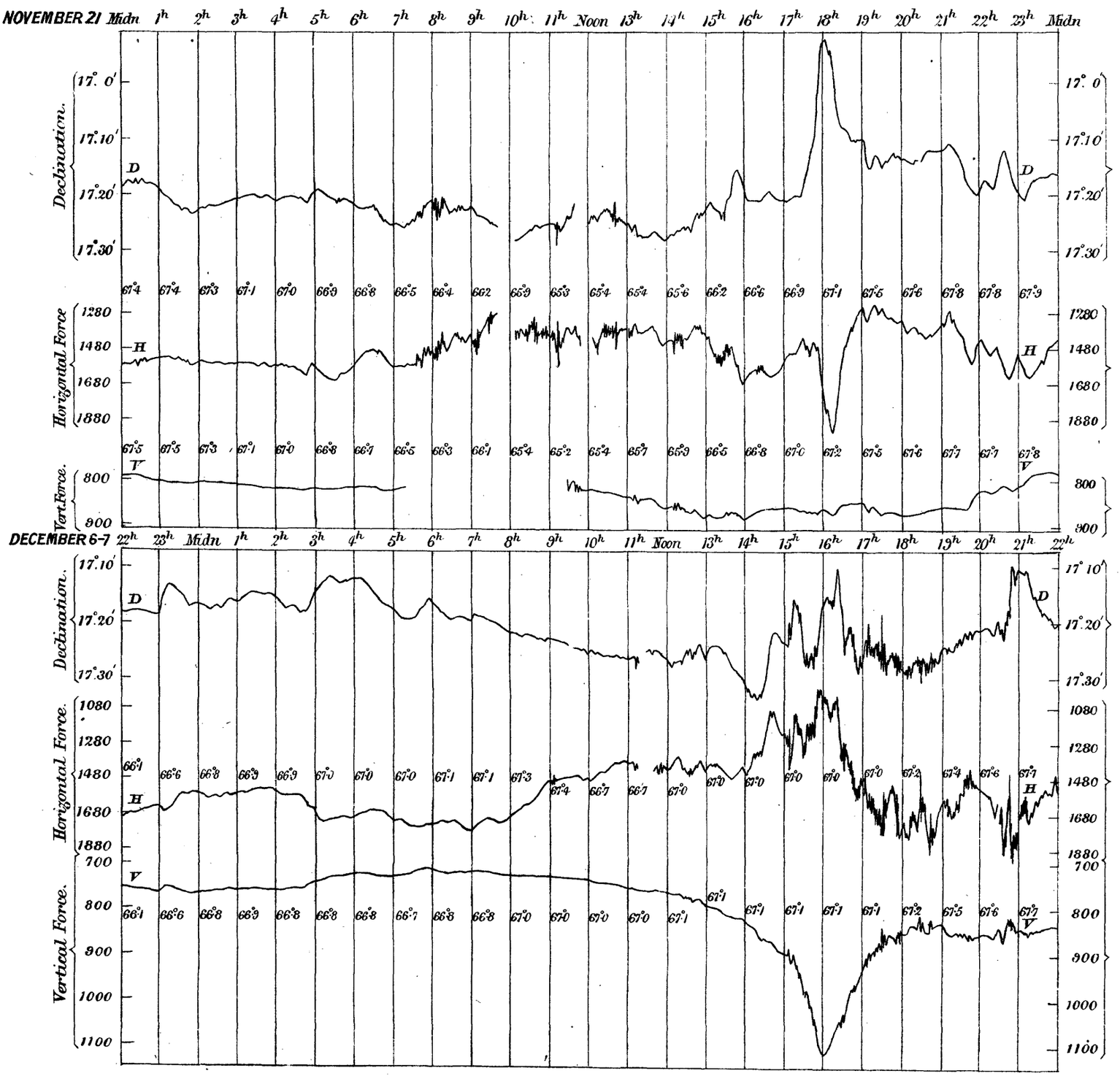


Scales for Magnetic Elements in C.G.S. measure

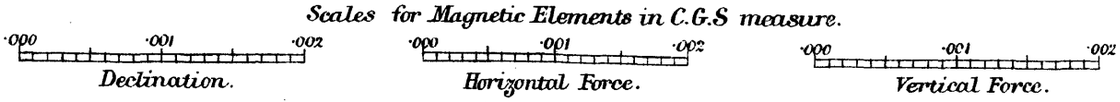


JUDD AND Co LTD LITH. 63 CARTER LANE, DOCTORS COMMONS. 4289.1.93.

Magnetic Disturbances recorded at the Royal Observatory Greenwich. 1891.

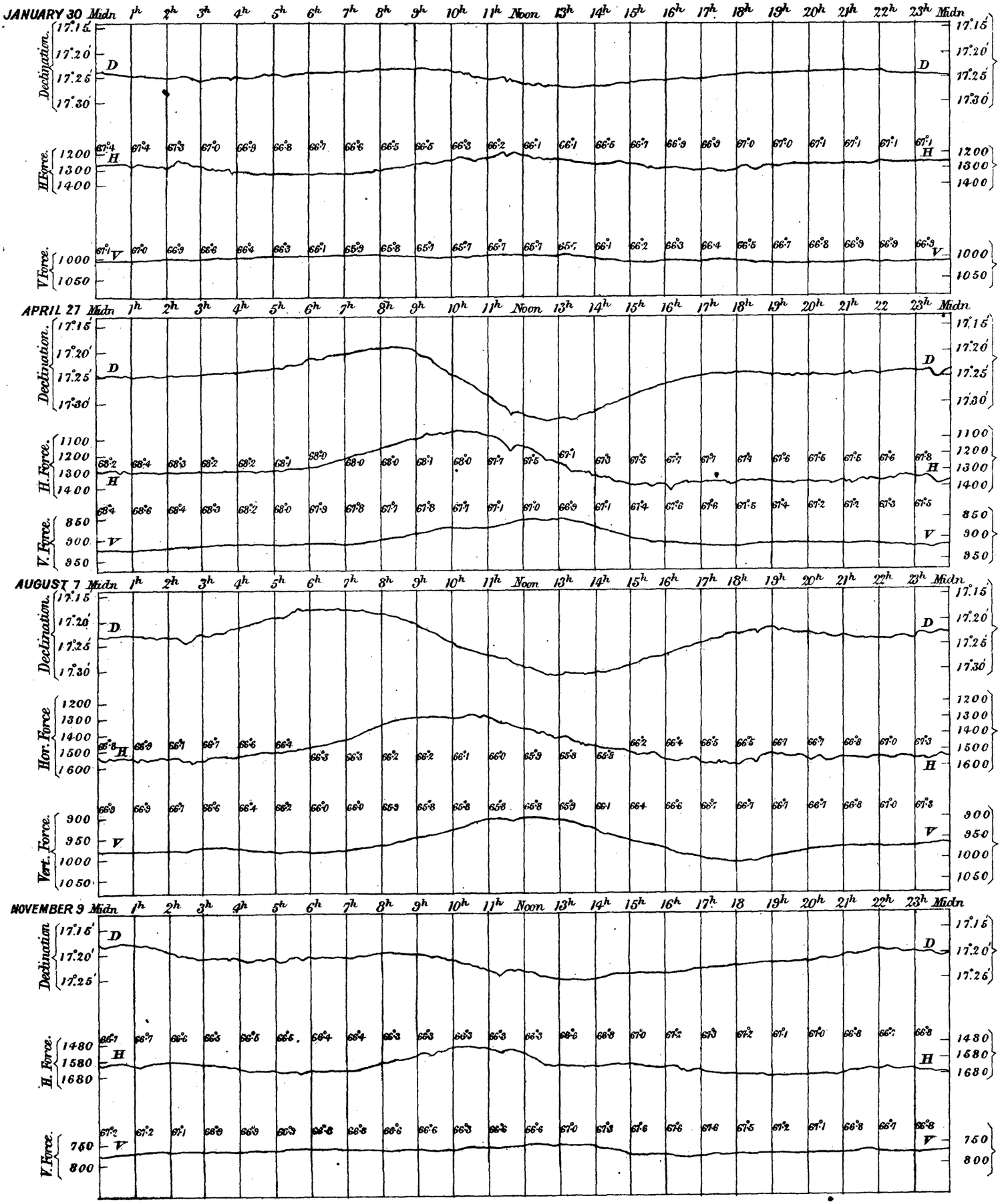


Scales for Magnetic Elements in C.G.S measure.



Judd and Co Ltd Lith. 63 Carter Lane, Doctors Common 4-289. 1. 93

Types of Magnetic Diurnal Variations at four seasons of the year, recorded at the Royal Observatory, Greenwich. 1891.



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

Declination. Horizontal Force. Vertical Force.

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ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

METEOROLOGICAL OBSERVATIONS.

1891.

MONTH and DAY, 1891.	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 50 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.		
Jan. 1	...	29·989	37·3	28·8	8·5	33·0	− 5·5	32·4	31·2	1·8	3·4	0·0	93	51·8	27·5	32·9	31·7	0·023	0·0	... : ssP
2	...	30·031	29·5	24·8	4·7	27·6	−10·9	27·6	27·6	0·0	1·0	0·0	100	31·8	24·5	33·0	31·7	0·000	0·0	ssP
3	In Equator: Last Quarter	30·048	35·5	24·7	10·8	29·7	− 8·8	29·5	29·1	0·6	5·4	0·0	95	35·5	24·3	32·9	31·7	0·016	0·0	ssP : ssN, vP
4	...	29·898	37·3	32·5	4·8	35·3	− 3·1	35·2	35·0	0·3	1·9	0·0	99	38·8	31·1	33·8	32·4	0·073	0·0	ssN, sP : sN, vP
5	...	30·008	34·6	26·5	8·1	31·5	− 6·8	30·1	26·7	4·8	6·5	1·6	82	52·0	24·0	33·6	32·4	0·003	0·0	sP
6	...	30·156	30·1	23·5	6·6	26·4	−11·8	25·4	20·6	5·8	9·0	2·7	78	39·9	20·8	33·1	31·6	0·000	1·0	sP
7	...	30·040	31·8	23·3	8·5	27·8	−10·3	26·7	22·2	5·6	8·5	0·7	79	54·3	21·4	31·6	31·5	0·033	3·0	vP : ...
8	...	29·819	31·8	23·3	8·5	28·3	− 9·7	27·2	22·9	5·4	10·1	0·9	80	37·5	21·2	32·6	31·5	0·034	0·0	... : ssP
9	Greatest Declination S.	29·971	32·1	17·0	15·1	26·4	−11·5	25·8	23·0	3·4	7·7	0·0	87	71·0	16·0	32·6	31·5	0·000	0·0	vP : ssP : ...
10	New	30·366	24·4	12·0	12·4	18·4	−19·5	18·4	18·4	0·0	0·9	0·0	100	25·2	12·0	31·6	30·6	0·000	0·0	...
11	. .	30·499	28·3	16·9	11·4	22·8	−15·1	22·8	22·8	0·0	1·7	0·0	100	45·3	15·2	32·6	31·4	0·000	0·0	...
12	Perigee	30·452	40·1	22·0	18·1	31·6	− 6·3	30·7	28·6	3·0	4·5	0·0	87	42·0	19·9	32·4	31·1	0·000	0·0	... : vP
13	...	30·421	40·1	36·3	3·8	38·7	+ 0·7	38·6	38·5	0·2	2·4	0·0	99	41·2	33·0	32·6	31·4	0·019	0·0	vP
14	...	30·372	40·5	32·0	8·5	36·4	− 1·8	34·4	31·5	4·9	8·6	2·1	83	58·0	29·0	32·6	31·6	0·000	0·2	vP : sP
15	...	30·230	35·2	29·7	5·5	32·2	− 6·1	30·9	28·0	4·2	8·3	0·3	84	46·5	26·2	32·6	31·5	0·054	0·8	mP : sN, vP
16	In Equator	29·927	37·3	25·0	12·3	31·5	− 7·0	29·8	25·7	5·8	13·3	0·8	78	61·2	22·6	32·8	31·6	0·039	0·0	vP, sN : sP
17	First Qr.	30·122	28·9	20·5	8·4	24·7	−13·8	23·9	19·5	5·2	7·4	1·9	80	43·9	19·9	32·6	31·4	0·028	0·0	sP : vP
18	...	30·212	30·1	20·1	10·0	23·9	−14·6	22·8	16·3	7·6	14·9	4·0	72	64·8	19·5	32·4	31·2	0·000	0·0	...
19	...	30·109	28·7	23·7	5·0	26·3	−12·2	24·6	16·3	10·0	15·0	3·4	64	39·3	21·4	32·4	31·1	0·000	0·0	... : vP
20	...	29·704	43·8	28·5	15·3	37·8	− 0·6	36·6	35·0	2·8	4·2	0·7	90	49·9	28·0	32·8	31·6	0·170	0·0	vP : ssN, mP
21	...	29·308	38·7	29·7	9·0	34·5	− 3·8	32·9	30·2	4·3	8·9	1·1	84	59·2	27·2	32·9	31·6	0·000	0·0	vP
22	...	29·383	41·6	29·7	11·9	36·0	− 2·3	33·9	30·7	5·3	11·0	2·0	81	64·5	27·2	33·0	31·7	0·009	0·0	vP
23	Greatest Declination N.	29·487	48·6	34·8	13·8	42·9	+ 4·5	41·7	40·3	2·6	4·2	0·3	90	51·9	29·0	33·1	31·8	0·020	3·5	vP : wP
24	...	29·393	48·7	36·3	12·4	45·9	+ 7·4	44·8	43·6	2·3	4·6	1·3	92	53·2	32·5	34·8	33·6	0·363	4·5	wwP : vP, vN
25	Full	29·828	44·7	35·0	9·7	39·5	+ 0·7	37·5	34·9	4·6	9·0	1·2	84	73·2	31·0	36·6	35·5	0·000	0·0	wP : sP
26	...	29·898	47·1	37·5	9·6	41·3	+ 2·3	39·5	37·2	4·1	8·6	0·5	86	75·8	32·5	36·9	35·6	0·003	1·0	vP
27	Apogee	29·799	48·4	39·2	9·2	43·4	+ 4·1	42·4	41·2	2·2	6·4	0·0	92	77·2	36·0	37·5	36·0	0·013	3·0	wP : vP
28	...	29·833	50·9	43·6	7·3	46·3	+ 6·8	45·3	44·2	2·1	3·8	0·4	93	63·0	40·0	38·2	36·6	0·059	1·5	wP, wN : wP
29	...	29·716	47·9	45·6	2·3	46·5	+ 6·8	45·8	45·0	1·5	2·9	0·6	95	51·0	44·1	39·2	37·5	0·249	4·5	wwP, wN
30	In Equator	29·868	52·3	38·6	13·7	44·2	+ 4·4	42·7	40·9	3·3	9·4	0·2	88	83·0	34·2	39·9	38·5	0·000	0·0	wP : vP
31	...	29·849	52·9	42·5	10·4	46·1	+ 6·3	44·2	42·0	4·1	9·2	1·5	87	83·8	38·5	42·5	41·0	0·355	1·2	ssP, ssN : wP : mP, vN
Means	...	29·959	38·7	29·1	9·5	34·1	− 4·4	33·0	30·6	3·5	6·9	0·9	87·2	53·7	26·8	34·1	32·9	Sum 1·563	0·8	...
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 observations from 1841 to 1890. 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}·959, being 0^{in}·181 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 52°·9 on January 31 ; the lowest in the month was 12°·0 on January 10 ; and the range was 40°·9.
The mean of all the highest daily readings in the month was 38°·7, being 4°·4 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 29°·1, being 4°·5 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 9°·5, being *the same as* the average for the 50 years, 1841–1890.
The mean for the month was 34°·1, being 4°·4 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	General Direction. 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	0·9	7·9	E	E : ENE	0·0	0·0	0·00	153	10 : 10, slt.-r	4, li.-cl : 0 : 0, f, fr
2	0·0	7·9	ENE : Calm	Calm	0·0	0·0	0·00	36	tk.-f : tk.-f	tk.-f : tk.-f
3	0·0	7·9	Calm : SSE	SW : WSW	0·0	0·0	0·00	96	tk.-f, ho.-fr : 9, li.-cl, f	10, f : 10, tk.-f
4	0·0	7·9	SW : WSW	WSW : NNW : N	0·0	0·0	0·00	200	10, f : 10, r : 10, f, glm	10, f, glm, slt.-r : 10, th.-r
5	3·3	7·9	NNW	NNW : NNE	2·0	0·0	0·20	329	p.-cl, f, sn : 0	v, sn : 0, fr
6	0·2	8·0	NNE : N	N : NNE	1·5	0·0	0·10	344	0, fr : v, li.-cl, slt.-sn	8, li.-cl : v
7	0·4	8·0	N : NNW	NNW	1·1	0·0	0·06	277	p.-cl : 0	10, slt.-sn : 10, sn
8	0·3	8·0	NW : WNW : SSW	SSW : SSE	0·1	0·0	0·00	188	10, sn : 10, f, gt.-glm	v : 2, li.-cl
9	3·7	8·1	SE : ESE	ESE : SE	0·3	0·0	0·01	137	0 : 4, th.-cl	0 : p.-cl
10	0·0	8·1	Calm : SSW	WSW : Calm	0·0	0·0	0·00	78	f, ho.-fr : f	0, f : f
11	1·0	8·1	Calm	Calm : SW	0·0	0·0	0·00	62	tk.-f : 0, tk.-f	tk.-f : 0, f
12	0·0	8·2	SW : WSW	WSW : NNW : N	0·0	0·0	0·00	183	f : 10 : 8, li.-cl	10, slt.-f : 10
13	0·0	8·2	N	N : NNW	0·2	0·0	0·00	204	10 : tk.-f, oc.-th.-r	10, slt.-f, oc.-th.-r : 10, oc.-slt.-r
14	2·1	8·2	N	N	5·0	0·0	0·80	388	v : 1, li.-cl	v, li.-cl, w : v, w
15	0·1	8·3	NNW : N	N : NW : W	7·3	0·0	0·79	402	li.-cl, fr : 10, sn, w	10, sn : 10 sn, r
16	2·0	8·3	N : NNE	NE : NNE	3·7	0·0	0·45	348	10, w : v, li.-cl, s, w	v, ci.-cu, oc.-sn : v
17	0·2	8·3	N : NNE	NNE : NE	1·2	0·0	0·05	287	0 : 3, li.-cl, sn	v, sn : 5, li.-cl
18	2·8	8·4	NNE : N	N	1·7	0·0	0·05	257	p.-cl : 3, ci.-cu, li.-cl	2, li.-cl : v, li.-cl : 10
19	0·0	8·4	N : NNW : WSW	WSW : SW	0·0	0·0	0·00	170	10 : 10, f, glm	0, h : 10, slt.-sn : 10, slt.-sn
20	0·0	8·5	SSW : SW	SW : WNW	10·0	0·0	1·44	528	10 : 10	10, r, st.-w : 10, c.-r, st.-w
21	4·0	8·5	W : WSW	WNW : WSW	1·1	0·0	0·03	319	0, ho.-fr : 0, ho.-fr	3, ci.-cu, cu.-s : 0 : 0, ho.-fr
22	3·7	8·6	SW : W	W : WSW : SW	3·3	0·0	0·47	393	10, slt.-sn : 7, li.-cl	2, li.-cl : 0, slt.-f, lu.-ha
23	0·0	8·6	SW : SSW	SW	5·0	0·0	0·97	480	10, slt.-r : 10	10, oc.-slt.-r : 10, slt.-r, w
24	0·0	8·7	SW	SSW : WSW	4·8	0·0	1·75	620	10, fq.-r, w : 10, sc, slt.-r	10, sc, c.-r, w : v, li.-cl
25	4·1	8·7	WSW	WSW : SSW	5·6	0·0	0·64	454	0, w : 1, th.-cl, ho.-fr	1, th.-cl : 0, d
26	2·8	8·8	SSW : SW	SSW	2·5	0·0	0·26	412	0 : 9	3, li.-cl, ci.-cu : 3, li.-cl : 10, th.-r
27	0·3	8·8	SSW	SW : SSW	2·4	0·0	0·26	376	v : 10	10, sc, oc.-slt.-r : 10, oc.-slt.-r
28	0·3	8·9	SW	SW : SSW	2·6	0·0	0·32	405	10 : 10	10 : 10, r
29	0·0	8·9	SSW	SSW	4·8	0·0	1·39	546	10 : 10, fq.-r, w	10, sc, fq.-r, w : 10, hy.-r : 10, oc.-slt.-r
30	5·0	9·0	WSW : SW : SSW	WSW : SSW	1·6	0·0	0·06	280	v : 4, ci.-cu, li.-cl	3, ci.-cu, cu : 1, th.-cl, h
31	5·5	9·0	S : SSW	SW : SSW	3·0	0·0	0·40	400	v, hy.-r : 5, li.-cl	3, cu.-s, li.-cl : 2, li.-cl : 10, r
Means	1·4	8·4	...	...	...	...	0·34	302		
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°·0, being 4°·2 *lower* than
The mean *Temperature of the Dew Point* for the month was 30°·6, being 4°·8 *lower* than
The mean *Degree of Humidity* for the month was 87·2, being 1·6 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·171, being 0in·036 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·1, being 0gr·3 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 562 grains, being 8 grains *greater* than
} the average for the 50 years, 1841–1890.

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 0·165. The maximum daily amount of *Sunshine* was 5·5 hours on January 31.

The highest reading of the *Solar Radiation Thermometer* was 83°·8 on January 31; and the lowest reading of the *Terrestrial Radiation Thermometer* was 12°·0 on January 10.

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

The *Proportions of Wind* referred to the cardinal points were N. 9, E. 3, S. 8, and W. 9. Two days were calm.

The *Greatest Pressure of the Wind* in the month was 10·0 lbs. on the square foot on January 20. The mean daily *Horizontal Movement of the Air* for the month was 302 miles; the greatest daily value was 620 miles on January 24; and the least daily value was 36 miles on January 2.

Rain fell on 17 days in the month, amounting to 1in·563, as measured by gauge No. 6 partly sunk below the ground; being 0in·426 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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 50 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.		
Feb. 1	...	30·016	46·4	34·0	12·4	42·8	+ 3·1	40·8	38·4	4·4	9·2	1·1	85	64·4	32·5	42·6	40·9	0·020	0·8	wP : vP
2	Last Qr.	30·451	49·1	30·2	18·9	40·2	+ 0·5	38·3	35·9	4·3	8·2	1·4	85	71·9	28·7	42·6	41·4	0·000	0·0	vP : mP
3	...	30·407	49·0	43·3	5·7	44·8	+ 5·1	42·9	40·7	4·1	6·5	2·6	86	62·0	39·1	43·1	41·4	0·000	0·0	mP : vP
4	...	30·475	47·3	29·6	17·7	42·8	+ 3·0	41·3	39·5	3·3	8·8	0·4	88	66·5	28·0	43·1	41·4	0·000	0·0	vP
5	...	30·499	44·7	31·0	13·7	39·2	− 0·6	38·2	36·9	2·3	6·4	0·0	92	51·3	29·5	42·8	41·4	0·000	0·0	wP : vP
6	Greatest Declination S.	30·440	45·1	34·3	10·8	40·4	+ 0·7	39·7	38·8	1·6	3·3	0·7	94	51·8	30·7	43·6	41·7	0·006	0·0	vP
7	...	30·336	46·4	38·8	7·6	42·1	+ 2·7	41·6	41·0	1·1	3·1	0·0	96	53·3	38·5	43·4	41·6	0·006	0·0	vP
8	...	30·248	44·9	33·2	11·7	38·8	− 0·3	38·3	37·7	1·1	6·6	0·0	96	65·1	30·0	43·1	41·7	0·000	0·0	vP : mP
9	New; Perigee	30·208	38·6	34·5	4·1	36·4	− 2·3	35·3	33·7	2·7	3·8	1·0	90	45·8	33·0	42·6	41·4	0·000	0·0	wP
10	...	30·191	42·8	31·1	11·7	36·6	− 1·8	35·0	32·7	3·9	8·1	1·9	86	64·3	28·9	41·6	40·4	0·000	0·0	vP
11	...	30·113	49·3	32·7	16·6	40·1	+ 1·8	37·1	33·2	6·9	12·2	2·3	76	87·0	29·5	41·6	40·2	0·000	2·5	mP : vP
12	In Equator	30·137	48·4	36·0	12·4	42·8	+ 4·3	39·7	36·0	6·8	9·9	2·9	77	83·3	31·0	42·4	40·6	0·000	1·5	vP : vP, mN
13	...	30·342	45·9	29·6	16·3	37·0	− 1·8	34·8	31·7	5·3	11·7	1·4	81	78·0	26·0	42·6	41·4	0·000	0·0	mP : vP
14	...	30·480	45·0	30·3	14·7	38·2	− 1·0	36·1	33·3	4·9	7·7	2·2	83	63·3	27·0	42·8	41·9	0·000	0·0	vP
15	First Qr.	30·428	50·0	38·0	12·0	43·3	+ 3·7	40·9	38·1	5·2	11·8	2·5	81	70·0	33·6	41·6	39·9	0·000	0·0	vP
16	...	30·458	50·4	33·7	16·7	41·4	+ 1·6	39·1	36·2	5·2	12·6	1·0	82	78·0	31·0	41·6	40·0	0·000	0·0	mP : vP
17	...	30·475	41·7	31·4	10·3	36·5	− 3·3	35·9	35·1	1·4	3·7	0·0	95	43·5	30·0	41·4	39·6	0·000	0·0	mP : vP
18	...	30·486	44·1	28·5	15·6	33·0	− 6·7	32·9	32·7	0·3	6·2	0·0	98	65·1	28·5	41·6	39·9	0·000	0·0	ssP : vP
19	Greatest Declination N.	30·369	36·1	29·4	6·7	33·0	− 6·6	33·0	33·0	0·0	1·5	0·0	100	43·3	29·4	41·2	39·4	0·005	0·0	vP
20	...	30·204	38·2	32·3	5·9	34·2	− 5·3	34·0	33·7	0·5	3·6	0·0	98	55·0	32·3	40·8	39·4	0·000	0·0	mP : sP
21	...	30·179	36·4	29·7	6·7	32·9	− 6·6	32·9	32·9	0·0	1·0	0·0	100	45·0	29·7	41·1	39·6	0·000	0·0	vP : sP
22	...	30·228	41·9	30·8	11·1	34·2	− 5·4	33·9	33·4	0·8	5·1	0·0	97	70·0	30·0	39·6	38·0	0·002*	0·0	sP : vP
23	Apogee: Full	30·306	39·5	26·2	13·3	31·7	− 8·1	31·5	31·0	0·7	3·5	0·0	96	67·1	26·2	39·6	38·2	0·002*	0·0	vP
24	...	30·319	42·9	27·7	15·2	32·9	− 7·0	32·8	32·6	0·3	6·6	0·0	98	66·3	27·7	39·5	38·0	0·004*	0·0	ssP : vP
25	...	30·082	52·0	26·7	25·3	37·4	− 2·6	35·8	33·6	3·8	13·2	0·0	86	85·6	26·2	39·5	38·3	0·004*	0·0	sP
26	In Equator	29·825	58·0	25·9	32·1	38·9	− 1·2	37·2	34·9	4·0	18·6	0·0	87	99·0	25·3	39·5	38·2	0·005*	0·0	sP : vP
27	...	30·015	62·1	32·1	30·0	45·7	+ 5·6	40·6	34·8	10·9	23·6	0·0	66	99·2	28·1	39·4	38·1	0·000	0·0	vP
28	...	30·087	61·1	28·1	33·0	43·7	+ 3·5	39·7	35·0	8·7	21·1	0·0	71	87·1	28·1	39·8	38·5	0·000	0·0	vP
Means	...	30·279	46·3	31·8	14·6	38·6	− 0·9	37·1	35·2	3·4	8·5	0·8	88·2	67·2	29·9	41·6	40·1	Sum 0·054	0·2	...
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 observations from 1841 to 1890. 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.

* Rainfall (Column 18). The amounts on February 22 to 26 were derived from moisture deposited during dense fog.

The mean reading of the *Barometer* for the month was 30^{in}·279, being 0^{in}·480 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 62°·1 on February 27; the lowest in the month was 25°·9 on February 26; and the range was 36°·2.
The mean of all the highest daily readings in the month was 46°·3, being 1°·0 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 31°·8, being 2°·5 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 14°·6, being 3°·6 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 38°·6, being 0°·9 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	General Direction. 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.	Clouds and Weather. P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Feb. 1	2·6	9·1	SW : WSW : N	N : NNW	3·6	0·0	0·33	281	10, r : p.-cl : 10	0 : 0, m
2	3·2	9·2	WSW : SW	WSW	1·4	0·0	0·04	269	0, ho.-fr : 0	6, li.-cl : 10 : 10
3	0·1	9·2	WSW : W	WSW	2·2	0·0	0·28	407	10 : 10	p.-cl : 10
4	1·3	9·3	W : N : NNE	NNE : NE	1·0	0·0	0·01	205	10 : 10	2, li.-cl : 0, m
5	0·0	9·3	SE : SW	NW : WNW	0·0	0·0	0·00	155	10 : 10, glm	7, th.-cl : v, li.-cl : 0, d
6	0·0	9·4	WSW : SSW	NNW : Calm	0·0	0·0	0·00	70	10 : 10, slt.-f, glm	10, fq.-th.-r : 10, f, oc.-th.-r
7	0·0	9·4	Calm	Calm : ESE	0·0	0·0	0·00	51	10, f, th.-r : 10, f	10, glm : 10 : 10, slt.-f
8	1·0	9·5	Calm	NE : E	0·0	0·0	0·00	64	10, f : 10, f	3, li.-cl : 10
9	0·0	9·6	E : ENE	ENE : SE	0·0	0·0	0·00	146	10 : 10	10 : 10
10	3·9	9·6	SW	WSW	0·0	0·0	0·00	211	10 : 10 : p.-cl	0 : v : 10
11	5·4	9·7	WSW	WSW	4·6	0·0	0·50	420	10 : 0, ho.-fr : 1, th.-cl	4, th.-cl, ci.-cu : p.-cl : 0
12	2·0	9·8	WSW : N : NE	NE : N : WSW	1·6	0·0	0·07	214	v : 4, ci.-cu, th.-cl	5, cu, ci.-cu, th.-cl : p.-cl : p.-cl, slt.-f
13	4·7	9·8	W : N	NNE : SE	1·5	0·0	0·05	216	v, ho.-fr : 0	5, ci.-cu, cu.-s, th.-cl : 2 th.-cl, fr
14	0·0	9·9	SSE : SSW	SW	1·1	0·0	0·01	191	0, ho.-fr : 10	10, oc.-th.-r : 10
15	3·5	9·9	SW : WSW	WSW : SW	0·0	0·0	0·00	121	10 : 2, th.-cl, m, h	1, th.-cl, h : 0 : 0, slt.-f
16	6·6	10·0	SW : WSW	W : SW	0·0	0·0	0·00	137	0, ho.-fr : 0	0 : 3, th.-cl, f
17	0·0	10·1	SW	Calm	0·0	0·0	0·00	58	0, f : 0, f, glm	0, h : 0, f
18	4·3	10·1	Calm	ENE : E : ESE	0·0	0·0	0·00	47	tk.-f, ho.-fr : tk.-f	0 : tk.-f
19	0·0	10·2	E	E	0·5	0·0	0·03	224	10, f : 10, f	10 : 10
20	0·0	10·3	E	E	0·4	0·0	0·01	188	10 : 10, slt.-f	p.-cl : 10, f : 10, f
21	0·0	10·3	E	ESE	0·0	0·0	0·00	101	10, f : 10, f	10, f : 10, f
22	3·2	10·4	E : ESE	ESE	0·0	0·0	0·00	138	10, f : 10, f	0 : f
23	2·5	10·5	Calm	NE : Calm	0·0	0·0	0·00	34	10, f : tk.-f	0 : tk.-f : tk.-f
24	3·1	10·5	Calm	Calm	0·0	0·0	0·00	34	tk.-f : f	0 : tk.-f : tk.-f
25	5·4	10·6	ENE : Calm	ESE : E	0·0	0·0	0·00	97	tk.-f : tk.-f	0 : 0 : 2, th.-cl, slt.-f
26	6·4	10·7	ESE : Calm	SE : Calm	0·0	0·0	0·00	93	0, ho.-fr : tk.-f : 0, f	0 : 0
27	8·3	10·7	Calm : ENE	E : ESE	0·0	0·0	0·00	108	0, ho.-fr : 0, slt.-f : 0	0 : 0, slt.-f
28	3·2	10·8	Calm	SW : WSW	0·0	0·0	0·00	135	0, ho.-fr : 0, slt.-f	1, th.-cl : 3, th.-cl, slt.-f : v, li.-cl
Means	2·5	9·9	...	...	...	...	0·05	158		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 37°·1, being 0°·7 *lower* than
The mean *Temperature of the Dew Point* for the month was 35°·2, being 0°·4 *lower* than
The mean *Degree of Humidity* for the month was 88·2, being 2·2 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·205, being 0in·003 *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 563 grains, being 10 grains *greater* than
} the average for the 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 5·3.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·254. The maximum daily amount of *Sunshine* was 8·3 hours on February 27.

The highest reading of the *Solar Radiation Thermometer* was 99°·2 on February 27; and the lowest reading of the *Terrestrial Radiation Thermometer* was 25°·3 on February 26.

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

The *Proportions of Wind* referred to the cardinal points were N. 4, E. 8, S. 5, and W. 7. Four days were calm.

The *Greatest Pressure of the Wind* in the month was 4·6 lbs. on the square foot on February 11. The mean daily *Horizontal Movement of the Air* for the month was 158 miles; the greatest daily value was 420 miles on February 11; and the least daily value was 34 miles on February 23 and 24.

Rain fell on 4 days in the month amounting to 0in·054, as measured by gauge No. 6 partly sunk below the ground; being 1in·430 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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 50 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.		
Mar. 1	...	30·038	55·7	42·6	13·1	49·5	+ 9·3	47·2	44·7	4·8	10·1	0·0	84	85·2	38·8	40·6	39·9	0·000	0·0	mP
2	...	29·923	59·6	43·3	16·3	50·3	+ 9·9	47·8	45·2	5·1	12·0	0·0	83	93·0	40·0	41·1	39·6	0·000	0·0	wP : mP : vP, wN
3	Last Qr.	30·090	49·0	35·2	13·8	42·3	+ 1·8	37·5	31·7	10·6	18·7	5·3	67	84·2	30·8	41·6	40·2	0·000	0·0	vP
4	...	30·145	50·3	36·3	14·0	44·6	+ 3·9	41·5	37·9	6·7	9·4	4·3	77	66·1	32·7	41·6	40·4	0·000	0·0	vP
5	Greatest Declination S.	30·072	57·1	42·6	14·5	49·4	+ 8·5	45·7	41·8	7·6	13·6	4·0	75	96·9	38·5	42·3	40·8	0·000	0·8	mP : vP
6	...	29·850	55·4	37·7	17·7	45·3	+ 4·2	41·6	37·3	8·0	15·8	2·3	74	98·0	34·8	42·6	41·5	0·000	2·8	mP : vP
7	...	29·551	51·2	42·0	9·2	45·3	+ 4·3	43·0	40·4	4·9	9·0	1·1	83	63·3	39·3	42·6	41·9	0·211	1·5	mP : ssP, ssN
8	...	29·418	42·0	33·6	8·4	39·2	— 1·7	37·9	36·2	3·0	5·7	0·9	90	47·6	31·1	39·4	38·1	0·375	0·5	vN : sN, vP
9	...	29·537	39·4	29·0	10·4	34·0	— 6·8	32·7	30·4	3·6	8·4	0·0	86	57·9	29·0	38·6	37·9	0·160	2·2	wP : mP : ssP, ssN
10	Perigee: New	29·193	34·2	29·0	5·2	31·4	— 9·3	30·9	29·7	1·7	5·6	0·0	93	61·2	29·0	40·6	39·4	0·430	2·2	vP, wN : ssN, sP
11	In Equator	29·185	40·2	30·6	9·6	33·6	— 7·0	32·3	29·9	3·7	8·7	0·0	87	76·2	30·6	41·4	39·8	0·174	0·0	vP
12	...	29·539	41·3	23·1	18·2	32·6	— 8·1	30·5	26·1	6·5	11·5	0·0	76	82·9	23·1	40·6	39·3	0·000	0·2	sP
13	...	29·601	45·2	33·2	12·0	37·5	— 3·4	34·6	30·6	6·9	12·1	3·0	77	89·9	31·9	40·4	39·0	0·007	1·0	vP
14	...	29·626	45·2	35·9	9·3	40·1	— 1·1	38·2	35·7	4·4	7·9	1·9	85	62·6	35·1	39·9	38·5	0·010	0·8	mP : vP, vN
15	...	29·375	45·4	32·2	13·2	39·4	— 2·0	38·0	36·2	3·2	11·0	1·2	89	67·3	30·0	41·1	39·6	0·211	11·2	mP : mP, ssN
16	...	29·222	47·8	35·5	12·3	40·2	— 1·3	38·5	36·3	3·9	10·3	0·5	87	82·3	32·0	40·9	39·4	0·039	11·8	wP : ssN, mP : sP
17	First Qr.	29·389	45·9	38·2	7·7	41·7	+ 0·1	40·9	39·9	1·8	4·0	0·0	94	60·2	35·3	41·1	39·6	0·157	0·2	vP, vN
18	Greatest Dec. N.	29·592	45·2	36·0	9·2	40·9	— 0·7	39·8	38·5	2·4	5·0	0·5	91	54·0	34·0	41·6	40·4	0·000	0·8	vP
19	...	29·682	46·3	34·3	12·0	38·0	— 3·5	35·5	32·1	5·9	11·7	1·7	79	91·0	31·0	41·5	40·2	0·000	2·0	mP
20	...	29·627	45·9	33·1	12·8	37·7	— 3·7	35·5	32·5	5·2	10·8	2·2	82	72·1	30·4	41·2	39·6	0·041	0·0	vP : vP, sN
21	...	29·685	43·1	29·2	13·9	35·1	— 6·3	32·6	28·7	6·4	13·1	2·4	76	89·2	26·0	40·9	39·4	0·009	2·0	vP
22	Apogee	29·836	43·5	23·4	20·1	34·1	— 7·4	31·0	25·5	8·6	13·2	3·1	71	60·3	20·6	40·6	39·2	0·002	0·5	sP : vP
23	...	29·864	46·2	31·8	14·4	36·4	— 5·4	33·8	30·0	6·4	13·0	1·2	78	93·5	28·0	40·6	39·3	0·000	1·5	vP
24	...	29·694	52·0	33·2	18·8	42·4	+ 0·3	39·6	36·2	6·2	12·4	2·9	79	98·2	30·0	40·6	39·5	0·012	3·0	mP : vP, sN
25	Full: In Equator	29·495	58·0	44·0	14·0	48·1	+ 5·7	45·1	41·8	6·3	15·8	2·4	79	107·7	41·0	41·6	40·4	0·182	1·5	mP : vP, ssN
26	...	29·476	49·0	34·0	15·0	40·8	— 2·1	37·0	32·2	8·6	15·7	3·1	71	94·7	30·8	42·5	41·2	0·061	4·5	vP, ssN
27	...	29·584	46·6	32·5	14·1	37·2	— 6·1	34·2	29·9	7·3	14·3	3·8	75	85·1	30·0	42·3	41·0	0·052	0·8	mP : vP, vN
28	...	29·543	47·9	33·3	14·6	41·3	— 2·4	37·0	31·7	9·6	15·5	3·5	69	70·5	30·3	42·4	41·0	0·010	2·2	mP
29	...	29·571	53·2	36·1	17·1	43·2	— 0·9	38·5	32·9	10·3	19·7	4·8	67	98·1	31·9	42·2	40·9	0·000	0·0	mP
30	...	29·617	46·1	31·3	14·8	37·7	— 6·9	33·2	27·0	10·7	17·4	5·5	65	90·2	26·7	42·4	41·0	0·000	0·0	mP : vP, vN
31	...	29·814	50·2	30·3	19·9	38·1	— 6·9	34·3	29·2	8·9	16·8	1·7	70	103·5	26·6	42·3	40·9	0·000	0·0	sP : vP : vP, vN
Means	...	29·640	47·7	34·3	13·4	40·2	— 1·5	37·6	34·1	6·1	11·9	2·0	79·3	80·1	31·6	41·3	40·0	Sum 2·143	1·7	...
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 observations from 1841 to 1890. 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·640, being 0in·113 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 59°·6 on March 2; the lowest in the month was 23°·1 on March 12; and the range was 36°·5.
The mean of all the highest daily readings in the month was 47°·7, being 2°·0 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 34°·3, being 0°·7 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 13°·4, being 1°·3 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 40°·2, being 1°·5 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	General Direction. 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	1·0	10·8	WSW	WSW	1·5	0·0	0·10	395	v, li.-cl : v, li.-cl : 3, li.-cl	p.-cl : 10
2	1·2	10·9	WSW	WSW : WNW	1·5	0·0	0·12	416	10 : 10	10 : v, li.-cl
3	4·0	11·0	WSW : NW	NW : W	8·5	0·0	1·25	561	v : 3, li.-cl, w	v, ci.-cu, cu.-s, li.-cl, w : 0
4	0·0	11·1	WSW	WSW : W	4·0	0·0	0·87	511	0 : 10 : 10, w	10, sc, w, slt.-r : v, th.-cl, w
5	3·4	11·1	W	WSW : SW	4·4	0·0	1·21	579	2, li.-cl : 5, li.-cl, w	6, ci.-cu, li.-cl, w : v, th.-cl
6	5·8	11·2	SW : WSW	WSW	5·7	0·0	1·49	615	10 : 3, ci.-cu, w	v, li.-cl, w, so.-ha : 1, li.-cl
7	0·0	11·2	WSW	WSW : SW	1·1	0·0	0·15	315	v : 10	10, r : 10, c.-r
8	0·0	11·3	SW : N	N : NNW	0·0	0·0	0·00	171	10, hy.-r : 10, c.-r : 10, c.-r	10, c.-r : vv
9	0·0	11·4	N : NE	E : ENE	14·7	0·0	2·18	598	10 : 10, w	10, w, sn : 10, sn, st.-w
10	0·0	11·4	ENE : NE	ENE : NE	9·0	0·0	1·52	570	10, sn, st.-w : 10, sn, w	10 : 10, sn : 10, sn
11	0·2	11·5	NNE	N : NNW	2·9	0·0	0·54	395	10, sn : 10, oc.-sn : 9, ci.-cu, li.-cl	9, slt.-sn : 10, slt.-sn
12	2·9	11·6	NNW : Calm	ESE : E	0·0	0·0	0·00	149	0, ho.-fr : 0, h, slt.-f	p.-cl, th.-cl, so.-ha : 10 : 10
13	3·7	11·6	ENE : NE	ENE : NE	3·2	0·0	0·28	379	10 : 1, th.-cl, so.-ha	10 : 10, slt.-r
14	0·0	11·7	NE : NNE	NE : NNW	0·0	0·0	0·00	193	10 : 10	10, fq.-slt.-r : 10, fq.-slt.-r
15	1·9	11·8	NW : SW : SSW	SSW : SW	3·1	0·0	0·55	317	10 : p.-cl : 10	10, slt.-r : 10, hy.-r : 10, shs.-r
16	0·9	11·8	SSW : S	SSE : SE : E	0·0	0·0	0·00	228	10, shs.-r : 10, shs.-r	10, oc.-slt.-r : v, th.-cl : 10
17	0·0	11·9	ENE : NE	E : ENE	1·1	0·0	0·01	262	10 : 10 : 10, oc.-r	10, c.-r : 10, slt.-r
18	0·0	12·0	ENE : NE	ENE : NE	3·5	0·0	0·40	338	10 : 10	10 : v
19	0·9	12·0	NNE : N	N	2·2	0·0	0·25	311	10 : 10	10, slt.-r, slt.-sn : v, th.-cl : 10
20	0·4	12·1	WSW : NW	N : NNE	2·9	0·0	0·14	225	10 : 10, slt.-f, glm, slt.-sn	10 : v, sn, r, glm : v
21	3·6	12·2	N	N : NNE	5·8	0·0	0·87	398	0, ho.-fr : 9, cu.-s, oc.-sn	p.-cl, ci.-cu, slt.-sn, w : 0
22	2·5	12·2	N : SW : W	NNW : N	0·0	0·0	0·00	109	0, ho.-fr : 0 : p.-cl	7, li.-cl : v, li.-cl : 10
23	3·5	12·3	ENE : SE	SW : SSW	0·0	0·0	0·00	140	10 : 10	3, li.-cl : v, th.-cl, lu.-ha
24	4·3	12·4	SSW : WSW	SW : SSW	2·9	0·0	0·18	371	10 : 8, ci.-cu, cu.-s, li.-cl, slt.-r	p.-cl, cu.-s, li.-cl, sh.-r : 10, slt.-r
25	5·3	12·4	SW : WSW	WSW : SW	5·6	0·0	1·84	609	10 : 10 : 7, cu.-s, li.-cl, w	v, shs.-r, w : v, shs.-r, w
26	6·3	12·5	WSW	W : WSW	8·5	0·0	1·99	605	10, sh.-r, st.-w : 8, li.-cl, w : 3, cu.-s, li.-cl, st.-w	10, t.-sm, r, sn, hy.-sq, gt.-glm : 6, ci.-cu, li.-cl : 2, li.-cl
27	4·4	12·6	WSW : W	WSW	5·3	0·0	0·98	493	0 : 6, ci.-cu, slt.-sn	10, oc.-sn, w : p.-cl, hy.-r, sn, glm : 0
28	2·0	12·6	WSW : W : NNW	NNW : WNW	3·2	0·0	0·88	459	v, sh.-r, w : p.-cl	p.-cl : 10
29	5·3	12·7	WSW : WNW	NW : WNW	5·2	0·0	0·78	463	p.-cl : v, slt.-r, w	p.-cl : 10, sq
30	7·8	12·8	NW : NNW	NNW	5·2	0·0	1·23	453	v, w : 4, cu.-s, li.-cl, slt.-sn, w	p.-cl, oc.-sn : 3, th.-cl
31	5·1	12·8	NNW : N	NNW : SSW	0·2	0·0	0·00	168	0 : 4, ci.-cu	p.-cl : 0, h, slt.-f
Means	2·5	11·8	...	...	...	...	0·64	381		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 37°·6, being 1°·7 *lower* than
The mean *Temperature of the Dew Point* for the month was 34°·1, being 2°·2 *lower* than
The mean *Degree of Humidity* for the month was 79·3, being 1·8 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·196, being 0in·018 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·3, being 0gr·2 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 549 grains, being 1 grain *less* than
} the average for the 50 years, 1841–1890.

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 0·208. The maximum daily amount of *Sunshine* was 7·8 hours on March 30.

The highest reading of the *Solar Radiation Thermometer* was 107°·7 on March 25; and the lowest reading of the *Terrestrial Radiation Thermometer* was 20°·6 on March 22.

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

The *Proportions of Wind* referred to the cardinal points were N. 10, E. 5, S. 5, and W. 11.

The *Greatest Pressure of the Wind* in the month was 14·7 lbs. on the square foot on March 9. The mean daily *Horizontal Movement of the Air* for the month was 381 miles; the greatest daily value was 615 miles on March 6; and the least daily value was 109 miles on March 22.

Rain fell on 17 days in the month, amounting to 2in·143, as measured by gauge No. 6 partly sunk below the ground; being 0in·682 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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 50 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	...	29·746	51·3	29·0	22·3	39·0	— 6·4	35·0	29·7	9·3	16·4	3·4	70	97·1	28·0	42·4	40·9	0·000	4·0	vP : wP, wN : mP
2	Last Quarter : Greatest Dec. S.	29·595	47·9	34·5	13·4	41·0	— 4·7	36·3	30·4	10·6	19·5	4·2	66	72·0	29·0	42·5	41·2	0·000	0·0	mP
3	...	29·469	50·4	37·2	13·2	42·4	— 3·6	39·6	36·2	6·2	11·5	3·5	79	88·7	35·0	42·6	41·2	0·003	3·0	vP : mP : sP
4	...	29·482	54·8	39·3	15·5	46·3	+ 0·1	44·7	42·9	3·4	7·2	0·9	89	80·3	35·8	43·0	42·0	0·356	2·5	sP : vN, mP : ssN, ssP
5	...	29·406	57·0	40·1	16·9	47·1	+ 0·9	45·1	42·9	4·2	11·2	0·7	86	100·9	36·6	44·6	43·4	0·022	4·5	vP : vP, ssN
6	...	29·493	60·4	39·7	20·7	47·8	+ 1·6	44·3	40·5	7·3	16·3	2·0	76	111·3	36·3	44·8	43·4	0·000	3·0	mP : sN, vP
7	Perigee	29·573	43·1	36·2	6·9	40·7	— 5·4	39·6	38·2	2·5	6·5	0·9	91	50·3	33·5	46·1	44·6	0·014	0·0	vP
8	In Equator : New	29·723	46·8	33·3	13·5	39·8	— 6·1	36·6	32·4	7·4	13·2	4·2	75	89·1	29·2	46·4	44·9	0·000	1·0	mP : vP, ssN
9	...	29·813	43·1	37·9	5·2	40·7	— 4·9	39·8	38·7	2·0	3·1	0·7	93	58·4	37·8	46·2	44·8	0·138	3·0	vP, ssN : wN, wP
10	...	29·963	50·6	36·2	14·4	42·8	— 2·7	41·1	39·1	3·7	9·2	0·9	86	78·0	32·2	46·1	44·6	0·000	0·5	vP
11	...	29·940	49·4	36·0	13·4	40·7	— 4·8	38·4	35·5	5·2	14·3	1·4	82	90·6	31·3	46·0	44·6	0·021	1·5	vP : sN, mP
12	...	29·954	52·1	34·7	17·4	40·2	— 5·5	38·2	35·6	4·6	12·0	1·7	84	113·0	31·5	44·6	43·6	0·108	0·0	mP, wN : ssP, ssN
13	...	29·910	46·9	33·1	13·8	40·5	— 5·5	37·5	33·7	6·8	11·9	0·0	77	87·2	30·4	44·6	43·9	0·000	0·5	vP
14	Greatest Declination N.	29·956	51·4	30·8	20·6	41·4	— 5·0	38·2	34·2	7·2	13·2	1·9	76	96·8	25·9	45·6	44·4	0·000	1·5	vP : mP
15	...	30·008	57·1	38·2	18·9	46·0	— 0·9	42·0	37·4	8·6	17·6	2·5	73	85·8	35·4	46·6	45·3	0·000	0·0	vP : wN
16	First Qr.	29·972	56·7	39·4	17·3	48·1	+ 0·8	44·1	39·7	8·4	14·8	1·8	73	98·0	32·8	47·2	45·7	0·045	0·0	vP, mN
17	...	29·966	54·6	38·4	16·2	45·5	— 2·2	40·6	35·0	10·5	17·0	3·9	67	104·5	30·5	46·6	45·4	0·000	4·0	mP : vP
18	...	30·011	58·2	32·1	26·1	44·4	— 3·7	40·2	35·3	9·1	18·6	1·6	70	117·3	27·0	47·6	46·4	0·000	0·0	vP : mP
19	Apogee	30·032	49·6	33·7	15·9	42·1	— 6·2	39·2	35·6	6·5	12·8	0·2	79	95·2	29·4	49·1	47·4	0·000	0·5	mP
20	...	30·101	50·4	36·2	14·2	42·4	— 6·1	40·2	37·5	4·9	9·7	1·1	84	94·0	30·2	48·6	47·3	0·000	1·5	mP
21	...	30·053	56·1	36·0	20·1	45·6	— 2·9	42·2	38·3	7·3	13·7	0·7	76	126·9	29·8	49·4	47·9	0·000	3·0	mP : wP : mP
22	In Equator	29·933	53·6	38·0	15·6	43·9	— 4·6	40·9	37·4	6·5	13·0	2·1	77	86·8	36·0	49·6	48·4	0·000	2·0	mP
23	...	29·903	58·0	37·9	20·1	47·1	— 1·3	41·3	34·8	12·3	21·7	2·1	62	116·2	35·4	49·7	48·4	0·000	7·0	mP : wP : mP
24	Full	29·972	57·0	34·3	22·7	45·4	— 3·0	40·2	34·2	11·2	19·6	1·5	65	117·1	30·2	49·7	48·4	0·000	4·0	vP : mP
25	...	29·951	50·8	36·6	14·2	43·1	— 5·3	40·4	37·2	5·9	12·0	2·3	80	101·3	32·8	49·8	48·5	0·011	0·8	sP : vP, ssN : sP
26	...	29·811	53·2	31·8	21·4	42·2	— 6·2	39·0	35·1	7·1	15·2	1·1	77	107·1	27·3	49·6	48·4	0·000	6·2	sP : mP
27	...	29·574	59·7	32·1	27·6	45·9	— 2·6	42·2	37·9	8·0	20·5	0·0	74	114·8	29·6	49·6	48·4	0·000	0·0	mP
28	...	29·425	65·5	40·9	24·6	51·2	+ 2·6	44·7	38·0	13·2	22·8	3·3	61	105·8	32·7	50·6	49·3	0·000	0·8	vP, vN
29	Greatest Declination S.	29·578	56·0	37·3	18·7	47·9	— 0·9	43·8	39·3	8·6	16·6	2·8	73	76·0	29·8	50·6	49·4	0·000	2·2	mP : wP, wN : mP
30	...	29·545	66·6	45·6	21·0	54·9	+ 5·9	51·8	48·8	6·1	12·8	2·1	79	115·2	43·5	51·1	49·8	0·000	1·5	wP
																		Sum		
Means	...	29·795	53·6	36·2	17·4	44·2	— 3·0	40·9	37·0	7·2	14·1	1·8	76·7	95·9	32·2	47·0	45·7	0·718	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 observations from 1841 to 1890. 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·795, being 0in·054 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 66°·6 on April 30; the lowest in the month was 29°·0 on April 1; and the range was 37°·6.
The mean of all the highest daily readings in the month was 53°·6, being 3°·6 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 36°·2, being 2°·7 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 17°·4, being 0°·9 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 44°·2, being 3°·0 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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	6·1	12·9	SW : SSW	SSW : SE	0·7	0·0	0·01	162	o, ho.-fr : o, h, m	7,ci.-cu, li.-cl: v, li.-cl : o
2	0·0	13·0	SSE	SE : ESE	2·0	0·0	0·19	299	p.-cl : 10, so.-ha	10, so.-ha : 10
3	0·4	13·0	E : ENE	E : ESE	1·0	0·0	0·02	232	10 : 10, li.-shs	10 : 10
4	0·4	13·1	E : ESE	SE : SW	1·2	0·0	0·01	174	10 : 10, oc.-r	10, oc.-slt.-r : v, hy.-r
5	2·9	13·2	SW : SSW	SSW : SW	1·3	0·0	0·05	296	r : 10, sh.-r : v, shs.-r	v, shs.-r : v
6	9·6	13·2	SW	SW : NE	1·4	0·0	0·04	269	o : 5, cu.-s, li.-cl	4, ci.-cu, cu : 2, li.-cl
7	0·0	13·3	NNE : N	NNE	3·9	0·0	0·80	404	10 : 10, glm	10 : 10, r
8	4·5	13·4	NNW : NW	NW : NNW	1·4	0·0	0·10	287	o : 7, ci.-cu, cu.-s	8, ci.-cu, cu.-s : 9, oc.-slt.-r
9	0·0	13·4	Calm : NNE	NNE	0·3	0·0	0·00	195	10, r : 10, c.-r	10, fq.-slt.-r : 10, fq.-slt.-r
10	0·2	13·5	NE : NNE	NE : ESE	0·0	0·0	0·00	201	10 : 10	10 : 10
11	1·4	13·6	NNE : NE	E : ENE : NE	1·6	0·0	0·06	294	10 : 10, slt.-r	p.-cl, sh.-r, hl : p.-cl
12	1·9	13·6	NE : NNE : N	ENE : ESE	1·0	0·0	0·04	188	10 : 9, cu	10, r : p.-cl
13	0·5	13·7	ESE : ENE	NE : N	0·0	0·0	0·00	139	o : p.-cl	10 : p.-cl, th.-cl
14	2·3	13·7	NNW	NNW : NNE	0·2	0·0	0·00	146	o, ho.-fr : 7, ci.-cu, li.-cl, h, so.-ha	10 : 10
15	0·5	13·8	NNW : NW	NW : WSW	0·4	0·0	0·00	162	10 : 10, glm, slt.-f	6, cu, ci.-cu, cu.-s : v
16	1·2	13·9	WSW : W	W : NW	2·3	0·0	0·30	364	o : 10, sh.-r : 7, ci.-cu, li.-cl	10, slt.-r : v, r
17	8·8	13·9	NW : NNW	N : NE	1·3	0·0	0·13	272	v, li.-cl : 4, ci.-cu, cu, li.-cl	5, li.-cl : 3, li.-cl
18	8·4	14·0	Calm : NE	NE : ESE	0·2	0·0	0·00	145	v, li.-cl : o, ho.-fr: 2, ci.-cu, cu	7, cu, cu.-s : v, li.-cl
19	3·1	14·1	ESE : ENE	ENE : ESE	0·7	0·0	0·00	218	p.-cl, ho.-fr : 9, cu.-s	10, oc.-slt.-r : p.-cl
20	2·6	14·1	NE : ENE	ESE	1·0	0·0	0·01	239	v, li.-cl : 10, slt.-r : 10	9, cu.-s : 3, th.-cl
21	10·9	14·2	NE : E	E: ENE	2·4	0·0	0·26	309	o : o : 2, ci.-cu, cu	2, cu, li.-cl : 3, li.-cl : p.-cl, lu.-ha
22	1·0	14·2	NE : ENE	ENE : NE	1·6	0·0	0·14	337	10 : 10	8,ci.-cu,cu.-s,so.-ha: p.-cl, lu.-ha
23	12·8	14·3	ENE : NE	E : ENE	4·2	0·0	0·80	423	p.-cl, th.-cl : 1, li.-cl : 2, cu, li.-cl	o : o
24	11·4	14·4	NE	NE	1·7	0·0	0·15	365	o : v : 2,ci.-cu,cu,li.-cl	4, cu.-s, li.-cl : 10
25	0·0	14·4	NNE : NE	NE : ESE	1·0	0·0	0·01	190	10 : 10, slt.-r	10, slt.-r : 10 : p.-cl
26	7·4	14·5	NE : E	ENE : ESE	0·0	0·0	0·00	182	p.-cl : p.-cl : 10	v, li.-cl : o : 1, th.-cl
27	7·1	14·5	E : ENE	ESE : ENE	2·0	0·0	0·16	223	o : o, m	3, th.-cl, so.-ha : 10 : p.-cl
28	5·2	14·6	NNW : NW	NNW : WNW	1·5	0·0	0·06	213	p.-cl : cu, cu.-s, slt.-f, h	6, cu, cu.-s : p.-cl,prh : p.-cl, th.-cl
29	0·5	14·7	NW : SW : SSW	SSW	3·4	0·0	0·47	380	o : 10	10 : 10 : p.-cl
30	2·1	14·7	SSW : SW	SW	5·0	0·0	1·54	584	10, w : 10, slt.-r, w	10, w : p.-cl, w
Means	3·8	13·8	...	...	...	...	0·18	263		
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°·9, being 3°·0 *lower* than
The mean *Temperature of the Dew Point* for the month was 37°·0, being 3°·2 *lower* than
The mean *Degree of Humidity* for the month was 76·7, being 0·1 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·220, being 0in·029 *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 548 grains, being 5 grains *greater* than
} the average for the 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·1.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·273. The maximum daily amount of *Sunshine* was 12·8 hours on April 23.

The highest reading of the *Solar Radiation Thermometer* was 126°·9 on April 21; and the lowest reading of the *Terrestrial Radiation Thermometer* was 25°·9 on April 14.

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

The *Proportions of Wind* referred to the cardinal points were N. 9, E. 12, S. 4, and W. 4. One day was calm.

The *Greatest Pressure of the Wind* in the month was 5·0 lbs. on the square foot on April 30. The mean daily *Horizontal Movement of the Air* for the month was 263 miles; the greatest daily value was 584 miles on April 30; and the least daily value was 139 miles on April 13.

Rain fell on 8 days in the month, amounting to 0in·718, as measured by gauge No. 6 partly sunk below the ground; being 0in·943 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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 50 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.		
May 1	Last Qr.	29·454	61·7	49·2	12·5	54·4	+ 5·2	50·9	47·5	6·9	14·4	2·4	77	103·0	46·0	52·2	50·9	0·085	13·8	wP : ... : mP
2	...	29·505	60·8	40·5	20·3	49·7	+ 0·3	47·0	44·1	5·6	8·4	3·6	82	107·4	37·0	52·6	51·4	0·103	9·0	mP : vN, vP
3	...	29·744	61·2	35·3	25·9	48·3	— 1·4	43·5	38·2	10·1	17·1	0·0	69	118·3	31·3	52·6	51·4	0·000	4·0	mP
4	...	29·831	60·4	40·4	20·0	51·0	+ 1·0	47·2	43·2	7·8	13·7	1·5	75	100·3	36·3	53·0	51·6	0·000	3·8	mP : mP, vN : vN, vP
5	Perigee: In Equator	29·964	59·4	40·7	18·7	51·5	+ 1·2	46·7	41·8	9·7	18·8	3·1	70	116·0	33·5	53·7	52·4	0·000	6·0	mP
6	...	29·901	66·2	38·6	27·6	50·2	— 0·4	46·3	42·2	8·0	19·1	1·6	75	121·8	31·0	54·6	53·3	0·000	0·0	mP
7	...	29·736	68·0	45·4	22·6	55·7	+ 4·9	49·1	42·8	12·9	22·9	5·0	63	122·3	41·7	55·1	54·1	0·000	1·5	mP : wP, wN
8	New	29·428	61·1	43·6	17·5	52·7	+ 1·7	49·2	45·7	7·0	11·8	2·1	78	99·5	39·1	55·7	54·5	0·020	4·5	wP, mN
9	...	29·546	60·3	44·5	15·8	50·6	— 0·6	48·1	45·5	5·1	9·9	1·7	83	105·0	40·3	55·9	55·0	0·000	0·0	mP : vP, wN
10	...	29·622	51·6	46·4	5·2	48·7	— 2·8	47·9	47·0	1·7	2·9	0·6	94	59·1	46·4	55·2	54·5	0·029	2·0	wwP : ...
11	...	29·847	74·8	47·3	27·5	58·0	+ 6·3	54·0	50·4	7·6	16·1	0·8	76	131·9	46·0	55·4	54·5	0·001	0·0	... : wP : wP, wwN
12	Greatest Declination N.	30·036	78·9	46·4	32·5	60·8	+ 8·8	55·9	51·7	9·1	20·7	1·5	71	128·5	43·5	56·3	55·4	0·000	0·0	wP : mP : vP
13	...	29·966	80·5	49·8	30·7	64·4	+12·1	57·1	51·1	13·3	28·4	1·2	62	128·8	45·2	57·3	56·5	0·000	0·0	vP, wN
14	...	29·845	70·0	49·0	21·0	57·7	+ 5·1	52·3	47·4	10·3	19·1	3·6	69	123·2	41·0	57·4	56·5	0·000	0·0	mP : vP, wN
15	First Qr.	29·540	59·1	41·2	17·9	48·4	— 4·4	43·9	39·0	9·4	19·4	2·6	70	115·8	34·7	57·1	56·3	0·025	0·0	wN, vP : ssP, ssN
16	...	29·574	51·0	34·9	16·1	41·3	—11·8	39·3	36·8	4·5	10·7	0·5	84	102·7	32·5	55·8	54·5	0·083	5·0	vP, wN : ssP, ssN : ...
17	Apogee	29·505	54·0	30·9	23·1	40·4	—12·9	38·2	35·4	5·0	15·1	0·0	83	105·0	28·0	55·8	54·3	0·117	1·2	mP ; ssP, ssN
18	...	29·217	43·2	37·0	6·2	40·8	—12·8	39·6	38·1	2·7	5·7	0·9	90	61·0	35·0	56·1	54·5	0·532	3·8	wP, sN : vP, vN
19	In Equator	29·437	59·0	33·8	25·2	44·7	— 9·2	41·2	37·1	7·6	18·0	0·0	74	111·4	30·5	55·8	54·7	0·012	2·5	mP : wP, wN : vP, vN
20	...	29·518	59·2	39·9	19·3	48·5	— 5·7	45·1	41·4	7·1	14·0	1·1	77	108·2	32·8	55·6	54·5	0·130	4·5	mP : ssN, ssP : vP
21	...	29·292	50·3	42·4	7·9	46·3	— 8·3	44·8	43·0	3·3	10·7	1·5	90	66·3	42·2	55·1	53·4	0·285	0·2	vN, vP : wP, wwN
22	...	29·432	60·7	41·9	18·8	48·3	— 6·7	46·2	43·9	4·4	12·9	0·7	85	112·1	41·0	54·6	53·2	0·086	0·8	wP, wwN : ssP, ssN
23	Full	29·553	58·5	42·2	16·3	49·8	— 5·5	46·6	43·2	6·6	13·9	0·9	78	93·6	41·0	55·6	54·5	0·000	1·8	mP, vN : wN, wP
24	...	29·460	56·2	42·1	14·1	46·5	— 9·1	45·6	44·6	1·9	4·4	0·7	94	104·4	40·3	55·6	54·5	0·445	6·5	wP, wN : vN, vP
25	...	29·537	49·6	40·7	8·9	43·9	—11·8	42·3	40·4	3·5	6·3	0·7	87	79·4	40·7	55·4	54·1	0·080	0·8	wP, vN : vN, wP
26	Greatest Declination S.	29·520	59·9	40·4	19·5	46·9	— 9·0	43·7	40·1	6·8	16·3	1·3	79	115·0	37·1	56·1	54·7	0·012	3·2	mP : vN, vP
27	...	29·454	62·5	38·0	24·5	47·1	— 8·9	44·7	42·0	5·1	12·5	0·9	83	119·8	34·2	56·4	55·0	0·180	2·8	wP : ssN, ssP
28	...	29·509	61·7	41·4	20·3	50·4	— 5·6	46·4	42·2	8·2	15·8	1·1	74	122·0	39·0	56·1	55·0	0·000	8·0	wP : wP, wN : mP
29	...	29·587	67·3	42·4	24·9	52·4	— 3·8	48·8	45·1	7·3	18·4	0·4	77	129·7	40·2	56·6	55·5	0·214	13·0	wP : wP, ssN
30	Last Qr.	29·616	65·6	46·1	19·5	54·1	— 2·4	51·5	49·0	5·1	14·1	0·4	82	113·2	39·5	56·6	55·5	0·049	0·2	wwP : wwP, mN : vP
31	Perigee	29 730	72·0	41·0	31·0	57·6	+ 0·8	52·1	47·1	10·5	20·7	1·3	68	128·0	38·2	57·6	56·3	0·000	5·8	wP
Means	...	29·610	61·4	41·7	19·7	50·4	— 2·8	46·9	43·5	6·9	14·6	1·4	78·0	108·2	38·2	55·4	54·3	Sum 2·688	3·4	...
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 observations from 1841 to 1890. 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 $29^{in}\cdot610$, being $0^{in}\cdot176$ *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 80°·5 on May 13; the lowest in the month was 30°·9 on May 17; and the range was 49°·6.
The mean of all the highest daily readings in the month was 61°·4, being 2°·7 *lower* than the average for the 50 years, 1841-1890.
The mean of all the lowest daily readings in the month was 41°·7, being 2°·0 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 19°·7, being 0°·7 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 50°·4, being 2°·8 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	General Direction. 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	4·1	14·8	SSW	SW	9·2	0·0	2·48	685	10, w : 10, r, w	p.-cl, sc, r, st.-w : v, sh.-r, w
2	1·9	14·8	SW : SSW	NNW : WSW	4·0	0·0	0·33	328	v : 10, shs.-r	10, fq.-shs, glm : v
3	9·4	14·9	SW : WSW	SW : SSW	2·3	0·0	0·15	306	o : 4, cu, cu.-s	7, li.-cl, cu.-s : v, li.-cl
4	3·9	14·9	SW : WSW	SW	0·2	0·0	0·00	181	p.-cl : v : 6, th.-cl	10, glm : 10
5	8·4	15·0	E	ESE : E	1·1	0·0	0·02	214	10 : 10	o : o
6	1·8	15·1	N : NE	E : ESE	0·0	0·0	0·00	128	o, d : 10, m : 8, li.-cl	p.-cl : 10, oc.-slt.-r : 6, li.-cl
7	9·5	15·1	N	N : S	0·2	0·0	0·00	145	p.-cl : 2, th.-cl, h, m	5, th.-cl, so.-ha : o
8	1·3	15·2	S	SSE : E : ENE	0·5	0·0	0·00	217	o : 10, slt.-r : 10	9, cu.-s, sh.-r : 10, oc.-slt.-r
9	2·5	15·2	NE : NNE : N	N	1·5	0·0	0·13	326	o : p.-cl : 9, th.-cl	10 : 10, oc.-th.-r
10	0·0	15·3	N : NNE	N	1·5	0·0	0·08	337	10, slt.-r : 10 slt.-shs	10 : 10
11	9·9	15·3	N	NE : ESE	1·2	0·0	0·05	300	10 : 6, ci.-cu, li.-cl	2, li.-cl : o
12	10·1	15·4	N	NNE : Calm	0·0	0·0	0·00	166	v : 10, m : 1, li.-cl	o : o
13	7·0	15·4	Calm : N	N : NNW	1·0	0·0	0·04	182	o : o, h, m : 2, th.-cl, h	1, th.-cl : 1, li.-cl
14	4·0	15·5	N : NE	S : N : NW	2·5	0·0	0·10	211	o : 10, s, ci.-s : 10	8, ci.-cu, cu.-s, th.-cl : 6, li.-cl
15	8·5	15·5	WSW : WNW	WNW : NNW	8·0	0·0	0·83	388	o : o : 6, cu.-s, sh.-r, w	v, hy.-r, fr.-r, sn, t, sqs : v, shs.-r, l, t, fq.-sqs : v, r
16	2·2	15·6	WNW : N	N : NNE	2·5	0·0	0·08	214	v : 10, gt.-glm, shs.-r : 10, slt.-r	10, r, gt.-glm : v, li.-cl, slt.-r
17	7·8	15·6	WSW	SW : SE	4·9	0·0	0·22	263	1, th.-cl, ho.-fr : 6, cu, cu.-s	v, fq.-shs, hl, fr.-r : 10
18	0·0	15·7	SSW : NE : NNE	NNE : Calm	1·3	0·0	0·08	229	10, hy.-r : 10, c.-r	10, r : 10
19	6·2	15·7	Calm	WSW : SW	3·8	0·0	0·24	216	10 : 6, ci.-cu, li.-cl, h	6, cu, cu.-s : 5, cu.-s, li.-cl, shs.-r
20	5·7	15·8	SSW : SW	SSW : SSE	1·3	0·0	0·10	233	v, li.-cl : o : 8, cu, cu.-s, hy.-shs	9, sh.-r, so.-ha : 10, slt.-r
21	0·0	15·8	NNE	N	1·0	0·0	0·07	242	10, r : 10, c.-r	10, oc.-slt.-r : 10, oc.-slt.-r
22	3·0	15·9	NNE : SW	WSW : SW	2·5	0·0	0·04	172	10, oc.-th.-r : 10, slt.-r : 8, li.-cl	p.-cl, oc.-r : 10
23	1·8	15·9	SW : N	NE : SSW	0·2	0·0	0·00	99	10 : 10, glm	8, cu.-s, li.-cl : 10
24	0·5	16·0	SE : ESE	E : NE	0·7	0·0	0·02	187	10 : 10, hy.-r	10, fq.-r : v, t.-sm, hy.-r, hl : 10, l, t, slt.-r
25	0·0	16·0	N : NNW	NNW : WNW	1·3	0·0	0·12	304	10, shs.-r : 10, oc.-slt.-r	10 : 10 : 10, slt.-r
26	3·0	16·0	SW : WSW	WSW : SSW	1·6	0·0	0·05	249	p.-cl : 7, cu.-s, th.-cl, so.-ha	p.-cl, th.-r : p.-cl, slt.-r
27	3·2	16·1	S : SW	SW : SSW	2·7	0·0	0·05	225	p.-cl : 7, cu, cu.-s	8, cu.-s, li.-cl, fq.-r : 10, hy.-r
28	12·5	16·1	SSW : SW	SW : SSW : S	2·9	0·0	0·42	332	v : o : 5, cu.-s, li.-cl	6, cu, cu.-s, li.-cl : 2, s
29	4·9	16·1	S : SSW	SSW : ESE	1·5	0·0	0·09	252	v, li.-cl : 6, li.-cl, cu.-s, oc.-slt.-r	8, cu.-s, ci.-cu : 10, hy.-r
30	2·4	16·2	Calm : N	NNE : SSW	0·0	0·0	0·00	93	10 : 10, slt.-r, glm	10 : v, li.-cl : v, li.-cl
31	13·0	16·2	S : SE	SE : E	1·1	0·0	0·02	195	p.-cl : o : 4, cu, cu.-s	5, li.-cl : 1, li.-cl
Means	4·8	15·6	...	...	...	...	0·19	246		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 46°·9, being 2°·3 *lower* than
The mean *Temperature of the Dew Point* for the month was 43°·5, being 1°·8 *lower* than
The mean *Degree of Humidity* for the month was 78·0, being 3·0 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·283, being 0in·020 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·2, being 0gr·2 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 537 grains, being 1 grain *less* than
} the average for the 50 years, 1841-1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·2.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·308. The maximum daily amount of *Sunshine* was 13·0 hours on May 31.

The highest reading of the *Solar Radiation Thermometer* was 131°·9 on May 11; and the lowest reading of the *Terrestrial Radiation Thermometer* was 28°·0 on May 17.

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

The *Proportions of Wind* referred to the cardinal points were N. 10, E. 4, S. 9, and W. 7. One day was calm.

The *Greatest Pressure of the Wind* in the month was 9·2 lbs. on the square foot on May 1. The mean daily *Horizontal Movement of the Air* for the month was 246 miles; the greatest daily value was 685 miles on May 1; and the least daily value was 93 miles on May 30.

Rain fell on 18 days in the month, amounting to 2in·688, as measured by gauge No. 6 partly sunk below the ground; being 0in·685 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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 50 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	InEquator	29·678	72·9	48·4	24·5	61·0	+ 3·8	56·4	52·4	8·6	17·5	1·5	74	131·6	45·0	58·4	56·7	0·082	5·8	wP : wP : vP, ssN
2	...	29·688	66·1	52·4	13·7	57·9	+ 0·2	54·7	51·9	6·0	12·2	1·3	80	91·3	51·5	57·6	56·5	0·057	5·2	vP, wN
3	...	29·675	73·8	54·3	19·5	60·3	+ 2·3	57·9	55·8	4·5	14·0	0·8	86	124·0	53·8	58·2	56·5	0·008	0·8	vP : wP
4	...	29·586	69·2	53·3	15·9	58·7	+ 0·5	56·8	55·1	3·6	11·9	0·2	88	111·8	49·8	58·6	57·1	0·097	2·7	wP : wN, wwP : mP
5	...	29·725	73·1	49·4	23·7	58·9	+ 0·6	55·0	51·5	7·4	18·5	1·2	77	129·4	45·3	58·8	57·1	0·000	1·5	mP : wP, wwN
6	New	29·769	67·1	50·2	16·9	56·5	— 1·8	53·1	49·9	6·6	15·8	0·8	79	125·8	49·5	58·6	57·3	0·000	0·5	wP : vP
7	...	29·732	59·0	47·1	11·9	51·8	— 6·4	48·9	46·0	5·8	12·0	0·0	81	88·0	46·1	57·8	56·8	0·000	5·5	wP, wwN
8	Greatest Declination N.	29·717	64·6	46·5	18·1	54·7	— 3·5	51·3	48·0	6·7	12·7	3·1	78	117·8	45·0	57·6	56·9	0·000	0·5	wP
9	...	29·738	62·0	47·8	14·2	54·4	— 3·8	49·7	45·1	9·3	14·6	2·2	70	107·7	42·0	57·8	57·1	0·000	1·5	wwP : wP : mP
10	...	29·821	68·6	43·4	25·2	55·2	— 3·0	50·2	45·4	9·8	16·7	3·5	70	111·2	37·4	58·6	57·5	0·000	0·5	vP, wN
11	...	29·999	64·3	44·5	19·8	53·0	— 5·4	48·0	43·0	10·0	16·0	2·9	69	124·1	38·4	59·6	58·0	0·000	1·5	vP
12	...	30·189	66·9	41·0	25·9	52·7	— 5·9	48·9	45·1	7·6	15·7	1·7	76	121·2	39·0	59·8	58·1	0·000	1·2	vP
13	...	30·150	78·1	44·5	33·6	60·7	+ 1·9	54·3	48·7	12·0	25·5	0·8	65	125·8	38·2	...	...	0·000	3·8	wP : vP, vN
14	Apogee; First Quarter	29·981	70·0	53·0	17·0	59·9	+ 1·0	54·2	49·2	10·7	18·7	2·8	68	105·9	49·0	...	...	0·000	1·0	mP : vP, wwN
15	In Equator	29·803	70·7	48·4	22·3	58·2	— 0·8	53·7	49·7	8·5	18·5	1·7	73	111·4	44·5	...	...	0·052	3·0	vP, wN : vP, ssN
16	...	29·919	70·5	48·9	21·6	58·6	— 0·4	54·0	49·9	8·7	17·1	1·9	73	120·5	44·6	...	...	0·000	0·0	mP : vP : wwN, wP
17	...	30·107	76·8	48·1	28·7	63·2	+ 4·1	57·7	53·1	10·1	19·4	0·4	70	114·8	42·7	...	...	0·000	0·0	vP : vP, vN
18	...	30·132	84·3	54·1	30·2	66·6	+ 7·4	61·7	57·8	8·8	20·1	0·6	74	135·1	49·5	...	...	0·000	2·0	wP : vP, wN
19	...	30·121	79·6	54·3	25·3	65·5	+ 6·0	60·3	56·0	9·5	18·5	1·1	72	138·8	49·2	...	...	0·000	1·0	vP, mN : vP
20	...	30·124	75·2	52·2	23·0	62·0	+ 2·1	56·9	52·5	9·5	20·7	1·5	71	136·5	45·5	...	...	0·000	0·0	mP
21	...	30·059	74·7	51·0	23·7	60·9	+ 0·6	55·5	50·8	10·1	19·1	3·2	69	137·2	44·0	...	...	0·000	3·0	wP : wP, wN
22	Full; Greatest Dec. S.	29·903	78·9	54·9	24·0	63·5	+ 2·8	59·0	55·2	8·3	19·9	1·1	75	133·9	54·9	...	...	0·346	0·0	wwP : wP, wN : ssP, ssN
23	...	29·755	62·3	55·9	6·4	58·5	— 2·5	57·5	56·6	1·9	3·4	0·2	93	74·0	55·9	...	...	0·225	1·5	vP, wN
24	...	29·728	74·1	57·0	17·1	65·2	+ 4·0	62·0	59·3	5·9	14·8	0·6	82	112·0	57·0	...	...	0·024	4·5	wP : mN, wP
25	...	29·672	79·6	59·3	20·3	66·9	+ 5·6	63·8	61·3	5·6	12·6	2·1	83	135·3	52·0	...	...	0·020	0·8	wP : sN, wP
26	Perigee	29·683	79·1	56·0	23·1	64·5	+ 3·1	60·7	57·6	6·9	15·5	0·6	78	141·1	46·9	...	...	0·000	4·0	wP
27	...	29·737	75·6	55·7	19·9	62·9	+ 1·5	57·1	52·2	10·7	20·9	1·1	68	140·2	53·7	...	...	0·000	6·0	wP : wP, wN : mP
28	Last Qr.	29·765	79·6	53·3	26·3	65·4	+ 4·1	58·6	53·1	12·3	22·6	2·2	64	144·9	49·9	...	...	0·000	7·2	mP
29	In Equator	29·613	75·3	59·0	16·3	64·6	+ 3·4	59·8	55·8	8·8	19·1	2·5	74	137·5	54·4	...	...	0·036	5·0	wP : vP, vN : mP
30	...	29·656	75·1	56·3	18·8	63·4	+ 2·2	59·0	55·3	8·1	16·6	2·3	75	126·0	52·0	...	...	0·015	8·0	wwP : wP
Means	...	29·841	72·2	51·3	20·9	60·2	+ 0·8	55·9	52·1	8·1	16·7	1·5	75·2	121·8	47·6	...	...	Sum 0·962	2·6	...
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 observations from 1841 to 1890. 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 at Deptford were suspended finally on June 13.

The mean reading of the *Barometer* for the month was 29^{in}·841, being 0^{in}·030 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 84°·3 on June 18; the lowest in the month was 41°·0 on June 12; and the range was 43°·3.
The mean of all the highest daily readings in the month was 72°·2, being 1°·3 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 51°·3, being 1°·4 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 20°·9, being 0°·1 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 60°·2, being 0°·8 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS.						CLOUDS AND WEATHER.	
			OSLER'S.					ROBINSON'S.		
			General Direction.		Pressure on the Square Foot.				A.M.	P.M.
			A.M.	P.M.	Greatest.	Least.	Mean of 24 Hourly Measures.	Horizontal Movement of the Air.		
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
June 1	13·5	16·2	E	E : SE	3·5	0·0	0·35	295	0, d : 0	0 : 0 : 10, r, l, t
2	0·4	16·3	SW : WSW : W	NW : N	0·6	0·0	0·01	167	10, slt.-r : 10	10 : 10, th.-r
3	1·4	16·3	Calm : NE	ESE	0·4	0·0	0·00	132	10, oc.-r : 10 : 9, ci.-cu, cu.-s	4, cu, li.-cl : 10
4	1·8	16·3	ESE : E	ESE : SW	0·2	0·0	0·00	188	10 : 10, r	10, fq.-r : 4, li.-cl : 0
5	7·5	16·4	WSW	SW : NNE	0·2	0·0	0·00	230	0 : 3, li.-cl	8, ci.-cu, cu.-s : 4, li.-cl : 10
6	2·4	16·4	NNE : ENE	ENE : NE	3·1	0·0	0·32	316	10 : 10	8, cu.-s, li.-cl : 3, li.-cl : 10
7	0·0	16·4	NE	NE	2·5	0·0	0·45	425	10 : 10	10 : 10
8	1·0	16·4	NNE : NE	ENE : NE	1·3	0·0	0·10	355	10 : p.-cl : 8, ci.-cu	10 : 10, oc.-th.-r
9	4·1	16·4	NNE : NE	N : NNW	2·9	0·0	0·48	394	10 : 10 : 9, cu.-s	10 : 7, li.-cl : v, th.-cl
10	9·7	16·5	WSW : W : N	N : NE	0·5	0·0	0·01	199	0 : 1, th.-cl : 5, li.-cl, h	1, li.-cl : p.-cl : p.-cl, h
11	9·5	16·5	NNE : N	NNE : NE	1·2	0·0	0·02	215	0 : p.-cl : 6, ci.-cu, cu.-s	4, li.-cl : 0
12	7·3	16·5	WSW : NNE : N	N : NNE : ESE	0·3	0·0	0·00	184	0 : 5, li.-cl : 10	5, li.-cl : 0
13	8·9	16·5	SW	W	1·5	0·0	0·05	267	0 : 0	2, cu, li.-cl : p.-cl
14	5·3	16·5	WNW : NW	NW : SSW	1·0	0·0	0·04	264	10 : 5, cu.-s, th.-cl	3, li.-cl : v, li.-cl
15	2·1	16·5	SW	WSW : W	5·3	0·0	0·33	295	p.-cl : 10	10 : v, r : vv, li.-cl
16	6·4	16·5	WNW : NNW	NW : E : SE	1·3	0·0	0·07	264	0 : 7, cu, cu.-s	3, cu, cu.-s, t : p.-cl
17	8·0	16·6	Calm : SW	NW : S : SW	0·0	0·0	0·00	115	0 : 0, h	3, ci.-cu, ci.-s, h : 0, h
18	5·7	16·6	SW	SW : N	0·2	0·0	0·00	118	0, h, m : 6, li.-cl, h, slt.-f, glm	6, cu.-s : p.-cl
19	4·1	16·6	Calm : N	NNE : ESE	0·6	0·0	0·01	128	0, h : 9, f	6, cu, cu.-s, li.-cl : 1, th.-cl
20	11·8	16·6	NE : NNE	NE : E	1·7	0·0	0·09	236	0 : 10 : 3, ci.-cu, cu.-s, li.-cl	3, ci.-cu, cu : 1, li.-cl
21	4·3	16·6	NNE : N	NNE	2·4	0·0	0·37	341	10 : 10 : 2, li.-cl	2, li.-cl : 4, li.-cl, cu.-s : 10
22	4·0	16·6	NNE : NE	NE	3·4	0·0	0·44	352	10 : 10 : 5, cu, cu.-s	p.-cl, oc.-slt.-r, so.-ha : 10, c.-r
23	0·0	16·6	NE : NNE	NE	1·5	0·0	0·04	228	10, fq.-r : 10, th.-r	10, oc.-th.-r : 10, oc.-slt.-r
24	5·5	16·6	E : ENE	E	2·0	0·0	0·05	138	10 : 10, li.-shs : 9, li.-cl	v, cu, li.-cl, t, hy.-sh : 8, cu.-s, slt.-r
25	1·1	16·6	Calm	SW : WSW	0·2	0·0	0·00	49	10 : 10, li.-shs, m	9, t : v, li.-cl, l
26	7·3	16·5	SW	SW : SSW	1·4	0·0	0·04	201	0 : p.-cl, m : 4, cu, cu.-s, ci.-cu	6, cu, ci.-cu, li.-cl : p.-cl : 0
27	11·2	16·5	SSW : SW	SW	3·9	0·0	0·65	370	10 : 6, cu, cu.-s	3, cu.-s, ci.-cu : v, li.-cl
28	6·4	16·5	SW : SSW	SSW : SE	0·6	0·0	0·02	210	v : 10 : 5, li.-cl, ci.-s	4, li.-cl : v, cu.-s
29	6·5	16·5	SSE : SW	SW : SSW	2·2	0·0	0·18	295	p.-cl : 10 : 9, sc, oc.-slt.-r	6, li.-cl : p.-cl
30	5·6	16·5	SSW	SW : SSW	2·5	0·0	0·31	330	v : p.-cl, t	9, cu.-s, sh.-r : 10, oc.-slt.-r
Means	5·4	16·5	...	...	...	...	0·15	243		
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°·9, being 0°·9 *higher* than
The mean *Temperature of the Dew Point* for the month was 52°·1, being 1°·0 *higher* than
The mean *Degree of Humidity* for the month was 75·2, being 1·2 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·389, being 0in·014 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·3, being 0gr·1 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 531 grains, being *the same as*
} the average for the 50 years, 1841–1890.

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 0·329. The maximum daily amount of *Sunshine* was 13·5 hours on June 1.

The highest reading of the *Solar Radiation Thermometer* was 144°·9 on June 28 ; and the lowest reading of the *Terrestrial Radiation Thermometer* was 37°·4 on June 10.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·9 ; for the 6 hours ending 15h. was 0·5 ; and for the 6 hours ending 21h. was 0·2.

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

The *Greatest Pressure of the Wind* in the month was 5·3 lbs. on the square foot on June 15. The mean daily *Horizontal Movement of the Air* for the month was 243 miles ; the greatest daily value was 425 miles on June 7 ; and the least daily value was 49 miles on June 25.

Rain fell on 11 days in the month, amounting to 0in·962, as measured by gauge No. 6 partly sunk below the ground ; being 1in·060 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY. 1891.	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 50 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.		
July 1	...	29·599	72·7	54·8	17·9	61·1	— 0·2	58·9	57·0	4·1	12·4	1·5	87	121·2	48·0	...	...	0·596	3·8	wwP : vN, vP : wP
2	...	29·711	75·1	51·3	23·8	60·5	— 0·9	55·2	50·6	9·9	20·5	0·8	70	140·0	42·4	...	...	0·000	7·0	wP : vP, wN
3	...	29·722	74·0	53·0	21·0	60·5	— 1·2	56·4	52·9	7·6	15·7	1·2	76	141·2	46·0	...	...	0·051	5·2	mP : vN, vP
4	...	29·818	74·0	50·3	23·7	60·2	— 1·7	56·0	52·3	7·9	17·6	0·2	75	132·4	39·7	...	...	0·009	1·0	mP : vP, vN
5	Greatest Declination N.	29·791	67·7	49·9	17·8	58·6	— 3·5	55·6	52·9	5·7	14·2	1·2	82	116·0	39·8	...	...	0·000	9·5	vP : wP
6	New	29·593	73·2	53·2	20·0	61·4	— 0·8	58·2	55·5	5·9	11·3	1·5	81	126·0	47·5	...	...	0·289	2·5	wP: wN, wP : ssN, ssP
7	...	29·498	63·4	51·4	12·0	56·6	— 5·5	53·8	51·2	5·4	12·0	0·8	82	126·7	45·4	...	...	0·254	3·0	... : ssN, ssP : wP
8	...	29·545	70·1	52·1	18·0	57·2	— 4·8	54·6	52·2	5·0	14·4	1·2	84	119·8	47·5	...	...	0·589	0·0	ssN, wwP : ssP, ssN
9	...	29·832	70·6	51·2	19·4	58·6	— 3·4	55·2	52·1	6·5	13·5	0·0	79	131·5	46·8	...	...	0·011	2·0	vP, wN : wP
10	...	29·934	70·3	50·3	20·0	59·5	— 2·6	55·4	51·8	7·7	14·8	1·0	76	104·0	45·0	...	...	0·000	0·0	mP, vN : wN, vP
11	Apogee	29·860	73·8	52·0	21·8	60·9	— 1·4	56·6	52·9	8·0	16·6	0·8	75	123·5	46·9	...	...	0·000	0·0	mP : wP, wN : wP
12	...	29·878	71·5	53·9	17·6	62·4	— 0·2	58·2	54·6	7·8	14·6	1·5	76	110·4	48·3	...	...	0·000	0·2	wP : wP, wwN
13	In Equator	30·027	73·6	52·6	21·0	62·2	— 0·7	58·3	55·0	7·2	13·3	0·8	77	125·1	48·0	...	...	0·000	0·8	wP : wwP, wwN : wP
14	First Qr.	30·073	71·3	48·1	23·2	59·2	— 3·9	55·1	51·4	7·8	16·7	0·6	76	120·9	42·8	...	...	0·000	0·0	wwN, mP
15	...	29·871	73·7	52·2	21·5	62·2	— 1·0	58·0	54·4	7·8	15·5	1·0	76	126·8	46·7	...	...	0·000	0·0	mP : vP, wwN
16	...	29·679	81·3	50·7	30·6	64·4	+ 1·2	58·5	53·6	10·8	21·2	1·6	68	128·2	42·0	...	...	0·000	3·0	vP, wN : wwN, wP
17	...	29·700	85·1	52·4	32·7	67·0	+ 3·9	60·4	55·1	11·9	23·8	3·0	66	140·9	39·5	...	...	0·000	1·5	mP : vP, mN : mP
18	...	29·824	73·5	56·5	17·0	63·0	0·0	59·7	56·9	6·1	14·6	1·5	80	113·2	52·8	...	...	0·019	10·0	wP : mP
19	...	29·851	72·6	52·8	19·8	59·8	— 3·2	57·4	55·3	4·5	13·1	1·2	86	132·5	46·5	...	...	0·313	9·8	wN, wP : ssN, ssP
20	Greatest Declination S.	29·931	72·8	52·1	20·7	61·0	— 2·0	56·8	53·1	7·9	16·9	0·8	76	137·8	46·8	...	...	0·007	5·0	wwP : wP, wwN : wP
21	Full	29·810	73·1	57·9	15·2	63·8	+ 0·8	60·6	57·9	5·9	11·7	0·6	82	108·9	54·5	...	...	0·001	4·2	... : wP
22	...	29·706	74·4	54·8	19·6	61·0	— 1·9	56·6	52·8	8·2	21·4	1·2	75	141·5	50·0	...	...	0·036	1·5	wP : vN, vP
23	Perigee	29·768	65·7	53·3	12·4	57·0	— 5·8	54·7	52·6	4·4	9·3	2·0	85	116·0	47·5	...	...	0·053	0·0	wwP, wwN
24	...	29·886	69·8	51·2	18·6	60·5	— 2·1	56·4	52·9	7·6	14·6	1·4	76	114·3	45·2	...	...	0·000	0·0	wwP : vP, wwN
25	...	29·961	72·4	52·2	20·2	61·6	— 0·8	57·0	53·0	8·6	17·3	0·2	74	115·2	42·3	...	...	0·000	0·0	wP : vP, wN
26	In Equator	29·866	76·1	51·5	24·6	63·6	+ 1·3	58·3	53·9	9·7	18·5	2·5	71	111·0	42·0	...	...	0·000	0·0	mP : wP, wN : wP
27	...	29·551	67·8	50·4	17·4	58·7	— 3·6	56·8	55·1	3·6	9·7	0·9	88	112·1	43·0	...	...	0·721	0·8	ssP, ssN
28	Last Qr.	29·644	65·6	45·4	20·2	54·6	— 7·7	50·1	45·8	8·8	17·7	2·2	72	118·3	37·0	...	...	0·037	2·2	vP : vP, vN
29	...	29·511	63·0	45·4	17·6	53·8	— 8·5	52·0	50·2	3·6	7·4	1·0	87	99·6	39·0	...	...	0·240	0·0	vP, wN : vP, ssN
30	...	29·457	65·4	47·0	18·4	53·6	— 8·7	51·2	48·9	4·7	10·8	0·6	84	126·9	42·5	...	...	0·126	0·0	ssP, ssN
31	...	29·673	69·1	50·0	19·1	57·2	— 5·1	54·4	51·8	5·4	13·7	0·8	82	129·4	42·3	...	...	0·036	2·0	mP : ssN, vP
Means	...	29·760	71·7	51·6	20·1	60·1	— 2·4	56·3	53·1	7·0	15·0	1·1	78·2	122·9	45·0	...	...	Sum 3·388	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 observations from 1841 to 1890. 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.

The mean reading of the *Barometer* for the month was $29^{in}\cdot760$, being $0^{in}\cdot033$ *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 85°·1 on July 17 ; the lowest in the month was 45°·4 on July 28 and 29 ; and the range was 39°·7.
The mean of all the highest daily readings in the month was 71°·7, being 2°·3 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 51°·6, being 1°·5 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 20°·1, being 0°·8 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 60°·1, being 2°·4 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. OSLER'S. General Direction. A.M.	General Direction. 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	2·9	16·5	SSW : Calm	SW	2·4	0·0	0·21	220	10 : 10, hy.-r	8, cu, cu.-s : v, cu.-s
2	14·0	16·5	SW	SW : SSW	2·6	0·0	0·34	354	o : p.-cl : 7, cu, ci.-cu, li.-cl	5, ci.-cu, cu.-s : 1, th.-cl
3	8·0	16·4	SSW : SW	SW	1·1	0·0	0·02	238	v : p.-cl : 8, cu, cu.-s	p.-cl, shs.-r, hl : 3, cu.-s, li.-cl
4	9·2	16·4	SW : WSW	W : SW : SSW	0·8	0·0	0·01	228	o, d : 3, cu, cu.-s, li-cl	10, slt.-r : 5, li.-cl, cu.-s
5	1·7	16·4	SW : SSW	SSW	2·8	0·0	0·23	305	o : p.-cl : 10, slt.-sh	10, oc.-slt.-r : 10
6	4·6	16·4	SW : SSW	SW : WSW	3·3	0·0	0·46	401	10 : 10, oc.-shs	p.-cl, hy.-sh, t : 2, li.-cl, s
7	5·6	16·3	SW	SW	7·5	0·0	0·74	463	o : v, li.-cl : 10, shs.-r	p.-cl, t, hy.-r, w : 10
8	2·7	16·3	SW : W	WNW : NW	2·2	0·0	0·28	372	10, li.-shs : 10, slt.-shs, t	9, cu.-s, n, t.-sm, hy.-r : 10, t.-sm, hy.-r : 3, li.-cl, m
9	2·9	16·3	NNW : N	N : NE	1·5	0·0	0·06	281	o : p.-cl : 10	8, cu.-s, li.-cl : v, li.-cl : o
10	0·3	16·3	N : W	W : WSW	0·0	0·0	0·00	170	o : 10, m	10 : 1, li.-cl
11	7·8	16·2	NW : WNW	NW : N	0·2	0·0	0·00	188	p.-cl : 3, li.-cl	5, li.-cl, h : p.-cl
12	1·2	16·2	Calm	N : NE : E	0·0	0·0	0·00	115	10 : 6, cu.-s, th.-cl, h	6, cu.-s, li.-cl : 7, cu.-s, li.-cl
13	1·4	16·2	E : ENE	E : ESE	0·2	0·0	0·01	173	10 : 6, cu, cu.-s, li.-cl, h	10 : 5, li.-cl
14	2·3	16·1	NE	ENE : NE	0·2	0·0	0·00	182	o : 10 : 5, li.-cl	10, th.-r : v, li.-cl
15	5·4	16·1	NNE	NNE	0·2	0·0	0·01	199	v : 6, cu.-s, ci.-cu, li.-cl	p.-cl : p.-cl
16	8·8	16·1	NW : SW : WSW	WSW : SSW	0·5	0·0	0·00	200	o : 10 : 5, cu.-s, li.-cl, h	5, cu, cu.-s : p.-cl
17	12·3	16·0	SSW	SSW	0·6	0·0	0·01	212	o : 4, ci.-cu	4, cu, ci.-cu, t : o
18	1·1	16·0	SSE : SSW	SSW	0·4	0·0	0·00	213	p.-cl : 10, oc.-th.-r	10, oc.-slt.-r : 10, slt.-r
19	3·7	16·0	SW : SSW	SW	5·0	0·0	0·36	337	o : p.-cl	v, t.-sm, hy.-r, hl : v, r
20	7·2	15·9	SSW : SW	SSW : S	1·6	0·0	0·03	269	o : 6, cu, cu.-s, li.-cl	7, cu.-s : 10, slt.-r
21	2·2	15·9	SSW	SSW : SW	1·2	0·0	0·03	240	10, slt.-r : 10	10, slt.-r, t, so.-ha : 6, cu.-s, li.-cl : v, li.-cl
22	7·8	15·8	SW : WSW	SW : WSW	2·2	0·0	0·09	297	10 : 6, cu, li.-cl	4, cu, li.-cl : n, t.-sm, hy.-r : 3, li.-cl
23	0·6	15·8	SW : WSW	W : WNW	2·1	0·0	0·19	346	p.-cl : 10, th.-r	10 : 4, li.-cl, h, m
24	5·7	15·7	W : WSW	WSW	1·0	0·0	0·03	282	3, li.-cl : 7, cu, ci.-cu, cu.-s	10 : 3, li.-cl
25	7·0	15·7	SW : NW	NW : N	0·1	0·0	0·00	197	o : 8, cu.-s	5, ci.-cu, li.-cl : 1, li.-cl
26	9·8	15·7	N : Calm	Variable	0·0	0·0	0·00	61	o : o, h, m	o, h : 2, th.-cl : o
27	0·2	15·6	Variable	NNW : NW : WSW	1·4	0·0	0·04	204	10, slt.-r : 10, r, glm : 10, hy.-r, t, glm	10, th.-r : 10, hy.-r, l, t : o
28	7·6	15·6	WSW : W	W : WSW	3·2	0·0	0·08	298	o : 6, cu, cu.-s, li.-cl	7, cu.-s, li.-cl : 10, sh.-r : v, li.-cl
29	0·2	15·5	SW	SW : W	2·4	0·0	0·21	331	v : 10, r	10, fq.-r : v
30	2·6	15·5	WSW : W	NW : NNW	4·4	0·0	0·12	286	v : 10, hy.-sh : v, sh.-r, l, t	v, shs.-r, t, so.-ha, glm : 2, li.-cl
31	4·9	15·4	NNW : N	N : NNW	2·3	0·0	0·10	218	v : 10 : 8, cu, cu.-s	9, cu, cu.-s, ci.-s, slt.-r : 10, r
Means	4·9	16·0	...	...	...	...	0·12	254		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 56°·3, being 1°·5 *lower* than
The mean *Temperature of the Dew Point* for the month was 53°·1, being 0°·8 *lower* than
The mean *Degree of Humidity* for the month was 78·2, being 4·4 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·404, being 0in·012 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·5, being 0gr·1 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 529 grains, being 2 grains *greater* than
} the average for the 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·1.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·305. The maximum daily amount of *Sunshine* was 14·0 hours on July 2.

The highest reading of the *Solar Radiation Thermometer* was 141°·5 on July 22; and the lowest reading of the *Terrestrial Radiation Thermometer* was 37°·0 on July 28.

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

The *Proportions of Wind* referred to the cardinal points were N. 6, E. 2, S. 10, and W. 12. One day was calm.

The *Greatest Pressure of the Wind* in the month was 7·5 lbs. on the square foot on July 7. The mean daily *Horizontal Movement of the Air* for the month was 254 miles; the greatest daily value was 463 miles on July 7; and the least daily value was 61 miles on July 26.

Rain fell on 17 days in the month, amounting to 3in·388, as measured by gauge No. 6 partly sunk below the ground; being 0in·918 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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 50 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.		
Aug. 1	...	29·796	70·0	52·4	17·6	59·3	— 2·9	54·5	50·2	9·1	16·4	3·2	72	127·0	50·4	...	...	0·000	0·0	vP, wN
2	Greatest Declination N.	29·697	69·1	53·8	15·3	59·2	— 2·9	56·9	54·8	4·4	11·2	0·8	86	123·0	48·0	...	...	0·886	6·2	wP : vN, vP
3	...	29·430	71·6	49·2	22·4	57·3	— 4·8	53·5	50·0	7·3	16·4	1·4	77	138·0	45·0	...	...	0·030	3·8	wP, mN : ssN, ssP
4	New	29·449	70·5	47·1	23·4	54·9	— 7·3	52·0	49·2	5·7	16·0	1·3	81	140·1	42·2	...	...	0·062	1·0	wP : ssP, ssN
5	...	29·635	69·2	48·3	20·9	56·8	— 5·5	53·9	51·2	5·6	14·8	0·6	82	112·7	42·8	...	...	0·000	0·0	wP : vN, wP : vP
6	...	29·876	58·1	52·2	5·9	55·1	— 7·3	53·7	52·3	2·8	5·0	0·2	91	78·0	46·1	...	...	0·050	0·0	vP, wN : wP, wN
7	...	29·940	66·1	48·1	18·0	56·9	— 5·6	52·4	48·3	8·6	14·4	2·7	73	116·0	42·0	...	...	0·000	1·0	vP : vP, wwN
8	Apogee	29·942	75·0	53·0	22·0	61·5	— 1·0	57·9	54·8	6·7	15·7	1·2	79	138·3	48·5	...	...	0·014	2·0	wP : wP, wwN
9	In Equator	29·724	63·1	55·9	7·2	58·3	— 4·2	56·3	54·5	3·8	8·9	0·6	87	81·0	51·5	...	...	0·137	3·0	wP
10	...	29·679	74·3	52·2	22·1	59·3	— 3·2	56·9	54·8	4·5	12·8	0·6	86	148·5	45·5	...	...	0·048	2·0	wP : ssN, vP
11	...	29·838	70·9	49·7	21·2	59·6	— 2·9	56·3	53·4	6·2	12·4	0·0	81	124·2	42·4	...	...	0·000	3·5	wP
12	First Qr.	29·652	75·1	55·0	20·1	62·7	+ 0·2	58·9	55·7	7·0	21·6	0·6	78	136·8	50·0	...	...	0·071	4·5	wP : vP, wN
13	...	29·822	74·0	54·0	20·0	62·4	0·0	57·9	54·1	8·3	16·9	3·0	74	133·3	48·7	...	...	0·000	4·0	vP : wP
14	...	29·873	79·5	58·5	21·0	65·7	+ 3·4	61·8	58·6	7·1	19·6	1·9	79	148·0	53·0	...	...	0·000	0·0	wP
15	...	29·751	72·3	54·0	18·3	62·2	+ 0·1	57·9	54·2	8·0	18·2	1·1	75	130·0	49·0	...	...	0·038	0·0	wP : wP, wwN
16	Greatest Declination S.	29·802	69·3	50·1	19·2	59·2	— 2·8	55·4	52·0	7·2	16·6	0·0	77	106·2	44·0	...	...	0·000	2·0	wP : vP, wwN
17	...	29·720	73·4	49·1	24·3	60·8	— 1·0	56·5	52·8	8·0	15·5	1·2	75	143·0	42·3	...	...	0·007	6·2	vP : wP
18	...	29·505	70·5	54·3	16·2	61·3	— 0·3	58·6	56·3	5·0	16·7	0·8	84	93·1	50·0	...	...	0·223	4·8	sN, wP : wP
19	Full	29·512	70·1	53·3	16·8	58·8	— 2·6	55·7	52·9	5·9	14·0	0·8	81	122·6	48·0	...	...	0·216	6·5	wP : vN, vP
20	Perigee	29·480	68·1	48·4	19·7	56·3	— 5·0	53·7	51·3	5·0	13·0	0·2	83	125·7	41·0	...	...	0·657	5·0	wP : vP, wN
21	...	29·200	59·7	51·0	8·7	56·6	— 4·5	55·4	54·3	2·3	4·7	0·2	92	78·0	46·0	...	...	0·329	1·5	... : wP, vN
22	In Equator	29·375	67·7	47·3	20·4	56·2	— 4·8	53·4	50·8	5·4	13·1	0·0	82	120·2	39·0	...	...	0·021	0·2	wP
23	...	29·567	67·3	52·2	15·1	56·5	— 4·4	53·5	50·7	5·8	14·4	1·8	81	90·9	48·0	...	...	0·000	0·8	wP
24	...	29·709	68·8	51·4	17·4	57·8	— 3·0	54·8	52·1	5·7	13·5	0·8	81	128·1	45·4	...	...	0·036	2·0	wP : wP, wN
25	...	29·549	65·1	53·7	11·4	58·8	— 2·0	55·9	53·3	5·5	10·6	1·2	82	122·0	52·4	...	...	0·053	12·5	wP, sN : ...
26	Last Qr.	29·393	72·6	59·3	13·3	62·7	+ 1·9	59·1	56·0	6·7	14·2	1·9	79	132·9	54·0	...	...	0·047	9·3	... : wP : ...
27	...	29·311	63·1	55·3	7·8	59·7	— 1·0	58·3	57·1	2·6	4·9	0·9	92	73·2	51·5	...	...	0·521	14·0	... : vP, ssN : wP
28	...	29·560	69·4	50·7	18·7	57·7	— 2·9	54·7	52·0	5·7	14·0	2·0	81	139·5	45·2	...	...	0·023	5·5	wP : ssP, ssN : mP
29	Greatest Declination N.	29·798	70·3	47·6	22·7	57·1	— 3·2	53·4	50·0	7·1	16·0	1·2	77	136·1	42·0	...	...	0·009	0·8	wwP : vP, ssN : mP
30	...	29·869	67·6	43·2	24·4	53·6	— 6·5	50·0	46·5	7·1	16·7	0·0	76	128·2	36·4	...	...	0·000	2·0	mP
31	...	29·538	66·1	47·2	18·9	57·5	— 2·4	55·3	53·4	4·1	10·3	0·9	86	107·0	40·3	...	...	0·237	16·7	... : wP
Means	...	29·645	69·3	51·5	17·8	58·8	— 2·9	55·6	52·8	5·9	13·8	1·1	81·0	120·1	46·1	...	...	Sum 3·715	3·9	...
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 observations from 1841 to 1890. 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.

The mean reading of the *Barometer* for the month was $29^{in}\cdot645$, being $0^{in}\cdot137$ *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 79°·5 on August 14 ; the lowest in the month was 43°·2 on August 30 ; and the range was 36°·3.
The mean of all the highest daily readings in the month was 69°·3, being 3°·5 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 51°·5, being 1°·5 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 17°·8, being 2°·0 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 58°·8, being 2°·9 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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	2·8	15·3	NNW : WNW : W	WNW : W : WSW	1·0	0·0	0·01	264	10 : p.-cl	6, cu.-s, th.-cl, h : 10
2	2·4	15·3	WSW : SW	SW	1·8	0·0	0·03	253	10 : p.-cl, hy.-r	v, fq.-hy.-shs, t.-sm : v, t, fq.-hy.-shs
3	7·2	15·2	SW : WSW	WSW : SW	2·7	0·0	0·17	317	v : 7, cu, cu.-s	v, shs.-r, t : 2, li.-cl, l, d
4	6·4	15·2	SSW : SW	SW	2·5	0·0	0·03	205	p.-cl : 5, cu, cu.-s, li.-cl	10, l, t, r : p.-cl, sh.-r, prh, so.-ha : v, l
5	5·2	15·1	SW : N	NE : NNE : SSW	0·7	0·0	0·00	147	v, m, d : 3, h, m	2, cu.-s, li.-cl, t : v, l
6	0·0	15·1	N : NNW	N : NW	0·0	0·0	0·00	111	v : 10, r	10, slt.-r : 0, f
7	6·1	15·0	WSW : WNW	WNW	2·0	0·0	0·11	338	0 : 6, ci.-cu, th.-cl	9, ci.-cu, cu.-s : 4, li.-cl
8	1·5	15·0	WSW	WSW : SW	2·7	0·0	0·07	295	p.-cl : 10	9, cu, cu.-s : 10, slt.-r
9	0·0	14·9	SW	SW	2·7	0·0	0·39	374	10 : 10, slt.-r	10, slt.-r : p.-cl, hy.-sh
10	5·5	14·9	SW : WSW	NNW : NW : WSW	1·7	0·0	0·08	272	p.-cl : 8, cu.-s	10, shs.-r, l, t : 2, th.-cl, m, d
11	5·0	14·8	SW	WSW : SW	1·5	0·0	0·05	264	p.-cl, hy.-d : 5, cu.-s, li.-cl	10 : 10
12	6·1	14·7	SSW : WSW	WSW : W	4·4	0·0	0·58	423	10, slt.-r : 10, li.-shs	6, cu, cu.-s, li.-cl, w : 0
13	6·9	14·7	WSW : W	WSW : SW	2·5	0·0	0·25	386	p.-cl : 3, ci.-cu, li.-cl	p.-cl : 10
14	3·7	14·6	SW : WSW	WSW : SW	1·5	0·0	0·12	338	10 : 10 : p.-cl	7, ci.-cu, cu.-s : 4, li.-cl
15	5·8	14·6	SW : WSW	W : WSW	2·2	0·0	0·19	303	p.-cl : p.-cl, sh.-r, glm	6, cu, ci.-cu : 2, li.-cl
16	4·2	14·5	WSW : W	NW : Calm	0·0	0·0	0·00	152	0 : p.-cl	9, ci.-cu, cu.-s : 10
17	4·7	14·4	SW : SSW	S : SE	0·3	0·0	0·01	166	p.-cl : 8, cu, ci.-cu, th.-cl	9, ci.-cu, cu.-s : 10, oc.-r
18	2·7	14·4	SE : SSE : SW	SSW : SW	0·4	0·0	0·01	174	10, hy.-r : 10, oc.-th.-r	10 : 4, li.-cl : 2, li.-cl
19	7·2	14·3	SSW : SW	SW : WSW	2·5	0·0	0·23	293	0, d : p.-cl : p.-cl, shs.-r	v, shs.-r, hl, t : v, oc.-slt.-r
20	5·1	14·3	SW	SSW : SE : E	0·8	0·0	0·02	231	0, d : 9, cu, li.-cl	10, r : 10, c.-hy.-r
21	0·0	14·2	SSW : NW : WNW	WSW : SW	2·9	0·0	0·38	320	10, hy.-r : 10, fq.-th.-r	10, oc.-slt.-r : 10
22	4·9	14·1	SW : WSW	W : WNW : N	1·0	0·0	0·02	247	0, d : v, th.-cl, h, m	10 : 10, oc.-th.-r
23	1·3	14·1	N : NNW	NNW : W : SW	0·7	0·0	0·03	228	10 : 10	p.-cl : p.-cl, slt.-r
24	2·9	14·0	SW : WSW	SW	1·3	0·0	0·04	265	10 : p.-cl	10 : 10, shs.-r
25	0·5	13·9	SSW : SW	SW	5·2	0·0	1·43	533	10, r : 10, w	10, sc, sh.-r, w : 10, fq.-r, st -w
26	2·8	13·9	SW	SW : SSW	6·1	0·0	1·55	538	10, oc.-r, st.-w : p.-cl	10 : 10, fq.-shs
27	0·0	13·8	SW : SSW	SW : SSW	4·0	0·0	0·66	387	10, fq.-shs : 10 : 10, r	10, c.-r : v, oc.-shs
28	9·0	13·8	SW	SW : SSW	3·5	0·0	0·56	404	v, shs.-r : 0 : v, ci.-cu, cu.-s, shs.-r	v, ci.-cu, cu.-s, li.-cl : p.-cl : 1, li.-cl, d
29	10·8	13·7	SSW : WSW	SW	3·1	0·0	0·31	316	v, d : 0 : 3, cu, ci.-cu, cu.-s	5, cu, ci.-cu, cu.-s : 0, d
30	6·5	13·7	SW : S	SSW : SW	0·0	0·0	0·00	115	0, d : 3, th.-cl, h	1, li.-cl, so.-ha : 1, li.-cl
31	0·3	13·6	SSE : S : SSW	SW : SSW	6·3	0·0	0·87	427	10 : 10, r : 10, slt.-r	10, oc.-slt.-r : 10, r, w
Means	4·1	14·5	...	...	...	...	0·26	293		
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°·6, being 2°·0 *lower* than
The mean *Temperature of the Dew Point* for the month was 52°·8, being 1°·4 *lower* than
The mean *Degree of Humidity* for the month was 81·0, being 4·2 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·400, being 0in·021 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·4, being 0gr·3 *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 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·5.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·284. The maximum daily amount of *Sunshine* was 10·8 hours on August 29.

The highest reading of the *Solar Radiation Thermometer* was 148°·5 on August 10; and the lowest reading of the *Terrestrial Radiation Thermometer* was 36°·4 on August 30.

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

The *Proportions of Wind* referred to the cardinal points were N. 3, E. 1, S. 12, and W. 15.

The *Greatest Pressure of the Wind* in the month was 6·3 lbs. on the square foot on August 31. The mean daily *Horizontal Movement of the Air* for the month was 293 miles; the greatest daily value was 538 miles on August 26; and the least daily value was 111 miles on August 6.

Rain fell on 22 days in the month, amounting to 3in·715, as measured by gauge No. 6 partly sunk below the ground; being 1in·365 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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 50 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.		
Sept. 1	...	29·351	69·3	54·3	15·0	61·4	+ 1·7	57·6	54·3	7·1	14·4	1·3	78	129·2	48·0	...	...	0·050	6·2	wP
2	...	29·649	68·0	52·2	15·8	57·8	— 1·9	54·2	51·0	6·8	13·3	1·2	78	128·6	45·6	...	...	0·000	5·0	wP : mP
3	New	29·814	64·7	48·3	16·4	56·2	— 3·4	54·2	52·3	3·9	10·1	0·6	87	98·0	42·4	...	...	0·000	0·0	vP : wP
4	Apogee	29·885	71·8	49·0	22·8	57·8	— 1·6	54·3	51·2	6·6	15·7	0·2	79	132·1	44·3	...	...	0·000	0·8	wP
5	In Equator	29·965	69·2	48·7	20·5	57·1	— 2·2	53·9	50·9	6·2	15·1	0·8	80	133·7	40·1	...	...	0·000	3·7	wP : vP
6	...	29·835	67·7	48·5	19·2	56·9	— 2·2	52·9	49·2	7·7	13·3	2·5	75	132·0	42·1	...	...	0·000	7·0	wP
7	...	29·844	70·0	51·3	18·7	58·6	— 0·3	56·6	54·8	3·8	12·2	1·2	87	108·0	47·7	...	...	0·064	3·5	vP, wwN
8	...	29·964	76·3	53·9	22·4	62·7	+ 4·0	58·4	54·8	7·9	18·2	0·9	76	130·0	50·0	...	...	0·000	0·0	wP : mP
9	...	30·011	80·0	50·1	29·9	63·8	+ 5·3	58·5	54·1	9·7	21·6	0·9	71	132·0	47·3	...	...	0·000	0·0	mP
10	...	29·986	81·9	51·4	30·5	64·7	+ 6·4	59·3	54·8	9·9	25·0	0·2	71	129·0	45·7	...	...	0·000	0·0	mP
11	First Qr.	29·958	80·7	47·6	33·1	63·6	+ 5·5	58·6	54·4	9·2	24·5	0·9	73	128·1	44·6	...	...	0·000	0·0	mP
12	...	29·921	81·1	53·4	27·7	64·4	+ 6·4	60·1	56·6	7·8	21·4	0·4	75	123·5	46·0	...	...	0·000	0·0	vP : mP
13	Greatest Declination S.	29·730	82·1	49·9	32·2	65·7	+ 7·8	61·3	57·7	8·0	21·2	0·6	76	131·6	43·4	...	...	0·000	0·8	mP
14	...	29·637	68·8	51·6	17·2	62·6	+ 4·8	60·5	58·7	3·9	11·4	1·6	87	87·8	47·5	...	...	0·144	2·2	wP, wN
15	...	29·999	65·3	45·3	20·0	55·8	— 1·9	52·8	50·0	5·8	10·6	1·7	82	111·3	41·2	...	...	0·003	0·0	mP : wP
16	...	30·129	63·5	44·3	19·2	54·2	— 3·3	51·2	48·3	5·9	11·8	2·0	80	89·0	38·5	...	...	0·000	1·5	wP
17	...	29·964	67·1	51·3	15·8	58·7	+ 1·4	55·9	53·4	5·3	10·8	1·0	82	106·2	44·1	...	...	0·041	3·0	wP
18	Full: Perigee	29·791	71·3	57·1	14·2	62·5	+ 5·6	60·9	59·5	3·0	6·5	0·8	90	90·1	56·5	...	...	0·066	4·5	wwP : wP, mN
19	In Equator	29·832	68·1	58·8	9·3	62·3	+ 5·8	61·2	60·2	2·1	6·1	0·8	93	88·0	57·0	...	...	0·184	1·2	wP : wN, wP
20	...	29·598	69·1	52·0	17·1	59·5	+ 3·4	56·7	54·2	5·3	12·4	1·1	83	121·7	50·0	...	...	0·013	3·8	wP
21	...	29·512	64·5	47·0	17·5	52·8	— 2·9	49·9	47·0	5·8	15·2	1·3	81	117·8	46·0	...	...	0·098	1·0	wP : vP, sN
22	...	29·593	63·0	46·1	16·9	52·7	— 2·7	50·0	47·3	5·4	14·1	0·4	82	118·0	42·1	...	...	0·039	0·0	wP : vP, vN
23	...	29·952	62·0	47·5	14·5	53·9	— 1·3	51·9	49·9	4·0	9·3	0·6	87	110·8	42·7	...	...	0·003	0·0	wP
24	Last Qr.	30·050	65·8	44·5	21·3	55·2	+ 0·1	52·7	50·3	4·9	11·3	0·2	84	114·1	39·4	...	...	0·000	1·8	wP
25	Greatest Declination N.	30·026	69·0	54·0	15·0	59·5	+ 4·5	56·5	53·8	5·7	15·7	0·6	82	118·0	47·3	...	...	0·069	3·0	wwP : mP
26	...	29·742	64·1	51·5	12·6	58·5	+ 3·6	54·3	50·5	8·0	10·8	3·4	75	86·3	45·0	...	...	0·025	2·2	wP : mP
27	...	29·815	63·0	47·8	15·2	54·6	— 0·3	50·3	46·2	8·4	16·5	2·9	73	113·0	41·0	...	...	0·000	0·8	wP : mP
28	...	29·976	69·1	46·6	22·5	55·8	+ 1·0	52·3	49·0	6·8	14·9	2·1	79	128·0	39·1	...	...	0·000	4·7	wP : vP
29	...	29·808	71·3	51·1	20·2	59·1	+ 4·5	56·2	53·6	5·5	14·4	1·0	83	127·2	43·1	...	...	0·000	1·5	wP : mP
30	...	29·704	67·4	52·0	15·4	58·5	+ 4·1	54·9	51·7	6·8	16·2	0·8	78	125·0	48·4	...	...	0·020	3·8	wP : mP
Means	...	29·835	69·8	50·2	19·6	58·9	+ 1·7	55·6	52·7	6·2	14·5	1·1	80·2	113·6	45·2	...	...	Sum 0·819	2·1	...
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 observations from 1841 to 1890. 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-bub and Wet-bulb Thermometers.

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

The mean reading of the *Barometer* for the month was 29^{in}·835, being 0^{in}·029 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 82°·1 on September 13; the lowest in the month was 44°·3 on September 16; and the range was 37°·8.
The mean of all the highest daily readings in the month was 69°·8, being 2°·5 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 50°·2, being 1°·1 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 19°·6, being 1°·4 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 58°·9, being 1°·7 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. OSLER'S. General Direction. A.M.	General Direction. 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	5·7	13·5	SW	SW	6·7	0·0	2·61	671	10, shs.-r, w : p.-cl, w	6, ci.-cu, cu.-s, w : 0
2	1·6	13·4	SW	SW	2·4	0·0	0·18	345	0, d : p.-cl	10, slt.-r : v, li.-cl, d
3	0·0	13·4	SW : SE	SE : SW	0·0	0·0	0·00	78	p.-cl, d : 10, f : v, h	10 : v, th.-cl
4	9·5	13·3	SW	SW	1·0	0·0	0·03	242	0, d : 5, cu, li.-cl	5, li.-cl, cu : 1, li.-cl : 1, li.-cl, d
5	6·3	13·2	SW : WSW	WSW : SW	1·3	0·0	0·01	263	0, d : 5, ci.-cu, li.-cl	5, cu.-s, li.-cl : 0, d
6	5·5	13·2	SW	SW	3·7	0·0	0·77	434	0, d : 4, li.-cl	10, t : 10, slt.-r
7	3·0	13·1	SW : NE	SW : SSW	0·3	0·0	0·00	131	v, sh.-r : 4, th.-cl, slt.-f	7, ci.-cu, cu.-s, li.-cl : 10
8	10·1	13·0	SSW	SW : SSW : S	0·0	0·0	0·00	170	p.-cl, d : 0	1, ci.-cu, li.-cl : 0
9	10·2	13·0	Calm : S	S : SE : E	0·0	0·0	0·00	126	0, d : 0, f : 1, ci.-s, li.-cl	1, li.-cl : 0, slt.-f
10	10·5	12·9	Calm : SE	SE : S	0·0	0·0	0·00	129	0 : 0, tk.-f : 0	0 : 0, slt.-f
11	9·9	12·9	Calm : E	ESE	0·0	0·0	0·00	83	0, slt.-f, d : 0, slt.-f	0 : 0 : 0, slt.-f, d
12	8·7	12·8	ESE : E : ENE	ESE : E	0·3	0·0	0·01	125	0, tk.-f : 0, slt.-f	0 : 0, d
13	7·9	12·7	E	SE : SSE	0·0	0·0	0·00	136	0, d : 0, tk.-f : 2, li.-cl	3, th.-cl : v, li.-cl, lu.-ha
14	0·0	12·7	SSE : S : SSW	SW : W : NNW	1·8	0·0	0·07	244	v, slt.-sh : 10 : 10, oc.-r	10, sc, fq.-r : 10
15	3·5	12·6	WSW	SW : W : NNW	1·0	0·0	0·03	246	0, d : 1, li.-cl : 10	10 : v, cu.-s : 4, th.-cl
16	0·2	12·6	WSW	WSW : SW	0·2	0·0	0·01	223	0, d : 10	10 : 3, li.-cl, lu.-ha
17	3·1	12·5	SW : WSW	WSW : SW	1·7	0·0	0·27	378	p.-cl, d : 7, cu.-s	10 : 10, slt.-r
18	0·1	12·4	SW	WSW : SW	2·1	0·0	0·16	349	10, slt.-r : 10	10, slt.-r : p.-cl, oc.-slt.-r
19	0·0	12·3	SW	WSW : SW	1·0	0·0	0·02	234	10, oc.-slt.-r : 10, shs : 10	10, fq.-r : 10
20	4·4	12·3	SSE : SSW	SW : W	2·0	0·0	0·08	281	10 : 6, ci.-cu	10, oc.-slt.-r : v, sh.-r : v, li.-cl
21	4·2	12·2	WSW	WSW : SW	2·0	0·0	0·22	338	10, slt.-r : 10, li.-shs : 6, cu.-s, li.-cl	9, cu.-s, shs.-r : 10, slt.-r
22	4·6	12·2	N : NNE	NE : N	2·6	0·0	0·11	263	10 : 7, cu.-s, li.-cl, li.-sh	6, ci.-cu, cu.-s : 10, hy.-shs, t : 1, li.-cl, m
23	0·4	12·1	NNW : N	N : SSW	0·0	0·0	0·00	169	v : 10	10 : 0, slt.-f, d
24	3·6	12·0	SSE : SSW	SW : SSW	1·0	0·0	0·01	211	0, d : li.-cl, slt.-f : 6, ci.-cu, th.-cl, so.-ha	10 : 10
25	3·2	11·9	SSW	SSW	1·2	0·0	0·02	238	10, slt.-r : 10, r : 10, sc	3, li.-cl, prh : 0
26	0·0	11·9	S : SSW	WSW : SW	3·9	0·0	0·49	405	p.-cl : 10, w, slt.-r	10, th.-cl, so.-ha : 9, li.-cl
27	8·9	11·8	WSW : W	W : WSW	3·2	0·0	0·58	423	0 : v, li.-cl	4, cu.-s, li.-cl : 0
28	8·3	11·7	SW : WSW	SW	2·0	0·0	0·26	344	0 : 3, ci.-cu, li.-cl	2, ci.-cu, li.-cl : 0, d
29	8·3	11·7	SSW : SW	SW : SSW	1·6	0·0	0·08	299	0, d : 2, cu.-s, li.-cl	3, ci.-cu, li.-cl : 10
30	9·6	11·6	SW : SSW	SW : SSW : S	1·2	0·0	0·11	263	10, r : 2, li.-cl	2, ci.-cu, cu.-s : 10
Means	5·0	12·6	...	...	...	...	0·20	261		
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°·6, being 1°·4 *higher* than
The mean *Temperature of the Dew Point* for the month was 52°·7, being 1°·3 *higher* than
The mean *Degree of Humidity* for the month was 80·2, being 0·6 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·399, being 0in·020 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·4, being 0gr·2 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 532 grains, being 1 grain *less* than
} the average for the 50 years, 1841–1890.

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 0·401. The maximum daily amount of *Sunshine* was 10·5 hours on September 10.

The highest reading of the *Solar Radiation Thermometer* was 133°·7 on September 5; and the lowest reading of the *Terrestrial Radiation Thermometer* was 38°·5 on September 16.

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

The *Proportions of Wind* referred to the cardinal points were N. 2, E. 3, S. 12, and W. 12. One day was calm.

The *Greatest Pressure of the Wind* in the month was 6·7 lbs. on the square foot on September 1. The mean daily *Horizontal Movement of the Air* for the month was 261 miles; the greatest daily value was 671 miles on September 1; and the least daily value was 78 miles on September 3.

Rain fell on 12 days in the month, amounting to 0in·819, as measured by gauge No. 6 partly sunk below the ground; being 1in·432 *less* than the average fall for the 50 years, 1841-1890.

MONTH and DAY, 1891.	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 50 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	Apogee	29·466	67·8	48·6	19·2	58·0	+ 3·9	55·8	53·8	4·2	11·3	1·0	86	117·8	45·0	…	…	0·293	5·2	wP : vP, vN
2	In Equator	29·721	61·3	43·1	18·2	50·6	— 3·2	47·7	44·7	5·9	15·4	0·2	81	110·2	38·0	…	…	0·000	0·0	mP
3	New	30·047	65·6	40·2	25·4	51·0	— 2·5	48·1	45·1	5·9	14·0	0·5	81	116·8	33·7	…	…	0·000	0·0	mP : vP, wwN
4	…	30·051	64·8	39·5	25·3	50·6	— 2·6	48·1	45·5	5·1	13·7	0·0	83	121·5	34·1	…	…	0·000	0·0	sP : mP
5	…	29·712	61·3	41·8	19·5	51·5	— 1·5	49·1	46·7	4·8	12·7	0·0	84	94·5	35·0	…	…	0·000	4·5	mP
6	…	29·270	61·8	49·9	11·9	55·5	+ 2·8	53·4	51·4	4·1	9·3	1·6	87	72·1	42·8	…	…	0·475	13·0	wP : … : vP, vN
7	…	29·418	64·0	47·5	16·5	53·9	+ 1·4	51·3	48·8	5·1	12·5	1·4	83	116·5	43·2	…	…	0·122	4·8	wP, wN : vP, vN
8	…	29·615	63·2	44·1	19·1	53·6	+ 1·5	50·6	47·7	5·9	13·1	0·4	80	122·0	39·7	…	…	0·096	2·5	vN, vP : wP
9	…	29·553	68·3	50·7	17·6	58·5	+ 6·8	56·5	54·7	3·8	9·0	1·2	87	114·9	45·3	…	…	0·010	5·2	wP
10	Greatest Dec. S First Quarter	29·606	61·3	50·4	10·9	55·8	+ 4·5	55·0	54·3	1·5	3·6	0·0	94	77·2	45·8	…	…	0·263	2·2	… : vP, vN : wP
11	…	29·345	62·9	48·6	14·3	55·7	+ 4·7	53·7	51·8	3·9	10·8	0·8	87	86·8	42·2	…	…	0·119	10·3	wP
12	…	29·244	60·2	42·8	17·4	51·0	+ 0·4	48·9	46·7	4·3	10·4	1·0	85	111·0	38·0	…	…	0·010	3·5	wP : vP, vN : sP
13	…	29·144	59·5	42·7	16·8	51·1	+ 0·8	49·4	47·6	3·5	8·6	1·3	88	102·6	37·8	…	…	0·355	13·0	vP, vN : wP, wN
14	…	29·319	60·1	48·7	11·4	54·5	+ 4·4	50·3	46·3	8·2	14·8	2·8	73	106·2	42·1	…	…	0·068	1·2	wP, wN : vP, vN
15	…	29·479	58·4	43·4	15·0	51·4	+ 1·5	48·3	45·1	6·3	11·2	3·3	81	103·1	36·8	…	…	0·317	9·3	wP : ssP, ssN : mP
16	In Equator : Perigee	29·446	57·3	45·7	11·6	51·8	+ 2·0	49·1	46·4	5·4	11·2	1·6	82	91·9	39·0	…	…	0·411	7·3	ssN, ssP : mP : vN, vP
17	Full	29·656	57·9	41·3	16·6	49·1	— 0·5	46·4	43·5	5·6	12·0	1·1	81	112·3	35·0	…	…	0·033	2·2	wN, wP : wN, vP
18	…	29·858	59·1	42·7	16·4	49·9	+ 0·4	46·8	43·5	6·4	13·7	1·8	79	107·0	36·4	…	…	0·000	6·0	mP
19	…	29·397	54·8	45·0	9·8	50·6	+ 1·3	49·0	47·3	3·3	9·0	0·9	89	69·4	39·5	…	…	0·381	0·0	wN, wP : vN, vP : sP
20	…	29·318	58·1	44·4	13·7	49·9	+ 0·9	48·9	47·8	2·1	5·9	0·0	93	94·6	39·0	…	…	0·016	8·2	wP : mP
21	…	29·092	59·4	46·0	13·4	51·3	+ 2·5	49·0	46·6	4·7	13·1	0·2	84	99·8	39·0	…	…	0·035	5·8	wP, sN : vP, vN
22	Greatest Declination N.	29·027	60·2	48·2	12·0	51·9	+ 3·4	50·7	49·5	2·4	8·6	0·4	92	61·8	41·8	…	…	0·774	1·5	wN : vP
23	…	29·268	59·3	46·7	12·6	54·3	+ 5·8	50·9	47·9	6·1	9·2	2·3	79	87·5	38·5	…	…	0·000	4·5	wP : mP
24	Last Qr.	29·579	52·2	44·2	8·0	47·6	— 0·3	46·6	45·5	2·1	5·7	0·4	93	71·3	35·4	…	…	0·000	0·0	mP : vP, wN
25	…	29·606	54·2	41·6	12·6	48·3	+ 0·7	47·6	46·8	1·5	4·0	0·0	95	64·6	31·5	…	…	0·163	0·2	wP : wP, wN
26	…	29·588	54·6	50·8	3·8	53·0	+ 5·6	52·2	51·4	1·6	3·0	0·6	94	55·0	50·0	…	…	0·358	1·0	wP : wP, sN
27	…	29·817	52·9	48·7	4·2	51·4	+ 4·1	50·0	48·6	2·8	6·3	0·4	90	57·4	45·0	…	…	0·018	0·8	wwP : wwN, wP
28	…	29·998	52·0	39·0	13·0	46·4	— 0·8	43·2	39·6	6·8	11·6	2·1	78	102·1	30·0	…	…	0·000	3·0	wP : mP
29	Apogee	30·208	54·3	36·1	18·2	44·1	— 2·9	42·0	39·5	4·6	12·0	0·7	83	92·8	27·0	…	…	0·000	0·0	mP : vP : sP
30	In Equator	30·404	48·1	33·0	15·1	40·3	— 6·7	38·2	35·5	4·8	12·0	0·0	84	94·5	26·0	…	…	0·000	0·0	mP : sP
31	…	30·447	48·5	29·9	18·6	40·0	— 6·8	37·9	35·2	4·8	13·0	0·0	83	91·3	20·2	…	…	0·000	0·0	mP : vP
Means	…	29·603	58·8	44·0	14·8	51·0	+ 1·0	48·9	46·6	4·4	10·3	0·9	85·1	94·4	37·8	…	…	Sum 4·317	3·7	…
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 observations from 1841 to 1890. 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.

The mean reading of the *Barometer* for the month was 29^{in}·603, being 0^{in}·113 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 68°·3 on October 9; the lowest in the month was 29°·9 on October 31; and the range was 38°·4.
The mean of all the highest daily readings in the month was 58°·8, being 1°·1 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 44°·0, being 0°·7 *higher* than the average for the 50 years. 1841–1890.
The mean of the daily ranges was 14°·8, being 0°·4 *greater* than the average for the 50 years, 1841-1890.
The mean for the month was 51°·0, being 1°·0 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	Osler's. General Direction. P.M.	Osler's. Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	Clouds and Weather. P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Oct. 1	3·2	11·6	SSW	SSW : WSW	3·0	0·0	0·37	322	10, slt.-r : 10	10 : 10, hy.-r : 10
2	8·5	11·5	WSW : SW	W : WSW	1·7	0·0	0·15	306	0 : 0	5, cu, cu.-s : 0, d
3	7·6	11·4	WSW : SW	WSW : SSW	0·0	0·0	0·00	171	0, d : 0, slt.-m	3, cu.-s, li.-cl : 0, d
4	7·1	11·4	SSW : Calm	S : SE	0·0	0·0	0·00	106	0, hy.-d : tk.-f : 5, cu, slt.-f	v : 0, hy.-d
5	0·9	11·3	Calm : SE	SE : SSE	1·1	0·0	0·01	148	0, hy.-d : tk.-f : p.-cl	10 : v, li.-cl
6	0·0	11·2	SSE : S	S : SSW	3·8	0·0	0·67	358	v : p.-cl : 10, oc.-slt.-r, w	10, slt.-r : 10, hy.-r : 10, c.-r
7	5·3	11·2	SSW	SSW : SSE	3·5	0·0	0·21	298	10, hy.-sh : 10 : v, li.-cl, hy.-sh	v, hy.-sh : vv, fq.-shs
8	8·4	11·1	S : SW	SSW : S : SSE	1·5	0·0	0·08	250	v, hy.-sh : 1, li.-cl	5, cu, ci.-cu, cu.-s : 10
9	2·1	11·0	SSW	SW : SSW	3·3	0·0	0·35	347	10, oc.-slt.-r, w : 10, oc.-slt.-r	8, ci.-cu, th.-cl, slt.-sh : 0
10	0·2	11·0	S : SSE : SE	S : SSW : SW	1·4	0·0	0·02	198	0 : p.-cl	10, hy.-r : p.-cl : v, th.-cl
11	0·5	10·9	SSW : SSE	SSW	4·7	0·0	0·72	346	li.-cl : 10	10, fq.-slt.-r, w : 10, fq.-r
12	5·2	10·9	SW : SSW	SW : S	0·5	0·0	0·01	227	v, slt.-r : 4, li.-cl	4, li.-cl, oc.-slt.-r : 0
13	2·1	10·8	SSE : S : SSW	S : SW	14·9	0·0	1·72	448	v, shs.-r : 1, li.-cl : 8, sc	10, r, g : 10, hy.-r, st.-w
14	6·8	10·7	SW	SW : SSW	14·8	0·0	2·98	665	v, st.-w : 2, li.-cl, st.-w, slt.-sh	3, cu.-s, li.-cl, st.-w, l, t, hy.-r : 0
15	2·1	10·7	SSW : SW	SW : SSE	8·4	0·0	1·45	486	0 : 10, shs.-r : v, sq, t.-sm	vv, sh.-r, w : 0
16	2·0	10·6	SSE : SW	SW	4·6	0·0	0·62	411	0 : 10, hy.-r : 10	7, cu.-s, ci.-cu, w, li.-shs : p.-cl, r
17	7·2	10·5	SW : WSW	WSW : SW	2·7	0·0	0·32	362	v, r : 0	3, cu, cu.-s : 0
18	7·5	10·5	SW : WSW	WSW : SSW	3·3	0·0	0·15	324	0, d : 0	4, cu.-s, li.-cl : 10, th.-cl, lu.-ha
19	0·0	10·4	SSW	SW : SSW	5·4	0·0	1·22	415	10, w, r : 10, sc, r, glm, w	10, c.-r : v, th.-cl, lu.-ha
20	0·5	10·3	SSW : S	SSW : S	0·0	0·0	0·00	198	v, r : 10	10, slt.-r : 0 : 4, li.-cl, lu.-ha, d
21	5·0	10·3	SSE : SW	SW : SSW	2·6	0·0	0·18	295	v : v, th.-cl, li.-shs	7, ci.-cu, th.-cl : v, oc.-r
22	0·0	10·2	S : SW : W	WSW : SSW : NE	6·1	0·0	0·55	297	p.-cl : 10, hy.-r : 10, hy.-r	10, th.-r, glm : 10, c.-r, f : 10, oc.-r, w
23	2·3	10·2	SSW : W	SW : SSW	3·7	0·0	0·59	373	10 : 10	7, cu.-s, li.-cl : 1, th.-cl
24	0·6	10·1	SSW : SW	Calm	0·0	0·0	0·00	74	v, th.-cl, d : 5, li.-cl, so.-ha	10, slt.-f, glm : f
25	0·0	10·0	NNE : NE	NE : ENE	2·6	0·0	0·23	267	v, d : 10, m	10, r : 10, r
26	0·0	10·0	ENE : NE	NE : ENE	4·8	0·0	0·75	449	10, hy.-sh, w : 10, sc, r, w	10, th.-r : 10, c.-r
27	0·0	9·9	ENE	ENE : E	3·0	0·0	0·78	436	10, th.-r : 10, fq.-th.-r	10, slt.-r : 10
28	7·8	9·8	E	ENE : NE	3·9	0·0	0·95	431	v : 0	0 : 0, d
29	4·8	9·8	NE	NE : ENE	1·4	0·0	0·05	269	0, ho.-fr : 3, cu, cu.-s	5, cu.-s, th.-cl : p.-cl
30	7·3	9·7	Calm : ESE	E : ENE	1·8	0·0	0·06	195	f, ho.-fr : 0	2, li.-cl : v, li.-cl
31	7·1	9·7	ESE : ENE	E : ENE	0·3	0·0	0·00	150	0, ho.-fr : 0, slt.-f	3, li.-cl : 10
Means	3·6	10·6	...	...	...	...	0·49	310		
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°·9, being 0°·9 *higher* than
The mean *Temperature of the Dew Point* for the month was 46°·6, being 0°·7 *higher* than
The mean *Degree of Humidity* for the month was 85·1, being 0·5 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·318, being 0in·009 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·6, being 0gr·1 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 536 grains, being 3 grains *less* than
} the average for the 50 years, 1841–1890.

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 0·341. The maximum daily amount of *Sunshine* was 8·5 hours on October 2.
The highest reading of the *Solar Radiation Thermometer* was 122°·0 on October 8; and the lowest reading of the *Terrestrial Radiation Thermometer* was 20°·2 on October 31.
The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 2·0; for the 6 hours ending 15h. was 0·8; and for the 6 hours ending 21h. was 0·9.
The *Proportions of Wind* referred to the cardinal points were N. 2, E. 6, S. 14, and W. 8. One day was calm.
The *Greatest Pressure of the Wind* in the month was 14·9 lbs. on the square foot on October 13. The mean daily *Horizontal Movement of the Air* for the month was 310 miles; the greatest daily value was 665 miles on October 14; and the least daily value was 74 miles on October 24.
Rain fell on 20 days in the month, amounting to 4in·317, as measured by gauge No. 6 partly sunk below the ground; being 1in·506 *greater* than the average fall for the 50 years, 1841–1890.

Daily Results of the Meteorological Observations

MONTH and DAY, 1891.	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 50 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.	°	°	°	°	°	°	°	°	c	°		°	°	°	°	in.		
Nov. 1	New	30·362	57·4	44·6	12·8	48·9	+ 2·2	47·5	46·0	2·9	8·6	0·6	90	97·5	40·3	...	...	0·007	0·2	wP : mP
2	...	30·327	54·7	42·2	12·5	47·3	+ 0·8	45·7	43·9	3·4	9·0	0·6	89	98·9	36·0	...	...	0·004	0·8	wP : mP
3	...	30·206	51·0	37·5	13·5	44·9	— 1·4	42·3	39·3	5·6	10·1	1·4	81	72·2	30·6	...	...	0·000	0·0	mP : sP
4	...	30·187	50·1	44·5	5·6	47·2	+ 1·1	45·4	43·4	3·8	5·9	2·1	88	75·8	40·9	...	...	0·004	0·2	mP
5	...	30·396	48·0	37·0	11·0	44·1	— 1·8	41·1	37·6	6·5	10·9	3·4	77	59·5	29·0	...	...	0·002	0·8	mP : vP
6	Greatest Declination S.	30·309	45·1	35·5	9·6	41·4	— 4·1	39·6	37·3	4·1	6·4	2·1	86	50·5	28·5	...	...	0·000	0·0	sP : vP : sP
7	...	30·217	49·3	35·5	13·8	43·4	— 1·7	41·8	39·9	3·5	7·6	1·6	87	60·5	29·0	...	...	0·000	0·0	vP
8	...	29·906	44·8	31·8	13·0	37·7	— 6·9	36·8	35·5	2·2	6·6	0·0	92	64·0	27·6	...	...	0·000	0·0	vP : mP
9	First Qr.	29·393	46·6	36·3	10·3	42·5	— 1·5	41·4	40·1	2·4	6·9	0·2	91	57·2	29·5	...	...	0·397	2·0	wP, sN : vN, vP
10	...	29·348	49·3	37·1	12·2	44·0	+ 0·4	42·2	40·0	4·0	8·4	1·3	86	81·7	31·2	...	...	0·019	1·2	wP : sP : vP, vN
11	...	28·697	53·4	39·3	14·1	47·2	+ 4·0	45·5	43·6	3·6	8·1	1·0	88	59·1	36·0	...	...	0·886	11·5	mN, wP : vP, vN
12	...	29·267	51·5	36·3	15·2	44·4	+ 1·5	41·2	37·5	6·9	13·4	4·4	76	87·8	33·8	...	...	0·000	4·0	wP : mP
13	In Equator	28·995	52·4	40·8	11·6	47·2	+ 4·4	45·2	43·0	4·2	7·6	1·5	86	81·8	33·8	...	...	0·212	7·5	ssN, vP : sP
14	Perigee	29·078	52·3	39·4	12·9	44·6	+ 2·0	43·2	41·6	3·0	8·4	0·5	89	83·2	33·2	...	...	0·004	1·3	mP
15	...	29·006	48·7	42·6	6·1	46·1	+ 3·6	45·4	44·6	1·5	2·5	0·9	95	58·7	37·9	...	...	0·086	1·5	vN, wP : wN, mP
16	Full	29·259	48·6	44·5	4·1	46·6	+ 4·2	45·6	44·5	2·1	4·0	0·8	93	55·0	41·5	...	...	0·083	0·0	wP, vN : vP
17	...	29·627	51·1	40·1	11·0	45·2	+ 2·9	43·8	42·2	3·0	8·0	1·3	89	67·8	32·5	...	...	0·045	0·0	wwP : vP
18	...	29·803	56·4	38·2	18·2	47·4	+ 5·2	46·5	45·5	1·9	3·0	0·8	94	57·8	29·6	...	...	0·044	6·0	wP : mP
19	Greatest Declination N.	29·809	56·3	46·6	9·7	52·9	+10·7	51·3	49·7	3·2	5·2	1·9	90	65·9	41·5	...	...	0·002	3·0	wwP : mP
20	...	29·793	53·1	42·5	10·6	47·5	+ 5·4	45·7	43·7	3·8	6·0	2·3	87	71·8	35·5	...	...	0·000	0·0	wP : mP : wP
21	...	29·652	44·7	35·5	9·2	41·3	— 0·8	40·1	38·6	2·7	5·1	0·2	91	54·3	28·9	...	...	0·000	0·0	mP
22	...	29·612	42·3	35·5	6·8	39·2	— 3·0	37·8	36·0	3·2	4·8	1·4	89	48·0	29·2	...	...	0·007	0·0	mP : vP, vN
23	Last Qr.	29·653	40·0	37·9	2·1	39·0	— 3·1	37·9	36·5	2·5	3·4	1·8	91	42·0	35·6	...	...	0·000	0·0	vP
24	...	29·708	41·1	33·2	7·9	36·7	— 5·4	36·2	35·5	1·2	3·9	0·0	96	54·2	27·9	...	...	0·000	0·0	vP
25	Apogee	29·607	44·1	29·8	14·3	36·8	— 5·2	35·9	34·6	2·2	11·0	0·0	92	64·8	29·8	...	...	0·046	2·0	sP : sP, sN
26	In Equator	29·523	43·1	32·9	10·2	38·8	— 3·1	37·5	35·8	3·0	7·7	0·0	90	61·6	27·4	...	...	0·059	0·0	mP : sP : vP, sN
27	...	29·655	39·6	31·0	8·6	36·1	— 5·5	34·8	32·9	3·2	6·0	1·0	88	45·0	24·0	...	...	0·000	0·5	vP
28	...	29·605	45·4	31·8	13·6	39·3	— 2·0	37·3	34·7	4·6	8·8	1·7	84	54·3	26·0	...	...	0·046	1·5	mP : mP, vN
29	...	29·543	46·6	37·3	9·3	43·8	+ 2·8	43·0	42·0	1·8	3·3	0·6	94	48·1	32·0	...	...	0·032	0·0	wP : mP : sP
30	...	29·663	39·9	34·8	5·1	37·2	— 3·5	37·2	37·2	0·0	0·7	0·0	100	44·2	29·6	...	...	0·016	1·5	sP : vP, vN : ssP
Means	...	29·674	48·2	37·7	10·5	43·3	+ 0·1	41·8	40·1	3·2	6·7	1·2	89·0	64·1	32·3	...	...	Sum 2·001	1·5	...
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 observations from 1841 to 1890. 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.

The mean reading of the *Barometer* for the month was 29^{in}·674, being 0^{in}·070 *lower* than the average for the 50 years, 1841–1890.

Temperature of the Air.

The highest in the month was 57°·4 on November 1; the lowest in the month was 29°·8 on November 25; and the range was 27°·6.
The mean of all the highest daily readings in the month was 48°·2, being 0°·6 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 37°·7, being 0°·1 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 10°·5, being 0°·8 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 43°·3, being 0°·1 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS.						CLOUDS AND WEATHER.	
			OSLER'S.					ROBINSON'S.		
			General Direction.		Pressure on the Square Foot.			Horizontal Movement of the Air.		
			A.M.	P.M.	Greatest.	Least.	Mean of 24 Hourly Measures.		A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Nov. 1	1·0	9·6	NE	NNE : NE	1·0	0·0	0·04	222	10 : 10 : p.-cl	9, cu.-s : 10, oc.-th.-r
2	6·1	9·5	NE : ENE : E	E : ENE	2·0	0·0	0·12	264	v, slt.-r : 5, li.-cl	4, cu.-s, li.-cl : 10
3	1·6	9·5	NE : ENE	ENE : NE	3·1	0·0	0·24	329	p.-cl, d : li.-cl : 10	7, cu.-s, li.-cl : 10 : 10, th.-r
4	0·2	9·4	NE : NNE	NNE : NE	2·0	0·0	0·21	359	10 : 10, oc.-th.-r	10, oc.-th.-r, glm : 10, oc.-th.-r
5	0·1	9·4	ENE : NE	ESE : E	0·6	0·0	0·02	225	10 : 10	10 : v, th.-cl
6	0·0	9·3	Calm	N : NNE	0·0	0·0	0·00	82	v : tk.-f	10 : 10
7	0·0	9·2	NNE	NE : ENE	0·0	0·0	0·00	122	10 : 10	10 : 10, slt.-r : o
8	0·0	9·2	Calm	SSE	0·0	0·0	0·00	113	o : tk.-f : 6, th.-cl, slt.-f	6, th.-cl : 5, th.-cl
9	0·0	9·1	SSW : S	SW : WSW	1·9	0·0	0·12	256	10 : 10, r	10, sc, r : p.-cl, r
10	3·2	9·1	WSW	SW : SSW : SSE	2·5	0·0	0·17	311	v : 4, li.-cl	p.-cl : 10, r
11	0·0	9·0	SSE : S : SSW	SW : WSW	31·5	0·0	3·57	757	10, sc, hy.-r, w : 10, sc, c.-hy.-r, st.-w	10, sc, hy.-g, c.-r : v, st.-w : o
12	4·7	9·0	SW : SSW	SSW : SSE	2·9	0·0	0·25	386	o : 4, ci.-cu, th.-cl, so.-ha	2, li.-cl : p.-cl, lu.-ha : 10
13	1·8	8·9	SE : SW	SW : SSW	3·6	0·0	0·16	299	10, slt.-r : 10, r : 10, shs.-r	5, cu, ci.-cu : p.-cl : o, d
14	1·9	8·9	SE : SSE : S	SE : ESE	0·9	0·0	0·01	221	o, d, lu.-ha : p.-cl	5, li.-cl : 10, sh.-r
15	0·0	8·8	ESE : ENE	ENE : N : WSW	0·5	0·0	0·00	217	v : 10, th.-r	10, slt.-r : 10, f
16	0·0	8·8	WSW	N : NW	0·2	0·0	0·00	212	10 : 10, r, glm, f	10, glm : 10, oc.-slt.-r
17	0·2	8·7	WSW : SW : SSW	W : WSW	1·5	0·0	0·03	260	10 : 10, th.-cl, lu.-co : 10, sc, slt.-r	7, th.-cl, h : th.-cl, h, m, lu.-ha
18	0·0	8·7	SW : S : SSE	SSW : SW	3·0	0·0	0·24	322	10 : 10, oc.-th.-r	10, oc.-th.-r : 10, oc.-th.-r
19	0·0	8·6	SSW : SW	SW	2·7	0·0	0·34	398	10, slt.-r : 10, sc, fq.-th.-r	10 : v, th.-cl
20	1·3	8·6	WSW : SW	SW : WSW	0·5	0·0	0·00	269	v, li.-cl, d : 5, li.-cl	6, ci.-cu : 7, th.-cl, h, lu.-ha, lu.-co
21	0·0	8·5	WSW	N : NNW	0·3	0·0	0·00	198	10 : o, ho.-fr : 10	10, glm : v, li.-cl
22	0·0	8·5	W : WNW	NW : WNW	0·2	0·0	0·00	218	p.-cl : 8, th.-cl, h, slt.-f	10, slt.-f : 10, slt.-r
23	0·0	8·4	NW : NNW	N : Calm	0·2	0·0	0·00	121	10 : 10, glm	10, glm : 10
24	1·4	8·4	Calm	NE : N : Calm	0·0	0·0	0·00	66	10 : p.-cl, slt.-f	5, li.-cl : 10, tk.-f
25	3·3	8·3	Calm	SSE : S : SSW	0·1	0·0	0·00	123	tk.-f : 1, f	3, li.-cl : v, r
26	4·5	8·3	SW : WSW	WSW : SW	1·5	0·0	0·03	259	o, ho.-fr : 2, li.-cl	1, li.-cl : 10, r
27	0·0	8·2	NNW : NW	WNW : SW : SSW	1·9	0·0	0·04	268	v, ho.-fr : 4, th.-cl, h, m	1, li.-cl, h : o, ho.-fr
28	1·1	8·2	SSE : S	S : SSE	3·0	0·0	0·45	332	o, ho.-fr : 5, th.-cl	10 : 10, slt.-r
29	0·0	8·2	S : Calm	NW : Calm	1·5	0·0	0·08	134	10, slt.-r : 10, f, gt.-glm	10, gt.-glm, f : 10 : p.-cl, slt.-f
30	0·0	8·1	Calm	SW : SSW	0·4	0·0	0·00	101	tk.-f : 10, tk.-f, gt.-glm	10, f : p.-cl
Means	1·1	8·8	...	...	...	...	0·20	248		
Number of Column for Reference.	21	22	23	24	25	26	27	28	29	30

The mean *Temperature of Evaporation* for the month was 41°·8, being 0°·2 *higher* than
The mean *Temperature of the Dew Point* for the month was 40°·1, being 0°·4 *higher* than
The mean *Degree of Humidity* for the month was 89·0, being 1·5 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·248, being 0in·004 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·8, being *the same as*
The mean *Weight of a Cubic Foot of Air* for the month was 546 grains, being 2 grains *less* than
} the average for the 50 years, 1841–1890.

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 0·123. The maximum daily amount of *Sunshine* was 6·1 hours on November 2.

The highest reading of the *Solar Radiation Thermometer* was 98°·9 on November 2; and the lowest reading of the *Terrestrial Radiation Thermometer* was 24°·0 on November 27.

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

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

The *Greatest Pressure of the Wind* in the month was 31·5 lbs. on the square foot on November 11. The mean daily *Horizontal Movement of the Air* for the month was 248 miles; the greatest daily value was 757 miles on November 11; and the least daily value was 66 miles on November 24.

Rain fell on 15 days in the month, amounting to 2in·001, as measured by gauge No. 6 partly sunk below the ground; being 0in·265 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1891.	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 50 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	New	29·608	50·6	38·0	12·6	44·5	+ 3·9	43·4	42·1	2·4	6·3	0·0	91	76·3	34·0	...	...	0·042	8·5	mP : vP, wN
2	...	29·364	50·8	38·9	11·9	46·3	+ 5·7	45·0	43·6	3·7	6·1	0·4	91	68·8	30·1	...	...	0·540	2·0	vN, vP : sP
3	Greatest Declination S.	29·604	55·6	39·2	16·4	50·6	+ 9·8	49·1	47·5	3·1	5·5	1·7	90	60·9	30·1	...	...	0·004	13·0	mP : wP
4	...	29·863	56·4	43·8	12·6	51·9	+10·8	50·6	49·3	2·6	6·8	0·4	91	70·0	36·5	...	...	0·041	1·0	mP : sP
5	...	29·918	57·0	47·0	10·0	53·5	+12·2	52·2	50·9	2·6	5·0	0·2	91	64·4	43·0	...	...	0·008	3·5	wP : mP
6	...	29·911	54·3	43·2	11·1	48·2	+ 6·9	46·0	43·6	4·6	9·2	1·0	85	68·3	36·1	...	...	0·053	3·2	wP : sP
7	...	29·429	50·6	40·3	10·3	45·9	+ 4·9	43·8	41·4	4·5	9·0	0·4	84	60·8	32·5	...	...	0·275	8·3	vP, vN
8	First Qr.	29·815	48·6	37·4	11·2	43·8	+ 3·2	41·7	39·2	4·6	8·8	2·2	83	66·3	30·8	...	...	0·000	3·0	mP : sP : mP
9	...	29·398	51·0	43·6	7·4	47·1	+ 6·8	45·0	42·7	4·4	8·6	1·4	85	62·0	37·1	...	...	0·216	4·5	wP, vN : mP
10	In Equator	29·056	55·3	44·3	11·0	50·8	+10·9	47·9	44·9	5·9	8·6	1·9	81	63·1	39·6	...	...	0·362	7·8	wP : vN, vP
11	Perigee	29·512	45·5	35·0	10·5	41·7	+ 1·9	37·8	33·0	8·7	13·2	4·2	72	61·2	29·0	...	...	0·000	3·7	mP : sP
12	...	29·804	51·9	31·9	20·0	40·0	+ 0·1	38·6	36·8	3·2	7·4	0·4	89	52·0	26·2	...	...	0·046	1·2	sP : vP, mN
13	...	29·115	52·1	46·3	5·8	49·5	+ 9·4	47·0	44·3	5·2	10·8	1·7	83	59·2	43·2	....	...	0·447	1·8	vP, vN
14	...	29·600	48·7	40·7	8·0	45·0	+ 4·8	42·6	39·8	5·2	11·1	1·5	82	56·5	36·8	...	...	0·000	0·0	wP, vN : mP : sP
15	Full	29·772	53·2	39·9	13·3	45·7	+ 5·4	44·7	43·6	2·1	4·2	0·2	93	54·1	36·6	...	...	0·058	2·5	sP : mP
16	Greatest Declination N.	29·795	53·0	39·5	13·5	46·5	+ 6·3	43·3	39·7	6·8	9·9	3·4	78	63·9	33·0	...	...	0·000	1·5	mP
17	...	30·265	42·1	32·2	9·9	36·5	− 3·5	34·8	32·4	4·1	9·0	0·8	85	70·2	25·5	...	...	0·000	0·0	mP : sP : ssP
18	...	30·435	37·8	27·9	9·9	32·5	− 7·2	30·7	26·9	5·6	10·0	0·0	80	46·0	22·0	...	...	0·000	0·0	sP
19	...	30·498	35·0	23·3	11·7	28·4	−10·9	27·3	23·1	5·3	8·1	0·0	80	53·9	17·0	...	...	0·000	0·0	mP : sP : ssP
20	...	30·485	33·1	23·1	10·0	27·4	−11·6	27·0	25·4	2·0	6·1	0·0	92	54·0	15·4	...	...	0·000	0·0	sP
21	...	30·483	33·2	20·5	12·7	26·3	−12·5	25·9	24·0	2·3	8·1	0·0	91	45·0	17·0	...	...	0·000	2·0	sP : ... : ssP
22	...	30·472	30·0	17·3	12·7	22·6	−16·0	22·6	22·6	0·0	1·6	0·0	100	30·9	16·5	...	...	0·000	0·0	... : ssP
23	Last Qr. : Apogee : In Equator	30·265	30·3	19·5	10·8	24·5	−13·9	24·5	24·5	0·0	1·4	0·0	100	34·0	15·9	...	...	0·000	0·0	... : sP
24	...	30·042	26·2	21·2	5·0	24·0	−14·3	24·0	24·0	0·0	1·3	0·0	100	29·3	21·2	...	...	0·000	0·0	mP
25	...	29·872	41·2	19·5	21·7	28·8	− 9·5	28·8	28·8	0·0	0·9	0·0	100	41·2	19·5	..	...	0·000	0·8	...
26	...	29·727	48·4	40·8	7·6	44·7	+ 6·3	43·9	43·0	1·7	5·2	0·0	94	63·0	33·0	...	...	0·018	2·2	wP : wP, vN
27	...	29·710	46·5	35·3	11·2	40·8	+ 2·4	39·5	37·9	2·9	6·6	1·1	90	54·7	28·7	...	...	0·090	0·5	vN, mP : ssP
28	...	29·709	43·8	37·5	6·3	40·5	+ 2·0	39·3	37·8	2·7	6·4	1·3	90	59·9	28·7	...	...	0·119	3·0	vP, sN : sP, sN
29	...	29·553	52·0	43·8	8·2	48·8	+10·2	46·7	44·4	4·4	9·6	0·8	85	65·9	36·6	...	...	0·069	4·5	wP : mP : mP, vN
30	...	29·474	54·0	45·3	8·7	49·7	+11·1	48·5	47·2	2·5	4·6	0·4	92	54·0	42·1	...	...	0·259	6·5	mP : wP, wN
31	Greatest Dec. S. : New	29·410	53·5	40·2	13·3	48·6	+10·0	46·2	43·6	5·0	9·9	1·4	83	75·2	35·2	...	...	0·023	4·5	wP : vN, sP
Means	...	29·805	46·5	35·4	11·1	41·1	+ 1·5	39·6	37·7	3·5	7·1	0·9	88·1	57·6	30·0	...	...	Sum 2·670	2·9	...
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 observations from 1841 to 1890. 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.

The mean reading of the *Barometer* for the month was 29^{in}·805, being 0^{in}·014 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 57°·0 on December 5 ; the lowest in the month was 17°·3 on December 22 ; and the range was 39°·7.
The mean of all the highest daily readings in the month was 46°·5, being 2°·5 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 35°·4, being 0°·6 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 11°·1, being 1°·9 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 41°·1, being 1°·5 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1891.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS.						CLOUDS AND WEATHER.	
			OSLER'S.					ROBINSON'S.		
			General Direction.		Pressure on the Square Foot.				A.M.	P.M.
			A.M.	P.M.	Greatest.	Least.	Mean of 24 Hourly Measures.	Horizontal Movement of the Air.		
	hours	hours.			lbs.	lbs.	lbs.	miles.		
Dec. 1	0·5	8·1	S : SSW	SSW	3·5	0·0	0·63	356	o, d : 7, ci.-cu, th.-cl,so.-ha	8, w : 10, r : 10, r
2	1·5	8·1	SSW : SW	WSW : SSW	...	...	...	309	10, hy.-r : 10, r : 9, li.-cl	p.-cl : o : o, d
3	0·0	8·0	SSW : S	SW	...	...	...	524	p.-cl : 10, sc, th.-r : 10, sc, w	10, sc, w : 10, sc, w, oc.-th.-r
4	0·3	8·0	SW : WSW	WSW : SW	...	...	...	338	10 : 10, glm, m.-r	4, li.-cl : o : v
5	0·0	8·0	SW : WSW	SW	...	...	...	470	10, slt.-r : 10, sc, w	10, oc.-slt.-r : 10, oc.-slt.-r, w
6	0·2	8·0	WSW	WSW : SSW	...	...	...	381	10, r : 7, th.-cl, so.-ha	p.-cl, so.-ha : 10
7	0·4	7·9	SSW : SW	SW : W : WNW	...	...	...	651	v : 10, sc, w : 10,hy.-r,st.-w	10, sc, shs.-r, hy.-g : 10, g
8	2·3	7·9	WNW : WSW	WSW : SW	...	...	...	433	o, w : o : 3, cu.-s, li.-cl	p.-cl, so.-ha : p.-cl, slt.-r
9	2·4	7·9	SW : WSW	W : SW	...	...	...	527	10, w : 10, hy.-r	2, li.-cl : 1, lu.-ha,lu.-co : 10, fq.-r, w
10	0·0	7·9	SW	SW : WSW	...	...	...	960	10, hy.-g : 10, sc, hy.-g	10, sc, fq.-r, hy.-g : v, g, sh.-r, hl
11	3·2	7·8	WSW	WSW : W : WNW	...	...	...	705	1, li.-cl, hy.-g : 1, li.-cl, w	1, li.-cl : o
12	0·0	7·8	SW : SSW	SSW : SSE	...	...	...	390	1, th.-cl, ho.-fr, lu.-ha : 7, th.-cl, so.-ha	10, r : 10, th.-r, w
13	0·3	7·8	SW : SSW : S	SW : WSW	...	...	...	748	10, hy.-r, hy.-sqs: p.-cl, sc, r, st.-w	10, fq.-r, st.-w : 10, shs.-r, w
14	1·3	7·8	WNW : W	WNW : NW	...	...	...	419	10 : p.-cl, w	10, th.-cl, w : 10, th.-cl, lu.-ha
15	0·0	7·8	Calm : SSE	SSW : SW	...	...	...	298	10 : 10, r	10, fq.-th.-r : 10, fq.-r
16	1·1	7·8	SW : WSW	WNW : N	...	...	...	503	li.-cl : o	9, slt.-r : v
17	3·6	7·7	N : NE	ENE : ESE	...	...	...	158	o, ho.-fr : o, ho.-fr	o : o, ho.-fr
18	0·0	7·7	SE : SSE	SSE : SE	...	...	...	120	p.-cl, ho.-fr : 10	10 : th.-cl, lu.-ha, m, ho.-fr
19	5·2	7·7	SE : SSE	SE : Calm	...	...	...	147	o, ho.-fr : o	o : o, ho.-fr
20	1·2	7·7	Calm	NE : Calm	...	...	...	92	o, ho.-fr : o, ho.-fr	o, h : o, slt.-f, ho.-fr
21	2·6	7·7	Calm	E : Calm	...	...	...	66	o, ho.-fr : tk.-f,ho.-fr : tk.-f	o : o, f, ho.-fr
22	0·0	7·7	Calm	NNE : Calm	...	...	...	44	tk.-f, ho.-fr : tk.-f	tk.-f : tk.-f, ho.-fr
23	0·0	7·7	Calm	NE : SE : Calm	...	...	...	41	tk.-f, ho.-fr : f, fr	o, f : tk.-f : tk.-f, ho.-fr
24	0·0	7·7	Calm	SW : Calm	...	...	...	46	tk.-f, ho.-fr : tk.-f, fr	tk.-f, fr : tk.-f, ho.-fr
25	0·0	7·7	Calm	Calm : S	...	...	...	83	tk.-f, ho.-fr : 10, f, fr.-r	10, slt.-f : 10
26	0·9	7·8	SSW	S : SSW	...	...	...	412	p.-cl : p.-cl, fq.-slt.-r	p.-cl, slt.-r, w : 10, fq.-slt.-r, w
27	1·6	7·8	WSW	SW : SSW : S	2·1	0·0	0·34	310	10, r : 4, li.-cl	1, li.-cl : o
28	3·3	7·8	S : SW	WSW : SSW	2·7	0·0	0·35	325	v, hy.-r : 2, li.-cl	o : p.-cl, slt.-r: v, th.-cl, oc.-slt.-r
29	0·0	7·8	SSW : SW	WSW	3·5	0·0	1·29	548	10, slt.-r, w : 10, sc, shs.-r, w	v, th.-cl, w : 10, r
30	0·0	7·8	SW : S	SW : WSW	5·7	0·0	1·00	446	10 : 10, sc, glm, r	10, sc, c.-r, w : 10, sc, fq.-slt.-r, st.-w
31	0·9	7·8	SW : WSW	W : WSW	8·6	0·3	2·48	743	10, st.-w : 10, sc, slt.-r,st.-w	v, sh.-r, w : o, w
Means	1·1	7·8	...	...	...	...	...	374		
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°·6, being 1°·3 *higher* than
The mean *Temperature of the Dew Point* for the month was 37°·7, being 1°·2 *higher* than
The mean *Degree of Humidity* for the month was 88·1, being 0·4 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·226, being 0in·010 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·6, being 0gr·1 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 551 grains, being 2 grains *less* than
} the average for the 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 6·2.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·135. The maximum daily amount of *Sunshine* was 5·2 hours on December 19.

The highest reading of the *Solar Radiation Thermometer* was 76°·3 on December 1; and the lowest reading of the *Terrestrial Radiation Thermometer* was 15°·4 on December 20.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 2·0; for the 6 hours ending 15h. was 0·5; and for the 6 hours ending 21h. was 0·4.

The *Proportions of Wind* referred to the cardinal points were N. 2, E. 3, S. 12, and W. 11. Three days were calm.

The apparatus for recording the *Pressure of the Wind* was not in action from December 2 to 26; the vane having been taken down for repair. The mean daily *Horizontal Movement of the Air* for the month was 374 miles; the greatest daily value was 960 miles on December 10; and the least daily value was 41 miles on December 23.

Rain fell on 17 days in the month, amounting to 2in·670, as measured by gauge No. 6 partly sunk below the ground; being 0in·900 *greater* than the average fall for the 50 years, 1841–1890.

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

MAXIMA.			MINIMA.			MAXIMA.			MINIMA.		
Greenwich Civil Time, 1891.		Reading.	Greenwich Civil Time, 1891.		Reading.	Greenwich Civil Time, 1891.		Reading.	Greenwich Civil Time, 1891.		Reading.
	d h m	in.		d h m	in.		d h m	in.		d h m	in.
January	3. 9. 5	30·098	January	4. 12. 55	29·850	April	16. 0. 0	30·040	April	13. 16. 5	29·884
	6. 10. 10	30·188		8. 15. 55	29·779		20. 10. 20	30·128		16. 20. 40	29·892
	11. 10. 30	30·535		14. 1. 40	30·333		24. 21. 55	30·000		23. 4. 0	29·879
	14. 10. 5	30·409		16. 4. 45	29·810		29. 6. 35	29·633		28. 5. 10	29·369
	18. 8. 0	30·255		20. 22. 35	29·214		30. 21. 45	29·611		30. 4. 55	29·470
	23. 2. 15	29·566		24. 15. 15	29·283	May	5. 9. 45	29·990	May	1. 13. 20	29·349
	25. 23. 40	29·983		27. 8. 0	29·758		12. 8. 45	30·058		8. 17. 35	29·356
	27. 21. 5	29·850		29. 21. 10	29·608		16. 22. 5	29·618		15. 16. 55	29·431
	30. 18. 55	30·000	February	1. 2. 50	29·700		20. 0. 0	29·575		18. 8. 25	29·090
February	2. 11. 10	30·487		3. 16. 40	30·385		23. 9. 0	29·579		21. 9. 30	29·222
	4. 22. 0	30·542		12. 0. 5	29·994		25. 21. 10	29·604		24. 17. 0	29·410
	14. 2. 10	30·524		15. 16. 10	30·402		31. 22. 25	29·758		27. 11. 20	29·429
	18. 10. 15	30·515		21. 16. 55	30·150	June	2. 10. 55	29·728	June	1. 20. 25	29·580
	24. 10. 0	30·370		26. 13. 45	29·766		5. 22. 40	29·816		4. 17. 45	29·562
	28. 1. 0	30·124	March	2. 16. 50	29·875		12. 20. 30	30·256		9. 3. 5	29·690
March	4. 1. 0	30·256		4. 17. 15	30·054		18. 8. 30	30·160		15. 18. 55	29·704
	5. 9. 30	30·124		8. 4. 35	29·380		28. 7. 15	29·819		25. 13. 50	29·622
	9. 10. 50	29·630		11. 3. 50	29·055		30. 20. 55	29·703		29. 2. 20	29·593
	14. 10. 5	29·645		15. 19. 25	29·109	July	4. 22. 30	29·870	July	1. 17. 40	29·495
	19. 20. 50	29·756		20. 16. 5	29·555		9. 23. 40	29·976		7. 15. 5	29·454
	23. 10. 5	29·906		26. 0. 30	29·360		14. 0. 30	30·125		11. 17. 0	29·839
	27. 0. 35	29·672		28. 2. 55	29·425		20. 9. 0	29·957		16. 17. 0	29·614
	28. 21. 20	29·642		30. 0. 50	29·545		25. 22. 40	29·997		22. 5. 0	29·689
	31. 9. 50	29·850	April	3. 4. 50	29·428		28. 7. 35	29·663		27. 11. 20	29·480
April	4. 0. 30	29·549		4. 21. 40	29·385	August	1. 22. 35	29·817		29. 17. 50	29·402
	8. 6. 35	29·752		8. 16. 5	29·693		8. 9. 45	29·983	August	3. 14. 50	29·368
	10. 22. 5	29·990		11. 15. 10	29·893		11. 10. 10	29·873		10. 4. 35	29·620
	12. 21. 30	29·983								12. 15. 0	29·582

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

MAXIMA.		MINIMA.		MAXIMA.		MINIMA.	
Greenwich Civil Time, 1891.	Reading.	Greenwich Civil Time, 1891.	Reading.	Greenwich Civil Time, 1891.	Reading.	Greenwich Civil Time, 1891.	Reading.
d h m	in.	d h m	in.	d h m	in.	d h m	in.
August 14. 9. 25	29·914	August 15. 15. 15	29·698	November 5. 9. 50	30·450	November 4. 3. 10	30·145
16. 21. 0	29·840	18. 15. 45	29·484	10. 10. 30	29·460	9. 23. 25	29·245
20. 6. 0	29·576	21. 5. 50	29·003	12. 8. 45	29·363	11. 11. 30	28·305
24. 12. 30	29·740	26. 3. 35	29·267	14. 10. 0	29·113	13. 7. 10	28·898
26. 13. 20	29·471	27. 19. 25	29·230	18. 8. 5	29·860	15. 5. 40	28·972
30. 9. 0	29·929	September 1. 3. 30	29·274	19. 23. 10	29·870	18. 14. 30	29·760
September 5. 10. 5	29·999	6. 18. 10	29·761	24. 9. 30	29·739	23. 3. 25	29·575
9. 9. 30	30·029	14. 4. 40	29·562	27. 19. 25	29·783	26. 22. 40	29·453
16. 9. 10	30·172	18. 6. 35	29·756	30. 21. 5	29·735	29. 1. 25	29·478
19. 11. 35	29·862	21. 22. 40	29·427				
23. 23. 5	30·074	26. 8. 35	29·643	December 2. 23. 50	29·638	December 2. 6. 20	29·099
28. 0. 25	30·008	October 1. 14. 55	29·390	4. 21. 20	30·020	3. 5. 45	29·563
October 3. 22. 40	30·116	6. 16. 10	29·154	6. 18. 45	29·998	6. 3. 35	29·768
8. 11. 50	29·678	9. 5. 30	29·458	8. 10. 20	29·917	7. 16. 30	29·102
10. 1. 0	29·694	11. 22. 45	29·140	9. 16. 10	29·414	9. 8. 40	29·305
12. 20. 50	29·309	13. 22. 55	28·905	12. 7. 5	29·989	10. 13. 50	28·977
14. 22. 35	29·602	15. 7. 55	29·321	15. 10. 10	29·848	13. 13. 25	28·935
15. 21. 15	29·625	16. 5. 20	29·370	19. 9. 50	30·530	15. 22. 50	29·617
18. 10. 25	29·948	19. 11. 35	29·275	22. 9. 55	30·520	21. 5. 20	30·448
20. 0. 15	29·406	21. 7. 15	29·045	27. 19. 15	29·836	27. 1. 0	29·526
21. 18. 25	29·114	22. 6. 30	28·935	28. 17. 40	29·758	28. 5. 0	29·649
24. 22. 0	29·654	26. 5. 5	29·550	29. 20. 55	29·589	29. 7. 5	29·490
31. 10. 40	30·490					31. 7. 30	29·315

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 1891.
[Extracted from the preceding Table.]

MONTH, 1891.	Readings of the Barometer.		Range.
	Highest.	Lowest.	
	in.	in.	in.
January	30·535	29·214	1·321
February	30·542	29·700	0·842
March	30·256	29·055	1·201
April	30·128	29·369	0·759
May	30·058	29·090	0·968
June	30·256	29·562	0·694
July	30·125	29·402	0·723
August	29·983	29·003	0·980
September	30·172	29·274	0·898
October	30·490	28·905	1·585
November	30·450	28·305	2·145
December	30·530	28·935	1·595

The highest reading in the year was $30^{in}·542$ on February 4. The lowest reading in the year was $28^{in}·305$ on November 11.
The range of reading in the year was $2^{in}·237$.

MONTHLY RESULTS of METEOROLOGICAL ELEMENTS for the YEAR 1891.

MONTH, 1891.	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 50 Years.	Mean Temperature of Evaporation.	Mean Temperature of the Dew Point.	Mean Degree of Humidity. (Saturation = 100.)
	in.	°	°	°	°	°	°	°	°	°	°	
January ...	29·959	52·9	12·0	40·9	38·7	29·1	9·5	34·1	— 4·4	33·0	30·6	87·2
February...	30·279	62·1	25·9	36·2	46·3	31·8	14·6	38·6	— 0·9	37·1	35·2	88·2
March	29·640	59·6	23·1	36·5	47·7	34·3	13·4	40·2	— 1·5	37·6	34·1	79·3
April	29·795	66·6	29·0	37·6	53·6	36·2	17·4	44·2	— 3·0	40·9	37·0	76·7
May.....	29·610	80·5	30·9	49·6	61·4	41·7	19·7	50·4	— 2·8	46·9	43·5	78·0
June	29·841	84·3	41·0	43·3	72·2	51·3	20·9	60·2	+ 0·8	55·9	52·1	75·2
July.....	29·760	85·1	45·4	39·7	71·7	51·6	20·1	60·1	— 2·4	56·3	53·1	78·2
August	29·645	79·5	43·2	36·3	69·3	51·5	17·8	58·8	— 2·9	55·6	52·8	81·0
September.	29·835	82·1	44·3	37·8	69·8	50·2	19·6	58·9	+ 1·7	55·6	52·7	80·2
October ...	29·603	68·3	29·9	38·4	58·8	44·0	14·8	51·0	+ 1·0	48·9	46·6	85·1
November.	29·674	57·4	29·8	27·6	48·2	37·7	10·5	43·3	+ 0·1	41·8	40·1	89·0
December..	29·805	57·0	17·3	39·7	46·5	35·4	11·1	41·1	+ 1·5	39·6	37·7	88·1
		Highest.	Lowest.	Annual Range.								
Means	29·787	85·1	12·0	73·1	57·0	41·2	15·8	48·4	— 1·1	45·8	43·0	82·2

MONTH, 1891.	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.	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 ...	0·171	2·1	562	0·8	6·1	17	1·563	158	53	28	30	75	242	63	53	42	0·34	302
February...	0·205	2·4	563	0·2	5·3	4	0·054	40	54	147	57	17	162	70	17	108	0·05	158
March	0·196	2·3	549	1·7	7·4	17	2·143	127	112	57	14	33	188	121	88	4	0·64	381
April	0·220	2·6	548	1·9	7·1	8	0·718	95	187	148	66	28	95	26	60	15	0·18	263
May.....	0·283	3·2	537	3·4	7·2	18	2·688	173	67	54	51	86	190	43	44	36	0·19	246
June	0·389	4·3	531	2·6	6·1	11	0·962	102	169	84	28	32	183	49	44	29	0·15	243
July.....	0·404	4·5	529	2·4	7·1	17	3·388	81	49	29	8	69	326	91	70	21	0·12	254
August ...	0·400	4·4	529	3·9	7·5	22	3·715	38	6	3	23	54	460	109	40	11	0·26	293
September.	0·399	4·4	532	2·1	5·6	12	0·819	32	19	52	60	66	401	53	14	23	0·20	261
October ...	0·318	3·6	536	3·7	6·1	20	4·317	6	96	67	56	163	300	32	2	22	0·49	310
November.	0·248	2·8	546	1·5	7·4	15	2·001	60	118	43	53	107	178	70	39	52	0·20	248
December..	0·226	2·6	551	2·9	6·2	17	2·670	20	34	16	52	110	323	97	19	73	...	374
Sums	...	...	...	...	...	178	25·038	932	964	728	498	840	3048	824	490	436	...	...
Means	0·288	3·3	543	2·3	6·6	...	...	...	...	...	...	...	...	...	...	...	...	278

The greatest recorded daily horizontal movement of the air in the year was 960 miles on December 10.
The least recorded daily horizontal movement of the air in the year was 34 miles on February 23 and 24.

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

Hour, Greenwich Civil Time.	1891. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Midnight	29·962	30·279	29·649	29·807	29·625	29·845	29·772	29·656	29·840	29·599	29·693	29·810	29·795
1h.	29·956	30·275	29·646	29·804	29·622	29·842	29·768	29·649	29·837	29·596	29·687	29·808	29·791
2	29·955	30·272	29·641	29·800	29·617	29·837	29·764	29·645	29·831	29·587	29·683	29·809	29·787
3	29·954	30·264	29·632	29·795	29·612	29·835	29·761	29·641	29·827	29·580	29·676	29·807	29·782
4	29·952	30·261	29·630	29·793	29·608	29·837	29·759	29·637	29·823	29·579	29·672	29·801	29·779
5	29·949	30·264	29·632	29·793	29·608	29·842	29·761	29·637	29·824	29·578	29·670	29·797	29·780
6	29·949	30·266	29·634	29·800	29·613	29·847	29·764	29·642	29·829	29·581	29·669	29·798	29·783
7	29·956	30·274	29·643	29·804	29·614	29·851	29·766	29·645	29·835	29·592	29·670	29·800	29·788
8	29·964	30·284	29·649	29·805	29·614	29·854	29·769	29·651	29·840	29·601	29·678	29·806	29·793
9	29·974	30·289	29·653	29·806	29·612	29·854	29·769	29·654	29·845	29·604	29·679	29·811	29·796
10	29·980	30·295	29·655	29·806	29·610	29·855	29·766	29·657	29·847	29·609	29·681	29·819	29·798
11	29·978	30·300	29·652	29·803	29·605	29·852	29·764	29·655	29·841	29·610	29·676	29·813	29·796
Noon	29·970	30·296	29·652	29·800	29·603	29·848	29·759	29·653	29·839	29·607	29·668	29·806	29·792
13h.	29·959	30·284	29·643	29·795	29·599	29·843	29·753	29·651	29·835	29·602	29·661	29·797	29·785
14	29·953	30·273	29·634	29·787	29·596	29·837	29·751	29·647	29·828	29·601	29·656	29·793	29·780
15	29·952	30·267	29·627	29·780	29·593	29·831	29·746	29·642	29·823	29·598	29·658	29·798	29·776
16	29·951	30·265	29·624	29·776	29·592	29·827	29·744	29·637	29·820	29·599	29·663	29·801	29·775
17	29·953	30·270	29·626	29·776	29·591	29·825	29·742	29·633	29·821	29·607	29·668	29·803	29·776
18	29·957	30·276	29·631	29·778	29·598	29·826	29·742	29·632	29·825	29·618	29·674	29·807	29·780
19	29·959	30·282	29·636	29·784	29·605	29·828	29·750	29·634	29·836	29·622	29·676	29·811	29·785
20	29·960	30·286	29·640	29·793	29·616	29·833	29·758	29·641	29·843	29·626	29·678	29·813	29·791
21	29·959	30·288	29·642	29·798	29·625	29·842	29·769	29·645	29·846	29·629	29·679	29·808	29·794
22	29·959	30·291	29·641	29·799	29·628	29·843	29·773	29·646	29·847	29·627	29·676	29·805	29·795
23	29·958	30·291	29·645	29·802	29·631	29·845	29·776	29·645	29·848	29·626	29·674	29·806	29·796
24	29·956	30·291	29·640	29·801	29·630	29·843	29·776	29·641	29·848	29·626	29·671	29·804	29·794
Means 0h.–23h.	29·959	30·279	29·640	29·795	29·610	29·841	29·760	29·645	29·835	29·603	29·674	29·805	29·787
Means 1h.–24h.	29·959	30·279	29·639	29·795	29·610	29·841	29·760	29·644	29·835	29·604	29·673	29·805	29·787
Number of Days employed.	31	28	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.	1891. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	32·5	37·3	37·4	40·1	45·9	55·0	55·4	55·3	54·6	49·2	42·3	40·5	45·5
1h.	32·6	37·1	37·2	39·5	45·5	54·4	54·8	54·7	54·2	49·1	42·2	40·3	45·1
2	32·7	36·9	36·9	39·0	44·9	53·7	54·3	54·3	53·7	49·1	41·8	40·1	44·8
3	32·7	36·8	36·6	38·6	44·5	53·2	54·0	54·1	53·5	48·6	41·6	39·9	44·5
4	32·7	36·5	36·3	38·3	44·2	53·2	53·7	53·8	53·3	48·0	41·3	39·9	44·3
5	32·6	36·4	36·2	38·2	44·3	53·5	53·9	53·7	53·1	48·0	41·2	40·0	44·3
6	32·5	36·4	36·1	38·7	45·4	54·5	55·3	54·5	53·2	47·8	41·4	40·1	44·7
7	32·5	36·4	36·5	40·4	47·6	56·6	57·7	56·0	54·7	47·8	41·4	40·1	45·6
8	32·6	36·8	38·0	43·1	49·9	59·0	59·9	58·4	57·3	49·1	41·8	39·7	47·1
9	33·0	37·7	39·9	45·5	52·3	61·6	62·5	60·3	61·0	51·8	42·7	40·0	49·0
10	34·0	39·1	41·3	47·4	53·9	63·9	63·8	62·0	63·7	53·9	44·1	40·9	50·7
11	35·2	40·9	42·5	49·1	55·2	65·3	65·1	63·2	65·4	55·4	45·4	42·3	52·1
Noon	36·2	43·0	43·6	50·2	55·9	66·7	65·7	63·6	66·1	55·6	46·4	43·6	53·0
13h.	37·0	44·3	44·0	50·5	56·5	67·7	66·2	63·8	66·3	56·0	46·9	44·1	53·6
14	37·1	44·9	44·5	50·9	57·2	68·1	66·7	64·6	66·6	55·8	46·7	43·8	53·9
15	36·9	44·8	44·2	50·5	56·9	68·3	66·8	64·1	66·2	55·3	46·1	43·0	53·6
16	36·2	44·1	43·2	49·9	56·5	67·5	65·9	63·4	65·0	54·0	44·9	42·2	52·7
17	35·4	42·4	42·0	48·6	55·1	66·4	64·4	62·4	62·7	52·2	44·1	41·6	51·4
18	34·8	40·9	40·8	47·0	53·3	64·6	63·2	60·9	60·4	50·9	43·5	41·2	50·1
19	34·3	39·9	39·8	45·2	51·5	62·1	61·3	59·5	58·6	50·2	43·1	40·9	48·9
20	34·1	39·1	39·0	44·0	49·5	59·5	59·6	58·2	57·2	49·6	42·8	40·8	47·8
21	33·8	38·7	38·2	43·0	48·3	57·6	58·2	57·2	56·2	49·5	42·5	40·8	47·0
22	33·8	37·8	37·8	41·9	47·5	56·4	57·1	56·4	55·5	49·1	42·3	40·6	46·3
23	33·1	37·2	37·5	41·4	46·7	55·7	55·9	56·0	55·1	49·1	42·3	40·7	45·9
24	32·9	37·0	37·1	40·8	45·9	55·2	55·2	55·5	54·6	48·8	42·1	40·6	45·5
Means 0h.–23h.	34·1	39·4	39·6	44·2	50·4	60·2	60·1	58·8	58·9	51·0	43·3	41·1	48·4
Means 1h.–24h.	34·1	39·4	39·6	44·2	50·4	60·2	60·0	58·8	58·9	51·0	43·3	41·1	48·4
Number of Days employed.	31	21	29	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.	1891. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	31·8	36·5	35·8	38·4	44·3	53·3	53·9	54·0	53·5	48·1	41·2	39·4	44·2
1h.	31·8	36·3	35·6	38·0	44·2	52·9	53·6	53·4	53·1	47·9	41·1	39·2	43·8
2	31·9	36·2	35·4	37·6	43·8	52·5	53·1	53·1	52·8	47·8	40·9	39·0	43·7
3	31·9	36·1	35·3	37·4	43·5	52·2	52·9	53·0	52·4	47·6	40·7	38·8	43·5
4	32·0	36·0	35·1	37·2	43·3	52·1	52·7	52·8	52·3	47·1	40·4	38·8	43·3
5	31·9	35·9	34·9	37·0	43·4	52·3	52·8	52·7	52·1	46·9	40·4	38·9	43·3
6	31·9	35·7	34·8	37·5	44·1	52·9	53·9	53·2	52·1	46·7	40·5	38 9	43·5
7	31·9	35·7	35·1	38·9	45·5	54·2	55·2	54·3	53·1	46·9	40·5	39·0	44·2
8	31·9	35·8	36·0	40·5	46·9	55·5	56·6	55·7	55·2	47·9	40·8	58·7	45·1
9	32·3	36·6	37·2	42·0	48·3	57·0	57·7	56·6	57·3	49·8	41·6	38·9	46·3
10	33·1	37·7	37·9	42·9	49·2	58·2	58·1	57·5	58·5	51·0	42·6	39·4	47·2
11	34·0	39·0	38·5	43·8	50·2	58·7	58·8	57·9	59·1	51·5	43·5	40·4	47·9
Noon	34·7	40·6	39·0	44·3	50·3	59·3	59·2	58·1	59·4	51·3	44·1	41·1	48·5
13h.	35·2	41·4	39·5	44·5	50·7	59·8	59·4	58·2	59·5	51·6	44·2	41·3	48·8
14	35·1	41·5	39·8	44·7	50·8	60·0	59·8	58·4	59·6	51·3	43·9	41·3	48·9
15	35·1	41·3	39·7	44·5	50·6	59·9	59·7	58·1	59·3	51·0	43·5	40·8	48·6
16	34·5	40·9	39·1	44·1	50·1	59·2	59·3	57·6	58·5	50·3	42·8	40·4	48·1
17	33·9	39·8	38·6	43·4	49·3	58·4	58·9	57·5	57·5	49·4	42·2	39·9	47·4
18	33·6	38·7	37·8	42·8	48·4	57·6	58·2	56·7	56·5	48·8	41·9	39·6	46·7
19	33·3	38·1	37·1	41·8	47·5	56·8	57·2	56·2	55·6	48·3	41·7	39·4	46·1
20	33·1	37·7	36·7	41·1	46·5	55·7	56·3	55·6	55·0	48·0	41·5	39·5	45·6
21	32·9	37·3	36·1	40·4	45·7	54·7	55·6	55·2	54·4	47·9	41·3	39·4	45·1
22	32·9	36·7	35·7	39·7	45·2	54·2	54·8	54·7	53·9	47·7	41·1	39·3	44·7
23	32·3	36·2	35·7	39·3	44·8	53·8	54·3	54·5	53·6	47·8	41·2	39·5	44·4
24	32·2	36·0	35·5	39·0	44·3	53·6	53·8	54·2	53·4	47·6	41·1	39·4	44·2
Means 0h.–23h.	33·0	37·8	36·9	40·9	46·9	55·9	56·3	55·6	55·6	48·9	41·8	39·6	45·8
Means 1h.–24h.	33·1	37·8	36·9	40·9	46·9	55·9	56·3	55·6	55·6	48·8	41·8	39·6	45·8
Number of Days employed	31	21	29	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.	1891. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	30·4	35·4	33·6	36·2	42·5	51·7	52·4	52·7	52·4	46·9	39·9	38·0	42·7
1h.	30·2	35·2	33·4	36·1	42·7	51·4	52·4	52·1	52·0	46·6	39·8	37·8	42·5
2	30·3	35·2	33·3	35·8	42·6	51·3	51·9	51·9	51·9	46·4	39·8	37·6	42·3
3	30·3	35·1	33·5	35·8	42·3	51·2	51·8	51·9	51·3	46·5	39·6	37·4	42·2
4	30·6	35·3	33·4	35·7	42·2	51·0	51·7	51·8	51·3	46·1	39·3	37·4	42·1
5	30·5	35·2	33·0	35·3	42·3	51·1	51·7	51·7	51·1	45·7	39·4	37·5	42·0
6	30·7	34·7	32·9	35·9	42·6	51·3	52·5	51·9	51·0	45·5	39·4	37·4	42·2
7	30·7	34·7	33·1	37·0	43·2	52·0	53·0	52·7	51·5	45·9	39·4	37·6	42·6
8	30·5	34·4	33·3	37·4	43·7	52·3	53·7	53·3	53·3	46·6	39·6	37·4	43·0
9	30·9	35·1	33·7	38·0	44·2	53·0	53·6	53·4	54·1	47·8	40·3	37·5	43·5
10	31·5	35·9	33·7	37·9	44·6	53·4	53·3	53·6	54·1	48·2	40·8	37·5	43·7
11	32·1	36·6	33·7	38·1	45·4	53·4	53·7	53·5	54·0	47·8	41·3	38·1	44·0
Noon	32·4	37·7	33·5	38·0	45·1	53·3	53·9	53·5	53·9	47·2	41·5	38·2	44·0
13h.	32·7	38·0	34·2	38·2	45·3	53·5	53·9	53·5	54·0	47·4	41·1	38·0	44·1
14	32·3	37·6	34·3	38·3	45·0	53·6	54·2	53·2	54·0	47·1	40·7	38·4	44·1
15	32·6	37·3	34·4	38·2	44·8	53·3	54·0	53·1	53·7	46·9	40·5	38·2	43·9
16	32·0	37·2	34·2	37·9	44·2	52·6	53·9	52·7	53·2	46·7	40·4	38·2	43·6
17	31·6	36·6	34·4	37·7	43·7	51·9	54·3	53·3	53·1	46·6	39·9	37·8	43·4
18	31·7	35·9	34·0	38·1	43·5	51·8	54·0	53·1	53·1	46·6	40·0	37·6	43·3
19	31·6	35·8	33·6	37·9	43·4	52·2	53·6	53·3	52·9	46·3	40·0	37·5	43·2
20	31·4	35·9	33·7	37·7	43·3	52·3	53·4	53·3	53·0	46·3	39·9	37·9	43·2
21	31·3	35·4	33·3	37·3	42·9	52·1	53·3	53·4	52·7	46·2	39·9	37·7	43·0
22	31·3	35·2	32·8	37·0	42·7	52·1	52·7	53·1	52·4	46·2	39·7	37·7	42·7
23	30·7	34·8	33·2	36·7	42·6	52·0	52·8	53·1	52·1	46·4	39·9	38·0	42·7
24	30·9	34·6	33·3	36·7	42·5	52·1	52·4	53·0	52·2	46·3	39·9	37·9	42·7
Means 0h.–23h.	31·3	35·8	33·6	37·2	43·5	52·2	53·2	52·9	52·8	46·7	40·1	37·8	43·1
Means 1h.–24h.	31·3	35·8	33·6	37·2	43·5	52·3	53·2	52·9	52·7	46·6	40·1	37·8	43·1

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.	1891.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight	92	93	86	86	88	89	90	91	92	92	91	91	90
1h.	90	93	86	88	90	90	92	91	92	92	91	91	91
2	91	94	89	89	91	92	92	92	94	91	93	91	92
3	91	94	89	90	93	93	92	92	92	93	93	91	92
4	92	95	90	91	93	92	93	93	93	94	93	91	92
5	92	95	89	90	93	92	92	93	93	92	94	91	92
6	93	94	88	90	90	89	91	91	92	92	93	90	91
7	93	94	88	88	86	85	84	89	89	94	93	91	89
8	92	91	83	80	80	79	80	83	86	92	92	92	86
9	92	90	78	75	74	74	73	78	78	86	91	91	82
10	90	89	75	70	71	69	69	74	72	81	88	88	78
11	88	85	72	66	70	65	67	70	67	76	86	86	75
Noon	87	82	67	63	67	62	66	70	65	74	84	81	72
13h.	85	78	68	63	66	60	65	70	65	73	81	78	71
14	83	75	67	62	63	60	64	67	64	73	80	81	70
15	85	74	68	63	64	58	64	67	64	74	82	84	71
16	85	76	71	63	64	59	66	68	65	76	84	86	72
17	86	81	76	66	66	60	69	72	71	81	85	87	75
18	88	83	77	72	70	63	72	76	77	85	87	87	78
19	89	86	78	76	75	71	77	81	81	87	89	88	82
20	89	89	82	78	79	78	81	84	86	89	90	90	85
21	90	89	83	80	82	82	84	87	88	89	90	89	86
22	90	90	83	83	84	86	85	89	89	90	90	90	87
23	91	91	85	84	87	88	90	90	90	91	91	90	89
24	93	91	86	86	88	90	91	91	92	92	92	90	90
Means 0h.–23h.	89	88	80	77	79	76	79	82	81	86	89	88	83
Means 1h.–24h.	89	87	80	77	79	77	79	82	81	86	89	88	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 1891.

Month, 1891.	Registered Duration of Sunshine in the Hour ending																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.
	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon.	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.				
	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h		°
January ...	...	...	...	...	0·1	2·4	8·2	10·0	9·0	8·5	3·2	1·3	...	...	...	...	42·7	259·1	0·165	18
February ...	...	...	...	0·3	2·4	6·1	8·4	10·2	11·6	14·2	11·7	5·7	0·1	...	...	...	70·7	277·9	0·254	26
March	...	...	0·5	5·8	7·8	9·6	9·2	9·8	9·6	9·1	5·7	5·8	2·8	0·7	...	...	76·4	366·9	0·208	37
April.....	...	0·8	5·2	9·5	10·1	10·5	10·8	11·2	10·1	9·8	10·6	9·2	8·7	5·6	1·1	...	113·2	414·9	0·273	48
May	0·4	4·6	8·8	10·3	11·5	12·1	11·4	13·9	13·1	13·2	11·8	12·5	12·4	8·2	4·3	...	148·5	482·1	0·308	57
June	0·1	4·4	6·8	8·7	10·2	11·9	11·9	12·3	14·4	14·7	16·4	15·9	15·0	11·3	7·6	1·2	162·8	494·5	0·329	62
July	0·6	7·9	10·7	12·0	13·1	14·3	12·6	10·6	10·7	10·6	10·7	10·8	9·5	11·8	5·1	0·7	151·7	496·8	0·305	60
August	...	2·1	8·8	12·7	11·3	11·6	13·7	11·7	10·1	10·5	10·3	9·9	7·8	5·7	1·3	...	127·5	449·1	0·284	52
September ..	...	...	2·1	9·4	15·4	17·1	19·0	15·2	13·5	14·2	14·0	14·5	11·2	5·7	...	...	151·3	376·9	0·401	41
October.....	...	...	...	3·1	10·1	15·0	14·5	15·2	14·6	12·9	11·7	11·7	3·3	...	...	...	112·1	328·7	0·341	30
November...	...	...	...	...	1·4	3·2	4·5	6·3	6·8	5·6	3·5	1·1	...	...	...	...	32·4	264·4	0·123	20
December...	...	...	...	...	...	3·0	4·5	6·9	8·8	6·8	2·8	...	...	...	...	...	32·8	242·7	0·135	16
For the Year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1222·1	4454·0	0·274	...

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 1891.

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

[Observations of the maximum and minimum thermometers only have been made on Sundays, Good Friday, Christmas Day, and Public Holidays.]

JANUARY.

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.	9h	Noon	15h	21h	Maximum.	Minimum.	9h	Noon	15h	21h		Maximum.	Minimum.	9h	Noon	15h	21h	Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	36·5	30·2	33·7	34·6	35·1	30·8	−0·8	0·0	0·0	−0·2	0·0	+0·3	1	37·6	30·0	33·8	35·1	35·3	30·7	+0·3	−0·2	+0·1	+0·3	+0·2	+0·2
2	31·4	24·9	26·4	28·6	29·2	27·9	+0·3	−0·6	−0·4	−0·3	−0·3	−0·1	2	31·1	25·1	26·8	28·8	29·2	28·3	0·0	−0·4	0·0	−0·1	−0·3	+0·3
3	35·4	24·0	26·0	29·9	32·9	34·7	−0·1	−0·7	−0·7	−0·5	−0·2	−0·1	3	35·8	24·1	26·5	30·4	33·5	35·2	+0·3	−0·6	−0·2	0·0	+0·4	+0·4
4	37·1	32·0	...	...	...	...	−0·2	−0·5	...	...	...	...	4	37·9	32·0	...	...	...	...	+0·6	−0·5	...	...	...	...
5	35·4	28·1	29·1	33·9	34·4	29·5	0·0	−0·1	0·0	+0·2	−0·1	−0·3	5	36·0	27·8	29·2	33·8	34·4	29·6	+0·6	−0·4	+0·1	+0·1	−0·1	−0·2
6	29·7	23·4	25·2	29·2	29·0	25·6	−0·4	−0·1	−0·2	−0·2	−0·2	−0·3	6	30·5	23·8	25·7	29·1	28·9	26·2	+0·4	+0·3	+0·3	−0·3	−0·3	+0·3
7	31·5	23·0	23·6	30·1	30·3	30·2	−0·3	−0·3	−0·2	−0·5	−0·1	−0·1	7	31·6	23·0	23·8	30·6	30·3	30·4	−0·2	−0·3	0·0	0·0	−0·1	+0·1
8	32·1	23·1	25·9	25·1	31·1	29·4	+0·3	−0·2	0·0	+0·2	+0·6	0·0	8	32·8	24·0	28·1	26·9	31·4	29·6	+1·0	+0·7	+2·2	+2·0	+0·9	+0·2
9	33·1	21·0	27·0	29·9	28·9	23·8	+1·0	+0·5	−0·5	−0·9	+0·3	−0·2	9	32·5	21·0	27·8	30·8	29·3	23·8	+0·4	+0·5	+0·3	0·0	+0·7	−0·2
10	25·3	11·4	14·7	18·4	23·9	20·9	+0·9	−0·6	−0·7	−0·7	+0·1	+0·4	10	28·6	11·4	15·2	20·3	26·7	23·6	+4·2	−0·6	−0·2	+1·2	+2·9	+3·1
11	28·1	16·5	...	...	...	...	−0·2	−0·4	...	...	...	...	11	29·6	17·3	...	...	...	...	+1·3	+0·4	...	...	...	...
12	40·0	19·4	27·2	34·9	37·4	38·7	−0·1	−1·0	−0·3	0·0	+0·1	−0·1	12	41·6	20·3	27·2	34·9	37·4	39·4	+1·5	−0·1	−0·3	0·0	+0·1	+0·6
13	40·5	37·6	38·5	39·2	39·1	38·6	+0·4	−0·2	−0·2	+0·1	0·0	+0·3	13	40·8	38·1	39·1	39·1	39·1	39·0	+0·7	+0·3	+0·4	0·0	0·0	+0·7
14	40·2	33·3	35·7	38·3	37·0	33·9	−0·3	−0·2	+0·3	+0·1	+0·2	−0·1	14	40·9	33·2	35·6	38·2	37·0	33·8	+0·4	−0·3	+0·2	0·0	+0·2	−0·2
15	35·2	29·4	30·8	32·4	34·4	32·1	0·0	−0·3	−0·2	−0·3	−0·1	0·0	15	35·8	29·4	32·1	32·8	34·8	32·2	+0·6	−0·3	+1·1	+0·1	+0·3	+0·1
16	37·3	26·0	31·4	31·1	30·7	27·0	0·0	+0·2	+0·1	−0·4	−0·1	0·0	16	37·8	26·0	31·3	31·4	30·8	27·5	+0·5	+0·2	0·0	−0·1	0·0	+0·5
17	28·1	20·9	25·9	26·7	25·9	21·5	−0·8	0·0	−0·1	−0·2	0·0	+0·6	17	27·6	20·8	25·9	26·2	25·6	21·4	−1·3	−0·1	−0·1	−0·7	−0·3	+0·5
18	29·9	20·1	...	...	...	...	−0·2	0·0	...	...	...	...	18	29·4	20·0	...	...	...	...	−0·7	−0·1	...	...	...	...
19	29·2	21·9	24·9	24·9	28·9	26·5	+0·5	−0·2	−0·5	−0·4	+0·7	−0·3	19	29·8	22·0	25·5	25·3	28·3	27·1	+1·1	−0·1	+0·1	0·0	+0·1	+0·3
20	43·5	26·0	36·9	41·6	41·6	43·2	−0·3	−0·6	+0·1	+0·1	+0·2	+0·3	20	44·2	27·0	37·8	42·3	42·3	43·8	+0·4	+0·4	+1·0	+0·8	+0·9	+0·9
21	43·7	31·0	32·3	37·6	38·0	32·3	0·0	−0·2	0·0	+0·1	+0·2	+0·4	21	44·4	30·9	31·9	37·8	37·9	33·2	+0·7	−0·3	−0·4	+0·3	+0·1	+1·3
22	41·6	29·7	36·2	41·0	40·6	34·9	0·0	0·0	+0·1	+0·2	+0·7	+0·6	22	42·4	29·5	36·8	41·1	41·3	35·8	+0·8	−0·2	+0·7	+0·3	+1·4	+1·5
23	48·1	33·0	41·9	47·5	47·6	48·1	−0·5	−0·9	+0·1	+0·2	+0·3	+0·3	23	48·6	33·0	42·8	48·3	48·3	48·6	0·0	−0·9	+1·0	+1·0	+1·0	+0·8
24	48·2	39·9	47·9	47·9	47·3	40·2	−0·5	+0·4	+0·1	+0·1	c·0	+0·4	24	48·9	39·9	48·7	48·2	47·8	40·5	+0·2	+0·4	+0·9	+0·4	+0·5	+0·7
25	45·1	35·1	...	...	...	...	+0·4	+0·1	...	...	..	...	25	45·6	34·9	...	...	...	.	+0·9	−0·1	...	...	...	...
26	47·1	38·1	41·1	45·6	44·7	40·2	0·0	+0·6	−0·2	−0·1	+0·4	+0·2	26	47·1	38·1	41·8	46·2	44·9	40·2	0·0	+0·6	+0·5	+0·5	+0·6	+0·2
27	47·2	39·9	43·8	44·8	45·1	44·9	−1·2	+0·7	+0·2	+0·1	0·0	+0·1	27	47·8	40·2	44·8	44·8	45·5	45·4	−0·6	+1·0	+1·2	+0·1	+0·4	+0·6
28	50·1	44·0	45·0	47·4	48·6	46·8	−0·8	+0·4	0·0	0·0	+0·2	0·0	28	50·6	44·3	45·8	47·6	48·8	47·1	−0·3	+0·7	+0·8	+0·2	+0·4	+0·3
29	47·3	44·7	46·3	46·0	47·2	46·0	−0·6	−1·0	0·0	−0·5	−0·3	−0·3	29	47·8	46·2	46·8	46·8	47·8	46·8	−0·1	+0·5	+0·5	+0·3	+0·3	+0·5
30	51·4	39·2	42·0	47·9	51·0	42·1	−0·9	+0·6	+0·2	+0·1	+0·2	+0·4	30	52·3	40·1	43·8	47·9	51·5	42·8	0·0	+1·5	+2·0	+0·1	+0·7	+1·1
31	51·7	41·5	45·0	50·1	51·1	45·1	−1·2	+0·5	0·0	+0·2	+0·3	+0·3	31	52·1	42·1	45·8	50·1	51·5	45·5	−0·8	+1·1	+0·8	+0·2	+0·7	+0·7
Means	38·7	29·3	33·5	36·5	37·4	34·6	−0·2	−0·1	−0·1	−0·1	+0·1	+0·1	Means	39·3	29·5	34·1	36·8	37·8	35·1	+0·4	+0·1	+0·5	+0·2	+0·4	+0·6

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

FEBRUARY.

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.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	46·6	40·2	...	...	...	...	+0·5	+0·5	...	...	...	...	1	46·9	40·3	...	...	...	...	+0·8	+0·6	...	...	...	...
2	48·1	30·5	35·6	44·9	47·2	45·0	−1·0	+0·3	−0·2	+0·1	+0·3	+0·2	2	48·7	31·0	37·3	44·8	47·1	45·4	−0·4	+0·8	+1·5	0·0	+0·2	+0·6
3	47·8	43·1	44·2	46·3	47·7	44·8	−1·2	−0·2	0·0	0·0	0·0	+0·2	3	47·8	43·3	44·4	46·3	47·8	44·9	−1·2	0·0	+0·2	0·0	+0·1	+0·3
4	47·1	34·7	46·9	43·2	47·1	34·9	−0·2	+0·7	+0·1	−0·1	+0·4	+0·2	4	47·3	35·1	47·0	43·0	46·5	36·1	0·0	+1·1	+0·2	−0·3	−0·2	+1·4
5	44·3	29·6	39·9	42·9	43·9	40·1	−0·4	0·0	+0·1	−0·2	+0·6	+0·3	5	45·1	30·3	40·0	43·4	44·1	40·8	+0·4	+0·7	+0·2	+0·3	+0·8	+1·0
6	44·7	34·3	36·3	44·3	44·7	42·3	−0·4	0·0	−0·2	+0·1	+0·3	+0·1	6	45·6	34·5	36·8	44·7	44·8	42·2	+0·5	+0·2	+0·3	+0·5	+0·4	0·0
7	45·1	39·5	41·0	44·3	44·9	39·9	−1·3	−0·1	+0·1	−0·1	−0·1	+0·1	7	46·7	39·3	41·5	44·3	45·1	39·8	+0·3	−0·3	+0·6	−0·1	+0·1	0·0
8	44·0	33·6	...	...	...	...	−0·9	+0·4	...	...	...	...	8	44·7	33·0	...	...	...	...	−0·2	−0·2	...	...	...	...
9	38·2	34·1	35·9	37·9	36·9	34·9	−0·4	+0·8	−0·1	−0·2	−0·2	0·0	9	38·2	34·0	36·0	37·9	36·9	34·9	−0·4	+0·7	0·0	−0·2	−0·2	0·0
10	42·3	31·2	34·0	39·9	42·2	36·8	−0·5	+0·1	−0·2	−0·1	+0·4	0·0	10	42·8	32·1	34·6	39·7	42·5	36·8	0·0	+1·0	+0·4	−0·3	+0·7	0·0
11	48·4	32·9	36·8	46·0	46·4	43·6	−0·9	+0·2	+0·2	−0·3	+0·3	+0·3	11	48·1	32·2	37·0	45·8	46·6	43·7	−1·2	−0·5	+0·4	−0·5	+0·5	+0·4
12	47·1	38·2	42·5	45·9	44·8	38·4	−1·3	+1·0	+0·2	−0·3	0·0	+0·4	12	47·1	39·1	42·4	45·8	44·8	40·0	−1·3	+1·9	+0·1	−0·4	0·0	+2·0
13	44·7	32·1	37·3	44·4	42·4	33·1	−1·2	+0·3	0·0	+0·4	+0·1	+0·3	13	44·1	32·6	37·5	43·6	42·2	33·2	−1·8	+0·8	+0·2	−0·4	−0·1	+0·4
14	43·6	30·0	37·9	42·4	42·9	40·9	−1·4	+0·4	−0·2	−0·4	−0·1	−0·1	14	43·9	30·8	39·1	42·6	43·0	41·3	−1·1	+1·2	+1·0	−0·2	0·0	+0·3
15	48·6	39·9	...	...	...	...	−1·4	+0·2	...	...	...	...	15	50·3	39·2	...	...	...	...	+0·3	−0·5	...	...	...	...
16	50·7	34·1	38·1	48·2	50·7	40·3	+0·3	+0·4	+0·1	+0·3	+0·9	0·0	16	50·9	34·1	39·0	47·9	50·9	40·4	+0·5	+0·4	+1·0	0·0	+1·1	+0·1
17	42·7	32·8	36·0	37·9	41·9	36·9	+1·0	0·0	−0·1	−0·9	+1·0	+0·4	17	44·6	33·1	36·7	39·8	42·8	38·8	+2·9	+0·3	+0·6	+1·0	+1·9	+2·3
18	44·5	28·1	30·7	37·4	43·9	31·0	+0·4	−0·4	−0·1	+0·1	+0·7	−0·1	18	44·6	28·0	30·8	37·3	43·7	31·5	+0·5	−0·5	0·0	0·0	+0·5	+0·4
19	35·2	28·9	33·3	34·4	35·1	32·9	−0·9	−0·5	−0·2	−0·4	−0·3	0·0	19	35·7	29·2	33·4	34·8	35·2	32·8	−0·4	−0·2	−0·1	0·0	−0·2	−0·1
20	37·1	32·0	33·0	34·9	36·8	33·0	−1·1	−0·3	−0·2	−0·3	0·0	0·0	20	38·1	32·1	33·1	35·0	37·2	33·5	−0·1	−0·2	−0·1	−0·2	+0·4	+0·5
21	36·1	29·1	30·1	32·5	35·5	34·1	−0·3	−0·6	−0·2	−0·3	−0·1	+0·1	21	36·3	29·3	30·2	32·9	35·9	34·1	−0·1	−0·4	−0·1	+0·1	+0·3	+0·1
22	41·1	30·2	...	...	...	...	−0·8	−0·6	...	...	...	...	22	42·6	30·6	...	...	...	...	+0·7	−0·2	...	...	...	...
23	39·4	25·8	28·9	31·8	38·9	30·9	−0·1	−0·4	−0·3	−0·7	+0·1	0·0	23	39·7	26·0	29·3	32·3	39·0	31·0	+0·2	−0·2	+0·1	−0·2	+0·2	−0·1
24	41·1	27·1	28·2	32·5	41·1	31·9	−1·8	−0·6	−0·3	−0·7	−0·5	−0·1	24	41·8	27·6	28·6	32·9	41·8	32·6	−1·1	−0·1	+0·1	−0·3	+0·2	+0·6
25	51·9	26·1	27·9	44·3	51·9	34·5	−0·1	−0·6	−0·1	−0·7	+0·3	−0·3	25	52·2	26·0	28·3	44·4	51·7	34·9	+0·2	−0·7	+0·3	−0·6	+0·1	+0·1
26	58·6	25·3	...	...	...	...	+0·6	−0·6	...	...	...	...	26	57·8	25·3	...	...	...	...	−0·2	−0·6	...	...	...	...
27	61·7	32·3	38·8	59·9	59·7	40·0	−0·4	+0·2	+0·4	+0·9	+0·6	+0·1	27	62·3	32·0	38·4	59·1	60·2	40·9	+0·2	−0·1	0·0	+0·1	+1·1	+1·0
28	61·5	28·2	33·9	54·2	61·3	50·1	+0·4	+0·1	+0·2	+0·1	+0·9	+0·3	28	62·7	28·5	36·2	55·3	62·4	51·8	+1·6	+0·4	+2·5	+1·2	+2·0	+2·0
Means	45·8	32·3	36 0	42·2	44·7	37·8	−0·5	0·0	0·0	−0·2	+0·2	+0·1	Means	46·3	32·5	36·4	42·3	44·9	38·3	0·0	+0·2	+0·4	0·0	+0·4	+0·6

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.						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		Maximum.	Minimum.	9h	Noon	15h	21h	Maximum.	Minimum.	9h	Noon	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	54·8	43·2	...	...	...	...	−0·9	+0·6	...	...	...	...	1	54·7	42·7	...	...	...	...	−1·0	+0·1	...	...	...	...
2	58·2	48·1	49·9	54·7	56·0	48·2	−1·4	+0·5	−0·1	−0·4	−0·1	+0·1	2	58·5	48·0	50·0	54·4	55·8	48·4	−1·1	+0·4	0·0	−0·7	−0·3	+0·3
3	49·7	35·4	40·1	46·9	47·1	42·4	+1·3	+0·2	−0·3	+0·1	+0·1	+0·1	3	48·3	34·8	40·1	45·7	47·1	42·8	−0·1	−0·4	−0·3	−1·1	+0·1	+0·5
4	49·7	36·5	43·9	48·9	48·7	46·8	−0·6	+0·2	0·0	−0·1	−0·1	+0·2	4	50·0	36·1	44·0	49·1	48·8	47·0	−0·3	−0·2	+0·1	+0·1	0·0	+0·4
5	55·7	45·5	50·0	53·9	55·7	45·7	−1·4	+0·6	−0·2	−0·1	−0·1	+0·5	5	56·1	45·0	49·9	53·8	55·7	45·7	−1·0	+0·1	−0·3	−0·2	−0·1	+0·5
6	54·0	38·0	41·9	50·6	53·3	44·9	−1·4	+0·3	−0·3	−0·4	−0·2	+0·3	6	53·7	37·7	41·7	49·8	53·3	44·9	−1·7	0·0	−0·5	−1·2	−0·2	+0·3
7	50·2	43·1	46·4	48·7	45·1	44·2	−1·0	+0·6	−0·3	−0·2	+0·1	+0·1	7	50·2	42·7	46·5	48·8	44·8	44·8	−1·0	+0·2	−0·2	−0·1	−0·2	+0·7
8	44·5	35·3	...	...	...	...	−0·4	−0·4	...	...	...	...	8	45·0	35·1	...	...	...	...	+0·1	−0·6	...	...	...	...
9	38·3	29·0	36·0	38·0	36·9	29·9	−1·1	+0·2	−0·3	0·0	−0·1	0·0	9	39·1	29·1	36·2	38·3	37·0	29·9	−0·3	+0·3	−0·1	+0·3	0·0	0·0
10	33·6	28·5	30·9	33·5	33·6	31·6	−0·6	−0·5	−0·4	−0·5	−0·6	−0·2	10	33·5	28·7	30·8	33·1	33·5	31·7	−0·7	−0·3	−0·5	−0·9	−0·7	−0·1
11	38·1	30·2	32·9	36·5	37·4	33·1	−2·1	−0·4	−0·9	−0·4	+0·1	+0·1	11	37·4	30·2	32·0	34·5	37·2	32·8	−2·8	−0·4	−1·8	−2·4	−0·1	−0·2
12	39·5	23·3	27·1	39·5	38·8	33·9	−1·8	+0·2	−0·1	+0·6	−0·7	−0·2	12	39·7	23·5	27·7	37·7	38·8	34·7	−1·6	+0·4	+0·5	−1·2	−0·7	+0·6
13	44·1	33·2	37·1	42·9	42·5	36·2	−1·1	0·0	−0·3	0·0	−0·3	−0·4	13	44·7	33·4	37·6	42·8	43·0	36·4	−0·5	+0·2	+0·2	−0·1	+0·2	−0·2
14	44·1	35·9	39·3	42·8	43·9	40·2	−1·1	0·0	−0·3	−0·1	+0·1	+0·1	14	44·6	34·9	38·9	42·0	43·9	40·3	−0·6	−1·0	−0·7	−0·9	+0·1	+0·2
15	43·2	32·3	...	...	...	...	−2·2	+0·1	...	...	...	...	15	44·5	32·1	...	...	...	...	−0·9	−0·1	...	...	...	...
16	45·9	35·9	40·9	43·9	44·8	37·8	−1·5	+0·4	−0·2	−0·1	0·0	+0·2	16	46·1	36·2	41·6	45·0	44·9	37·4	−1·3	+0·7	+0·5	+1·0	+0·1	−0·2
17	45·0	37·1	40·7	42·7	44·6	44·6	−0·9	−0·2	−0·1	−0·1	−0·1	0·0	17	45·5	37·0	40·6	43·1	44·5	44·6	−0·4	−0·3	−0·2	+0·3	−0·2	0·0
18	45·3	36·2	41·6	41·1	44·8	36·5	+0·1	+0·1	0·0	−0·2	0·0	−0·1	18	45·0	36·1	41·7	41·2	44·8	36·5	−0·2	0·0	+0·1	−0·1	0·0	−0·1
19	45·2	34·3	39·9	40·9	38·6	36·1	−1·1	0·0	−0·1	−0·2	−0·2	−0·1	19	43·7	34·4	39·8	40·8	37·9	36·4	−2·6	+0·1	−0·2	−0·3	−0·9	+0·2
20	45·1	32·9	37·9	38·7	43·9	37·7	−0·8	−0·2	−0·5	−0·1	+0·3	−0·1	20	45·7	32·8	37·7	38·6	42·9	37·8	−0·2	−0·3	−0·7	−0·2	−0·7	0·0
21	41·9	31·2	37·3	38·9	40·3	32·1	−1·2	0·0	−0·1	+0·1	0·0	+0·3	21	40·9	31·0	36·8	36·4	39·0	32·1	−2·2	−0·2	−0·6	−2·4	−1·3	+0·3
22	42·6	23·4	...	...	...	...	−0·9	0·0	...	...	...	...	22	42·4	22·3	...	...	...	...	−1·1	−1·1	...	...	...	...
23	45·0	32·0	35·6	40·1	44·9	32·9	−1·2	−0·1	−0·2	−0·7	−0·1	+0·2	23	45·5	32·1	35·5	41·4	45·0	34·6	−0·7	0·0	−0·3	+0·6	0·0	+1·9
24	50·0	32·0	44·9	48·8	48·0	43·5	−2·0	+0·2	−0·6	+0·3	+0·2	+0·1	24	49·8	33·2	44·9	48·6	48·6	43·8	−2·2	+1·4	−0·6	+0·1	+0·8	+0·4
25	56·2	43·2	50·0	51·9	52·0	45·9	−1·8	+0·3	−0·8	−0·1	0·0	+0·4	25	56·0	43·1	50·0	51·8	52·2	46·1	−2·0	+0·2	−0·8	−0·2	+0·2	+0·6
26	47·2	34·7	41·7	46·9	44·7	35·1	−1·8	+0·4	−0·5	0·0	+0·2	+0·2	26	46·8	33·8	41·6	46·5	43·8	35·5	−2·2	−0·5	−0·6	−0·4	−0·7	+0·6
27	44·6	32·8	...	...	...	...	−2·0	+0·3	...	...	...	...	27	44·6	32·2	...	...	...	...	−2·0	−0·3	...	...	...	...
28	47·2	33·6	42·1	43·7	47·2	42·4	−0·7	+0·3	0·0	−0·1	−0·1	+0·4	28	47·0	33·1	41·9	44·0	46·8	41·8	−0·9	−0·2	−0·2	+0·2	−0·5	−0·2
29	51·2	36·4	...	...	...	...	−2·0	+0·3	...	...	...	...	29	49·5	36·1	...	...	...	...	−3·7	0·0	...	...	...	...
30	44·5	31·6	...	...	...	...	−1·6	+0·3	...	...	...	...	30	44·7	32·0	...	...	...	...	−1·4	+0·7	...	...	...	...
31	48·2	30·7	41·6	47·3	44·9	34·0	−2·0	+0·4	+1·0	+1·0	0·0	−0·1	31	46·8	30·2	38·7	46·3	44·7	35·9	−3·4	−0·1	−1·9	0·0	−0·2	+1·8
Means	46·5	34·7	40·4	44·2	44·9	39·0	−1·2	+0·2	−0·2	−0·1	−0·1	+0·1	Means	46·5	34·5	40·3	43·9	44·8	39·2	−1·3	0·0	−0·4	−0·4	−0·2	+0·3

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

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.						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		Maximum	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	50·0	29·0	40·6	50·0	44·7	36·9	−1·3	0·0	+0·8	+0·4	0·0	+0·1	1	49·6	29·9	41·3	48·2	45·0	37·8	−1·7	+0·9	+1·5	−1·4	+0·3	+1·0
2	46·1	34·2	42·9	45·9	45·6	40·0	−1·8	+0·1	−0·2	−0·7	+0·1	0·0	2	46·5	34·1	42·8	45·9	45·3	40·0	−1·4	0·0	−0·3	−0·7	−0·2	0·0
3	49·0	37·2	40·9	45·7	47·9	43·0	−1·4	0·0	−0·6	−0·6	−0·1	−0·3	3	50·3	37·1	41·2	46·3	48·4	42·7	−0·1	−0·1	−0·3	0·0	+0·4	−0·6
4	53·0	39·6	45·3	51·5	51·2	45·2	−1·8	+0·3	−0·4	−0·3	−0·2	−0·2	4	53·4	39·1	45·8	52·2	51·3	45·6	−1·4	−0·2	+0·1	+0·4	−0·1	+0·2
5	55·2	40·3	...	...	...	...	−1·8	+0·2	...	...	...	...	5	55·6	39·7	...	...	...	...	−1·4	−0·4	...	...	...	...
6	57·5	40·1	49·4	55·9	54·8	44·8	−2·9	+0·4	−0·4	−0·8	−0·3	+0·4	6	57·5	40·0	49·5	54·7	54·8	44·8	−2·9	+0·3	−0·3	−2·0	−0·3	+0·4
7	45·1	38·4	40·4	41·9	40·9	38·9	−0·8	−0·1	−0·4	+0·1	0·0	+0·1	7	45·1	37·1	40·3	41·8	40·8	37·5	−0·8	−1·4	−0·5	0·0	−0·1	−1·3
8	45·9	33·4	40·6	42·5	45·9	40·5	−0·9	+0·1	−0·3	0·0	0·0	−0·3	8	45·3	33·5	39·8	42·3	44·8	40·6	−1·5	+0·2	−1·1	−0·2	−1·1	−0·2
9	42·2	37·8	39·9	42·1	42·1	40·9	−0·9	−0·1	−0·5	−0·4	−0·1	0·0	9	42·2	37·6	39·3	41·0	41·4	40·8	−0·9	−0·3	−1·1	−1·5	−0·8	−0·1
10	49·1	39·3	42·1	48·9	49·0	39·9	−1·5	+0·2	−0·5	−0·2	+0·2	+0·1	10	50·4	38·9	44·0	48·7	49·5	39·8	−0·2	−0·2	+1·4	−0·4	+0·7	0·0
11	50·1	36·8	39·9	42·0	48·3	36·9	+0·7	+0·3	−0·2	−0·3	−0·6	−0·1	11	49·7	36·2	39·8	41·9	49·1	36·8	+0·3	−0·3	−0·3	−0·4	+0·2	−0·2
12	49·4	34·7	...	...	...	...	−2·7	0·0	...	...	...	...	12	49·5	34·0	...	...	...	.	−2·6	−0·7	...	...	...	...
13	45·3	33·4	43·5	43·4	44·9	39·9	−1·6	+0·3	−0·3	−0·5	−0·3	+0·1	13	45·6	33·1	43·8	43·8	44·1	39·8	−1·3	0·0	0·0	−0·1	−1·1	0·0
14	49·2	31·2	42·4	48·5	47·9	42·3	−2·2	+0·4	0·0	−0·5	−0·1	+0·3	14	48·8	31·8	41·6	47·4	47·6	42·5	−2·6	+1·0	−0·8	−1·6	−0·4	+0·5
15	58·2	38·9	43·7	50·8	53·6	49·2	+1·1	+0·7	−0·2	−0·5	+0·8	+1·3	15	55·4	38·9	44·0	50·3	53·6	48·8	−1·7	+0·7	+0·1	−1·0	+0·8	+0·9
16	55·3	40·4	49·8	52·1	54·1	49·9	−1·4	+1·0	+0·1	+0·2	0·0	+0·8	16	54·9	40·2	49·7	52·5	54·0	50·3	−1·8	+0·8	0·0	+0·6	−0·1	+1·2
17	53·0	38·8	47·1	52·0	50·8	43·4	−1·6	+0·4	−0·1	+0·2	−0·3	−0·1	17	52·2	39·0	44·8	49·3	49·9	43·3	−2·4	+0·6	−2·4	−2·5	−1·2	−0·2
18	55·8	32·7	48·6	53·5	53·2	42·6	−2·4	+0·6	+0·8	0·0	+0·4	−0·4	18	54·9	32·8	47·8	52·7	54·4	42·4	−3·3	+0·7	0·0	−0·8	+1·6	−0·6
19	48·1	34·1	...	...	...	...	−1·5	+0·4	...	...	...	...	19	49·5	33·6	...	...	...	...	−0·1	−0·1	...	...	...	...
20	48·4	36·7	42·4	46·9	46·7	38·9	−2·0	+0·5	−0·2	−0·3	−0·3	+0·3	20	49·7	35·9	42·7	47·3	47·5	38·8	−0·7	−0·3	+0·1	+0·1	+0·5	+0·2
21	54·8	36·7	50·5	54·6	53·7	40·7	−1·3	+0·7	−0·2	−0·6	−0·1	+0·1	21	55·7	36·1	49·8	53·9	53·8	40·6	−0·4	+0·1	−0·9	−1·3	0·0	0·0
22	51·2	37·7	44·5	49·8	48·5	44·0	−2·4	−0·3	−0·2	−0·2	−0·3	+0·1	22	52·7	38·0	44·9	50·6	49·0	43·8	−0·9	0·0	+0·2	+0·6	+0·2	−0·1
23	55·9	40·2	51·6	54·7	54·9	43·6	−2·1	+2·3	+0·2	−0·2	+0·1	0·0	23	57·2	37·6	50·8	54·8	54·8	43·2	−0·8	−0·3	−0·6	−0·1	0·0	−0·4
24	55·3	34·4	47·6	54·9	53·3	44·9	−1·7	+0·1	−0·1	−1·2	0·0	+0·2	24	55·3	34·0	45·5	53·5	53·1	44·6	−1·7	−0·3	−2·2	−2·6	−0·2	−0·1
25	49·1	37·0	43·0	48·2	45·4	43·0	−1·7	+0·4	0·0	−0·6	−0·2	+0·2	25	50·1	36·8	42·7	49·1	45·8	42·8	−0·7	+0·2	−0·3	+0·3	+0·2	0·0
26	52·0	32·3	...	...	...	...	−1·2	+0·5	...	...	...	...	26	52·7	32·0	...	...	...	...	−0·5	+0·2	...	...	...	...
27	58·4	32·7	51·0	57·1	55·4	45·6	−1·3	+0·6	+0·2	−0·7	−0·5	+0·1	27	59·8	31·8	50·7	56·4	56·0	45·5	+0·1	−0·3	−0·1	−1·4	+0·1	0·0
28	63·2	41·5	52·8	60·2	61·8	49·0	−2·3	+0·6	+1·1	+0·2	−0·5	+0·2	28	62·7	41·9	52·7	58·5	60·8	48·6	−2·8	+1·0	+1·0	−1·5	−1·5	−0·2
29	54·2	37·7	49·0	51·1	52·9	49·9	−1·8	+0·4	−0·1	−0·3	−0·8	0·0	29	54·3	37·3	49·8	51·5	53·0	50·4	−1·7	0·0	+0·7	+0·1	−0·7	+0·5
30	64·4	46·1	54·9	62·3	60·2	54·6	−2·2	+0·3	−0·1	−0·9	−0·6	+0·3	30	64·1	45·1	55·2	61·8	60·3	54·8	−2·5	−0·7	+0·2	−1·4	−0·5	+0·5
Means	52·1	36·8	45·6	50·3	50·3	43·4	−1·6	+0·4	−0·1	−0·3	−0·1	+0·1	Means	52·4	36·4	45·4	49·9	50·3	43·3	−1·3	0·0	−0·2	−0·7	−0·1	+0·1

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.						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.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	60·2	51·1	55·5	54·5	60·2	51·3	−1·5	+0·8	−0·2	0·0	−0·9	+0·5	1	60·4	50·9	56·0	54·8	59·9	51·2	−1·3	+0·6	+0·3	+0·3	−1·2	+0·4
2	58·9	44·7	50·7	54·9	49·8	45·7	−1·9	+0·6	−0·1	+0·7	−0·5	−0·1	2	58·6	44·1	51·6	53·8	49·8	45·8	−2·2	0·0	+0·8	−0·4	−0·5	0·0
3	58·1	35·9	...	...	...	...	−3·1	+0·6	...	...	...	...	3	57·8	36·1	...	...	...	...	−3·4	+0·8	...	...	...	...
4	58·4	41·3	54·8	54·3	55·7	51·9	−2·0	+0·9	−1·0	+0·4	−0·1	−0·5	4	57·3	41·2	53·8	54·7	56·0	52·8	−3·1	+0·8	−2·0	+0·8	+0·2	+0·4
5	57·9	44·6	51·5	57·4	57·9	44·6	−1·5	+0·4	−0·3	−0·8	0·0	0·0	5	59·1	44·4	51·8	56·4	57·8	44·5	−0·3	+0·2	0·0	−1·8	−0·1	−0·1
6	64·2	39·3	47·9	61·2	62·2	50·5	−2·0	+0·7	−0·2	−0·2	+0·1	+0·3	6	65·2	38·9	47·1	60·2	63·5	50·3	−1·0	+0·3	−1·0	−1·2	+1·4	+0·1
7	65·9	45·8	59·6	62·8	65·9	52·9	−2·1	+0·4	+0·8	+0·4	+0·4	+0·1	7	65·6	45·1	57·0	61·6	64·2	53·2	−2·4	−0·3	−1·8	−0·8	−1·3	+0·4
8	58·9	44·5	55·1	56·7	58·7	52·4	−2·2	+0·9	−0·5	−0·6	−0·1	0·0	8	59·7	44·1	55·4	57·6	59·2	52·5	−1·4	+0·5	−0·2	+0·3	+0·4	+0·1
9	57·5	45·8	54·7	55·1	53·8	47·1	−2·8	+1·3	−0·8	+0·1	−0·3	−0·1	9	56·9	44·7	53·1	54·8	53·8	46·8	−3·4	+0·2	−2·4	−0·2	−0·3	−0·4
10	51·0	46·5	...	...	...	...	−0·6	+0·1	...	...	...	...	10	50·5	46·0	...	...	...	...	−1·1	−0·4	...	...	...	...
11	72·5	47·6	59·2	70·7	69·9	54·9	−2·3	+0·3	0·0	+0·4	0·0	0·0	11	73·7	47·2	56·8	69·1	70·0	54·8	−1·1	−0·1	−2·4	−1·2	+0·1	−0·1
12	77·6	47·4	56·2	73·0	77·6	60·3	−1·3	+1·0	+0·3	0·0	−0·4	+0·3	12	76·9	46·3	54·1	70·1	76·5	61·0	−2·0	−0·1	−1·8	−2·9	−1·5	+1·0
13	78·7	50·9	64·9	75·7	77·6	64·6	−1·8	+1·1	−0·2	+0·1	−0·5	+0·2	13	78·3	50·7	64·8	74·1	76·9	64·9	−2·2	+0·9	−0·3	−1·5	−1·2	+0·5
14	68·1	51·8	59·9	63·1	66·1	53·8	−1·9	+1·2	+0·1	+0·3	+0·3	0·0	14	68·1	51·2	58·5	63·0	65·6	53·8	−1·9	+0·6	−1·3	+0·2	−0·2	0·0
15	56·6	42·4	53·3	56·6	52·9	43·9	−2·5	−0·1	−0·8	−1·2	+0·1	−0·2	15	54·9	39·5	52·0	54·7	51·7	42·5	−4·2	−3·0	−2·1	−3·1	−1·1	−1·6
16	48·6	35·1	43·0	46·9	39·7	36·0	−2·4	+0·2	−1·1	+0·1	−0·1	−0·4	16	48·7	33·5	43·4	45·8	38·0	35·1	−2·3	−1·4	−0·7	−1·0	−1·8	−1·3
17	51·3	30·9	...	...	...	...	−2·7	0·0	...	...	...	...	17	50·1	30·0	...	...	...	...	−3·9	−0·9	...	...	...	...
18	42·3	38·2	...	...	...	...	−0·2	−0·1	...	...	...	...	18	43·6	38·6	...	...	...	...	+1·1	+0·3	...	...	...	...
19	57·4	34·2	49·2	52·2	57·4	44·5	−1·6	+0·4	+1·1	−0·2	−0·1	+0·1	19	57·2	33·6	48·0	51·5	56·8	44·7	−1·8	−0·2	−0·1	−0·9	−0·7	+0·3
20	56·6	40·6	53·2	49·4	55·9	47·0	−2·6	+0·7	+0·3	−0·4	−0·4	+0·1	20	57·5	40·9	52·0	49·2	56·4	47·3	−1·7	+1·0	−0·9	−0·6	+0·1	+0·4
21	49·0	42·3	44·9	48·3	48·2	46·6	−1·3	−0·1	−0·3	−0·2	−0·3	+0·1	21	49·2	41·2	44·6	47·8	48·5	46·4	−1·1	−1·2	−0·6	−0·7	0·0	−0·1
22	58·0	44·5	48·6	54·2	51·1	45·1	−2·7	+0·2	−0·2	−0·8	−0·3	+0·3	22	57·5	44·0	48·3	54·8	50·8	45·5	−3·2	−0·3	−0·5	−0·2	−0·6	+0·7
23	57·7	42·7	49·2	52·4	55·7	49·1	−0·8	+0·8	+0·3	−0·4	+0·2	+0·3	23	58·5	42·2	48·8	52·7	56·8	50·5	0·0	+0·3	−0·1	−0·1	+1·3	+1·7
24	53·4	42·7	...	...	...	...	−2·8	+0·6	...	...	...	...	24	55·2	41·8	...	...	...	...	−1·0	−0·3	...	...	...	...
25	47·6	40·5	44·2	45·5	45·6	43·1	−2·0	−0·2	−0·4	−0·1	−0·1	+0·1	25	47·5	40·0	44·3	45·7	45·3	42·8	−2·1	−0·7	−0·3	+0·1	−0·4	−0·2
26	57·2	40·6	50·7	54·6	50·8	44·0	−2·7	+0·2	+0·1	−0·6	−0·7	+0·2	26	57·0	40·2	50·0	53·8	51·5	44·8	−2·9	−0·2	−0·6	−1·4	0·0	+1·0
27	61·1	38·4	52·8	48·9	55·8	46·7	−1·4	+0·4	0·0	−0·9	−0·6	+0·2	27	57·7	38·2	54·5	49·0	55·8	47·1	−4·8	+0·2	+1·7	−0·8	−0·6	+0·6
28	59·0	42·2	53·3	58·5	57·1	46·9	−2·7	+0·8	−0·8	−0·6	−0·4	+0·1	28	58·5	42·1	53·5	56·8	57·3	47·6	−3·2	+0·7	−0·6	−2·3	−0·2	+0·8
29	64·3	43·3	55·2	56·9	60·7	49·5	−3·0	+0·9	0·0	0·0	−1·0	−0·2	29	63·9	43·3	55·5	56·8	62·1	49·4	−3·4	+0·9	+0·3	−0·1	+0·4	−0·3
30	64·2	47·3	...	...	...	...	−1·4	+1·2	...	...	...	...	30	66·5	46·2	...	...	...	...	+0·9	+0·1	...	...	...	...
31	70·7	42·6	...	...	...	...	−1·3	+1·6	...	...	...	...	31	71·1	42·6	...	...	...	...	−0·9	+1·6	...	...	...	...
Means	59·4	42·8	52·8	56·8	57·8	48·9	−2·0	+0·6	−0·2	−0·2	−0·2	+0·1	Means	59·4	42·2	52·3	56·2	57·7	49·0	−2·0	0·0	−0·7	−0·8	−0·3	+0·2

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

JUNE.

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.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	71·2	49·5	66·6	70·6	70·2	58·4	−1·7	+1·1	+0·6	0·0	+0·2	0·0	1	70·7	48·9	66·0	69·8	69·3	58·6	−2·2	+0·5	0·0	−0·8	−0·7	+0·2
2	63·3	52·6	57·7	60·3	62·5	56·9	−2·8	+0·2	−0·6	−0·1	−0·3	0·0	2	64·6	52·4	57·8	60·9	63·5	57·6	−1·5	0·0	−0·5	+0·5	+0·7	+0·7
3	71·9	55·0	60·6	65·9	68·6	56·5	−1·9	+0·7	−0·3	+0·7	+0·2	−0·1	3	72·5	54·7	61·2	65·8	68·7	56·6	−1·3	+0·4	+0·3	+0·6	+0·3	0·0
4	67·0	53·9	57·1	61·2	60·7	57·0	−2·2	+0·6	0·0	−0·6	−0·1	+0·5	4	68·7	53·2	57·3	61·7	60·8	57·3	−0·5	−0·1	+0·2	−0·1	0·0	+0·8
5	71·4	50·0	63·9	66·7	69·8	54·5	−1·7	+0·6	+0·1	0·0	0·0	0·0	5	71·5	49·9	61·8	66·2	68·6	54·5	−1·6	+0·5	−2·0	−0·5	−1·2	0·0
6	65·1	51·3	56·9	59·9	64·6	52·8	−2·0	+0·5	−0·1	+0·1	−0·2	0·0	6	65·1	50·2	57·0	60·3	63·8	52·8	−2·0	−0·6	0·0	+0·5	−1·0	0·0
7	57·1	47·5	...	...	...	...	−1·9	+0·4	...	...	...	...	7	57·3	47·1	...	...	...	...	−1·7	0·0	...	...	...	...
8	62·9	46·8	57·2	61·8	58·8	55·8	−1·7	+0·3	+0·1	−0·1	−0·1	0·0	8	63·5	46·3	56·1	61·9	58·8	55·7	−1·1	−0·2	−1·0	0·0	−0·1	−0·1
9	59·8	48·9	58·2	57·5	57·7	48·9	−2·2	+0·9	−0·2	+0·4	−0·1	+0·2	9	60·2	48·1	57·4	57·0	57·4	48·8	−1·8	+0·1	−1·0	−0·1	−0·4	+0·1
10	67·1	44·2	57·1	64·5	66·2	51·6	−1·5	+0·8	+0·1	−0·3	−0·1	−0·5	10	65·8	42·9	56·3	62·3	64·8	52·0	−2·8	−0·5	−0·7	−2·5	−1·5	−0·1
11	61·3	45·3	52·1	56·9	61·3	50·2	−3·0	+0·8	−0·6	0·0	0·0	+0·4	11	61·6	44·2	51·8	54·6	60·4	50·7	−2·7	−0·3	−0·9	−2·3	−0·9	+0·9
12	64·1	41·8	50·8	55·6	63·6	49·9	−2·8	+0·8	0·0	+0·6	+1·0	−0·2	12	65·2	40·6	50·2	56·7	62·7	49·6	−1·7	−0·4	−0·6	+1·7	+0·1	−0·5
13	76·4	45·6	62·6	71·5	74·5	62·5	−1·7	+1·1	−0·2	+1·1	+0·7	+0·1	13	76·1	44·7	62·6	70·1	74·4	62·8	−2·0	+0·2	−0·2	−0·3	+0·6	+0·4
14	67·7	53·9	...	...	...	...	−2·3	+0·8	...	...	...	...	14	68·5	53·2	...	...	...	...	−1·5	+0·1	...	...	...	...
15	67·6	49·7	59·5	64·9	67·6	54·6	−3·1	+1·3	+0·1	+0·1	−0·2	+0·2	15	68·2	49·1	59·5	64·8	67·7	54·5	−2·5	+0·7	+0·1	0·0	−0·1	+0·1
16	68·3	49·6	58·5	62·4	68·3	57·0	−2·2	+0·7	0·0	−0·3	−0·5	+0·1	16	68·5	49·0	59·4	62·2	67·8	57·5	−2·0	+0·1	+0·9	−0·5	−1·0	+0·6
17	74·4	48·8	66·9	72·9	73·9	63·7	−2·4	+0·7	+0·1	+0·6	+0·3	+0·5	17	75·5	48·2	68·0	72·8	73·7	63·5	−1·3	+0·1	+1·2	+0·5	+0·1	+0·3
18	80·2	55·4	67·0	78·3	79·7	64·7	−4·1	+1·3	+0·2	−0·4	−0·8	−0·1	18	82·7	55·0	67·5	79·2	81·1	64·8	−1·6	+0·9	+0·7	+0·5	+0·6	0·0
19	76·7	55·6	65·9	75·1	76·3	59·9	−2·9	+1·3	−0·5	+0·2	+0·7	+0·1	19	76·5	55·5	67·8	74·0	74·6	59·8	−3·1	+1·2	+1·4	−0·9	−1·0	0·0
20	72·9	54·4	65·8	70·8	71·1	54·4	−2·3	+0·5	−0·3	−0·4	−0·9	+0·1	20	72·0	52·9	62·7	69·1	70·8	53·5	−3·2	−1·0	−3·4	−2·1	−1·2	−0·8
21	72·1	51·8	...	...	...	...	−2·6	+0·8	...	...	...	...	21	70·6	50·5	...	...	...	...	−4·1	−0·5	...	...	...	...
22	77·5	55·3	65·4	76·4	71·2	58·7	−1·4	+0·4	−0·4	0·0	−0·1	−0·2	22	75·0	54·4	65·8	73·1	71·2	57·9	−3·9	−0·5	0·0	−3·3	−0·1	−1·0
23	61·4	56·1	57·7	59·5	61·4	57·4	−0·9	+0·2	−0·1	0·0	−0·2	+0·1	23	61·6	55·0	57·2	58·9	61·6	57·0	−0·7	−0·9	−0·6	−0·6	0·0	−0·3
24	73·4	57·6	68·5	69·9	71·3	64·9	−0·7	+0·6	−0·2	0·0	+0·1	+0·5	24	73·6	56·6	67·8	69·5	71·7	64·8	−0·5	−0·4	−0·9	−0·4	+0·5	+0·4
25	77·4	60·2	66·3	75·5	75·6	65·9	−2·2	+0·9	0·0	+0·2	0·0	+0·2	25	79·4	59·5	66·8	77·2	75·6	66·5	−0·2	+0·2	+0·5	+1·9	0·0	+0·8
26	76·5	56·8	71·2	76·2	72·4	59·9	−2·6	+0·8	−0·2	0·0	−0·5	+0·3	26	75·8	55·9	70·7	75·3	72·8	59·8	−3·3	−0·1	−0·7	−0·9	−0·1	+0·2
27	72·1	56·6	64·6	71·9	71·3	58·0	−3·5	+0·9	−0·2	−0·4	−0·5	+0·2	27	71·6	55·9	64·3	70·0	70·3	58·0	−4·0	+0·2	−0·5	−2·3	−1·5	+0·2
28	77·0	53·9	...	...	...	...	−2·6	+0·6	...	...	...	...	28	77·0	53·2	...	...	...	...	−2·6	−0·1	...	...	...	...
29	72·2	61·0	62·2	64·4	71·9	61·0	−3·1	+0·7	+0·4	−0·1	−0·2	−0·1	29	72·3	59·5	62·1	65·1	71·4	61·2	−3·0	−0·8	+0·3	+0·6	−0·7	+0·1
30	72·9	57·1	65·8	67·7	69·7	61·9	−2·2	+0·8	+0·4	−0·2	−0·1	+0·1	30	73·3	56·5	65·8	68·5	68·3	61·8	−1·8	+0·2	+0·4	+0·6	−1·5	0·0
Means	70·0	52·2	61·8	66·9	68·5	57·6	−2·3	+0·7	−0·1	0·0	−0·1	+0·1	Means	70·2	51·4	61·6	66·4	68·1	57·6	−2·1	0·0	−0·3	−0·4	−0·4	+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.						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.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	70·8	58·1	58·9	59·6	67·7	59·5	−1·9	+0·7	+0·1	−0·2	+0·1	+0·1	1	71·6	57·4	59·0	59·4	67·8	59·8	−1·1	0·0	+0·2	−0·4	+0·2	+0·4
2	71·3	51·8	65·1	68·2	68·7	56·7	−3·8	+0·5	−0·7	+0·2	−0·5	+0·3	2	70·6	50·8	65·1	67·6	69·6	56·7	−4·5	−0·5	−0·7	−0·4	+0·4	+0·3
3	69·9	53·6	66·6	66·3	62·1	57·9	−4·1	+0·6	+0·7	+0·4	−0·7	0·0	3	70·2	52·8	66·1	65·8	62·9	58·1	−3·8	−0·2	+0·2	−0·1	+0·1	+0·2
4	70·1	50·9	66·0	70·0	67·5	60·2	−3·9	+0·6	−0·1	−0·4	+0·4	−0·1	4	71·1	49·9	64·8	69·7	67·3	60·8	−2·9	−0·4	−1·3	−0·7	+0·2	+0·5
5	65·0	50·9	...	...	...	..	−2·7	+1·0	...	...	...	...	5	64·9	50·2	...	...	...	...	−2·8	+0·3	...	...	...	...
6	70·3	56·3	59·9	66·4	69·3	56·3	−2·9	+0·7	−0·1	+0·5	−0·5	+0·4	6	70·7	56·1	60·6	66·3	69·5	56·8	−2·5	+0·5	+0·6	+0·4	−0·3	+0·9
7	64·1	52·0	60·2	57·8	61·0	55·5	+0·7	+0·6	+0·1	+0·3	−0·6	−0·1	7	64·3	51·3	60·4	57·3	61·2	55·8	+0·9	−0·1	+0·3	−0·2	−0·4	+0·2
8	67·2	52·9	57·9	60·4	65·4	55·9	−2·9	+0·4	−0·1	+0·7	−0·3	+0·2	8	68·0	52·5	58·5	60·8	65·7	56·5	−2·1	0·0	+0·5	+1·1	0·0	+0·8
9	67·7	52·2	60·8	64·1	65·0	57·6	−2·9	+1·0	−1·3	−0·7	−0·9	+0·3	9	68·6	51·2	60·3	64·6	65·8	57·9	−2·0	0·0	−1·8	−0·2	−0·1	+0·6
10	69·2	51·4	57·2	64·9	68·8	59·9	−1·1	+1·1	+0·2	+0·9	+0·4	+0·2	10	69·6	50·4	57·4	64·6	69·1	60·2	−0·7	+0·1	+0·4	+0·6	+0·7	+0·5
11	70·9	53·1	62·9	68·2	68·4	60·5	−2·9	+1·1	+0·2	−0·7	+0·5	+0·2	11	71·4	52·2	63·6	68·3	67·7	60·9	−2·4	+0·2	+0·9	−0·6	−0·2	+0·6
12	70·1	54·5	...	...	...	...	−1·4	+0·6	...	...	...	...	12	70·0	54·1	...	...	...	...	−1·5	+0·2	...	...	...	...
13	71·2	57·7	66·3	70·6	64·9	58·3	−2·4	+1·0	+0·3	+0·6	−0·4	+0·1	13	70·7	57·2	65·5	69·4	65·2	58·8	−2·9	+0·5	−0·5	−0·6	−0·1	+0·6
14	68·7	49·3	65·2	65·2	67·9	58·6	−2·6	+1·2	+0·4	0·0	−0·1	−0·1	14	68·4	48·4	64·4	65·3	68·3	58·8	−2·9	+0·3	−0·4	+0·1	+0·3	+0·1
15	73·6	53·2	66·7	69·9	69·9	59·5	−0·1	+1·0	−0·2	0·0	+0·1	+0·1	15	71·7	52·4	64·2	68·3	69·4	59·6	−2·0	+0·2	−2·7	−1·6	−0·4	+0·2
16	79·0	51·5	63·8	74·3	78·9	64·0	−2·3	+0·8	+0·1	+0·1	+0·1	+0·1	16	79·7	51·2	63·9	74·1	78·8	64·4	−1·6	+0·5	+0·2	−0·1	0·0	+0·5
17	81·1	53·4	75·1	79·9	79·6	61·9	−4·0	+1·0	0·0	−0·2	−0·3	+0·1	17	81·5	53·0	75·0	79·3	80·1	62·0	−3·6	+0·6	−0·1	−0·8	+0·2	+0·2
18	71·1	57·7	65·3	66·1	69·2	59·2	−2·4	+1·2	−0·2	+0·2	−0·3	+0·1	18	71·5	57·3	66·3	66·0	69·6	59·4	−2·0	+0·8	+0·8	+0·1	+0·1	+0·3
19	71·1	53·6	...	...	...	...	−1·5	+0·8	...	...	...	...	19	70·4	52·2	...	. .	...	...	−2·2	−0·6	...	...	...	...
20	72·2	52·7	64·8	67·0	70·5	60·3	−0·6	+0·6	0·0	+0·3	−0·5	−0·2	20	70·7	52·2	63·3	66·8	70·3	60·7	−2·1	+0·1	−1·5	+0·1	−0·7	+0·2
21	70·7	58·6	65·9	68·4	68·4	60·9	−2·4	+0·6	+0·3	−0·5	−0·4	+0·1	21	71·8	58·1	66·6	69·1	68·9	61·0	−1·3	+0·1	+1·0	+0·2	+0·1	+0·2
22	72·4	55·7	62·7	69·9	72·4	55·7	−2·0	+0·6	+0·7	−0·1	+0·8	+0·2	22	72·4	54·6	62·4	68·6	71·8	55·5	−2·0	−0·5	+0·4	−1·4	+0·2	0·0
23	63·9	53·8	55·7	57·6	59·9	57·0	−1·8	+0·5	+0·1	−0·4	0·0	+0·2	23	63·6	53·2	55·6	57·8	60·0	57·3	−2·1	−0·1	0·0	−0·2	+0·1	+0·5
24	68·1	51·8	63·2	65·9	64·6	61·3	−1·7	+0·6	−0·5	+0·1	−0·1	+0·4	24	69·1	51·1	63·1	66·8	65·2	61·8	−0·7	−0·1	−0·6	+1·0	+0·5	+0·9
25	69·9	53·0	62·6	65·5	67·9	60·2	−2·5	+0·8	+0·5	−0·3	−0·3	+0·3	25	70·5	52·3	63·5	66·0	67·1	60·8	−1·9	+0·1	+1·4	+0·2	−1·1	+0·9
26	74·6	52·9	...	...	...	...	−1·5	+1·4	...	...	...	...	26	76·0	52·4	...	...	...	...	−0·1	+0·9	...	...	...	..
27	64·5	55·3	59·7	59·4	63·2	55·7	−3·3	+0·9	+0·5	−0·1	+0·2	+0·5	27	65·3	54·8	59·4	59·6	64·3	56·0	−2·5	+0·4	+0·2	+0·1	+1·3	+0·8
28	63·5	46·1	58·5	60·9	59·7	53·3	−2·1	+0·7	−0·7	−0·4	−0·1	−0·1	28	63·7	44·9	58·4	61·6	60·7	54·2	−1·9	−0·5	−0·8	+0·3	+0·9	+0·8
29	60·1	45·9	57·3	56·4	59·9	53·0	−2·9	+0·5	+0·4	+0·1	−0·2	−0·1	29	61·4	45·2	57·6	56·8	59·8	53·4	−1·6	−0·2	+0·7	+0·5	−0·3	+0·3
30	62·0	47·5	56·1	58·0	59·9	52·8	−3·4	+0·5	−0·2	−1·4	−0·4	+0·3	30	62·4	46·5	56·2	58·2	60·1	52·4	−3·0	−0·5	−0·1	−1·2	−0·2	−0·1
31	66·8	50·8	60·2	64·8	62·3	54·8	−2·3	+0·8	+0·3	0·0	0·0	−0·1	31	67·4	50·0	58·9	63·6	62·6	54·8	−1·7	0·0	−1·0	−1·2	+0·3	−0·1
Means	69·4	52·8	62·4	65·4	66·8	58·0	−2·3	+0·8	0·0	0·0	−0·1	+0·1	Means	69·7	52·1	62·2	65·2	67·0	58·3	−2·0	+0·1	−0·1	−0·2	+0·1	+0·4

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

AUGUST.

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.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	67·3	53·0	59·2	63·7	65·6	58·9	−2·7	+0·6	+0·4	0·0	−0·2	+0·2	1	68·5	53·0	59·4	64·0	66·7	59·5	−1·5	+0·6	+0·6	+0·3	+0·9	+0·8
2	67·1	54·6	...	...	...	...	−2·0	+0·8	...	...	...	...	2	67·8	53·7	...	...	...	...	−1·3	−0·1	...	...	...	...
3	67·1	52·7	...	...	...	...	−4·5	+0·7	...	...	...	...	3	67·7	51·8	...	...	...	...	−3·9	−0·2	...	...	...	...
4	68·3	47·9	62·9	67·5	54·0	53·6	−2·2	+0·8	+1·0	+1·5	+0·2	+0·2	4	68·7	47·3	61·8	66·9	53·4	54·4	−1·8	+0·2	−0·1	+0·9	−0·4	+1·0
5	67·9	48·9	57·3	62·5	67·9	56·0	−1·3	+0·6	0·0	−0·1	+0·7	+0·2	5	67·7	48·2	57·4	60·9	67·3	56·6	−1·5	−0·1	+0·1	−1·7	+0·1	+0·8
6	57·0	52·7	52·7	56·4	56·5	53·3	−1·1	+0·5	+0·1	0·0	−0·2	+0·4	6	57·5	52·2	53·0	56·3	56·8	53·4	−0·6	0·0	+0·4	−0·1	+0·1	+0·5
7	64·3	48·7	58·3	58·9	62·6	59·5	−1·8	+0·6	−0·5	+0·1	+0·1	+0·4	7	65·8	48·2	58·9	59·6	62·5	59·8	−0·3	+0·1	+0·1	+0·8	0·0	+0·7
8	72·3	53·6	63·8	71·3	69·4	60·9	−2·7	+0·6	+0·2	+0·6	−0·4	+0·1	8	73·5	52·7	64·7	70·8	69·9	60·9	−1·5	−0·3	+1·1	+0·1	+0·1	+0·1
9	61·9	56·4	...	...	...	...	−1·2	+0·5	...	...	...	...	9	61·6	56·3	...	...	...	...	−1·5	+0·4	...	...	...	...
10	70·9	54·7	60·4	70·1	66·7	55·9	−3·4	+0·9	+0·2	+0·1	−0·5	+0·2	10	71·1	53·7	60·7	69·8	67·2	55·9	−3·2	−0·1	+0·5	−0·2	0·0	+0·2
11	68·6	50·4	65·2	66·5	66·0	58·5	−2·3	+0·7	+0·1	+0·3	−0·1	+0·1	11	69·1	49·5	64·4	67·6	66·9	58·5	−1·8	−0·2	−0·7	+1·4	+0·8	+0·1
12	73·2	59·0	61·3	68·5	72·4	59·7	−1·9	+1·4	−0·1	+0·6	−0·4	+0·2	12	74·0	57·6	61·6	68·7	73·2	59·8	−1·1	0·0	+0·2	+0·8	+0·4	+0·3
13	70·5	54·6	63·2	69·3	67·7	64·2	−3·5	+0·6	+0·4	+0·2	−0·3	−0·2	13	71·4	53·3	63·2	68·5	68·5	65·0	−2·6	−0·7	+0·4	−0·6	+0·5	+0·6
14	76·9	61·3	65·0	69·5	73·1	63·0	−2·6	+0·6	−0·1	+0·2	−0·5	+0·1	14	76·9	61·0	65·8	70·4	73·8	63·1	−2·6	+0·3	+0·7	+1·1	+0·2	+0·2
15	70·4	57·1	67·1	59·9	70·1	59·7	−1·9	+0·7	+0·7	+0·1	−0·1	+0·2	15	71·2	56·5	68·0	60·1	70·5	59·8	−1·1	+0·1	+1·6	+0·3	+0·3	+0·3
16	68·1	50·9	....	...	...	...	−1·2	+0·8	...	...	...	...	16	68·8	49·8	...	...	...	...	−0·5	−0·3	...	...	...	...
17	70·4	50·1	64·5	69·0	65·1	60·8	−3·0	+1·0	+1·1	−0·5	−0·5	+0·2	17	70·5	48·6	65·2	69·4	65·7	59·9	−2·9	−0·5	+1·8	−0·1	+0·1	−0·7
18	68·6	56·6	61·7	61·5	66·9	56·7	−1·9	+0·5	−0·1	+0·8	−0·4	+0·7	18	69·3	56·8	62·8	61·2	67·9	57·3	−1·2	+0·7	+1·0	+0·5	+0·6	+1·3
19	67·6	54·5	56·7	65·9	65·6	54·8	−2·5	+0·8	−0·1	+0·8	−0·2	0·0	19	67·6	53·8	57·3	64·8	66·9	54·8	−2·5	+0·1	+0·5	−0·3	+1·1	0·0
20	65·9	49·4	63·1	62·3	61·9	53·8	−2·2	+1·0	+0·3	+0·3	+0·1	−0·2	20	65·1	48·7	63·0	63·9	62·1	53·4	−3·0	+0·3	+0·2	+1·9	+0·3	−0·6
21	59·2	53·7	54·5	55·9	57·7	55·0	−0·5	+0·3	−0·1	−0·2	−0·1	+0·1	21	59·6	52·4	53·8	56·0	58·0	55·1	−0·1	−1·0	−0·8	−0·1	+0·2	+0·2
22	65·9	47·8	60·1	65·9	61·2	56·2	−1·8	+0·5	+0·9	+0·3	+0·4	+0·2	22	65·2	46·5	58·6	63·1	62·0	56·0	−2·5	−0·8	−0·6	−2·5	+1·2	0·0
23	65·1	52·7	...	...	...	...	−2·2	+0·4	...	...	...	...	23	65·6	52·3	...	...	...	...	−1·7	0·0	...	...	...	...
24	66·3	52·0	61·9	63·5	62·0	57·4	−2·5	+0·6	+1·2	+0·3	+0·2	+0·1	24	65·8	51·2	60·3	63·8	62·2	57·6	−3·0	−0·2	−0·4	+0·6	+0·4	+0·3
25	63·2	54·2	59·5	61·9	60·9	60·6	−1·9	+0·5	+0·1	+0·1	−0·1	0·0	25	63·5	53·9	59·7	62·5	61·5	60·6	−1·6	+0·2	+0·3	+0·7	+0·5	0·0
26	70·9	59·0	62·9	70·9	65·8	62·1	−1·7	−0·3	+0·1	−0·9	−0·1	0·0	26	70·8	59·7	63·2	69·8	66·1	62·6	−1·8	+0·4	+0·4	−2·0	+0·2	+0·5
27	62·1	57·6	60·6	62·1	59·5	57·6	−1·0	+0·2	−0·5	−0·7	−0·2	−0·1	27	63·0	57·6	61·2	63·0	59·6	58·1	−0·1	+0·2	+0·1	+0·2	−0·1	+0·4
28	66·3	51·3	60·5	63·5	62·9	54·8	−3·1	+0·6	+0·5	+0·9	−0·5	+0·7	28	66·5	50·3	60·2	63·4	64·5	54·8	−2·9	−0·4	+0·2	+0·8	+1·1	+0·7
29	67·7	51·8	59·9	62·9	60·4	52·3	−2·6	+0·5	+0·5	0·0	−0·3	0·0	29	68·2	51·4	60·1	62·6	60·7	52·6	−2·1	+0·1	+0·7	−0·3	0·0	+0·3
30	65·6	43·9	...	...	...	...	−2·0	+0·7	...	...	...	...	30	66·4	43·0	...	...	...	...	−1·2	−0·2	...	...	...	...
31	64·4	48·0	57·5	63·9	61·6	59·9	−1·7	+0·9	−0·1	−0·1	−0·5	0·0	31	64·8	47·8	58·0	64·6	62·1	60·1	−1·3	+0·7	+0·4	+0·6	0·0	+0·2
Means	67·1	52·9	60·8	64·5	64·1	57·8	−2·2	+0·6	+0·2	+0·2	−0·2	+0·2	Means	67·5	52·2	60·9	64·5	64·6	58·0	−1·8	0·0	+0·3	+0·1	+0·3	+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.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	67·6	56·8	63·5	66·2	64·7	56·8	−1·7	+0·7	0·0	+0·1	−0·3	+0·3	1	67·5	56·4	63·7	65·7	64·6	56·8	−1·8	+0·3	+0·2	−0·4	−0·4	+0·3
2	66·1	52·9	61·2	63·5	62·8	55·3	−1·9	+0·7	0·0	+0·4	+0·2	+0·5	2	65·5	52·4	61·1	64·0	63·2	55·4	−2·5	+0·2	−0·1	+0·9	+0·6	+0·6
3	63·5	49·8	56·2	61·2	63·5	54·1	−1·2	+1·5	+0·1	0·0	+0·7	+0·3	3	63·8	49·2	56·1	62·2	63·8	54·5	−0·9	+0·9	0·0	+1·0	+1·0	+0·7
4	69·1	48·9	62·9	68·0	67·7	53·9	−2·7	−0·1	+0·1	−1·0	+0·9	+0·1	4	68·6	48·8	62·7	68·6	67·3	54·5	−3·2	−0·2	−0·1	−0·4	+0·5	+0·7
5	66·9	49·6	60·5	65·4	66·9	54·0	−2·3	+0·9	−0·2	−0·2	0·0	+0·2	5	67·1	48·5	60·2	64·8	66·8	54·4	−2·1	−0·2	−0·5	−0·8	−0·1	+0·6
6	65·7	49·5	...	...	...	...	−2·0	+1·0	...	...	...	...	6	65·0	48·6	...	...	...	...	−2·7	+0·1	...	...	...	...
7	67·7	52·0	56·6	65·2	65·9	59·9	−2·3	+0·7	−0·3	+0·9	+0·4	+0·2	7	67·8	51·4	56·1	64·0	65·8	59·9	−2·2	+0·1	−0·8	−0·3	+0·3	+0·2
8	74·6	55·6	67·2	74·3	72·5	57·5	−1·7	+0·9	+1·2	+1·1	+0·3	+0·3	8	74·7	55·0	66·3	71·5	71·6	58·3	−1·6	+0·3	+0·3	−1·7	−0·6	+1·1
9	78·8	51·1	72·6	78·5	76·4	58·9	−1·2	+1·0	+1·3	+0·7	+0·1	+0·1	9	77·7	50·5	71·6	77·1	76·5	61·1	−2·3	+0·4	+0·3	−0·7	+0·2	+2·3
10	81·8	52·4	74·2	80·2	79·4	58·7	−0·1	+1·0	+1·6	+1·4	+1·6	0·0	10	80·7	52·0	72·4	77·7	77·9	60·7	−1·2	+0·6	−0·2	−1·1	+0·1	+2·0
11	81·2	48·3	64·2	79·7	81·2	59·5	+0·5	+0·7	+0·8	+2·1	+1·6	+0·4	11	80·1	47·5	63·8	77·1	79·7	61·0	−0·6	−0·1	+0·4	−0·5	+0·1	+1·9
12	80·8	54·0	63·3	80·2	78·8	59·3	−0·3	+0·6	−0·9	+1·4	+1·0	+0·4	12	80·1	53·3	61·0	78·3	77·1	59·6	−1·0	−0·1	−3·2	−0·5	−0·7	+0·7
13	81·8	50·6	...	...	...	...	−0·3	+0·7	...	...	...	...	13	81·5	50·2	...	...	...	...	−0·6	+0·3	...	...	...	...
14	70·9	57·5	63·7	67·7	62·7	57·5	+2·1	+0·3	+0·2	+0·1	−0·3	0·0	14	68·5	57·4	63·8	68·4	62·9	57·8	−0·3	+0·2	+0·3	+0·8	−0·1	+0·3
15	64·7	45·9	61·2	60·3	64·7	57·2	−0·6	+0·6	+1·4	+0·1	−0·1	+0·3	15	64·5	45·0	59·8	61·1	64·3	57·5	−0·8	−0·3	0·0	+0·9	−0·5	+0·6
16	61·3	44·8	52·7	60·6	60·9	56·1	−2·2	+0·5	0·0	0·0	+0·2	+0·3	16	62·7	43·4	53·0	61·0	61·1	56·0	−0·8	−0·9	+0·3	+0·4	+0·4	+0·2
17	64·5	52·1	61·6	63·9	64·1	59·5	−2·6	+0·8	0·0	−0·4	−0·5	+0·1	17	65·3	51·3	60·9	64·8	64·8	59·6	−1·8	0·0	−0·7	+0·5	+0·2	+0·2
18	69·8	57·7	62·2	65·1	68·0	61·7	−1·5	+0·6	−0·1	+0·1	−0·5	−0·1	18	70·4	57·2	62·8	65·4	68·9	62·1	−0·9	+0·1	+0·5	+0·4	+0·4	+0·3
19	66·1	59·6	63·6	65·9	63·8	59·6	−2·0	+0·2	−0·1	−0·9	+0·1	−0·2	19	67·1	59·5	64·4	67·1	63·6	59·8	−1·0	+0·1	+0·7	+0·3	−0·1	0·0
20	67·6	56·1	...	...	...	...	−1·5	+0·7	...	...	...	...	20	66·5	55·4	...	...	...	...	−2·6	0·0	...	...	...	...
21	62·9	47·5	52·1	58·4	56·7	47·7	−1·6	+0·1	+0·3	−0·4	−0·2	+0·1	21	62·2	47·0	51·9	59·0	56·9	47·2	−2·3	−0·4	+0·1	+0 2	0·0	−0·4
22	61·7	46·5	53·4	59·2	61·7	49·8	−1·3	+0·4	−0·1	+0·3	−0·1	+0·2	22	60·6	45·5	53·3	57·9	60·4	50·0	−2·4	−0·6	−0·2	−1·0	−1·4	+0·4
23	61·9	49·1	55·2	58·3	58·0	49·2	−0·1	+1·0	−0·5	0·0	+0·1	−0·3	23	59·8	48·1	55·5	58·8	58·3	49·9	−2·2	0·0	−0·2	+0·5	+0·4	+0·4
24	65·0	45·2	60·3	63·5	60·4	56·4	−0·8	+0·7	+0·2	+0·1	−0·5	+0·1	24	64·5	45·0	60·5	64·1	60·8	56·4	−1·3	+0·5	+0·4	+0·7	−0·1	+0·1
25	68·9	54·9	59·6	65·3	66·7	54·9	−0·1	+0·6	−0·1	+0·3	−0·3	+0·3	25	68·6	55·4	60·3	65·8	67·6	55·8	−0·4	+1·1	+0·6	+0·8	+0·6	+1·2
26	62·1	54·9	60·1	58·2	61·9	54·9	−2·0	+0·9	0·0	+0·1	−0·2	+0·1	26	63·1	54·5	60·6	58·6	62·6	55·1	−1·0	+0·5	+0·5	+0·5	+0·5	+0·3
27	62·0	50·4	...	...	...	...	−1·0	+0·5	...	...	...	...	27	62·3	49·7	...	...	...	...	−0·7	−0·2	...	...	...	...
28	68·5	46·9	59·4	65·1	66·5	54·0	−0·6	+0·3	0·0	−0·2	0·0	+0·2	28	68·4	46·3	58·8	63·8	67·3	53·7	−0·7	−0·3	−0·6	−1·5	+0·8	−0·1
29	69·9	51·9	63·3	69·9	67·9	58·3	−1·4	+0·8	+1·3	+1·0	+0·2	+0·2	29	68·7	51·4	62·2	68·2	68·5	58·3	−2·6	+0·3	+0·2	−0·7	+0·8	+0·2
30	67·4	52·5	60·1	66·9	62·6	57·2	0·0	+0·5	+1·3	+1·6	−0·1	+0·1	30	66·4	51·8	58·8	64·5	63·6	57·5	−1·0	−0·2	0·0	−0·8	+0·9	+0·4
Means	68·7	51·5	61·2	66·6	66·4	56·2	−1·1	+0·7	+0·3	+0·3	+0·2	+0·2	Means	68·3	50·9	60·8	66·1	66·4	56·6	−1·5	+0·1	−0·1	−0·1	+0·1	+0·6

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

OCTOBER.

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.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	66·3	50·1	60·6	64·4	61·8	50·1	−1·5	0·0	0·0	+0·3	0·0	−0·1	1	66·1	49·8	60·8	64·4	62·0	49·9	−1·7	−0·3	+0·2	+0·3	+0·2	−0·3
2	60·5	43·5	52·6	56·0	58·7	48·3	−0·8	+0·4	+0·2	0·0	+0·1	+0·5	2	61·2	41·2	51·8	56·6	59·1	48·5	−0·1	−1·9	−0·6	+0·6	+0·5	+0·7
3	65·2	40·5	55·0	61·9	60·7	49·5	−0·4	+0·3	+1·9	+0·6	+0·2	+0·6	3	64·9	39·8	53·6	61·7	61·2	50·4	−0·7	−0·4	+0·5	+0·4	+0·7	+1·5
4	64·2	40·2	...	...	...	...	−0·6	+0·7	...	...	...	...	4	64·2	39·9	...	...	...	...	−0·6	+0·4	...	...	...	...
5	60·2	42·6	49·5	60·1	58·6	53·2	−1·1	+0·8	+0·7	+0·2	−0·1	−0·1	5	60·7	41·9	48·3	60·5	59·0	53·4	−0·6	+0·1	−0·5	+0·6	+0·3	+0·1
6	61·4	50·6	57·3	60·0	61·4	52·9	−0·4	+0·7	0·0	+0·1	0·0	−0·1	6	61·9	50·2	58·0	60·5	61·9	53·2	+0·1	+0·3	+0·7	+0·6	+0·5	+0·2
7	62·9	48·1	54·8	62·2	57·7	48·2	−1·1	+0·6	+0·3	+0·5	−0·1	+0·2	7	61·9	48·2	55·2	61·6	58·0	48·8	−2·1	+0·7	+0·7	−0·1	+0·2	+0·8
8	62·3	45·0	54·1	61·7	59·4	55·8	−0·9	+0·9	+0·6	+2·2	−0·3	+0·1	8	61·4	44·7	53·8	59·6	60·1	56·2	−1·8	+0·6	+0·3	+0·1	+0·4	+0·5
9	67·9	51·9	60·2	67·9	64·1	51·9	−0·4	+0·7	0·0	+1·2	−0·2	+0·3	9	67·7	52·0	60·5	66·8	64·8	52·4	−0·6	+0·8	+0·3	+0·1	+0·5	+0·8
10	60·4	51·6	57·5	60·4	57·8	57·2	−0·9	+1·2	−0·1	−0·1	−0·3	−0·1	10	60·8	51·1	58·3	60·7	58·6	57·7	−0·5	+0·7	+0·7	+0·2	+0·5	+0·4
11	61·4	49·5	...	...	...	...	−1·5	+0·9	...	...	...	...	11	61·7	49·1	...	...	...	...	−1·2	+0·5	...	...	...	...
12	60·5	45·3	49·9	58·9	56·8	45·3	+0·3	+1·0	+0·1	+1·1	0·0	+0·5	12	58·6	45·0	50·0	58·5	57·8	45·8	−1·6	+0·7	+0·2	+0·7	+1·0	+1·0
13	58·6	43·3	53·6	53·7	51·0	58·6	−0·3	+0·6	+2·0	−0·1	−0·3	0·0	13	59·5	42·9	53·0	54·3	51·7	59·5	+0·6	+0·2	+1·4	+0·5	+0·4	+0·9
14	59·2	49·3	56·1	55·9	58·2	50·5	−0·9	+0·6	+0·3	+0·5	+0·1	+0·3	14	59·5	49·2	56·0	55·5	58·8	51·2	−0·6	+0·5	+0·2	+0·1	+0·7	+1·0
15	58·0	46·6	53·8	52·4	54·0	47·0	−0·4	+0·7	+0·2	−0·3	+0·1	+0·2	15	58·0	46·7	54·8	53·0	54·7	47·6	−0·4	+0·8	+1·2	+0·3	+0·8	+0·8
16	56·1	45·2	52·7	54·6	54·8	49·4	−1·2	+1·8	−0·3	0·0	0·0	+0·3	16	57·1	43·8	53·6	54·9	55·5	50·2	−0·2	+0·4	+0·6	+0·3	+0·7	+1·1
17	57·1	41·6	50·2	56·9	54·7	48·2	−0·8	+0·3	+0·4	+0·7	−0·1	+0·3	17	56·7	41·1	49·8	55·8	55·2	48·6	−1·2	−0·2	0·0	−0·4	+0·4	+0·7
18	58·5	44·3	...	...	...	...	−0·6	+1·6	...	...	...	...	18	57·8	42·4	...	...	...	...	−1·3	−0·3	...	...	...	...
19	54·2	46·8	52·9	51·2	50·9	46·8	−0·6	+0·6	−0·2	−0·1	0·0	+0·2	19	54·7	46·7	53·6	50·8	51·2	47·1	−0·1	+0·5	+0·5	−0·5	+0·3	+0·5
20	57·0	45·1	50·3	55·3	56·4	47·7	−1·1	+0·7	−0·3	−0·1	+0·3	+0·2	20	57·5	45·1	51·1	55·4	57·1	48·4	−0·6	+0·7	+0·5	0·0	+1·0	+0·9
21	59·0	46·6	56·6	54·1	54·9	49·7	−0·4	+0·6	+0·3	0·0	+0·3	−0·1	21	59·6	46·9	57·3	55·6	55·5	49·9	+0·2	+0·9	+1·0	+1·5	+0·9	+0·1
22	58·6	47·5	52·1	51·0	50·1	58·6	−0·2	+0·4	0·0	−0·2	−0·5	−0·2	22	60·0	47·9	52·8	51·4	50·8	60·0	+1·2	+0·8	+0·7	+0·2	+0·2	+1·2
23	60·2	47·2	57·9	53·3	55·0	47·2	0·0	+0·3	+0·1	+0·6	+0·2	+0·3	23	61·1	47·4	57·0	52·9	55·5	47·8	+0·9	+0·5	−0·8	+0·2	+0·7	+0·9
24	51·3	44·8	51·3	50·7	49·9	45·6	−0·9	+0·6	+1·2	+1·0	+0·1	−0·6	24	50·9	45·2	50·9	50·1	49·9	46·6	−1·3	+1·0	+0·8	+0·4	+0·1	+0·4
25	53·6	41·6	...	...	...	...	−0·6	0·0	...	...	...	...	25	53·5	41·1	...	...	...	...	−0·7	−0·5	...	...	...	...
26	54·2	51·2	54·2	53·8	52·9	52·4	−0·4	+0·4	−0·1	0·0	+0·1	−0·1	26	54·6	50·2	54·3	53·6	52·8	52·1	0·0	−0·6	0·0	−0·2	0·0	−0·4
27	52·4	49·8	51·6	52·1	51·5	49·9	−0·5	+0·3	−0·1	−0·2	−0·2	+0·1	27	53·3	48·5	51·5	52·4	51·7	49·8	+0·4	−1·0	−0·2	+0·1	0·0	0·0
28	51·6	40·8	50·2	51·6	49·2	40·8	−0·4	+0·7	+1·6	+0·7	+0·1	+0·2	28	51·7	40·4	48·8	50·9	49·3	41·1	−0·3	+0·3	+0·2	0·0	+0·2	+0·5
29	54·2	35·9	42·2	52·5	52·0	44·7	−0·1	−0·2	+0·2	+1·1	+0·1	+0·1	29	53·3	36·1	42·2	51·6	52·3	44·9	−1·0	0·0	+0·2	+0·2	+0·4	+0·3
30	48·1	33·1	41·2	47·8	45·2	37·6	0·0	+0·1	+1·4	+0·3	+0·2	−0·1	30	48·1	32·2	40·4	47·5	45·6	38·5	0·0	−0·8	+0·6	0·0	+0·6	+0·8
31	49·1	31·0	38·3	46·9	47·1	44·0	+0·6	+1·1	+1·0	+1·3	+0·1	+0·1	31	48·7	30·2	37·9	46·0	47·9	44·2	+0·2	+0·3	+0·6	+0·4	+0·9	+0·3
Means	58·2	44·9	52·5	55·8	55·0	49·3	−0·6	+0·6	+0·4	+0·4	0·0	+0·1	Means	58·3	44·4	52·4	55·7	55·5	49·8	−0·5	+0·2	+0·4	+0·2	+0·5	+0·6

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

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.						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		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	56·4	43·7	...	...	...	...	−1·0	−0·7	...	...	...	...	1	56·1	43·4	...	...	...	...	−1·3	−1·0	...	...	...	...
2	52·8	43·5	49·5	51·9	50·4	43·7	−1·9	+0·4	+0·8	+0·1	+0·1	−0·1	2	53·5	43·0	49·5	52·0	50·6	43·8	−1·2	−0·1	+0·8	+0·2	+0·3	0·0
3	50·8	37·9	45·2	49·9	49·0	47·0	−0·2	+0·4	+0·1	+0·1	−0·1	+0·2	3	50·8	37·3	45·7	49·6	49·4	46·9	−0·2	−0·2	+0·6	−0·2	+0·3	+0·1
4	49·8	44·9	46·7	48·8	49·8	48·6	−0·3	+0·4	−0·1	0·0	0·0	+0·1	4	49·5	44·4	46·8	48·8	49·5	48·6	−0·6	−0·1	0·0	0·0	−0·3	+0·1
5	48·2	39·9	46·1	45·8	45·2	39·9	−0·6	+0·6	0·0	−0·2	+0·1	+0·5	5	48·8	39·1	46·2	46·0	45·2	39·8	0·0	−0·2	+0·1	0·0	+0·1	+0·4
6	44·8	36·1	40·2	41·1	44·8	43·4	−0·3	+0·6	−0·3	−0·1	+0·1	+0·1	6	44·8	35·8	41·0	41·2	44·8	43·7	−0·3	+0·3	+0·5	0·0	+0·1	+0·4
7	48·1	40·5	42·9	47·3	47·4	40·7	−1·2	+0·3	−0·2	0·0	+0·2	+0·5	7	47·9	39·2	43·1	46·8	47·3	40·8	−1·4	−1·0	0·0	−0·5	+0·1	+0·6
8	44·2	32·0	...	...	...	...	−0·6	+0·2	...	...	...	...	8	44·7	32·4	...	...	...	...	−0·1	+0·6	...	...	...	...
9	46·1	34·1	43·7	45·9	45·0	40·1	−0·5	+0·2	+0·1	+0·1	−0·2	+0·2	9	47·3	34·0	44·2	45·8	46·1	40·2	+0·7	+0·1	+0·6	0·0	+0·9	+0·3
10	48·7	37·3	41·1	48·6	48·1	45·4	−0·6	+0·2	0·0	+1·5	0·0	−0·1	10	50·0	37·1	42·1	47·1	49·5	45·7	+0·7	0·0	+1·0	0·0	+1·4	+0·2
11	53·1	41·5	52·2	52·9	43·8	41·5	−0·3	+0·6	+0·1	−0·3	−0·1	+0·5	11	53·7	41·3	52·5	52·6	44·2	41·8	+0·3	+0·4	+0·4	−0·6	+0·3	+0·8
12	51·8	36·5	43·4	51·8	48·3	47·1	+0·3	+0·2	0·0	+0·8	+0·2	+0·3	12	51·8	38·1	44·6	51·3	48·4	47·3	+0·3	+1·8	+1·2	+0·3	+0·3	+0·5
13	53·2	43·4	46·6	51·6	51·0	43·8	+0·8	+0·9	0·0	+0·8	+0·4	+0·5	13	52·6	44·1	47·6	51·1	51·5	45·5	+0·2	+1·6	+1·0	+0·3	+0·9	+2·2
14	52·0	39·9	44·9	51·1	48·9	45·0	−0·3	+0·5	−0·2	+0·5	+0·1	−0·1	14	51·7	39·4	45·6	50·4	48·5	45·1	−0·6	0·0	+0·5	−0·2	−0·3	0·0
15	47·6	43·1	...	...	...	...	−1·1	+0·5	...	...	...	...	15	47·9	42·2	...	...	...	...	−0·8	−0·4	...	...	...	...
16	47·9	45·0	45·9	46·3	47·2	47·9	−0·7	+0·5	−0·2	−0·5	−0·2	+0·1	16	48·2	44·5	45·9	46·9	47·5	48·1	−0·4	0·0	−0·2	+0·1	+0·1	+0·3
17	49·9	41·5	45·2	48·8	48·6	42·7	−1·2	+0·5	0·0	−0·5	+0·6	0·0	17	50·2	40·8	46·9	49·4	49·3	43·0	−0·9	−0·2	+1·7	+0·1	+1·3	+0·3
18	58·2	38·2	41·5	49·6	53·3	55·9	+2·2	0·0	−0·3	0·0	0·0	+0·3	18	56·3	38·4	41·8	50·1	53·4	56·2	+0·3	+0·2	0·0	+0·5	+0·1	+0·6
19	56·3	48·1	54·2	55·4	54·9	48·1	−0·1	+0·6	+0·1	−0·2	+0·1	+0·3	19	56·6	48·3	54·5	55·8	55·1	49·1	+0·2	+0·8	+0·4	+0·2	+0·3	+1·3
20	51·8	44·7	47·9	49·5	49·6	44·8	−1·3	+0·9	0·0	+0·5	+0·7	+0·3	20	51·7	44·3	48·4	49·3	49·8	45·2	−1·4	+0·5	+0·5	+0·3	+0·9	+0·7
21	44·8	35·8	38·9	43·8	44·4	41·9	+0·3	+0·3	−0·6	0·0	0·0	+0·1	21	45·2	35·4	39·3	43·8	44·4	41·9	+0·7	−0·1	−0·2	0·0	0·0	+0·1
22	42·1	35·7	...	...	...	...	−0·2	+0·2	...	...	...	...	22	42·3	35·9	...	...	...	...	0·0	+0·4	...	...	...	...
23	42·1	37·8	38·2	38·6	39·6	38·8	+2·1	−0·1	0·0	−0·1	0·0	0·0	23	39·7	37·5	38·1	38·8	39·7	38·8	−0·3	−0·4	−0·1	+0·1	+0·1	0·0
24	40·8	33·3	35·9	39·0	39·9	33·8	−0·3	+0·1	0·0	−0·3	+0·3	0·0	24	41·4	33·0	35·7	39·5	39·8	33·8	+0·3	−0·2	−0·2	+0·2	+0·2	0·0
25	44·9	29·0	29·6	39·6	42·5	40·6	+0·8	−0·8	−0·2	−0·7	+0·7	+0·1	25	45·6	29·2	29·8	39·8	42·4	42·0	+1·5	−0·6	0·0	−0·5	+0·6	+1·5
26	43·4	33·1	34·9	41·7	41·6	38·9	+0·3	+0·2	+0·1	0·0	+0·7	0·0	26	43·5	33·2	36·0	41·7	42·2	39·2	+0·4	+0·3	+1·2	0·0	+1·3	+0·3
27	39·7	32·9	35·1	38·6	39·1	33·2	+0·1	+0·9	0·0	+0·5	+0·9	+0·4	27	40·5	34·0	35·6	38·8	40·1	34·8	+0·9	+2·0	+0·5	+0·7	+1·9	+2·0
28	45·5	30·9	38·4	45·5	43·6	43·3	+0·1	−0·1	−0·2	+0·5	+0·1	−0·1	28	45·7	32·0	39·0	45·7	43·7	43·6	+0·3	+1·0	+0·4	+0·7	+0·2	+0·2
29	46·1	41·1	...	...	...	...	−0·5	+0·4	...	...	...	...	29	47·6	41·1	...	...	...	...	+1·0	+0·4	...	...	...	...
30	41·6	34·9	36·6	39·3	39·1	35·3	0·0	+0·1	−0·1	−0·1	−0·2	0·0	30	42·7	34·8	36·6	39·5	39·1	35·8	+1·1	0·0	−0·1	+0·1	−0·2	+0·5
Means	48·1	38·5	42·6	46·5	46·2	42·9	−0·2	+0·3	0·0	+0·1	+0·2	+0·2	Means	48·3	38·4	43·1	46·5	46·5	43·2	0·0	+0·2	+0·4	+0·1	+0·4	+0·5

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

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.						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		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	50·0	34·7	44·9	49·9	47·4	46·3	−0·6	−0·1	0·0	+0·3	0·0	−0·4	1	50·5	34·4	46·2	50·1	48·0	46·8	−0·1	−0·4	+1·3	+0·5	+0·6	+0·1
2	50·1	40·6	46·0	49·9	48·9	40·6	0·0	+0·9	−0·1	+0·2	+0·1	+0·3	2	50·6	40·7	46·8	50·0	49·3	41·7	+0·5	+1·0	+0·7	+0·3	+0·5	+1·4
3	57·2	39·7	49·8	53·7	54·8	54·9	+2·1	+0·8	+0·1	0·0	+0·1	+0·1	3	55·4	40·0	50·1	54·0	54·7	55·3	+0·3	+1·1	+0·4	+0·3	0·0	+0·5
4	55·8	45·6	52·9	55·3	52·6	45·6	−0·6	+0·7	+0·1	−0·7	+0·6	+0·4	4	55·9	46·4	53·2	55·9	52·8	46·9	−0·5	+1·5	+0·4	−0·1	+0·8	+1·7
5	56·0	44·6	54·7	56·0	56·0	54·3	−1·0	+0·8	+0·1	0·0	+0·2	+0·2	5	56·5	44·2	54·9	56·3	56·2	54·7	−0·5	+0·4	+0·3	+0·3	+0·4	+0·6
6	54·3	44·5	...	...	...	...	0·0	+0·6	...	...	...	...	6	54·7	44·1	...	...	...	...	+0·4	+0·2	...	...	...	...
7	50·2	41·2	47·3	49·2	47·3	44·1	−0·4	+0·9	+0·5	−0·3	+0·1	−0·1	7	50·7	40·7	47·0	49·8	47·3	44·4	+0·1	+0·4	+0·2	+0·3	+0·1	+0·2
8	46·9	37·8	39·8	45·9	46·4	46·3	−0·8	+0·4	0·0	−0·2	+0·2	+0·2	8	47·3	37·3	40·6	46·3	46·6	46·8	−0·4	−0·1	+0·8	+0·2	+0·4	+0·7
9	48·4	44·6	46·0	47·7	46·8	47·0	−0·4	+1·0	0·0	0·0	+0·6	−0·2	9	49·3	44·1	46·1	47·7	47·1	47·8	+0·5	+0·5	+0·1	0·0	+0·9	+0·6
10	54·9	44·5	54·0	54·9	47·6	45·9	−0·4	+0·2	+0·2	−0·1	−0·2	+0·1	10	55·1	42·9	54·4	55·0	48·2	46·8	−0·2	−1·4	+0·6	0·0	+0·4	+1·0
11	47·9	37·1	42·2	44·5	43·9	37·1	+0·1	+0·6	+0·2	+0·2	+0·3	+0·3	11	48·3	37·1	42·8	44·8	44·2	37·8	+0·5	+0·6	+0·8	+0·5	+0·6	+1·0
12	51·0	32·0	33·8	40·7	41·8	51·0	−0·1	+0·1	−0·1	−0·2	−0·1	0·0	12	51·5	32·2	35·3	41·8	42·2	51·5	+0·4	+0·3	+1·4	+0·9	+0·3	+0·5
13	51·9	46·5	...	...	...	...	−0·2	+0·2	...	...	...	...	13	52·3	46·2	...	...	..	...	+0·2	−0·1	...	...	...	...
14	49·1	41·4	44·9	46·9	46·6	41·7	0·0	+0·4	0·0	+0·1	+0·1	+0·2	14	49·4	40·9	45·1	47·4	47·1	41·8	+0·3	−0·1	+0·2	+0·6	+0·6	+0·3
15	52·0	40·2	42·1	44·3	48·8	51·9	0·0	+0·3	−0·3	−0·4	0·0	+0·1	15	52·5	40·1	42·8	45·6	48·9	52·0	+0·5	+0·2	+0·4	+0·9	+0·1	+0·2
16	52·9	42·0	42·9	47·9	48·1	44·0	−0·3	+0·6	+0·2	−0·3	+0·1	+0·1	16	53·2	41·4	43·2	48·1	48·7	44·3	0·0	0·0	+0·5	−0·1	+0·7	+0·4
17	44·0	33·2	34·0	40·8	40·7	34·5	−0·8	+0·8	+0·2	+0·2	+0·6	+0·1	17	44·3	32·6	34·4	41·9	41·1	34·6	−0·5	+0·2	+0·6	+1·3	+1·0	+0·2
18	37·1	29·4	33·7	37·1	35·1	30·6	−0·7	+0·5	−0·2	−0·2	0·0	−0·1	18	38·2	29·1	34·6	37·4	35·2	30·2	+0·4	+0·2	+0·7	+0·1	+0·1	−0·5
19	36·0	23·2	25·1	33·8	33·4	27·1	+1·0	−0·1	−0·6	+0·7	+0·6	−0·3	19	36·3	23·2	26·5	33·6	33·1	27·6	+1·3	−0·1	+0·8	+0·5	+0·3	+0·2
20	34·0	23·1	...	...	...	...	+0·9	0·0	...	...	...	...	20	33·7	22·9	...	...	...	...	+0·6	−0·2	...	...	...	...
21	32·4	20·1	21·0	31·6	31·3	25·5	−0·8	−0·4	−0·5	−0·1	+0·1	−0·6	21	33·8	20·0	21·7	30·9	31·9	26·6	+0·6	−0·5	+0·2	−0·8	+0·7	+0·5
22	30·1	16·7	18·1	22·7	28·7	22·1	+0·1	−0·6	−0·7	−0·2	−0·5	−0·6	22	30·3	16·9	18·7	24·0	29·2	24·5	+0·3	−0·4	−0·1	+1·1	0·0	+1·8
23	30·0	20·5	25·6	27·9	29·9	21·8	−0·3	+1·0	−0·4	−0·2	−0·3	−0·2	23	30·5	19·8	25·9	28·2	30·2	22·8	+0·2	+0·3	−0·1	+0·1	0·0	+0·8
24	26·1	20·3	24·7	25·7	24·9	24·0	−0·1	−0·1	−0·1	−0·1	−0·1	−0·2	24	27·3	20·2	24·7	25·8	25·8	24·0	+1·1	−0·2	−0·1	0·0	+0·8	−0·2
25	37·1	20·0	...	...	...	...	−0·7	+0·5	...	...	...	...	25	39·5	19·0	...	...	...	...	+1·7	−0·5	...	...	...	...
26	48·3	36·5	...	...	...	...	−0·1	−0·6	...	...	...	...	26	49·0	38·9	...	...	...	...	+0·6	+1·8	...	...	...	...
27	46·1	36·2	...	...	...	...	−0·4	+0·9	...	...	...	..	27	47·4	36·9	...	...	...	...	+0·9	+1·6	...	...	...	...
28	42·4	37·0	39·0	41·3	41·1	41·9	−0·4	+0·6	+0·2	−0·1	+0·6	+0·2	28	43·2	37·5	39·4	41·8	41·5	42·6	+0·4	+1·1	+0·6	+0·4	+1·0	+0·9
29	52·0	41·6	50·8	51·4	50·3	45·9	0·0	+0·4	0·0	+0·2	0·0	0·0	29	52·1	42·1	51·1	51·7	50·8	46·3	+0·1	+0·9	+0·3	+0·5	+0·5	+0·4
30	53·5	45·8	46·3	49·1	51·9	53·4	0·0	+0·5	0·0	−0·1	0·0	+0·2	30	53·8	45·6	46·6	49·8	52·1	53·8	+0·3	+0·3	+0·3	+0·6	+0·2	+0·6
31	53·6	40·7	51·9	52·5	46·8	41·3	−0·4	+0·5	+0·1	+0·3	+0·3	+0·2	31	53·8	40·2	52·0	52·5	46·9	41·8	−0·2	0·0	+0·2	+0·3	+0·4	+0·7
Means	46·2	35·5	40·5	44·0	43·6	40·8	−0·2	+0·4	0·0	0·0	+0·1	0·0	Means	46·7	35·4	41·0	44·4	44·0	41·3	+0·3	+0·3	+0·5	+0·3	+0·5	+0·6

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 1891.

[No observations have been made of this thermometer on Sundays, Good Friday, Christmas Day, and public holidays.]

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground.				Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground.			
	9h	Noon.	15h	21h	9h	Noon.	15h	21h
JANUARY.								
d	°	°	°	°	°	°	°	°
1	33·4	34·1	34·3	30·6	0·0	− 0·1	+ 0·2	+ 0·3
2	26·4	28·6	29·2	27·9	− 0·4	− 0·3	− 0·3	− 0·1
3	26·0	29·6	32·2	34·7	− 0·7	− 0·4	+ 0·3	− 0·1
5	28·4	31·6	32·2	27·4	0·0	− 0·1	+ 0·1	+ 0·2
6	24·1	27·4	27·2	24·8	− 0·3	− 0·1	0·0	− 0·2
7	23·2	28·5	29·1	28·4	− 0·2	− 0·4	+ 0·1	+ 0·2
8	25·3	24·4	28·8	27·9	0·0	+ 0·3	+ 0·3	− 0·1
9	26·6	28·3	27·5	23·3	− 0·3	− 0·6	+ 0·3	− 0·1
10	14·7	18·4	23·3	20·6	− 0·7	− 0·7	+ 0·1	+ 0·4
12	26·4	33·4	36·1	37·9	− 0·1	− 0·1	+ 0·2	0·0
13	38·5	39·2	39·0	38·2	− 0·2	+ 0·1	0·0	+ 0·3
14	33·6	35·0	34·0	32·2	+ 0·2	− 0·1	+ 0·1	+ 0·3
15	29·6	31·2	32·2	32·1	− 0·1	− 0·3	+ 0·1	+ 0·1
16	30·2	29·2	27·9	25·3	+ 0·1	0·0	+ 0·2	0·0
17	25·1	26·3	25·1	20·7	0·0	− 0·1	0·0	+ 0·5
19	23·0	23·7	25·9	25·4	− 0·4	0·0	+ 0·4	− 0·2
20	36·3	39·9	39·6	42·3	− 0·1	0·0	− 0·1	0·0
21	31·5	35·0	34·5	30·9	+ 0·1	+ 0·1	+ 0·2	+ 0·3
22	34·9	37·4	36·2	33·2	0·0	− 0·5	− 0·2	+ 0·3
23	41·2	46·0	46·3	47·1	− 0·2	+ 0·1	0·0	+ 0·2
24	47·1	46·8	46·4	38·5	+ 0·2	− 0·1	− 0·2	− 0·1
26	39·7	42·1	41·7	38·2	− 0·2	− 0·3	+ 0·5	+ 0·1
27	41·4	43·2	44·2	44·2	− 0·2	+ 0·1	0·0	0·0
28	44·2	46·2	46·8	45·3	+ 0·1	+ 0·1	+ 0·1	− 0·3
29	45·4	45·2	46·2	45·3	− 0·2	− 0·1	+ 0·2	− 0·2
30	41·2	45·2	46·1	41·6	+ 0·3	0·0	0·0	+ 0·3
31	44·2	46·6	46·3	43·4	− 0·3	+ 0·1	0·0	+ 0·1
Means	32·7	34·9	35·5	33·6	− 0·1	− 0·1	+ 0·1	+ 0·1
FEBRUARY.								
d	°	°	°	°	°	°	°	°
2	34·3	41·7	44·0	43·2	+ 0·2	+ 0·1	+ 0·2	+ 0·2
3	42·7	43·9	44·4	43·2	− 0·2	0·0	− 0·2	+ 0·3
4	45·1	42·1	43·0	34·5	+ 0·2	0·0	+ 0·3	+ 0·1
5	39·4	42·1	41·4	38·9	− 0·1	0·0	+ 0·4	+ 0·4
6	36·0	42·5	43·6	42·1	− 0·1	0·0	+ 0·1	+ 0·2
7	41·0	43·5	43·2	39·8	+ 0·1	− 0·4	0·0	+ 0·1
9	34·9	36·2	35·7	34·0	0·0	− 0·3	+ 0·1	+ 0·1
10	33·4	37·3	38·7	35·2	− 0·1	− 0·4	+ 0·2	0·0
11	34·2	41·4	41·1	40·2	+ 0·3	− 0·4	+ 0·2	+ 0·3
12	39·5	41·6	40·7	36·2	+ 0·2	− 0·2	− 0·2	+ 0·3
13	35·8	39·4	37·8	32·0	+ 0·2	− 0·3	+ 0·4	+ 0·4
14	35·1	39·2	40·1	39·4	+ 0·2	− 0·2	− 0·1	0·0
16	36·9	43·3	45·1	38·4	0·0	0·0	+ 1·1	0·0
17	36·0	37·3	39·6	36·5	+ 0·1	− 0·6	+ 1·0	+ 0·6
18	30·7	37·4	41·4	31·0	− 0·1	+ 0·1	+ 0·3	− 0·1
19	33·3	34·4	35·0	32·9	− 0·2	− 0·3	0·0	0·0
20	33·0	34·5	35·6	33·0	− 0·1	− 0·3	− 0·3	0·0
21	30·1	32·4	35·5	34·1	− 0·2	− 0·3	− 0·1	+ 0·1
23	28·9	31·3	37·7	30·9	− 0·3	− 0·1	+ 0·2	0·0
24	28·2	32·0	39·7	31·9	− 0·3	− 0·9	− 0·2	− 0·1
25	27·9	42·5	44·8	33·8	− 0·1	+ 0·3	− 0·2	+ 0·1
27	37·2	47·6	48·8	37·8	+ 0·3	0·0	0·0	+ 0·2
28	32·6	47·8	49·7	43·6	− 0·1	+ 0·4	+ 0·8	+ 0·1
Means	35·1	39·6	41·2	36·6	0·0	− 0·2	+ 0·2	+ 0·1

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground.				Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground.			
	9h	Noon.	15h	21h	9h	Noon.	15h	21h
MARCH.								
d	°	°	°	°	°	°	°	°
2	48·8	51·4	51·7	43·6	− 0·1	− 0·4	− 0·2	− 0·2
3	36·2	38·6	39·0	38·2	− 0·3	+ 0·2	+ 0·2	+ 0·2
4	41·2	44·9	45·1	44·1	− 0·3	+ 0·1	+ 0·1	0·0
5	46·9	48·1	49·1	43·1	− 0·2	− 0·2	− 0·4	+ 0·3
6	39·7	44·1	45·9	41·4	− 0·2	− 0·2	− 0·1	+ 0·2
7	43·6	45·2	44·1	43·7	− 0·3	0·0	+ 0·1	+ 0·1
9	34·3	35·1	34·0	29·9	− 0·2	+ 0·2	+ 0·2	0·0
10	30·5	32·1	32·2	31·2	− 0·3	+ 0·2	− 0·1	− 0·2
11	32·0	33·8	34·1	32·3	− 0·4	− 0·5	+ 0·2	+ 0·1
12	26·9	34·3	33·9	31·4	+ 0·1	− 0·2	− 1·0	+ 0·1
13	34·2	38·0	37·3	35·1	− 0·5	0·0	− 0·5	0·0
14	37·8	40·0	40·1	38·8	− 0·2	− 0·3	− 0·2	− 0·1
16	39·3	39·9	41·4	37·4	− 0·3	+ 0·1	+ 0·1	+ 0·2
17	40·1	41·8	43·1	42·5	− 0·1	− 0·2	− 0·5	− 0·1
18	41·1	40·4	43·1	34·6	+ 0·1	− 0·1	− 0·1	0·0
19	36·6	36·1	36·2	34·2	0·0	− 0·1	− 0·2	0·0
20	35·1	36·1	38·9	35·6	− 0·5	0·0	+ 0·1	− 0·1
21	35·1	35·4	35·1	30·0	− 0·2	− 0·1	+ 0·1	+ 0·4
23	32·3	35·3	38·1	30·8	− 0·4	− 1·0	0·0	+ 0·3
24	41·3	42·4	42·7	41·5	− 0·2	+ 0·3	− 0·1	− 0·1
25	46·3	44·6	47·3	43·5	− 0·6	− 0·2	0·0	+ 0·2
26	36·8	39·2	38·9	33·3	− 0·5	0·0	+ 0·3	+ 0·3
28	37·9	39·0	40·2	37·1	0·0	0·0	− 0·1	+ 0·1
31	37·3	39·4	37·8	31·9	+ 0·4	+ 0·7	+ 0·4	+ 0·7
Means	38·0	39·8	40·4	36·9	− 0·2	− 0·1	− 0·1	+ 0·1
APRIL.								
d	°	°	°	°	°	°	°	°
1	36·1	42·1	39·0	34·1	+ 0·6	+ 0·4	+ 0·3	+ 0·4
2	38·1	38·4	37·2	37·1	+ 0·2	− 0·3	+ 0·5	+ 0·3
3	39·0	41·1	43·8	42·0	− 0·3	− 0·1	− 0·6	+ 0·3
4	44·5	49·0	49·1	44·9	− 0·2	− 0·2	0·0	+ 0·1
6	45·8	48·4	48·7	43·1	− 0·4	− 0·5	+ 0·2	+ 0·5
7	39·9	40·6	40·0	37·3	− 0·1	− 0·2	+ 0·1	+ 0·4
8	37·1	38·1	40·0	38·3	+ 0·3	+ 0·2	+ 0·2	0·0
9	39·4	41·0	41·1	40·2	− 0·4	0·0	− 0·2	0·0
10	41·4	44·9	46·1	38·2	− 0·4	+ 0·2	+ 0·3	+ 0·2
11	39·1	41·1	43·6	35·1	0·0	+ 0·1	+ 0·1	+ 0·4
13	39·1	39·1	40·1	37·2	− 0·7	− 0·4	+ 0·1	+ 0·4
14	39·1	42·5	42·9	40·3	+ 0·1	− 0·5	+ 0·6	+ 0·5
15	41·1	44·1	46·1	44·9	+ 0·1	+ 0·5	+ 1·1	+ 0·7
16	46·0	46·9	48·1	46·2	+ 0·4	+ 1·2	+ 0·8	+ 1·4
17	42·1	43·7	42·4	38·9	− 0·1	+ 0·1	− 0·3	+ 0·1
18	43·3	44·8	43·7	39·6	+ 0·2	+ 0·1	− 0·1	− 0·2
20	39·5	42·9	43·1	38·1	− 0·3	− 0·4	− 0·9	+ 0·1
21	45·1	47·9	47·0	38·2	− 0·2	− 1·0	+ 0·2	+ 0·1
22	41·3	44·1	43·5	41·1	− 0·4	− 0·4	− 0·5	+ 0·1
23	45·1	44·1	44·1	39·3	− 0·3	− 0·3	+ 0·4	+ 0·3
24	41·4	45·8	44·0	40·2	− 0·4	− 0·7	0·0	+ 0·3
25	40·7	43·3	42·6	40·1	0·0	− 0·5	+ 0·2	+ 0·4
27	46·9	48·6	48·0	43·6	+ 0·2	+ 0·6	+ 0·8	+ 0·3
28	47·9	50·0	50·1	42·8	+ 1·3	+ 0·2	− 0·1	+ 0·3
29	41·9	47·4	49·1	49·0	+ 0·2	− 0·1	− 0·1	+ 0·2
30	52·5	56·2	55·1	51·5	+ 0·1	− 0·6	− 0·4	+ 0·2
Means	42·1	44·5	44·6	40·8	0·0	− 0·1	+ 0·1	+ 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
	°	°	°	°	°	°	°	°
1	52·1	53·1	52·8	48·1	− 0·2	0·0	− 0·7	+ 0·3
2	49·1	51·5	48·3	43·2	− 0·3	0·0	− 0·4	+ 0·2
4	50·0	49·2	50·1	47·9	− 0·8	0·0	− 0·1	− 0·3
5	47·4	48·4	47·9	42·1	− 0·6	− 1·0	+ 0·3	+ 0·1
6	45·1	53·3	52·3	47·1	− 0·4	− 0·5	0·0	+ 0·1
7	51·6	51·3	53·0	47·9	+ 0·7	+ 0·2	+ 0·6	+ 0·3
8	51·2	52·2	52·7	48·5	− 0·6	− 0·6	+ 0·2	+ 0·2
9	50·6	51·6	51·3	46·4	− 0·8	+ 0·1	− 0·1	− 0·3
11	54·6	62·6	61·8	52·9	− 0·1	+ 0·6	+ 0·5	+ 0·2
12	52·4	64·0	67·1	57·7	+ 0·2	+ 0·4	+ 0·5	+ 0·5
13	58·6	62·6	63·4	57·2	− 0·1	+ 0·5	+ 0·7	+ 1·1
14	55·1	55·8	57·1	48·1	− 0·1	0·0	+ 0·8	+ 0·9
15	46·8	47·9	47·1	43·0	+ 0·3	+ 0·7	+ 0·6	+ 0·1
16	41·1	42·2	38·1	35·5	− 1·0	− 0·2	+ 0·1	− 0·3
19	42·3	44·1	48·1	42·7	− 0·1	− 0·5	0·0	+ 0·3
20	47·1	46·9	49·0	44·1	+ 0·1	− 0·6	− 0·3	+ 0·1
21	44·3	47·1	47·1	45·3	− 0·2	− 0·2	− 0·1	+ 0·2
22	47·1	49·1	48·8	44·1	0·0	− 0·7	0·0	+ 0·3
23	45·9	47·6	49·4	45·8	+ 0·1	− 0·5	+ 0·4	+ 0·3
25	42·8	43·1	43·1	41·8	− 0·2	0·0	+ 0·1	+ 0·2
26	45·1	48·1	46·4	42·6	+ 0·3	− 0·1	− 0·4	+ 0·2
27	48·1	45·1	49·9	45·1	+ 0·4	− 1·0	− 0·8	+ 0·7
28	47·8	51·1	49·1	44·2	− 0·6	− 0·4	− 0·5	+ 0·2
29	49·9	50·9	52·0	48·9	− 0·1	− 0·3	− 1·0	0·0
Means	48·6	50·8	51·1	46·3	− 0·2	− 0·2	0·0	+ 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
	°	°	°	°	°	°	°	°
1	60·5	62·1	61·2	56·2	+ 0·4	− 0·3	+ 0·2	+ 0·1
2	53·1	53·9	55·7	55·1	− 0·9	− 0·1	− 0·5	0·0
3	58·0	61·1	62·5	55·7	− 0·7	0·0	− 0·5	0·0
4	56·7	59·7	59·0	54·4	− 0·1	− 0·4	0·0	0·0
5	58·4	59·1	62·1	52·8	− 0·2	0·0	+ 0·2	0·0
6	54·4	56·4	56·0	49·1	− 0·6	+ 0·6	− 0·3	+ 0·2
8	52·2	56·1	54·0	53·1	− 0·1	− 0·3	+ 0·2	+ 0·3
9	52·1	51·8	50·1	45·8	0·0	+ 0·4	0·0	+ 0·3
10	51·1	55·5	56·6	48·8	+ 0·2	− 0·5	+ 0·1	− 0·1
11	46·3	49·8	52·9	47·3	− 0·8	0·0	+ 0·4	+ 0·5
12	47·9	50·9	54·2	48·1	+ 0·1	+ 0·2	+ 0·3	+ 0·2
13	56·6	60·1	62·4	58·1	− 0·1	+ 1·0	+ 0·9	+ 0·5
15	54·1	58·2	60·4	53·3	− 0·2	+ 0·6	+ 0·3	+ 0·2
16	53·8	55·6	58·3	54·3	+ 0·3	+ 0·5	− 0·1	+ 0·5
17	60·0	61·3	63·5	60·3	+ 0·2	+ 0·7	+ 0·7	+ 0·5
18	62·8	68·1	68·1	60·1	0·0	+ 0·6	+ 0·4	+ 0·3
19	62·1	65·7	65·1	56·5	+ 0·2	+ 0·2	+ 0·3	+ 0·1
20	59·9	61·3	59·8	53·2	+ 0·1	+ 0·5	0·0	+ 0·2
22	60·8	65·2	64·1	58·4	0·0	+ 0·8	+ 0·4	+ 0·1
23	57·1	58·5	60·0	57·1	+ 0·1	− 0·1	+ 0·2	+ 0·1
24	64·3	64·9	64·8	62·7	− 0·5	+ 0·3	+ 0·5	+ 0·3
25	64·2	69·9	69·6	64·2	+ 0·1	+ 0·2	+ 0·5	+ 0·5
26	64·1	67·7	64·1	58·0	− 0·3	+ 0·6	− 0·7	+ 0·2
27	58·1	60·7	60·7	53·1	− 0·5	+ 0·1	− 0·3	− 0·4
29	60·4	61·1	61·9	57·6	− 0·2	+ 0·4	− 0·4	− 0·3
30	60·1	61·3	63·1	58·9	− 0·1	− 0·3	+ 0·1	+ 0·2
Means	57·2	59·8	60·4	55·1	− 0·1	+ 0·2	+ 0·1	+ 0·2

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
	°	°	°	°	°	°	°	°
1	58·3	59·1	64·1	58·1	− 0·1	− 0·1	− 0·3	0·0
2	58·4	59·2	60·0	53·6	− 0·6	0·0	− 0·1	− 0·1
3	59·1	59·2	58·4	55·6	0·0	+ 0·4	− 0·6	+ 0·4
4	59·1	61·1	60·2	57·2	+ 0·7	0·0	+ 0·3	− 0·1
6	59·1	63·1	63·8	53·6	0·0	+ 0·6	− 0·3	+ 0·5
7	55·0	55·4	58·1	54·2	+ 0·5	+ 0·4	+ 0·2	− 0·2
8	55·1	56·7	58·1	54·3	+ 0·3	+ 0·4	+ 0·2	+ 0·4
9	56·8	59·0	59·5	55·1	− 0·4	+ 0·3	+ 0·2	+ 0·6
10	53·6	58·1	59·7	58·4	+ 0·4	+ 0·3	0·0	+ 0·8
11	57·1	59·5	60·5	56·4	− 0·2	− 0·9	+ 0·6	+ 0·2
13	61·4	63·4	57·3	54·2	− 0·1	+ 0·3	− 0·6	− 0·5
14	58·8	56·1	58·1	55·0	− 0·4	+ 0·2	0·0	+ 0·2
15	60·2	62·9	61·7	56·1	− 0·6	+ 0·2	+ 0·5	+ 0·1
16	58·3	64·3	66·3	58·2	+ 0·2	+ 0·3	+ 0·3	+ 0·3
17	64·3	64·3	65·1	58·6	− 0·2	− 0·5	− 0·3	− 0·2
18	61·3	62·5	63·0	58·0	− 0·6	+ 0·1	+ 0·2	+ 0·2
20	58·2	59·6	60·7	56·6	− 0·6	+ 0·2	− 0·5	− 0·2
21	62·1	62·3	62·1	57·8	+ 0·3	− 0·3	− 0·6	− 0·2
22	55·7	59·5	59·1	54·1	− 0·1	− 0·3	+ 0·5	+ 0·3
23	54·3	56·3	55·8	54·2	+ 0·1	− 0·3	0·0	− 0·1
24	57·3	58·2	58·8	58·1	− 0·1	− 0·4	− 0·2	+ 0·3
25	56·9	57·9	59·0	56·1	− 0·2	− 0·2	− 0·3	+ 0·1
27	59·0	58·7	59·9	50·4	+ 0·3	+ 0·1	+ 0·2	0·0
28	52·1	53·1	52·3	51·3	− 0·5	0·0	− 0·4	+ 0·1
29	53·7	55·1	56·5	52·1	+ 0·5	+ 0·3	− 0·3	0·0
30	53·5	55·1	54·1	51·2	− 0·4	− 1·0	− 0·7	+ 0·2
31	55·1	56·2	57·2	54·1	0·0	− 0·4	− 0·1	+ 0·1
Means	57·5	59·1	59·6	55·3	− 0·1	0·0	− 0·1	+ 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
	°	°	°	°	°	°	°	°
1	54·7	57·0	57·2	54·8	+ 0·5	+ 0·1	+ 0·3	+ 0·5
4	56·3	57·3	52·4	52·2	+ 0·5	+ 0·6	0·0	+ 0·1
5	54·3	57·3	60·1	54·2	− 0·5	+ 0·1	+ 0·3	+ 0·2
6	51·7	54·4	55·4	53·0	− 0·1	0·0	0·0	+ 0·3
7	52·9	53·8	55·7	55·4	− 0·1	+ 0·2	0·0	+ 0·4
8	60·0	63·3	60·9	58·9	+ 0·2	+ 0·2	+ 0·1	+ 0·2
10	57·1	62·6	60·1	55·1	0·0	+ 0·1	− 0·1	+ 0·3
11	59·7	60·3	60·1	56·2	+ 0·3	+ 0·2	+ 0·2	0·0
12	60·0	62·3	63·0	55·8	− 0·2	+ 0·5	− 0·6	0·0
13	56·4	59·4	60·4	61·0	0·0	+ 0·2	− 0·6	− 0·4
14	61·4	63·1	64·8	60·8	− 0·3	− 0·4	− 0·3	− 0·1
15	62·0	57·7	60·2	55·3	0·0	− 0·4	0·0	+ 0·2
17	59·1	60·3	59·1	57·2	+ 0·8	− 0·1	0·0	+ 0·2
18	60·6	59·5	62·1	54·8	0·0	+ 0·3	− 0·3	+ 0·4
19	56·1	59·6	58·5	52·5	0·0	+ 0·6	+ 0·1	+ 0·2
20	57·4	57·3	55·9	53·7	+ 0·3	+ 0·2	+ 0·2	+ 0·1
21	53·8	54·8	55·3	53·3	0·0	0·0	− 0·2	0·0
22	56·1	58·2	56·1	55·1	+ 0·7	+ 0·5	+ 0·6	+ 0·4
24	57·5	57·1	56·9	55·1	+ 1·2	+ 0·7	+ 0·2	+ 0·3
25	56·0	57·0	56·2	58·3	+ 0·2	+ 0·1	− 0·1	− 0·4
26	57·1	62·2	60·3	60·6	− 0·1	− 0·5	− 0·1	+ 0·3
27	59·8	61·3	58·8	55·0	− 0·3	− 0·4	− 0·4	0·0
28	55·4	57·8	56·6	53·2	+ 0·4	+ 1·0	− 0·2	+ 0·4
29	54·3	55·2	55·3	50·8	− 0·1	− 0·6	− 0·3	+ 0·4
31	56·1	59·4	56·4	59·6	0·0	− 0·3	− 0·5	+ 0·1
Means	57·0	58·7	58·3	55·7	+ 0·1	+ 0·1	− 0·1	+ 0·2

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

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground.				Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground.			
	9h	Noon.	15h	21h	9h	Noon.	15h	21h
SEPTEMBER.								
d	°	°	°	°	°	°	°	°
1	58·4	60·0	58·6	54·2	0·0	+ 0·2	− 0·2	+ 0·5
2	56·4	57·1	56·9	54·3	0·0	+ 0·9	+ 0·3	+ 0·3
3	54·9	56·6	57·1	53·3	+ 0·1	− 0·1	+ 0·6	0·0
4	57·6	58·9	59·6	52·3	+ 0·1	− 0·7	+ 0·9	+ 0·2
5	57·0	59·2	57·7	52·3	0·0	+ 0·3	− 0·1	+ 0·3
7	54·8	59·3	61·1	58·7	0·0	+ 1·0	+ 0·6	+ 0·2
8	60·8	65·1	61·3	55·3	+ 1·0	+ 1·3	+ 0·5	+ 0·4
9	63·2	65·3	64·2	57·3	+ 0·2	+ 0·6	+ 0·1	+ 0·2
10	65·3	67·6	66·1	57·2	+ 0·5	+ 1·3	+ 0·9	+ 0·3
11	59·9	67·7	66·6	57·2	+ 0·1	+ 1·6	+ 1·6	+ 0·5
12	62·1	69·3	65·1	58·0	− 0·6	+ 1·4	+ 0·6	− 0·1
14	62·8	64·3	62·1	54·9	+ 0·1	+ 0·1	− 0·3	+ 0·2
15	55·5	57·1	59·4	53·1	+ 0·7	+ 0·1	− 0·4	− 0·2
16	50·1	55·1	55·3	54·3	0·0	+ 0·1	+ 0·1	+ 0·1
17	57·3	58·2	59·1	57·2	− 0·4	− 0·4	− 0·6	− 0·3
18	60·8	62·8	65·1	60·7	− 0·1	− 0·1	− 0·3	− 0·2
19	62·1	63·1	63·2	59·1	0·0	− 0·6	+ 0·1	− 0·1
21	49·7	52·5	52·0	47·1	+ 0·1	− 0·3	− 0·3	0·0
22	50·6	54·7	54·5	49·0	− 0·2	+ 0·5	− 0·5	+ 0·1
23	53·7	54·4	54·3	49·1	− 0·3	− 0·4	− 0·3	− 0·1
24	56·7	57·5	56·3	54·9	− 0·1	+ 0·5	− 0·7	0·0
25	58·3	60·2	59·1	52·3	− 0·4	+ 0·1	− 0·4	− 0·2
26	55·9	57·1	57·1	51·3	+ 0·1	+ 0·1	+ 0·2	+ 0·3
28	54·9	58·1	59·9	51·6	− 0·2	− 0·1	+ 0·1	+ 0·4
29	59·1	61·1	61·1	57·0	+ 0·4	+ 1·1	+ 1·1	+ 0·2
30	55·4	57·3	56·7	56·0	+ 0·7	+ 1·4	+ 0·6	+ 0·4
Means	57·4	60·0	59·6	54·5	+ 0·1	+ 0·4	+ 0·2	+ 0·1
OCTOBER.								
d	°	°	°	°	°	°	°	°
1	58·2	59·2	58·3	49·8	+ 0·1	+ 0·4	+ 0·5	0·0
2	49·4	51·3	51·5	46·6	0·0	+ 0·1	+ 0·4	+ 0·6
3	51·3	53·9	55·0	48·7	+ 1·0	+ 0·6	+ 0·8	+ 0·8
5	49·5	54·8	53·5	51·5	+ 0·7	+ 0·3	+ 0·4	+ 0·5
6	55·1	56·2	58·5	52·6	+ 0·3	+ 0·4	− 0·1	0·0
7	52·1	54·9	53·3	47·1	+ 0·3	+ 0·2	− 0·4	+ 0·2
8	51·6	53·1	53·1	52·0	+ 0·5	+ 1·3	− 0·1	+ 0·3
9	59·1	62·2	59·0	50·4	+ 0·1	+ 0·4	− 0·1	+ 0·1
10	56·0	58·5	57·3	56·4	+ 0·1	− 0·1	− 0·3	0·0
12	47·3	52·2	51·9	44·2	− 1·1	+ 0·7	+ 0·1	+ 0·3
13	49·1	49·7	50·0	57·1	+ 1·1	− 0·1	+ 0·2	+ 0·2
14	50·2	51·4	51·0	48·2	+ 0·2	+ 0·4	− 0·2	+ 0·2
15	52·4	49·3	48·4	44·3	0·0	− 0·3	0·0	+ 0·3
16	51·6	49·9	49·3	47·0	− 0·2	+ 0·1	0·0	+ 0·3
17	47·0	51·1	48·8	45·6	+ 0·5	+ 0·1	+ 0·1	+ 0·2
19	52·1	50·3	50·0	46·1	− 0·1	− 0·1	0·0	+ 0·3
20	49·4	52·7	53·2	47·1	− 0·1	− 0·1	+ 0·1	+ 0·2
21	53·1	51·1	49·9	47·7	+ 0·1	− 0·2	+ 0·1	− 0·1
22	51·6	50·5	49·8	55·9	0·0	− 0·1	− 0·1	− 0·1
23	54·9	48·4	50·0	46·0	+ 0·1	+ 0·1	+ 0·2	+ 0·3
24	49·2	48·4	47·2	44·9	+ 0·6	+ 0·5	+ 0·1	− 0·6
26	53·1	52·4	52·4	52·1	0·0	− 0·2	+ 0·1	+ 0·1
27	51·1	51·0	49·7	46·9	− 0·1	+ 0·1	0·0	+ 0·1
28	45·3	45·1	43·3	39·6	+ 0·7	+ 0·1	+ 0·1	+ 0·3
29	40·1	46·9	46·4	43·4	+ 0·2	+ 1·0	0·0	0·0
30	39·3	42·8	39·9	35·8	+ 0·7	+ 0·8	+ 0·1	+ 0·3
31	36·4	42·1	41·8	42·3	+ 0·6	+ 1·1	+ 0·2	+ 0·1
Means	50·2	51·5	50·8	47·8	+ 0·2	+ 0·3	+ 0·1	+ 0·2

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground.				Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground.			
	9h	Noon.	15h	21h	9h	Noon.	15h	21h
NOVEMBER.								
d	°	°	°	°	°	°	°	°
2	47·3	48·0	45·8	42·2	+ 0·5	+ 0·1	+ 0·2	− 0·3
3	43·0	45·1	44·7	43·5	+ 0·2	+ 0·1	+ 0·1	0·0
4	45·1	45·3	47·0	46·9	0·0	− 0·2	+ 0·1	+ 0·2
5	42·3	40·6	40·3	38·1	0·0	− 0·2	+ 0·2	+ 0·5
6	39·1	39·7	41·3	41·5	− 0·1	− 0·1	− 0·2	+ 0·2
7	41·9	44·2	44·1	40·1	− 0·1	− 0·3	0·0	+ 0·5
9	43·1	45·5	45·0	40·0	+ 0·2	0·0	0·0	+ 0·2
10	39·5	44·3	44·1	44·6	0·0	+ 0·8	− 0·2	+ 0·1
11	51·4	51·9	42·1	39·1	+ 0·1	0·0	− 0·1	+ 0·3
12	41·0	44·9	44·3	45·1	+ 0·1	+ 0·7	+ 0·3	+ 0·3
13	45·6	48·8	47·2	42·3	0·0	+ 0·5	+ 0·4	+ 0·3
14	44·1	47·3	46·2	44·2	− 0·2	+ 0·3	+ 0·2	+ 0·1
16	45·8	45·9	45·2	47·0	0·0	+ 0·1	0·0	+ 0·2
17	44·9	47·7	45·1	41·8	+ 0·1	− 0·1	+ 0·5	+ 0·3
18	41·1	48·3	52·9	54·9	0·0	0·0	+ 0·1	+ 0·3
19	52·7	53·2	52·4	47·2	+ 0·2	0·0	+ 0·1	+ 0·3
20	46·2	47·1	47·2	43·6	0·0	+ 0·5	+ 0·5	+ 0·3
21	38·3	41·9	42·2	40·4	0·0	+ 0·1	0·0	+ 0·2
23	37·5	37·7	38·2	37·9	0·0	0·0	0·0	+ 0·1
24	35·8	38·1	38·6	33·8	+ 0·3	0·0	+ 0·3	0·0
25	29·6	39·1	38·5	39·8	− 0·2	+ 0·6	+ 0·5	+ 0·2
26	34·6	39·9	38·8	38·1	+ 0·3	+ 0·2	+ 0·6	+ 0·1
27	34·0	36·1	37·1	33·0	+ 0·2	+ 0·2	+ 0·9	+ 0·9
28	37·1	41·4	40·0	41·7	+ 0·1	+ 0·2	+ 0·3	+ 0·2
30	36·6	39·1	39·1	35·3	0·0	− 0·1	+ 0·1	+ 0·1
Means	41·5	44·1	43·5	41·7	+ 0·1	+ 0·1	+ 0·2	+ 0·2
DECEMBER.								
d	°	°	°	°	°	°	°	°
1	43·7	46·9	45·3	45·3	+ 0·2	+ 0·3	+ 0·3	+ 0·2
2	45·3	47·1	46·6	39·6	+ 0·2	+ 0·1	+ 0·1	+ 0·5
3	48·5	52·1	53·1	53·4	− 0·1	− 0·1	+ 0·2	+ 0·1
4	52·6	53·8	49·2	45·1	+ 0·1	− 0·3	− 0·3	+ 0·3
5	53·0	53·9	53·9	53·0	+ 0·1	+ 0·1	+ 0·1	+ 0·2
7	46·1	46·2	44·4	40·4	0·0	− 0·4	0·0	− 0·2
8	38·3	43·1	43·9	45·1	− 0·2	− 0·2	+ 0·1	+ 0·3
9	45·2	44·3	43·1	45·8	0·0	+ 0·1	+ 0·3	0·0
10	50·1	51·6	46·6	42·6	− 0·2	− 0·3	− 0·2	0·0
11	39·1	40·3	38·6	35·1	0·0	0·0	0·0	+ 0·4
12	32·6	37·9	40·1	49·7	+ 0·5	− 0·1	− 0·2	− 0·1
14	42·0	42·5	42·3	40·3	− 0·1	− 0·1	0·0	+ 0·2
15	41·1	43·8	48·3	50·1	− 0·2	0·0	0·0	+ 0·2
16	40·6	43·3	44·0	41·3	+ 0·4	− 0·3	0·0	0·0
17	32·9	37·3	37·2	33·1	+ 0·2	+ 0·3	+ 0·5	+ 0·5
18	31·7	34·0	32·2	28·6	+ 0·4	+ 0·2	0·0	0·0
19	24·8	31·0	31·3	26·1	− 0·5	+ 0·2	+ 0·5	− 0·3
21	21·0	29·9	30·1	24·6	− 0·5	0·0	+ 0·5	− 0·4
22	18·1	22·7	28·1	22·1	− 0·7	0·0	− 0·3	− 0·6
23	25·6	27·9	29·7	21·8	− 0·4	− 0·2	− 0·1	− 0·2
24	24·7	25·7	24·9	24·0	− 0·1	− 0·1	+ 0·1	− 0·2
28	38·3	39·3	38·9	40·9	+ 0·2	0·0	+ 0·4	+ 0·2
29	49·7	47·7	46·6	45·2	0·0	+ 0·1	0·0	+ 0·2
30	45·8	48·9	51·1	51·9	0·0	0·0	+ 0·1	+ 0·2
31	51·0	47·9	41·9	39·1	+ 0·1	+ 0·2	+ 0·3	0·0
Means	39·3	41·6	41·3	39·4	0·0	0·0	+ 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.

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	52·16	51·34	50·29	49·34	48·70	48·39	48·56	49·25	50·24	51·12	51·81	52·10
2	52·13	51·30	50·27	49·32	48·67	48·38	48·56	49·25	50·27	51·12	51·82	52·10
3	52·12	51·27	50·22	49·29	48·67	48·38	48·58	49·30	50·31	51·15	51·82	52·12
4	52·11	51·24	50·19	49·27	48·65	48·38	48·60	49·32	50·33	51·18	51·84	52·13
5	52·08	51·20	50·16	49·25	48·64	48·38	48·59	49·36	50·35	51·21	51·85	52·12
6	52·10	51·15	50·11	49·23	48·63	48·37	48·62	49·40	50·40	51·21	51·84	52·10
7	52·06	51·11	50·09	49·18	48·61	48·37	48·64	49·41	50·43	51·26	51·87	52·09
8	51·98	51·06	50·05	49·17	48·59	48·38	48·65	49·46	50·47	51·27	51·87	52·09
9	51·98	51·02	50·00	49·15	48·56	48·37	48·68	49·48	50·49	51·31	51·90	52·10
10	51·94	50·99	49·96	49·13	48·53	48·37	48·70	49·53	50·54	51·33	51·92	52·10
11	51·93	50·95	49·93	49·09	48·56	48·38	48·72	49·54	50·60	51·35	51·95	52·08
12	51·92	50·94	49·90	49·08	48·55	48·40	48·74	49·59	50·60	51·36	51·95	52·06
13	51·91	50·88	49·88	49·04	48·53	48·41	48·77	49·63	50·63	51·37	51·97	52·07
14	51·88	50·85	49·84	49·04	48·52	48·41	48·78	49·65	50·65	51·41	51·97	52·06
15	51·84	50·83	49·82	49·02	48·50	48·40	48·79	49·66	50·68	51·42	51·98	52·06
16	51·80	50·78	49·79	49·00	48·47	48·42	48·80	49·72	50·69	51·46	52·00	52·06
17	51·77	50·71	49·76	48·97	48·47	48·43	48·85	49·72	50·72	51·47	52·02	52·02
18	51·74	50·69	49·74	48·96	48·47	48·43	48·87	49·76	50·76	51·48	52·04	52·01
19	51·70	50·64	49·69	48·93	48·45	48·44	48·89	49·82	50·78	51·52	52·06	51·99
20	51·70	50·60	49·67	48·90	48·44	48·47	48·91	49·86	50·82	51·55	52·05	51·98
21	51·65	50·55	49·64	48·90	48·42	48·45	48·94	49·87	50·82	51·58	52·04	51·96
22	51·65	50·53	49·60	48·86	48·41	48·46	48·95	49·90	50·84	51·58	52·04	51·94
23	51·62	50·47	49·58	48·84	48·42	48·46	48·98	49·92	50·89	51·61	52·06	51·95
24	51·60	50·45	49·56	48·82	48·40	48·47	49·01	49·95	50·91	51·62	52·06	51·92
25	51·56	50·43	49·53	48·81	48·40	48·47	49·05	50·01	50·96	51·65	52·06	51·93
26	51·52	50·40	49·50	48·77	48·39	48·50	49·07	50·04	50·96	51·67	52·06	51·95
27	51·51	50·37	49·46	48·78	48·39	48·50	49·09	50·06	50·99	51·69	52·06	51·92
28	51·48	50·35	49·45	48·76	48·38	48·52	49·13	50·10	51·03	51·71	52·08	51·91
29	51·42		49·43	48·74	48·38	48·53	49·13	50·14	51·10	51·74	52·10	51·92
30	51·40		49·37	48·72	48·36	48·54	49·15	50·16	51·08	51·74	52·07	51·89
31	51·38		49·37		48·38		49·20	50·20		51·76		51·90
Means	51·79	50·82	49·80	49·01	48·50	48·43	48·84	49·71	50·68	51·45	51·97	52·02

The mean of the twelve monthly values is 50°·25.

(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.

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	49·80	46·69	45·82	45·41	45·71	47·70	50·23	53·37	54·75	55·50	54·93	52·88
2	49·79	46·60	45·80	45·41	45·71	47·72	50·39	53·38	54·79	55·48	54·89	52·79
3	49·66	46·53	45·77	45·40	45·80	47·76	50·50	53·50	54·79	55·49	54·80	52·72
4	49·57	46·48	45·74	45·40	45·84	47·82	50·63	53·59	54·86	55·50	54·75	52·65
5	49·42	46·40	45·70	45·39	45·88	47·89	50·71	53·62	54·87	55·50	54·68	52·57
6	49·30	46·35	45·67	45·38	45·93	47·91	50·88	53·67	54·90	55·50	54·60	52·44
7	49·18	46·32	45·68	45·35	45·99	47·97	50·99	53·71	54·91	55·52	54·57	52·35
8	49·07	46·26	45·64	45·34	46·02	48·07	51·09	53·83	55·00	55·49	54·48	52·27

(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.*

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
9	48·98	46·21	45·61	45·32	46·06	48·10	51·21	53·81	55·02	55·56	54·45	52·20
10	48·84	46·20	45·61	45·36	46·10	48·18	51·36	53·91	55·07	55·52	54·40	52·12
11	48·76	46·17	45·60	45·32	46·22	48·27	51·47	53·92	55·07	55·50	54·35	52·02
12	48·65	46·17	45·58	45·35	46·27	48·33	51·60	54·00	55·10	55·48	54·26	51·90
13	48·59	46·12	45·60	45·35	46·33	48·47	51·73	54·04	55·11	55·46	54·21	51·88
14	48·47	46·12	45·60	45·37	46·40	48·55	51·81	54·09	55·10	55·45	54·11	51·78
15	48·35	46·11	45·60	45·38	46·44	48·61	51·90	54·09	55·09	55·41	54·04	51·73
16	48·22	46·09	45·60	45·40	46·50	48·73	52·02	54·12	55·08	55·42	53·97	51·68
17	48·12	46·06	45·60	45·41	46·60	48·81	52·15	54·17	55·12	55·39	53·91	51·57
18	48·01	46·04	45·60	45·42	46·61	48·96	52·20	54·20	55·18	55·40	53·84	51·50
19	47·90	46·02	45·58	45·45	46·73	49·01	52·30	54·22	55·20	55·35	53·79	51·44
20	47·82	46·02	45·57	45·45	46·82	49·08	52·35	54·23	55·22	55·38	53·68	51·38
21	47·71	45·99	45·55	45·48	46·89	49·19	52·46	54·29	55·20	55·32	53·55	51·30
22	47·63	45·96	45·54	45·47	46·97	49·32	52·51	54·34	55·25	55·30	53·48	51·32
23	47·52	45·93	45·53	45·50	47·08	49·37	52·59	54·37	55·28	55·27	53·40	51·20
24	47·44	45·92	45·52	45·51	47·16	49·50	52·70	54·40	55·30	55·20	53·31	51·13
25	47·32	45·91	45·51	45·53	47·22	49·60	52·80	54·50	55·37	55·18	53·22	51·09
26	47·21	45·89	45·51	45·55	47·30	49·71	52·90	54·57	55·34	55·18	53·16	5 09
27	47·12	45·88	45·48	45·60	47·40	49·81	52·92	54·57	55·39	55·12	53·10	5 00
28	47·04	45·82	45·47	45·62	47·42	49·94	53·04	54·59	55·45	55·08	53·05	50 90
29	46·95		45·46	45·65	47·51	50·04	53·08	54·67	55·45	55·03	53·01	50·84
30	46·85		45·43	45·70	47·58	50·15	53·15	54·68	55·47	54·99	52·89	50·80
31	46·77		45·43		47·63		53·28	54·80		54·91		50·67
Means	48·26	46·15	45·60	45·44	46·58	48·75	51·90	54·10	55·12	55·35	53·96	51·71

The mean of the twelve monthly values is 50°·24.

(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.

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	45·36	...	...	44·11	46·54	50·08	56·11	58·46	58·62	58·47	55·22	50·88
2	45·22	...	...	44·13	46·70	50·17	56·41	58·37	58·58	58·36	55·03	50·68
3	45·10	...	...	44·10	46·89	50·32	56·61	58·41	58·50	58·39	54·81	50·51
4	44·96	...	...	44·12	47·07	50·58	56·75	58·40	58·56	58·36	54·65	50·40
5	44·86	...	43·79	44·14	47·24	50·83	56·87	58·33	58·51	58·26	54·49	50·31
6	44·72	...	43·90	44·20	47·40	51·06	57·01	58·30	58·52	58·19	54·30	50·23
7	44·61	...	44·01	44·30	47·55	51·30	57·06	58·30	58·50	58·09	54·21	50·28
8	44·50	43·71	44·11	44·41	47·70	51·57	57·14	58·34	58·54	57·92	54·04	50·28
9	44·40	43·78	44·22	44·56	47·87	51·75	57·32	58·20	58·51	57·91	53·93	50·32
10	44·27	43·80	44·33	44·69	48·04	51·97	57·33	58·24	58·56	57·76	53·77	50·35
11	44·16	43·88	44·41	44·78	48·29	52·13	57·36	58·20	58·50	57·65	53·61	50·20
12	44·02	43·91	44·42	44·84	48·44	52·30	57·39	58·23	58·61	57·57	53·20	50·14
13	43·88	43·90	44·40	44·90	48·60	52·49	57·41	58·22	58·68	57·46	53·08	50·13
14	43·76	43·93	44·28	44·97	48·79	52·62	57·41	58·27	58·70	57·43	52·76	50·02
15	43·63	43·95	44·15	45·02	48·96	52·78	57·52	58·21	58·73	57·35	52·76	49·94

(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.*

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
16	...	43·96	44·08	45·06	49·22	52·93	57·59	58·31	58·80	57·26	52·65	49·90
17	...	43·95	44·01	45·11	49·50	53·16	57·70	58·41	58·90	57·09	52·57	49·88
18	...	43·97	43·99	45·16	49·63	53·35	57·73	58·50	58·97	56·98	52·47	49·81
19	...	43·97	44·00	45·21	49·79	53·52	57·82	58·57	58·97	56·83	52·40	49·70
20	...	43·93	44·01	45·30	49·81	53·69	57·95	58·60	58·90	56·69	52·30	49·63
21	...	43·90	44·08	45·40	49·78	53·91	58·11	58·70	58·86	56·52	52·20	49·47
22	...	43·80	44·08	45·48	49·75	54·20	58·20	58·77	58·86	56·39	52·16	49·22
23	...	43·77	44·08	45·56	49·74	54·39	58·29	58·71	58·88	56·16	52·13	49·02
24	...	43·74	44·03	45·68	49·73	54·70	58·35	58·71	58·89	56·00	52·02	48·73
25	...	43·67	44·01	45·80	49·73	54·95	58·42	58·68	58·84	55·95	51·91	48·45
26	...	43·67	43·95	45·92	49·75	55·19	58·49	58·68	58·70	55·91	51·71	48·20
27	...	43·63	43·95	46·10	49·80	55·32	58·41	58·60	58·65	55·75	51·60	47·90
28	...	...	44·01	46·21	49·80	55·56	58·46	58·60	58·66	55·62	51·45	47·63
29	...		44·06	46·32	49·82	55·71	58·45	58·61	58·60	55·53	51·28	47·42
30	...		44·06	46·44	49·81	55·94	58·47	58·60	58·52	55·45	51·00	47·25
31	...		44·10		49·94		58·50	58·61		55·30		47·11
Means	...	...	(27 days) 44·09	45·07	48·76	52·95	57·63	58·46	58·69	57·05	52·99	49·48

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 January 16 to February 7, and from February 28 to March 4 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.

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	39·23	40·40	40·31	41·46	46·82	51·14	61·02	59·61	59·52	58·86	52·11	46·25
2	39·14	40·68	40·76	41·38	47·32	51·80	61·10	59·61	59·63	58·32	51·90	46·12
3	39·07	40·63	41·41	41·45	47·71	52·20	60·99	59·96	59·58	58·64	51·82	46·36
4	39·00	40·80	41·77	41·72	47·73	53·16	60·97	59·99	59·60	58·20	51·65	46·52
5	38·92	41·07	41·87	42·10	47·90	53·70	60·79	59·80	59·46	57·80	51·50	47·15
6	38·86	41·04	42·13	42·61	48·10	53·94	60·72	59·62	59·44	57·50	51·31	47·52
7	38·71	40·98	42·42	43·05	48·56	54·23	60·66	59·52	59·32	57·33	51·05	47·82
8	38·55	41·05	42·61	43·33	48·93	54·56	60·41	59·42	59·40	57·17	50·76	47·80
9	38·40	41·11	42·65	43·25	49·15	54·61	60·21	59·40	59·61	57·10	50·44	47·61
10	38·22	41·11	42·38	43·22	49·38	54·70	59·98	59·62	59·92	57·13	50·06	47·55
11	38·01	41·00	41·40	43·25	49·53	54·78	59·98	59·56	60·15	57·16	49·66	47·59
12	37·80	40·94	41·41	43·30	49·80	54·92	59·98	59·63	60·43	57·02	49·40	47·32
13	37·62	41·01	40·96	43·28	50·52	55·23	60·23	59·84	60·71	56·81	49·30	46·83
14	37·51	40·99	40·69	43·35	51·35	55·42	60·41	60·12	60·91	56·45	49·22	46·75
15	37·43	40·91	40·73	43·30	51·89	55·85	60·59	60·40	61·04	56·12	49·12	46·89
16	37·38	40·99	40·92	43·38	51·87	56·17	60·80	60·72	60·71	55·80	49·12	46·84
17	37·37	40·95	41·02	43·63	51·49	56·44	61·09	60·79	60·34	55·42	49·22	46·85
18	37·30	40·83	41·22	43·90	50·76	56·76	61·37	60·71	60·10	55·21	49·26	46·50
19	37·21	40·55	41·37	44·03	50·29	57·27	61·68	60·77	60·09	54·90	49·17	45·88
20	37·20	40·37	41·45	44·12	49·76	57·81	61·60	60·61	60·23	54·70	49·43	45·05

(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.*

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
21	37·00	40·21	41·38	44·37	49·51	58·30	61·47	60·40	60·18	54·50	49·50	44·25
22	37·02	40·11	41·17	44·55	49·52	58·82	61·51	60·18	59·92	54·22	49·29	43·58
23	37·00	40·05	40·85	44·91	49·57	59·08	61·50	59·70	59·62	54·05	48·84	42·92
24	37·08	40·05	40·73	45·17	49·66	59·28	61·50	59·69	59·31	54·15	48·45	42·32
25	37·38	40·00	40·89	45·49	49·72	59·32	61·19	59·67	59·11	54·04	48·08	41·90
26	37·70	39·96	41·30	45·65	49·62	59·58	61·10	59·73	59·00	53·83	47·63	41·55
27	37·98	40·02	41·59	45·78	49·49	59·84	61·07	59·75	59·05	53·72	47·21	41·41
28	38·34	40·15	41·54	45·88	49·51	60·18	61·08	59·86	58·97	53·75	46·82	41·62
29	38·90		41·43	46·14	49·77	60·50	60·60	59·80	58·69	53·59	46·42	41·73
30	39·55		41·49	46·37	50·11	60·91	60·20	59·69	58·75	53·12	46·30	42·10
31	40·06		41·55		50·70		59·85	59·59		52·62		42·78
Means	38·09	40·64	41·40	43·78	49·55	56·35	60·83	59·93	59·76	55·78	49·47	45·27

The mean of the twelve monthly values is 50°·07.

(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.

1891.

Days of the Month.	January.	February.	March	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	34·2	42·0	44·2	39·2	52·2	57·0	63·5	59·1	60·9	60·0	48·0	41·3
2	33·2	38·8	46·0	40·2	51·7	57·3	62·2	61·6	59·5	55·1	49·0	45·3
3	33·2	41·8	42·0	42·2	47·3	58·0	63·0	59·6	58·8	54·0	47·0	46·0
4	35·6	42·5	42·2	43·0	50·0	58·4	61·8	59·0	58·7	54·1	48·3	48·8
5	33·0	40·2	45·0	44·7	50·2	60·0	63·0	57·7	58·7	54·0	48·0	50·0
6	32·7	39·5	43·5	45·0	50·4	57·8	63·0	58·5	58·1	55·8	46·8	47·4
7	30·0	41·2	44·6	43·3	52·3	56·5	60·4	57·0	58·0	55·3	45·0	45·7
8	26·4	40·4	42·2	41·6	53·0	57·1	59·3	60·7	60·2	54·2	43·0	44·1
9	29·6	39·8	40·1	42·6	52·0	57·5	59·9	60·3	60·9	57·2	45·0	45·1
10	30·0	38·9	37·3	42·8	50·3	56·3	60·0	60·0	61·6	56·7	43·5	49·2
11	30·6	39·0	34·0	43·0	53·4	55·9	61·0	60·0	61·4	55·7	47·3	43·2
12	32·0	41·1	34·0	42·2	54·8	55·7	62·3	61·2	62·9	55·2	44·8	40·9
13	38·8	39·0	37·8	42·2	58·0	58·1	64·2	61·0	62·0	52·5	46·0	45·1
14	37·5	38·6	39·0	41·8	59·0	59·8	62·4	63·8	64·2	54·0	45·4	45·0
15	33·0	40·2	39·9	43·0	54·7	60·3	62·8	63·3	59·3	53·1	45·3	43·2
16	32·0	39·7	40·1	45·0	50·0	59·0	63·6	60·9	58·0	53·2	46·0	45·0
17	32·1	39·6	41·1	44·4	47·0	60·6	65·4	61·8	59·0	51·2	46·9	40·5
18	28·0	36·2	41·2	44·0	46·0	62·9	66·0	62·3	60·7	50·9	45·5	39·1
19	31·5	35·2	40·2	44·0	46·8	64·0	64·0	60·9	62·0	53·2	50·0	35·9
20	33·0	36·2	39·0	43·3	48·5	63·7	62·2	59·6	61·1	51·2	48·2	34·5
21	36·0	36·3	38·7	46·0	48·2	63·1	64·4	58·1	57·8	52·2	44·2	33·2
22	33·0	36·0	36·0	45·2	49·7	65·1	63·0	58·2	56·9	52·0	43·2	32·2
23	34·0	36·2	38·1	45·3	49·8	62·0	60·8	58·3	57·0	53·1	42·3	33·2
24	39·3	35·1	40·1	46·0	49·7	63·1	61·0	59·2	56·5	50·9	42·0	32·1
25	37·0	35·2	43·0	46·4	48·6	64·8	61·8	59·5	59·2	50·0	40·0	30·0

(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.*

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
26	37·1	36·0	42·0	44·9	48·8	65·0	62·0	60·9	59·2	52·7	41·3	36·3
27	40·0	38·8	39·5	46·5	49·3	63·9	61·8	61·0	57·0	52·8	40·2	38·1
28	42·2	38·0	40·0	48·0	50·3	65·0	58·0	58·9	57·0	50·2	39·9	38·0
29	43·0		41·3	47·9	52·0	65·9	58·2	59·0	57·0	47·0	42·0	42·3
30	41·0		39·8	53·0	53·2	65·0	57·2	57·1	58·0	47·7	41·1	41·5
31	42·5		39·5		53·8		58·7	58·8		44·0		47·1
Means	34·6	38·6	40·4	44·2	51·0	60·6	61·8	59·9	59·4	52·9	44·8	41·3

The mean of the twelve monthly values is 49°·12.

(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.

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	34·6	43·3	53·0	47·1	56·0	70·2	61·9	63·4	65·7	65·1	54·1	47·6
2	29·5	43·5	54·0	46·2	57·0	59·8	68·4	64·5	65·0	56·2	52·6	48·9
3	29·5	45·5	44·7	47·1	54·6	65·0	68·1	62·6	62·1	60·2	49·1	52·9
4	36·2	44·3	48·3	51·8	54·8	62·2	67·3	66·1	65·3	60·2	49·0	55·8
5	33·0	42·0	53·7	51·2	58·0	67·2	65·9	60·6	63·9	59·0	46·1	55·5
6	29·2	42·1	49·9	53·9	58·0	60·0	67·5	57·7	63·6	59·9	42·3	46·8
7	29·2	43·8	48·5	43·0	61·2	56·4	61·0	59·9	62·7	60·2	46·1	47·1
8	25·4	42·1	42·0	42·9	57·1	62·7	61·4	69·8	70·0	59·6	42·0	45·0
9	30·1	38·0	38·9	43·0	55·0	61·2	64·0	60·1	74·2	65·3	46·2	47·3
10	18·5	39·0	34·1	47·5	50·5	63·6	63·8	67·5	74·4	60·2	47·2	54·3
11	25·8	44·5	37·2	43·2	68·3	58·9	68·5	66·5	73·6	57·9	52·4	44·0
12	32·7	46·9	34·2	48·0	67·6	56·1	67·1	67·9	74·2	57·1	49·4	39·2
13	39·6	43·2	43·0	44·1	70·0	69·2	71·5	68·2	73·4	52·6	49·9	49·8
14	36·4	41·4	42·2	47·0	64·1	63·7	65·8	70·1	68·2	55·9	48·4	45·2
15	32·8	47·0	43·8	48·0	55·1	66·2	70·8	63·5	61·8	53·0	49·4	44·8
16	32·0	45·7	43·2	52·2	48·1	62·3	72·9	63·9	59·7	54·1	47·1	46·3
17	28·3	36·2	43·5	50·7	49·8	71·0	77·3	69·9	63·5	55·8	48·4	38·3
18	26·2	35·3	42·0	52·5	41·3	74·2	69·1	65·0	65·0	56·2	48·2	36·2
19	25·9	35·0	40·4	47·0	48·1	73·3	67·2	64·1	66·1	53·3	54·2	32·0
20	40·5	35·7	39·0	48·0	51·5	70·2	66·1	62·9	65·0	54·0	49·1	31·2
21	37·1	34·0	40·1	55·7	49·0	69·0	68·9	57·2	58·4	55·0	42·1	31·3
22	39·6	36·6	35·3	51·0	51·2	73·8	66·7	62·5	60·2	52·2	40·1	23·2
23	45·5	32·0	40·2	55·1	52·1	60·9	58·0	58·9	58·1	53·1	39·5	28·3
24	47·5	33·6	48·0	54·1	49·6	70·2	66·3	58·9	63·9	51·3	39·5	25·5
25	42·0	39·7	51·3	48·9	46·4	73·4	66·2	62·5	64·8	51·0	37·7	30·0
26	44·0	43·0	44·7	46·2	53·8	74·3	67·0	68·0	61·1	53·8	41·4	45·8
27	44·0	51·5	43·0	57·2	52·2	70·8	61·0	62·5	58·4	52·1	38·0	40·2
28	46·0	45·1	43·0	57·5	57·8	72·0	60·5	61·5	65·8	52·0	43·3	40·2
29	47·8		48·7	52·1	57·0	67·2	58·3	64·1	68·3	51·6	45·6	50·2
30	47·2		42·7	60·1	54·0	68·1	57·5	61·2	64·0	48·0	39·4	49·2
31	48·4		44·2		68·2		63·0	62·8		46·2		52·2
Means	35·6	41·1	43·8	49·7	55·4	66·4	65·8	63·7	65·3	55·6	45·9	42·7

The mean of the twelve monthly values is 52°·58.

ABSTRACT of the CHANGES of the DIRECTION of the WIND, as derived from the Records of OSLER'S ANEMOMETER in the Year 1891.

(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. 18	1. 20	E.	E.N.E.		22½
2. 22	3. 0	E.N.E.	S.S.E.	90	
3. 3	3. 4	S.S.E.	E.N.E.		90
3. 8¾	3. 9	E.N.E.	S.S.E.	90	
3. 12	3. 13	S.S.E.	S.W.	67½	
4. 5½	4. 7	S.W.	W.S.W.	22½	
4. 13	4. 19	W.S.W.	N.	112½	
4. 22	5. 1	N.	N.N.W.		22½
5. 15	5. 18	N.N.W.	N.N.E.	45	
7. 1	7. 1½	N.N.E.	N.		22½
7. 6½	7. 9	N.	N.N.W.		22½
7. 21½	8. 0	N.N.W.	W.N.W.		45
8. 3¼	8. 6	W.N.W.	N.W.	22½	
8. 8	8. 10	N.W.	S.W.		90
8. 13	8. 15	S.W.	S.S.E.		67½
8. 20½	8. 21	S.S.E.	S.	22½	
8. 22	8. 23	S.	S.E.		45
9. 8	9. 10	S.E.	E.S.E.		22½
10. 3¾	10. 4	E.S.E.	S.S.W.	90	
10. 10	10. 11	S.S.W.	S.W.	22½	
10. 21	10. 22½	S.W.	S.E.	270	
10. 23½	11. 0	S.E.	S.	45	
11. 10	11. 10½	S.	S.S.E.		22½
11. 17½	11. 17¾	S.S.E.	W.N.W.		225
11. 18½	11. 20	W.N.W.	S.	607½	
11. 21½	11. 22	S.	W.S.W.	67½	
12. 15	12. 20	W.S.W.	N.	112½	
13. 18	13. 20	N.	N.N.W.		22½
14. 2	14. 3	N.N.W.	N.	22½	
14. 19	14. 22	N.	N.N.W.		22½
15. 15	15. 20	N.N.W.	W.S.W.		90
15. 21	16. 7	W.S.W.	N.E.	157½	
16. 14	16. 18	N.E.	N.		45
17. 4	17. 4½	N.	N.N.E.	22½	
17. 11½	17. 12	N.N.E.	N.E.	22½	
18. 2	18. 9	N.E.	N.		45
19. 5	19. 6	N.	N.N.W.		22½
19. 10	19. 10¼	N.N.W.	S.W.		112½
19. 13	19. 13½	S.W.	W.	45	
19. 15	19. 16	W.	S.W.		45
20. 22	20. 22½	S.W.	N.W.	90	
21. 0½	21. 4	N.W.	W.S.W.		67½
21. 12	21. 12½	W.S.W.	W.N.W.	45	
21. 17	21. 18	W.N.W.	W.S.W.		45
21. 23	22. 1	W.S.W.	S.S.W.		45
22. 2	22. 3	S.S.W.	S.W.	22½	
22. 6	22. 11	S.W.	W.N.W.	67½	
22. 16	22. 17	W.N.W.	W.S.W.		45
22. 20	22. 22	W.S.W.	S.W.		22½
23. 1	23. 3	S.W.	S.S.W.		22½
23. 10	23. 12	S.S.W.	S.W.	22½	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Jan.—*cont.*					
d h	d h				
24. 16½	24. 20	S.W.	W.S.W.	22½	
25. 16	25. 18	W.S.W.	S.S.W.		45
26. 1	26. 10	S.S.W.	S.W.	22½	
26. 15	26. 18	S.W.	S.S.W.		22½
27. 9	27. 12	S.S.W.	S.W.	22½	
29. 3	29. 6	S.W.	S.S.W.		22½
29. 20	30. 0	S.S.W.	W.S.W.	45	
30. 3¾	30. 5	W.S.W.	S.S.W.		45
30. 8	30. 11	S.S.W.	S.W.	22½	
30. 17	31. 0	S.W.	S.S.E.		67½
31. 2	31. 11	S.S.E.	S.W.	67½	
31. 18	31. 21	S.W.	S.		45
			Sums	2407½	1597½
February.					
1. 0¼	1. 2	S.	S.W.	45	
1. 5	1. 9	S.W.	N.	135	
1. 16	1. 18	N.	N.N.W.		22½
1. 22	1. 23	N.N.W.	S.W.		112½
2. 9	2. 10	S.W.	W.S.W.	22½	
4. 3	4. 9	W.S.W.	N.N.E.	135	
5. 1	5. 7	N.N.E.	S.W.	202½	
5. 11¾	5. 13	S.W.	N.W.	90	
5. 15	5. 16½	N.W.	W.		45
5. 18½	5. 19	W.	N.W.	45	
5. 21	5. 22	N.W.	W.S.W.		67½
6. 7½	6. 8	W.S.W.	S.S.W.		45
6. 9¾	6. 11¼	S.S.W.	N.N.W.	135	
6. 16¼	6. 16¾	N.N.W.	S.W.	247½	
6. 17¼	6. 22	S.W.	S.E.	270	
7. 1½	7. 3	S.E.	S.S.W.	67½	
7. 7	7. 9	S.S.W.	S.S.E.		45
7. 12	7. 13	S.S.E.	N.N.W.		180
7. 14	7. 15	N.N.W.	E.	112½	
7. 18	7. 19	E.	S.E.	45	
7. 20½	7. 21	S.E.	E.N.E.		67½
8. 6	8. 7	E.N.E.	S.E.	67½	
8. 9	8. 11	S.E.	N.E.	90	
8. 15½	8. 16	N.E.	E.S.E.	67½	
8. 18	8. 19	E.S.E.	E.N.E.		45
9. 16	10. 8	E.N.E.	W.S.W.	180	
12. 4½	12. 11	W.S.W.	N.E.	157½	
12. 14½	12. 15	N.E.	N.		45
12. 20¾	12. 21	N.	S.W.	225	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Feb.—*cont.*					
d h	d h				
12. 22	13. 11	S.W.	N.N.E.	157½	
13. 16½	13. 17	N.N.E.	E.S.E.	90	
13. 19	14. 6	E.S.E.	S.W.	112½	
15. 3	15. 9	S.W.	W.S.W.	22½	
15. 16	15. 18	W.S.W.	S.W.		22½
16. 8	16. 12	S.W.	W.	45	
16. 17	16. 18½	W.	S.W.		45
17. 18¾	17. 19	S.W.	N.E.		180
18. 1¾	18. 2	N.E.	N.		45
18. 5	18. 7½	N.	N.N.E.	22½	
18. 12	18. 18	N.N.E.	E.S.E.	90	
18. 20	18. 21	E.S.E.	E.		22½
21. 14	21. 15	E.	E.S.E.	22½	
23. 8½	23. 12	E.S.E.	N.E.		427½
23. 16	23. 17	N.E.	E.	45	
24. 15¾	24. 16	E.	E.S.E.	22½	
26. 14½	26. 16	E.S.E.	S.	67½	
26. 18	26. 21	S.	E.		90
26. 22¼	26. 23	E.	S.S.E.	67½	
27. 0½	27. 0¾	S.S.E.	E.N.E.		90
27. 10	27. 15	E.N.E.	E.S.E.	45	
28. 6	28. 11	E.S.E.	S.W.	112½	
28. 20	28. 21	S.W.	W.S.W.	22½	
			Sums	3195	1687½
March.					
1. 9	1. 10	W.S.W.	W.	22½	
1. 12	1. 13	W.	W.S.W.		22½
2. 17	2. 18	W.S.W.	W.N.W.	45	
2. 23	3. 1	W.N.W.	W.S.W.		45
3. 7	3. 11	W.S.W.	N.W.	67½	
3. 17	4. 1	N.W.	W.S.W.		67½
4. 12	4. 14	W.S.W.	W.	22½	
4. 22	5. 0	W.	W.S.W.		22½
7. 14	7. 14½	W.S.W.	N.N.W.	90	
7. 16	7. 17	N.N.W.	S.W.		112½
8. 3	8. 5	S.W.	N.	135	
9. 3½	9. 11	N.	E.N.E.	67½	
9. 13	9. 16	E.N.E.	E.S.E.	45	
9. 19	9. 21	E.S.E.	E.N.E.		45
10. 7	10. 10	E.N.E.	N.E.		22½
11. 2	11. 10	N.E.	N.		45
11. 15	11. 17	N.	N.N.W.		22½

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.
				°	°
March—*cont.*					
d h	d h				
12. 2	12. 12	N.N.W.	N.E.		292½
12. 13½	12. 14	N.E.	E.S.E.	67½	
12. 18	13. 6	E.S.E.	N.E.		67½
13. 12	13. 13	N.E.	E.N.E.	22½	
13. 19	13. 20	E.N.E.	N.E.		22½
14. 16	14. 18	N.E.	N.N.W.		67½
15. 3	15. 8	N.N.W.	S.S.W.		135
15. 19	15. 20	S.S.W.	W.S.W.	45	
15. 21	16. 2	W.S.W.	S.S.W.		45
16. 11	16. 18	S.S.W.	E.		112½
17. 1	17. 6	E.	N.E.		45
17. 10	17. 12	N.E.	E.N.E.	22½	
18. 15	18. 16	E.N.E.	N.E.		22½
19. 1	19. 3	N.E.	N.N.E.		22½
19. 15	19. 19	N.N.E.	N.N.W.		45
20. 0	20. 3	N.N.W.	W.S.W.		90
20. 8½	20. 9½	W.S.W.	N.W.	67½	
20. 13	20. 14	N.W.	N.	45	
21. 15	21. 16	N.	N.N.E.	22½	
21. 22	21. 23	N.N.E.	N.		22½
22. 3	22. 6	N.	S.W.		135
22. 9	22. 12	S.W.	N.W.	90	
22. 13	22. 13½	N.W.	N.	45	
22. 22	22. 22½	N.	E.N.E.	67½	
23. 3½	23. 4½	E.N.E.	S.E.	67½	
23. 11	23. 12	S.E.	S.S.W.	67½	
24. 7	24. 9	S.S.W.	S.W.	22½	
25. 2	25. 4	S.W.	W.S.W.	22½	
25. 17	25. 18	W.S.W.	S.W.		22½
26. 0	26. 1	S.W.	W.S.W.	22½	
26. 8	26. 9	W.S.W.	W.	22½	
26. 15	26. 17	W.	W.S.W.		22½
28. 1	28. 9	W.S.W.	N.N.W.	90	
28. 17	29. 1	N.N.W.	W.S.W.		90
29. 6	29. 11	W.S.W.	N.W.	67½	
29. 18	29. 20	N.W.	W.N.W.		22½
29. 22¾	29. 23	W.N.W.	N.W.	22½	
30. 7	30. 10	N.W.	N.N.W.	22½	
31. 6	31. 7	N.N.W.	N.	22½	
31. 20¼	31. 21	N.	S.		180
31. 22	31. 23	S.	S.W.	45	
			Sums	1485	1867½
April.					
1. 11	1. 12	S.W.	S.		45
1. 18	1. 19	S.	S.E.		45
2. 17	2. 18½	S.E.	E.		45
3. 4	3. 5	E.	E.N.E.		22½
3. 11½	3. 14	E.N.E.	E.S.E.	45	
3. 23	4. 0	E.S.E.	E.		22½
4. 7	4. 12	E.	S.E.	45	
4. 18¾	4. 21	S.E.	S.W.	90	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
April—*cont.*					
d h	d h				
5. 1	5. 2	S.W.	S.S.W.		22½
5. 13	5. 15	S.S.W.	S.W.	22½	
6. 20¼	6. 20½	S.W.	N.E.		180
6. 23	7. 3	N.E.	N.		45
7. 12	7. 16	N.	N.N.E.	22½	
7. 22	8. 7	N.N.E.	N.W.		67½
8. 16	8. 17	N.W.	N.	45	
8. 19	9. 2¾	N.	S.S.W.		157½
9. 4½	9. 7	S.S.W.	N.N.E.	180	
10. 13	10. 16	N.N.E.	E.S.E.	90	
10. 20	11. 0	E.S.E.	N.N.E.		90
11. 11	11. 14	N.N.E.	E.	67½	
11. 18	11. 21	E.	N.E.		45
12. 2	12. 4½	N.E.	N.		45
12. 7½	12. 9	N.	N.N.E.	22½	
12. 12	12. 18	N.N.E.	E.S.E.	90	
13. 8	13. 12	E.S.E.	N.E.		67½
13. 17½	13. 18	N.E.	N.		45
14. 0½	14. 1	N.	N.N.W.		22½
14. 15	14. 19	N.N.W.	N.N.E.	45	
14. 21	15. 1	N.N.E.	N.N.W.		45
15. 6¼	15. 7	N.N.W.	S.W.		112½
15. 8	15. 9	S.W.	N.W.	90	
15. 18	15. 22	N.W.	W.S.W.		67½
16. 7½	16. 9	W.S.W.	W.	22½	
16. 20½	17. 5	W.	N.N.W.	67½	
17. 13½	17. 15	N.N.W.	N.	22½	
17. 18¾	17. 19	N.	N.E.	45	
17. 22	18. 1	N.E.	S.	135	
18. 4	18. 5	S.	N.E.		135
18. 16	18. 21	N.E.	S.E.	90	
18. 22	18. 23	S.E.	E.S.E.		22½
19. 5	19. 6	E.S.E.	E.N.E.		45
19. 17¼	19. 18	E.N.E.	E.S.E.	45	
19. 20	19. 22	E.S.E.	E.N.E.		45
20. 12	20. 14	E.N.E.	E.S.E.	45	
20. 20	21. 0	E.S.E.	N.E.		67½
21. 5	21. 8	N.E.	E.	45	
21. 22	22. 3	E.	N.E.		45
22. 5½	22. 8	N.E.	E.N.E.	22½	
23. 11½	23. 12	E.N.E.	E.	22½	
23. 18	24. 1	E.	N.E.		45
24. 22	24. 23	N.E.	N.N.E.		22½
25. 9	25. 9½	N.N.E.	N.E.	22½	
25. 13	25. 15	N.E.	E.S.E.	67½	
26. 0	26. 3	E.S.E.	N.E.		67½
26. 5	26. 8	N.E.	E.	45	
26. 15	26. 16	E.	E.S.E.	22½	
26. 22	26. 23	E.S.E.	E.		22½
28. 0	28. 2	E.	N.N.W.		112½
28. 7	28. 9	N.N.W.	N.W.		382½
28. 12¾	28. 13¼	N.W.	W.S.W.		67½
28. 13½	28. 17	W.S.W.	N.N.W.	90	
29. 0	29. 6	N.N.W.	S.S.W.		135
29. 16	29. 19	S.S.W.	S.W.	22½	
30. 21	30. 23	S.W.	S.S.W.		22½
			Sums	1687½	2430

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
May.					
d h	d h				
1. 12	1. 14	S.S.W.	S.W.	22½	
2. 4	2. 7	S.W.	S.S.W.		22½
2. 13	2. 15	S.S.W.	N.N.W.	135	
2. 18½	2. 19	N.N.W.	W.S.W.		90
2. 23	3. 2	W.S.W.	S.W.		22½
3. 18	3. 21	S.W.	S.S.W.		22½
4. 0	4. 8	S.S.W.	W.S.W.	45	
4. 12	4. 13	W.S.W.	S.W.		22½
4. 22	5. 1	S.W.	E.		135
5. 22	6. 4	E.	N.		90
6. 11	6. 16	N.	E.S.E.	112½	
6. 23	7. 3	E.S.E.	N.		112½
7. 16½	7. 20	N.	S.	180	
8. 11	8. 19	S.	E.		90
8. 21	9. 9	E.	N.		90
9. 22	9. 22½	N.	N.N.E.	22½	
10. 9	10. 11	N.N.E.	N.		22½
11. 11½	11. 16	N.	E.S.E.	112½	
11. 18	12. 0	E.S.E.	N.		112½
12. 17	12. 21	N.	E.S.E.	112½	
12. 22	13. 6	E.S.E.	W.S.W.		225
13. 7	13. 8	W.S.W.	N.	112½	
14. 6	14. 10	N.	N.E.	45	
14. 12½	14. 13	N.E.	S.	135	
14. 14	14. 15	S.	N.W.	135	
14. 18	14. 19	N.W.	N.	45	
14. 22	15. 4	N.	W.S.W.		112½
15. 5½	15. 7	W.S.W.	W.N.W.	45	
15. 19	15. 21	W.N.W.	N.N.W.	45	
16. 2	16. 3	N.N.W.	W.N.W.		45
16. 7	16. 8	W.N.W.	N.	67½	
16. 22	17. 2	N.	W.S.W.		112½
17. 16	17. 16½	W.S.W.	S.S.E.		90
17. 17	17. 18½	S.S.E.	S.E.	337½	
17. 20	17. 21	S.E.	S.W.	90	
18. 1½	18. 8	S.W.	N.N.E.		202½
18. 18	18. 20	N.N.E.	E.	67½	
18. 21	18. 22	E.	S.		270
19. 11	19. 12	S.	W.S.W.		292½
19. 13	19. 15	W.S.W.	S.W.		22½
19. 23	20. 3	S.W.	S.		45
20. 4	20. 7	S.	S.W.	45	
20. 12	20. 13	S.W.	S.S.W.		22½
20. 19	20. 21	S.S.W.	S.S.E.		45
21. 0	21. 1	S.S.E.	N.N.E.		135
21. 11	21. 12	N.N.E.	N.		22½
22. 6	22. 9	N.	W.S.W.	247½	
22. 20	22. 22	W.S.W.	S.W.		22½
23. 3	23. 4	S.W.	N.	135	
23. 9	23. 9½	N.	S.W.		135
23. 10½	23. 11½	S.W.	N.E.	180	
23. 15	23. 18	N.E.	S.	135	
24. 0	24. 4	S.	S.E.		45
24. 10	24. 17	S.E.	N.E.		90
24. 18½	24. 19	N.E.	N.E.	360	
24. 21	24. 23	N.E.	N.		45
25. 6	25. 7	N.	N.N.W.		22½
25. 13	25. 18	N.N.W.	W.N.W.		45
26. 0½	26. 3	W.N.W.	S.W.		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.
				°	°
May—*cont.*					
d h	d h				
26. 18	26. 22	S.W.	S.		45
27. 7	27. 7½	S.	S.W.	45	
27. 18	27. 19	S.W.	S.S.W.		22½
28. 18	28. 21	S.S.W.	S.		22½
29. 2	29. 3	S.	S.S.W.	22½	
29. 19	30. 1	S.S.W.	N.E.		157½
30. 2½	30. 3	N.E.	S.E.	90	
30. 8½	30. 12	S.E.	N.E.	270	
30. 16	30. 17	N.E.	S.S.W.		202½
31. 1¾	31. 7½	S.S.W.	S.E.		67½
31. 14	31. 15	S.E.	E.		45
			Sums	3397½	3510
June.					
1. 21	2. 3	E.	S.W.	135	
2. 5	2. 8	S.W.	W.	45	
2. 14	2. 21	W.	N.	90	
3. 4	3. 9½	N.	N.E.		315
3. 12	3. 14	N.E.	E.S.E.	67½	
4. 14	4. 18	E.S.E.	S.W.	112½	
4. 21	5. 2	S.W.	W.S.W.	22½	
5. 11	5. 12	W.S.W.	S.W.		22½
5. 14½	5. 15½	S.W.	N.E.	180	
5. 21	5. 22	N.E.	N.		45
6. 0	6. 8	N.	E.N.E.	67½	
6. 20	6. 22	E.N.E.	N.E.		22½
7. 23	8. 2	N.E.	N.N.E.		22½
8. 9	8. 13	N.N.E.	E.N.E.	45	
8. 18	9. 0	E.N.E.	N.N.E.		45
9. 7	9. 9	N.N.E.	N.E.	22½	
9. 12	9. 15	N.E.	N.		45
9. 21	10. 2½	N.	S.W.		135
10. 5½	10. 11	S.W.	N.	135	
10. 13¾	10. 15	N.	N.E.	45	
10. 23	11. 6	N.E.	N.		45
11. 14	11. 20	N.	N.E.	45	
11. 22¾	12. 1	N.E.	W.S.W.	202½	
12. 5	12. 6	W.S.W.	N.N.E.	135	
12. 10	12. 11	N.N.E.	N.		22½
12. 16	13. 3	N.	S.W.	225	
13. 11¾	13. 13	S.W.	W.	45	
13. 21	13. 22	W.	W.N.W.	22½	
14. 4½	14. 6	W.N.W.	N.W.	22½	
14. 19	15. 0	N.W.	S.W.	270	
15. 17	15. 23	S.W.	W.N.W.	67½	
16. 6	16. 8	W.N.W.	N.N.W.	45	
16. 10	16. 12	N.N.W.	N.W.		22½
16. 16	16. 21	N.W.	S.S.E.	202½	
17. 4	17. 9	S.S.E.	S.W.	67½	
17. 12	17. 13	S.W.	N.W.	90	
17. 19	17. 20	N.W.	S.	225	
17. 21	17. 23	S.	S.W.	45	
				°	°
June—*cont.*					
d h	d h				
18. 15	18. 17	S.W.	N.N.W.		247½
18. 20	18. 22	N.N.W.	N.N.E.	45	
19. 3	19. 4	N.N.E.	N.		22½
19. 6	19. 7	N.	S.W.		135
19. 9½	19. 10	S.W.	N.	135	
19. 15	19. 18½	N.	E.S.E.	112½	
19. 21½	20. 2	E.S.E.	N.N.E.		90
20. 16	20. 20	N.N.E.	E.S.E.	90	
20. 22	20. 23	E.S.E.	N.N.E.		90
22. 9	22. 10	N.N.E.	N.E.	22½	
23. 21½	24. 2	N.E.	E.	45	
24. 5	24. 6	E.	E.N.E.		22½
24. 11	24. 12	E.N.E.	E.	22½	
24. 23	25. 5¼	E.	N.		90
25. 10	25. 14	N.	W.S.W.	247½	
25. 19	25. 21	W.S.W.	S.W.		22½
26. 22	26. 23	S.W.	S.S.W.		22½
27. 3	27. 7	S.S.W.	S.W.	22½	
28. 7	28. 9	S.W.	S.S.W.		22½
28. 19	28. 20	S.S.W.	S.E.		67½
28. 23	29. 5	S.E.	S.W.	90	
29. 18	29. 20	S.W.	S.S.W.		22½
30. 11	30. 12	S.S.W.	S.W.	22½	
30. 20	30. 22	S.W.	S.S.W.		22½
			Sums	3532½	1620
July.					
1. 3	1. 4	S.S.W.	S.		22½
1. 7	1. 10	S.	E.N.E.		112½
1 12¼	1. 12½	E.N.E.	S.W.		202½
4. 13	4. 14	S.W.	W.	45	
4. 16	4. 16½	W.	S.W.		45
5. 3	5. 4	S.W.	S.S.W.		22½
6. 11	6. 19	S.S.W.	W.	67½	
6. 20	6. 21	W.	S.W.		45
8. 3	8. 7	S.W.	W.	45	
8. 14¾	8. 15	W.	N.N.W.	67½	
8. 16½	8. 17	N.N.W.	W.		67½
8. 19	8. 20	W.	N.W.	45	
9. 4	9. 9	N.W.	N.	45	
9. 20	9. 21	N.	N.E.	45	
10. 1	10. 1¼	N.E.	N.		45
10. 8	10. 11	N.	W.S.W.		112½
10. 11¾	10. 12	W.S.W.	W.N.W.	45	
10. 19	10. 19½	W.N.W.	W.S.W.		45
11. 0	11. 1	W.S.W.	N.W.	67½	
11. 3	11. 4½	N.W.	S.W.		90
11. 5	11. 8	S.W.	W.N.W.	67½	
11. 13	11. 18	W.N.W.	N.N.E.	90	
12. 3¼	12. 8	N.N.E.	N.	337½	
12. 14½	12. 22	N.	E.	90	
13. 23	14. 0	E.	N.E.		45
				°	°
July—*cont.*					
d h	d h				
14. 23	15. 1	N.E.	N.N.E.		22½
15. 21½	16. 5	N.N.E.	S.W.		157½
17. 0	17. 4	S.W.	S.S.W.		22½
17. 22	18. 3	S.S.W.	S.S.E.		45
18. 5	18. 7	S.S.E.	S.S.W.	45	
18. 20	19. 3	S.S.W.	S.W.	22½	
20. 14	20. 21	S.W.	S.		45
21. 1	21. 3	S.	S.S.W.	22½	
21. 22	22. 0	S.S.W.	S.W.	22½	
23. 10	23. 13	S.W.	W.	45	
24. 3	24. 4	W.	W.S.W.		22½
24. 8	24. 9	W.S.W.	W.	22½	
24. 12	24. 14	W.	W.S.W.		22½
24. 21	25. 3	W.S.W.	S.W.		22½
25. 5	25. 8½	S.W.	N.W.	90	
25. 17	25. 20	N.W.	N.	45	
26. 4	26. 5	N.	S.S.E.		202½
26. 6	26. 7	S.S.E.	N.	202½	
26. 10	26. 12	N.	S.W.		135
26. 13	26. 14	S.W.	S.		405
26. 21	27. 2	S.	E.S.E.		67½
27. 3¼	27. 5	E.S.E.	N.E.	292½	
27. 7	27. 8	N.E.	N.		45
27. 12	27. 15½	N.	W.S.W.		112½
27. 17	27. 18	W.S.W.	N.W.	67½	
27. 22½	28. 2	N.W.	W.S.W.		67½
28. 5	28. 7	W.S.W.	W.	22½	
28. 17	28. 23	W.	S.W.		45
29. 18	29. 19	S.W.	W.	45	
30. 1	30. 3	W.	W.S.W.		22½
30. 8	30. 9	W.S.W.	W.	22½	
30. 13	30. 17	W.	N.N.W.	67½	
31. 2	31. 3	N.N.W.	N.	22½	
31. 21	31. 23	N.	N.N.W.		22½
			Sums	2115	2340
August.					
1. 4	1. 6½	N.N.W.	W.		67½
1. 21	1. 23	W.	W.S.W.		22½
2. 2	2. 5	W.S.W.	S.W.		22½
3. 7	3. 9	S.W.	W.S.W.	22½	
3. 15	3. 17	W.S.W.	S.W.		22½
4. 2	4. 3	S.W.	S.S.W.		22½
4. 6	4. 9	S.S.W.	S.W.	22½	
5. 6	5. 10	S.W.	N.	135	
5. 16	5. 17	N.	S.S.W.	202½	
5. 18½	5. 20	S.S.W.	N.E.	202½	
5. 21	6. 0	N.E.	N.		45
6. 11½	6. 12	N.	S.E.	135	
6. 12¾	6. 13	S.E.	N.	225	
6. 20½	7. 1	N.	W.S.W.		112½
7. 6	7. 9	W.S.W.	W.N.W.	45	
7. 21½	7. 23	W.N.W.	W.S.W.		45

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.
				°	°
Aug.—*cont.*					
d h	d h				
8. 18	8. 20	W.S.W.	S.W.		22½
10. 5	10. 6	S.W.	W.S.W.	22½	
10. 12	10. 17½	W.S.W.	N.N.W.	90	
10. 21	10. 23	N.N.W.	S.W.		112½
12. 8	12. 9	S.W.	W.S.W.	22½	
13. 19	14. 1	W.S.W.	S.W.		22½
15. 11	15. 13	S.W.	W.	45	
15. 21	15. 22	W.	W.S.W.		22½
16. 9	16. 13	W.S.W.	N.W.	67½	
16. 17	16. 20	N.W.	S.S.E.	202½	
16. 23¾	17. 1	S.S.E.	S.S.W.	45	
17. 14	17. 19	S.S.W.	S.E.		67½
18. 2	18. 9	S.E.	S.W.	90	
18. 18	18. 22	S.W.	S.S.W.		22½
19. 10	19. 12	S.S.W.	S.W.	22½	
20. 13	20. 18	S.W.	E.S.E.		112½
20. 21	21. 8	E.S.E.	N.W.	202½	
21. 11	21. 16	N.W.	S.W.		90
22. 6	22. 10	S.W.	W.	45	
22. 18	22. 23	W.	N.	90	
23. 11	23. 12	N.	N.N.W.		22½
23. 17	23. 21	N.N.W.	S.W.		112½
26. 13	26. 15	S.W.	S.S.W.		22½
27. 19	27. 22	S.S.W.	S.W.	22½	
30. 5	30. 7	S.W.	S.S.W.		22½
30. 21	31. 1	S.S.W.	S.S.E.		45
31. 2	31. 12	S.S.E.	S.W.	67½	
			Sums	2025	1057½
September.					
3. 7	3. 11	S.W.	S.E.		90
3. 19	3. 20	S.E.	S.W.	90	
7. 8½	7. 9	S.W.	N.E.		180
7. 11	7. 13	N.E.	S.W.	180	
8. 18	8. 20	S.W.	S.		45
9. 3	9. 4	S.	E.N.E.		112½
9. 6	9. 9	E.N.E.	S.	112½	
9. 14	9. 23	S.	E.		90
10. 8	10. 9	E.	S.E.	45	
10. 15	10. 19	S.E.	E.		45
11. 12	11. 13	E.	E.S.E.	22½	
12. 6½	12. 8	E.S.E.	E.N.E.		45
12. 9½	12. 10	E.N.E.	E.	22½	
13. 10	13. 14	E.	S.S.E.	67½	
14. 5	14. 18	S.S.E.	N.N.W.	180	
14. 23	15. 6	N.N.W.	S.W.		112½
15. 14	15. 19	S.W.	N.N.W.	112½	
16. 1	16. 4	N.N.W.	S.W.		112½
16. 9	16. 10	S.W.	W.S.W.	22½	
16. 16	16. 20	W.S.W.	S.W.		22½
17. 6	17. 8	S.W.	W.S.W.	22½	
17. 14	17. 14¼	W.S.W.	S.W.		22½
19. 21	20. 6	S.W.	S.S.E.		67½
Sept.—*cont.*					
20. 7	20. 8	S.S.E.	S.S.W.	45	
20. 15	20. 19	S.S.W.	W.N.W.	90	
20. 21	21. 0	W.N.W.	W.S.W.		45
21. 18	21. 19	W.S.W.	S.W.		22½
21. 23	22. 4	S.W.	N.		225
22. 8	22. 12	N.	N.E.	45	
22. 17	23. 0	N.E.	N.N.W.		67½
23. 7	23. 10	N.N.W.	N.	22½	
23. 19	23. 19¾	N.	S.S.W.		157½
24. 0	24. 1¼	S.S.W.	S.S.E.		45
24. 8	24. 9	S.S.E.	S.S.W.	45	
25. 21	25. 23	S.S.W.	S.		22½
26. 7	26. 12	S.	S.W.	45	
27. 1	27. 9	S.W.	W.	45	
27. 17½	27. 18	W.	W.S.W.		22½
27. 22½	28. 3	W.S.W.	S.W.		22½
30. 15	30. 19	S.W.	S.		45
			Sums	1215	1620
October.					
1. 0	1. 1	S.	S.S.W.	22½	
1. 15	1. 16	S.S.W.	W.S.W.	45	
3. 1	3. 3	W.S.W.	S.W.		22½
3. 16	3. 17	S.W.	S.S.W.		22½
4. 2	4. 2½	S.S.W.	S.		22½
4. 7	4. 7¼	S.	N.E.		135
4. 9¾	4. 10	N.E.	S.		225
4. 13	4. 14	S.	S.E.		45
4. 23	5. 3	S.E.	E.		45
5. 9	5. 11	E.	S.S.E.	67½	
6. 4	6. 5	S.S.E.	S.	22½	
6. 15	6. 16½	S.	S.W.	45	
6. 18	6. 20	S.W.	S.		45
7. 2	7. 4	S.	S.S.W.	22½	
7. 18	7. 19	S.S.W.	S.		22½
8. 5	8. 8	S.	S.W.	45	
8. 16	8. 18	S.W.	S.S.E.		67½
8. 20	9. 3	S.S.E.	S.S.W.	45	
9. 11	9. 12	S.S.W.	S.W.	22½	
9. 19	10. 3	S.W.	S.S.E.		67½
10. 6	10. 7	S.S.E.	S.E.		22½
10. 10	10. 14	S.E.	S.S.W.	67½	
11. 4	11. 6	S.S.W.	S.S.E.		45
11. 9	11. 10	S.S.E.	S.S.W.	45	
11. 22½	11. 23	S.S.W.	S.W.	22½	
12. 17	12. 22	S.W.	S.S.E.		67½
13. 5	13. 6	S.S.E.	S.S.W.	45	
13. 9	13. 10	S.S.W.	S.		22½
13. 15	13. 23	S.	S.W.	45	
14. 22	15. 1	S.W.	S.		45
15. 4	15. 9	S.	S.W.	45	
15. 19	15. 22	S.W.	S.S.E.		67½
16. 3	16. 9	S.S.E.	S.W.	67½	
Oct.—*cont.*					
18. 15	18. 19	S.W.	S.S.W.		22½
19. 11	19. 11¾	S.S.W.	N.W.	112½	
19. 12	19. 15	N.W.	S.W.		90
20. 2	20. 7	S.W.	S.		45
20. 11	20. 12	S.	S.S.W.	22½	
20. 16	20. 18	S.S.W.	S.		22½
20. 22½	21. 1	S.	S.S.E.		22½
21. 4	21. 10	S.S.E.	S.W.	67½	
21. 16	21. 19	S.W.	S.		45
22. 3	22. 7	S.	S.W.	45	
22. 10	22. 11	S.W.	W.S.W.	22½	
22. 17	22. 18	W.S.W.	N.E.		202½
22. 19½	22. 20	N.E.	S.S.W.	157½	
23. 7	23. 9	S.S.W.	W.S.W.	45	
23. 13	23. 17	W.S.W.	S.S.W.		45
24. 8	24. 9	S.S.W.	S.W.	22½	
24. 12	24. 18	S.W.	S.S.E.	292½	
24. 19½	24. 20½	S.S.E.	N.N.E.		135
25. 7	25. 10	N.N.E.	N.E.	22½	
26. 17	26. 18	N.E.	E.N.E.	22½	
27. 18	27. 20	E.N.E.	E.	22½	
28. 12	28. 12½	E.	E.N.E.		22½
28. 21	28. 23	E.N.E.	N.E.		22½
29. 20	29. 23	N.E.	E.N.E.	22½	
30. 7	30. 8	E.N.E.	E.S.E.	45	
30. 11	30. 12	E.S.E.	E.		22½
31. 17	31. 18	E.	E.N.E.		22½
			Sums	1597½	1710
November.					
1. 0	1. 1	E.N.E.	N.E.		22½
1. 14	1. 16	N.E.	N.N.E.		22½
2. 0	2. 7	N.N.E.	E.	67½	
2. 17	2. 23	E.	N.E.		45
4. 1	4. 7	N.E.	N.N.E.		22½
4. 17	5. 1	N.N.E.	E.N.E.	45	
5. 10	5. 12	E.N.E.	E.	22½	
6. 3	6. 11	E.	S.W.		225
6. 13	6. 13¼	S.W.	N.	135	
7. 9	7. 13	N.	N.E.	45	
8. 1	8. 5	N.E.	S.		225
8. 6	8. 6½	S.	W.S.W.	67½	
8. 9	8. 12	W.S.W.	S.S.E.		90
9. 0	9. 1	S.S.E.	S.S.W.	45	
9. 11	9. 12	S.S.W.	S.W.	22½	
10. 0	10. 2	S.W.	W.S.W.	22½	
10. 12	10. 19	W.S.W.	S.S.E.		90
11. 2	11. 9	S.S.E.	S.S.W.	45	
11. 12	11. 15	S.S.W.	W.S.W.	45	
12. 0	12. 5	W.S.W.	S.S.W.		45
12. 13	12. 17	S.S.W.	S.S.E.		45
13. 7	13. 8	S.S.E.	S.W.	67½	
13. 21	14. 7	S.W.	S.E.		90
14. 9	14. 10	S.E.	S.	45	

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				
14. 12	14. 18	S.	E.S.E.		67½
15. 4	15. 9½	E.S.E.	E.N.E.		45
15. 14	15. 21½	E.N.E.	W.S.W.		180
16. 11	16. 11½	W.S.W.	N.	112½	
16. 20	17. 4	N.	S.W.		135
17. 10	17. 12	S.W.	W.	45	
17. 15	17. 18	W.	W.S.W.		22½
18. 0	18. 6	W.S.W.	S.		67½
18. 13	18. 15	S.	S.W.	45	
19. 22	19. 23	S.W.	W.S.W.	22½	
21. 12	21. 16	W.S.W.	N.	112½	
21. 23	22. 6	N.	W.		90
22. 12	22. 14	W.	N.W.	45	
22. 15	22. 17	N.W.	W.S.W.		67½
22. 18	22. 22	W.S.W.	N.W.	67½	
23. 2	23. 8	N.W.	N.	45	
23. 17	23. 19½	N.	S.S.E.	157½	
24. 1	24. 1¼	S.S.E.	N.E.		112½
24. 20½	24. 21½	N.E.	S.S.W.	157½	
24. 22½	25. 2	S.S.W.	S.S.E.		405
25. 17	26. 5	S.S.E.	W.S.W.	90	
26. 15	26. 17	W.S.W.	S.W.		22½
26. 19	27. 3	S.W.	N.W.	90	
27. 14	28. 3	N.W.	S.S.E.		157½
28. 5	28. 7	S.S.E.	S.	22½	
29. 8	29. 11½	S.	N.W.	135	
29. 14	29. 16	N.W.	N.N.E.	67½	
29. 21½	29. 22¼	N.N.E.	E.N.E.	45	
30. 9	30. 10	E.N.E.	S.W.	157½	
30. 19½	30. 20	S.W.	S.S.W.		22½
			Sums	2092½	2317½

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
December.					
d h	d h				
2. 5	2. 7	S.S.W.	W.S.W.	45	
2. 18	2. 20	W.S.W.	S.S.W.		45
3. 11	3. 12	S.S.W.	S.W.	22½	
5. 22	5. 23	S.W.	W.S.W.	22½	
6. 15	6. 20	W.S.W.	S.S.W.		45
7. 12	7. 20	S.S.W.	W.N.W.	90	
8. 1	8. 8	W.N.W.	W.S.W.		45
8. 17	8. 21	W.S.W.	S.W.		22½
9. 6	9. 11	S.W.	W.	45	
9. 15	9. 16	W.	S.W.		45
10. 13	10. 14	S.W.	W.S.W.	22½	
11. 12	11. 15	W.S.W.	W.N.W.	45	
11. 17	12. 8	W.N.W.	S.S.W.		90
12. 12	12. 14	S.S.W.	S.S.E.		45
12. 18	13. 0	S.S.E.	S.W.	67½	
13. 4	13. 7	S.W.	S.		45
13. 9	13. 10	S.	S.S.W.	22½	
13. 14	13. 20	S.S.W.	W.S.W.	45	
13. 23	14. 1	W.S.W.	W.	22½	
14. 10½	14. 12	W.	W.N.W.	22½	
14. 23	15. 8	W.N.W.	S.S.E.		135
15. 11	15. 15	S.S.E.	S.W.	67½	
16. 3	16. 8	S.W.	W.	22½	
16. 12	16. 16	W.S.W.	N.	112½	
17. 7	17. 9	N.	N.E.	45	
17. 12	17. 13	N.E.	E.N.E.	22½	
17. 20	18. 9	E.N.E.	S.S.E.	90	
19. 14	19. 16	S.S.E.	S.E.		22½

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Dec.—*cont.*					
d h	d h				
20. 2¾	20. 3	S.E.	E.N.E.		67½
21. 10½	21. 11	E.N.E.	E.S.E.	45	
21. 23	22. 2	E.S.E.	W.S.W.		225
22. 12	22. 15	W.S.W.	N.N.E.		225
23. 3½	23. 3¾	N.N.E.	S.E.	112½	
23. 7½	23. 8	S.E.	E.N.E.		67½
23. 13	23. 13¼	E.N.E.	N.E.		22½
23. 17½	23. 18	N.E.	S.E.	90	
23. 21¾	23. 23	S.E.	E.		45
24. 0	24. 1	E.	S.W.	135	
24. 7	24. 9	S.W.	S.E.		90
24. 11	24. 13	S.E.	S.W.	90	
25. 3½	25. 5	S.W.	N.E.	180	
25. 12½	26. 1	N.E.	S.S.W.	157½	
26. 13	26. 14	S.S.W.	S.		22½
26. 21	27. 5	S.	W.S.W.	67½	
27. 13	27. 16	W.S.W.	S.		67½
28. 3½	28. 5	S.	S.W.	45	
28. 15	28. 17	S.W.	S.		45
28. 18½	28. 19	S.	S.S.W.	22½	
29. 1	29. 6	S.S.W.	S.W.	22½	
30. 7	30. 8	S.W.	S.		45
30. 10	30. 16	S.	W.S.W.	67½	
			Sums	1867½	1462½

ABSTRACT of the CHANGES of the DIRECTION of the WIND—*concluded.*

EXCESS of MOTION in each MONTH.

1891.	Direct. °	Retrograde. °
January	810	
February	1507½	
March		382½
April		742½
May		112½
June	1912½	
July		225
August	967½	
September		405
October		112½
November		225
December	405	

The whole excess of direct motion for the year was 3397½°.

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	1891.												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	11·9	6·2	14·8	8·4	8·6	7·7	8·6	11·1	9·3	11·1	9·4	16·0	10·3
2	11·8	5·7	14·6	8·1	8·0	8·2	8·5	10·6	8·8	10·8	9·7	15·5	10·0
3	12·8	6·1	14·3	8·0	8·2	7·6	7·8	10·7	8·7	10·9	9·6	14·9	10·0
4	12·5	5·7	14·2	8·6	8·4	7·8	8·1	10·4	8·9	11·6	9·4	14·5	10·0
5	11·8	5·5	13·5	8·1	8·5	8·0	8·2	10·2	9·3	11·2	9·2	14·7	9·9
6	12·3	5·5	14·2	8·1	8·6	8·0	8·5	10·3	9·2	12·2	9·5	14·2	10·0
7	12·1	5·5	14·3	8·5	9·0	7·9	8·9	10·3	9·1	12·1	8·9	14·1	10·1
8	11·5	5·1	14·1	10·0	9·9	8·8	9·4	11·1	9·5	12·4	9·4	13·7	10·4
9	11·1	5·5	16·5	11·2	9·4	10·0	10·1	12·2	10·7	11·4	9·6	13·5	10·9
10	11·5	6·6	17·1	12·6	10·8	10·8	11·7	13·1	12·3	13·0	10·0	14·4	12·0
11	12·0	6·9	17·5	13·1	11·4	11·5	11·9	13·5	13·1	14·5	10·3	15·8	12·6
Noon.	12·3	6·5	18·0	12·9	11·8	11·7	12·5	14·9	14·2	16·4	11·3	18·4	13·4
h 13	14·6	8·1	18·2	13·0	11·9	12·3	12·3	14·3	14·0	17·0	11·9	18·6	13·8
14	14·6	8·5	17·7	14·0	13·5	12·9	13·3	14·9	14·0	16·3	12·1	17·9	14·1
15	14·0	8·5	18·1	14·6	13·2	13·4	14·4	14·5	13·6	15·8	12·0	16·4	14·0
16	13·7	8·3	17·2	14·9	13·3	13·9	13·4	14·7	13·4	15·5	11·5	15·3	13·8
17	13·2	7·5	17·5	14·4	12·8	13·7	13·5	13·8	12·5	14·1	11·0	15·3	13·3
18	13·1	7·2	16·2	13·4	12·5	13·4	12·9	13·1	11·5	12·4	10·3	15·1	12·6
19	12·5	7·4	15·1	11·8	10·6	12·1	12·2	12·2	10·9	12·0	10·6	15·3	11·9
20	12·8	6·7	15·8	10·7	9·7	10·5	11·0	12·2	10·2	11·2	10·7	15·6	11·4
21	13·0	6·2	16·0	10·4	8·8	9·0	10·0	11·7	10·0	12·4	10·5	15·8	11·2
22	12·5	6·0	15·8	10·2	9·1	8·3	9·2	11·3	9·7	12·5	10·7	16·0	10·9
23	12·1	5·9	15·3	9·1	9·1	8·3	9·0	11·0	9·6	11·7	10·1	16·3	10·6
Midnight.	11·7	6·4	14·6	9·2	8·5	7·8	8·7	10·8	8·8	11·7	10·2	16·7	10·4
Means	12·6	6·6	15·9	11·0	10·2	10·1	10·6	12·2	10·9	12·9	10·3	15·6	11·6
Greatest Hourly Measures	36	27	42	33	42	26	31	32	34	41	55	54	...
Least Hourly Measures	0	0	0	0	0	0	0	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.)

1891.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d												
1	...	+ 406	+ 800	+ 565	+ 436	+ 372	+ 140	+ 311	+ 280	+ 144	+ 511	+ 530
2	+1991	+ 779	+ 462	+ 598	+ 143	+ 475	+ 448	+ 19	+ 525	+ 710	+ 599	+ 560
3	+1610	+ 815	+ 941	+ 915	+ 742	+ 355	+ 365	+ 42	+ 335	+ 688	+ 795	+ 562
4	+ 952	+ 873	+ 729	+ 507	+ 386	+ 210	+ 300	+ 296	+ 308	+ 727	+ 827	+ 689
5	+1433	+ 615	+ 639	+ 559	+ 648	+ 380	+ 410	+ 295	+ 290	+ 536	+ 785	+ 453
6	+1461	+ 774	+ 763	+ 714	+ 622	+ 250	+ 419	+ 260	+ 350	...	+1073	+ 769
7	...	+ 910	+ 533	+ 507	+ 417	+ 372	...	+ 417	+ 355	+ 261	+1120	+ 268
8	...	+ 619	− 792	+ 706	+ 353	+ 231	+ 195	+ 341	+ 524	+ 289	+ 803	+ 930
9	...	+ 382	+ 782	+ 29	+ 361	+ 417	+ 350	+ 162	+ 647	+ 278	+ 150	+ 322
10	...	+ 524	+ 704	+ 708	...	+ 347	+ 279	+ 204	+ 630	...	+ 582	+ 19
11	...	+ 830	+ 707	+ 694	...	+ 596	+ 463	+ 347	+ 678	+ 179	+ 105	+ 903
12	...	+ 647	+1297	+ 786	+ 470	+ 573	+ 233	+ 260	+ 596	+ 480	+ 627	+ 837
13	+1150	+ 893	+ 806	+ 822	+ 307	+ 187	+ 239	+ 324	+ 587	+ 266	+ 389	+ 69
14	+1184	+ 555	+ 410	+ 846	+ 462	+ 503	+ 508	+ 249	+ 220	+ 488	+ 620	+ 745
15	+ 850	+ 828	− 209	+ 501	+ 520	+ 190	+ 526	+ 253	+ 330	+ 327	+ 322	+ 796
16	+ 968	+ 731	+ 398	+ 787	...	+ 438	+ 191	+ 346	+ 331	+ 413	+ 255	+ 613
17	+1452	+ 671	+ 38	+ 648	+ 143	+ 262	+ 425	+ 415	+ 206	+ 555	+ 561	+1227
18	...	+1594	+ 561	+ 844	− 441	+ 290	+ 424	+ 251	+ 186	+ 701	+ 428	+1150
19	...	+1048	+ 785	+ 675	+ 224	+ 495	+ 88	+ 3	+ 117	+ 458	+ 343	+1185
20	+ 683	+ 969	+ 827	+ 728	+ 521	+ 539	+ 205	+ 160	+ 223	+ 495	+ 467	+1274
21	+1175	+1356	+ 967	+ 624	− 75	+ 312	...	...	+ 104	+ 372	+ 679	...
22	+1276	+1238	+1229	+ 575	+ 212	+ 173	+ 262	+ 269	+ 349	+ 202	+ 773	...
23	+ 698	+1264	+ 877	+ 595	+ 219	+ 275	+ 36	+ 327	+ 279	+ 562	+ 629	...
24	+ 169	+1913	+ 901	+ 814	− 57	+ 322	+ 211	+ 318	+ 290	+ 590	+ 913	+ 605
25	+1012	+1374	+ 318	+ 825	− 377	+ 267	+ 320	...	+ 285	+ 308	+1257	...
26	+ 777	+1221	+ 765	+ 858	+ 335	+ 399	+ 326	...	+ 374	+ 124	+ 893	+ 204
27	+ 479	+1186	+ 751	+ 666	+ 135	+ 295	+ 129	...	+ 512	+ 107	+ 933	+ 923
28	+ 325	+ 938	+ 565	+ 268	+ 372	+ 398	+ 468	+ 317	+ 382	+ 509	+ 747	+ 847
29	+ 31		+ 739	+ 498	+ 7	+ 357	+ 264	+ 359	+ 438	+ 786	+ 890	+ 395
30	+ 534		+ 588	+ 405	+ 162	+ 212	+ 452	+ 565	+ 425	+ 839	+1190	+ 383
31	+ 318		+ 714		+ 430		+ 313	...		+ 875		+ 564
Means ...	+ 933	+ 927	+ 632	+ 642	+ 274	+ 350	+ 310	+ 273	+ 372	+ 458	+ 676	+ 660

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.	1891.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 968	+ 976	+ 729	+ 764	+ 450	+ 478	+ 439	+ 345	+ 382	+ 415	+ 620	+ 566	+ 594
1h.	+ 961	+1019	+ 741	+ 795	+ 418	+ 442	+ 443	+ 292	+ 357	+ 348	+ 564	+ 561	+ 578
2	+ 986	+ 997	+ 658	+ 780	+ 433	+ 407	+ 448	+ 288	+ 350	+ 300	+ 539	+ 511	+ 558
3	+ 965	+ 946	+ 666	+ 771	+ 420	+ 382	+ 421	+ 282	+ 324	+ 306	+ 584	+ 456	+ 544
4	+ 875	+ 885	+ 641	+ 792	+ 238	+ 348	+ 351	+ 264	+ 319	+ 311	+ 585	+ 449	+ 505
5	+ 718	+ 848	+ 622	+ 779	+ 278	+ 322	+ 414	+ 247	+ 322	+ 330	+ 561	+ 377	+ 485
6	+ 773	+ 812	+ 657	+ 712	+ 460	+ 317	+ 268	+ 248	+ 311	+ 325	+ 464	+ 396	+ 479
7	+ 875	+ 783	+ 728	+ 713	+ 470	+ 329	+ 400	+ 297	+ 284	+ 339	+ 476	+ 440	+ 511
8	+ 864	+ 773	+ 715	+ 671	+ 350	+ 303	+ 324	+ 286	+ 240	+ 326	+ 468	+ 471	+ 483
9	+ 881	+ 787	+ 633	+ 469	+ 270	+ 279	+ 190	+ 242	+ 275	+ 367	+ 555	+ 440	+ 449
10	+ 916	+ 810	+ 586	+ 416	+ 145	+ 342	+ 220	+ 320	+ 364	+ 418	+ 584	+ 652	+ 481
11	+1020	+ 879	+ 566	+ 486	+ 138	+ 290	+ 188	+ 261	+ 349	+ 458	+ 629	+ 826	+ 507
Noon.	+ 926	+ 906	+ 585	+ 496	+ 37	+ 298	+ 156	+ 202	+ 272	+ 464	+ 651	+ 882	+ 490
13h.	+ 954	+ 880	+ 558	+ 466	+ 138	+ 286	+ 153	+ 222	+ 354	+ 364	+ 669	+ 749	+ 483
14	+ 934	+ 891	+ 522	+ 470	+ 299	+ 279	+ 200	+ 265	+ 370	+ 411	+ 757	+ 736	+ 511
15	+ 900	+ 908	+ 390	+ 549	+ 124	+ 308	+ 164	+ 154	+ 376	+ 539	+ 826	+ 758	+ 500
16	+ 820	+ 931	+ 264	+ 553	+ 193	+ 292	+ 280	+ 198	+ 367	+ 556	+ 906	+ 860	+ 518
17	+ 966	+ 947	+ 398	+ 620	+ 51	+ 276	+ 234	+ 85	+ 488	+ 610	+ 942	+ 894	+ 543
18	+1094	+ 979	+ 714	+ 547	+ 183	+ 338	+ 250	+ 172	+ 396	+ 641	+ 934	+ 870	+ 593
19	+1183	+1066	+ 754	+ 477	+ 99	+ 314	+ 222	+ 357	+ 480	+ 667	+ 787	+ 800	+ 601
20	+1088	+1065	+ 747	+ 686	+ 404	+ 403	+ 364	+ 413	+ 514	+ 669	+ 833	+ 807	+ 666
21	+ 995	+1035	+ 808	+ 847	+ 229	+ 434	+ 366	+ 348	+ 506	+ 699	+ 843	+ 831	+ 662
22	+ 911	+1061	+ 927	+ 777	+ 296	+ 476	+ 447	+ 377	+ 491	+ 589	+ 787	+ 785	+ 660
23	+ 821	+1059	+ 560	+ 776	+ 457	+ 451	+ 496	+ 398	+ 432	+ 533	+ 648	+ 726	+ 613
24	+ 877	+1045	+ 724	+ 759	+ 443	+ 463	+ 448	+ 330	+ 385	+ 438	+ 639	+ 549	+ 592
Means 0h.–23h.	+ 933	+ 927	+ 632	+ 642	+ 274	+ 350	+ 310	+ 273	+ 372	+ 458	+ 676	+ 660	+ 542
Means 1h.–24h.	+ 929	+ 930	+ 632	+ 642	+ 274	+ 349	+ 310	+ 273	+ 372	+ 459	+ 676	+ 659	+ 542
Number of Days employed.	22	28	31	30	28	30	29	26	30	29	30	27	...

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.	1891.												Yearly Means (omitting February).
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 853	−1000	+ 437	+ 840	+ 352	+ 304	+ 413	+ 289	+ 227	+ 310	+ 369	+ 330	+ 429
1h.	+ 797	− 150	+ 477	+1028	+ 250	+ 346	+ 427	+ 236	+ 217	+ 228	+ 320	+ 412	+ 431
2	+ 813	+ 90	+ 287	+ 943	+ 266	+ 317	+ 377	+ 235	+ 253	+ 154	+ 312	+ 351	+ 392
3	+ 766	+ 180	+ 388	+ 923	+ 271	+ 328	+ 356	+ 254	+ 215	+ 190	+ 477	+ 287	+ 405
4	+ 629	+ 240	+ 352	+1020	− 69	+ 367	+ 243	+ 237	+ 202	+ 192	+ 514	+ 310	+ 363
5	+ 259	+ 320	+ 332	+ 937	+ 9	+ 329	+ 493	+ 217	+ 211	+ 212	+ 474	+ 213	+ 335
6	+ 329	+ 380	+ 462	+ 557	+ 311	+ 266	+ 104	+ 219	+ 200	+ 190	+ 279	+ 330	+ 295
7	+ 566	+ 390	+ 627	+ 588	+ 311	+ 236	+ 389	+ 243	+ 197	+ 206	+ 345	+ 387	+ 372
8	+ 612	+ 300	+ 550	+ 712	+ 122	+ 210	+ 270	+ 219	+ 155	+ 208	+ 313	+ 351	+ 338
9	+ 615	+ 180	+ 423	+ 370	+ 125	+ 219	+ 60	+ 205	+ 191	+ 227	+ 515	+ 239	+ 290
10	+ 510	+ 320	+ 363	+ 45	+ 31	+ 309	+ 154	+ 286	+ 317	+ 171	+ 443	+ 511	+ 285
11	+ 764	+ 510	+ 377	+ 262	+ 96	+ 282	+ 156	+ 151	+ 231	+ 300	+ 477	+ 783	+ 353
Noon.	+ 641	+ 510	+ 492	+ 382	− 166	+ 307	+ 27	+ 61	+ 52	+ 353	+ 502	+ 852	+ 318
13h.	+ 738	+ 710	+ 317	+ 387	+ 36	+ 233	+ 133	+ 117	+ 285	+ 289	+ 506	+ 603	+ 331
14	+ 675	+ 700	+ 307	+ 642	+ 332	+ 169	+ 193	+ 63	+ 285	+ 299	+ 559	+ 590	+ 374
15	+ 666	+ 870	+ 60	+ 583	− 85	+ 293	+ 56	− 44	+ 259	+ 477	+ 747	+ 595	+ 328
16	+ 749	+ 960	− 231	+ 358	+ 76	+ 267	+ 382	+ 82	+ 160	+ 439	+ 943	+ 773	+ 363
17	+ 681	+ 960	+ 80	+ 510	− 126	+ 249	+ 276	− 110	+ 442	+ 444	+ 996	+ 843	+ 390
18	+ 757	+ 720	+ 682	+ 165	+ 124	+ 433	+ 251	+ 70	+ 163	+ 446	+ 930	+ 849	+ 443
19	+ 868	+ 430	+ 636	− 438	+ 111	+ 192	+ 65	+ 371	+ 370	+ 465	+ 512	+ 641	+ 345
20	+ 726	+ 480	+ 603	+ 142	+ 366	+ 403	+ 328	+ 422	+ 429	+ 478	+ 633	+ 621	+ 468
21	+ 643	+ 610	+ 684	+ 893	− 109	+ 383	+ 253	+ 295	+ 412	+ 546	+ 713	+ 667	+ 489
22	+ 493	+ 500	+ 896	+ 642	− 56	+ 358	+ 380	+ 339	+ 454	+ 358	+ 728	+ 619	+ 474
23	+ 320	+ 530	+ 46	+ 960	+ 307	+ 243	+ 473	+ 364	+ 403	+ 339	+ 477	+ 599	+ 412
24	+ 521	+1140	+ 562	+ 948	+ 358	+ 346	+ 406	+ 295	+ 346	+ 259	+ 564	+ 372	+ 452
Means 0h.–23h.	+ 645	+ 406	+ 402	+ 560	+ 120	+ 293	+ 261	+ 201	+ 264	+ 313	+ 545	+ 531	+ 376
Means 1h.–24h.	+ 631	+ 495	+ 407	+ 565	+ 120	+ 295	+ 261	+ 201	+ 269	+ 311	+ 553	+ 533	+ 377
Number of Days employed.	10	1	12	6	14	9	12	14	11	14	11	15	...

In taking the yearly mean the values for February are omitted, as they depend on the observations for one day only.

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.	1891. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
Midnight.	+ 938	+1040	+ 899	+ 738	+ 603	+ 557	+ 455	+ 446	+ 491	+ 635	+ 790	+ 863	+ 705
1h.	+1017	+1057	+ 906	+ 747	+ 598	+ 494	+ 465	+ 404	+ 461	+ 573	+ 733	+ 761	+ 685
2	+1047	+1030	+ 888	+ 742	+ 606	+ 450	+ 536	+ 407	+ 424	+ 541	+ 688	+ 737	+ 675
3	+1058	+ 984	+ 822	+ 726	+ 577	+ 409	+ 506	+ 361	+ 403	+ 505	+ 666	+ 717	+ 645
4	+1008	+ 918	+ 798	+ 732	+ 561	+ 348	+ 454	+ 327	+ 414	+ 524	+ 669	+ 702	+ 621
5	+1017	+ 857	+ 810	+ 726	+ 553	+ 323	+ 391	+ 293	+ 416	+ 553	+ 685	+ 671	+ 608
6	+1050	+ 812	+ 795	+ 720	+ 608	+ 349	+ 394	+ 288	+ 397	+ 568	+ 652	+ 528	+ 597
7	+1048	+ 790	+ 789	+ 727	+ 614	+ 393	+ 394	+ 353	+ 361	+ 584	+ 596	+ 542	+ 599
8	+1045	+ 800	+ 799	+ 673	+ 569	+ 364	+ 354	+ 329	+ 303	+ 550	+ 562	+ 694	+ 587
9	+1140	+ 836	+ 709	+ 509	+ 437	+ 321	+ 282	+ 237	+ 333	+ 605	+ 600	+ 822	+ 569
10	+1360	+ 852	+ 648	+ 522	+ 298	+ 374	+ 238	+ 331	+ 402	+ 757	+ 731	+ 1000	+ 626
11	+1375	+ 893	+ 692	+ 516	+ 240	+ 310	+ 178	+ 399	+ 444	+ 699	+ 754	+ 1066	+ 630
Noon.	+1345	+ 919	+ 652	+ 510	+ 302	+ 303	+ 233	+ 382	+ 429	+ 666	+ 879	+ 1100	+ 643
13h.	+1240	+ 888	+ 639	+ 494	+ 281	+ 318	+ 231	+ 396	+ 422	+ 583	+ 927	+ 1082	+ 625
14	+1215	+ 910	+ 612	+ 410	+ 276	+ 334	+ 202	+ 421	+ 458	+ 576	+ 926	+ 1054	+ 616
15	+1208	+ 918	+ 519	+ 533	+ 358	+ 317	+ 224	+ 381	+ 472	+ 665	+ 914	+ 1098	+ 634
16	+1277	+ 928	+ 526	+ 593	+ 332	+ 304	+ 191	+ 308	+ 500	+ 760	+ 895	+ 1107	+ 643
17	+1367	+ 932	+ 662	+ 633	+ 235	+ 288	+ 193	+ 270	+ 541	+ 855	+ 913	+ 1133	+ 669
18	+1465	+ 970	+ 730	+ 617	+ 246	+ 295	+ 230	+ 229	+ 572	+ 892	+ 935	+ 1193	+ 698
19	+1565	+1091	+ 779	+ 689	+ 318	+ 363	+ 309	+ 270	+ 592	+ 907	+ 923	+ 1247	+ 754
20	+1548	+1106	+ 808	+ 808	+ 425	+ 402	+ 392	+ 358	+ 623	+ 903	+ 1000	+ 1297	+ 806
21	+1443	+1076	+ 888	+ 818	+ 564	+ 468	+ 487	+ 423	+ 625	+ 895	+ 1030	+ 1280	+ 833
22	+1358	+1108	+ 982	+ 763	+ 656	+ 551	+ 552	+ 440	+ 569	+ 858	+ 939	+ 1220	+ 833
23	+1292	+1102	+ 919	+ 664	+ 615	+ 568	+ 563	+ 430	+ 479	+ 757	+ 887	+ 1106	+ 782
24	+1220	+1060	+ 825	+ 648	+ 532	+ 544	+ 510	+ 386	+ 428	+ 640	+ 833	+ 1003	+ 719
Means 0h.–23h.	+1226	+ 951	+ 761	+ 650	+ 453	+ 383	+ 352	+ 353	+ 464	+ 684	+ 804	+ 959	+ 670
Means 1h.–24h.	+1238	+ 952	+ 758	+ 647	+ 450	+ 383	+ 354	+ 351	+ 461	+ 684	+ 806	+ 965	+ 671
Number of Days employed.	6	24	13	21	12	19	13	9	16	11	10	9	...

AMOUNT of RAIN COLLECTED in EACH MONTH of the YEAR 1891.

MONTH, 1891.	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	17	0·740	0·758	1·119	1·223	1·471	1·563	1·582	1·571
February	4	0·060	0·109	0·095	0·094	0·095	0·054	0·055	0·060
March	17	0·978	0·924	1·323	1·711	1·852	2·143	2·084	2·133
April	8	0·480	0·493	0·620	0·691	0·746	0·718	0·722	0·728
May	18	1·643	1·751	2·276	2·521	2·683	2·688	2·669	2·764
June	11	0·541	0·597	0·747	0·929	0·984	0·962	0·955	0·973
July	17	2·400	2·378	2·947	3·262	3·343	3·388	3·362	3·369
August	22	2·658	2·648	3·275	3·538	3·662	3·715	3·609	3·685
September	12	0·377	0·355	0·687	0·775	0·858	0·819	0·808	0·829
October	20	2·793	2·741	3·472	3·966	4·251	4·317	4·333	4·328
November	15	1·296	1·285	1·580	1·787	2·027	2·001	2·074	2·059
December	17	1·056	1·163	1·860	2·088	2·568	2·670	2·670	2·682
Sums	178	15·022	15·202	20·001	22·585	24·540	25·038	24·923	25·181
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.

1891.

Month and Day, 1891.	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 7	21. 24. 6	F.	1	Bluish-white	2·5	Slight: remained visible for 2s	35	1
"	21. 40. 35	F.	2	Bluish-white	0·8	None	10	2
"	21. 54. 3	F.	3	Bluish-white	0·6	None	7	3
"	21. 59. 10	F.	1	Bluish-white	0·8	None	18	4
"	22. 23. 16	F.	2	Bluish-white	0·5	None	8	5
"	22. 30. 35	F.	1	Bluish-white	0·8	None	8	6
"	22. 38. 18	F.	2	Bluish-white	0·5	None	7	7
9	23. 15. 33	T.	3	White	0·5	None	10	8
"	23. 18. 35	T.	2	Bluish-white	0·8	Slight	15	9
10	22. 23. 21	M.	2	Bluish-white	0·3	None	7	10
"	22. 39. 5	M.	1	Bluish-white	0·5	Fine	15	11
"	22. 49. 12	M.	1	Bluish-white	0·5	Fine	15	12
"	23. 11. 36	M.	1	Bluish-white	1·0	Slight	12	13
"	23. 21. 43	M.	2	Bluish-white	0·7	None	10	14
"	23. 38. 14	M.	2	Bluish-white	0·5	None	8	15
"	23. 49. 48	M.	1 increasing to Jupiter.	Bluish-white	1·5	Fine, 2s	20	16
11	0. 14. 8	M.	2	Bluish-white	0·5	None	10	17
"	0. 18. 23	M.	2	Bluish-white	0·5	None	7	18
"	0. 25. 2	M.	2	Bluish-white	0·5	Slight	7	19
"	0. 27. 35	M.	3	White	0·3	None	5	20
"	0. 36. 3	M.	2	Bluish-white	0·5	Slight	10	21
"	0. 40. 38	M.	2	Bright blue	0·5	None	12	22
"	0. 43. 8	M.	2	Bluish-white	0·7	None	7	23
"	0. 46. 8	M.	2	Bluish-white	0·5	None	8	24
"	0. 49. 48	M.	2	Bluish-white	0·5	Slight	10	25
"	0. 50. 47	M.	2	Bluish-white	0·7	None	8	26
"	0. 54. 42	M.	2	Bluish	0·4	Slight	8	27
"	0. 57. 36	M.	1	Bluish-white	0·7	Train	12	28
"	1. 3. 55	M.	2	Bluish-white	0·5	None	10	29
"	1. 9. 40	M.	1	Bluish-white	0·7	Fine, 2s	15	30
"	1. 14. 53	M.	1	Blue	0·5	Slight	15	31
"	1. 25. 3	M.	2	Bluish-white	0·5	None	10	32
"	1. 28. 11	M.	> 1	Blue	1·0	Splendid, 6s	20	33
"	1. 36. 17	M.	2	Bluish-white	0·4	None	7	34
"	1. 38. 1	M.	2	Bluish-white	0·5	Slight	8	35
"	1. 41. 25	M.	2	Bluish-white	0·5	Slight	7	36
"	1. 43. 59	M.	3	Bluish-white	0·3	None	5	37
"	1. 49. 17	M.	1	Blue	0·8	Fine	15	38
"	1. 53. 58	M.	1	Bluish-white	0·7	...	10	39
"	2. 6. 55	M.	2	Bluish-white	0·6	Slight	10	40
"	2. 11. 0	M.	1	Blue	1·0	Fine	12	41
"	2. 12. 56	M.	1	Bluish-white	0·7	None	10	42
"	2. 15. 47	M.	2	Bluish-white	0·5	Slight	7	43
12	22. 14. 52	T.	4	White	0·4	None	8	44
"	22. 30. 21	T.	2	White	0·4	None	5	45
"	22. 52. 12	T.	3	Bluish-white	0·3	Slight	5	46
"	22. 55. 42	T.	3	Bluish-white	0·7	Bright	10	47
"	23. 1. 44	T.	2	Bluish-white	0·9	None	8	48
"	23. 18. 58	T.	4	Blue	1·0	Slight	7	49
"	23. 31. 30	T.	2	Bluish-white	0·8	Bright	10	50
"	23. 34. 26	T.	1	Blue	1·0	Very bright	25	51
"	23. 40. 58	T.	3	White	0·3	None	15	52
"	23. 53. 54	T.	2	Blue	0·9	Very bright	20	53

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 about 3° East of α Lyræ to κ Boötis.
2	From about midway between α and μ Serpentis to β Libræ.
3	From between β and γ Boötis to λ Boötis.
4	From between α and γ Cygni passed across ι and κ Cygni nearly to ξ Draconis.
5	From about 3′ North of ι Piscium passed across ι Piscium to κ Piscium.
6	From ξ Cygni moved directly towards ζ Cephei.
7	From direction of θ Aquarii to γ Capricorni.
8	From direction of ζ Herculis to near β Herculis.
9	From α Andromedæ passed near ψ Pegasi and disappeared in cloud.
10	From π Pegasi towards ζ Cygni.
11	Shot from near β Pegasi towards ϵ Pegasi.
12	From direction of ϵ Cygni towards α Aquilæ.
13	Appeared near θ Pegasi passed across and disappeared beyond α Pegasi.
14	Shot from near ϵ Cygni towards β Cygni.
15	From direction of θ Herculis towards δ Herculis.
16	Appeared a few degrees to right of α Ursæ Majoris passed across and disappeared beyond δ Ursæ Majoris; broke into several pieces at end of path.
17	Appeared near ζ Aquilæ and fell vertically downwards.
18	From between 23 and o Ursæ Majoris fell vertically downwards.
19	From direction of ζ Persei towards the Pleiades.
20	From near α Ophiuchi towards κ Ophiuchi.
21	From near δ Cygni to α Lyræ.
22	From a little below Capella towards ι Aurigæ.
23	Shot from α Aquilæ towards δ Aquilæ.
24	From near α Pegasi to ζ Pegasi.
25	From near γ Andromedæ disappeared a few degrees to left of β Trianguli.
26	From direction of η Persei to θ Persei.
27	Appeared a little to left of Capella and fell vertically downwards.
28	From a few degrees above θ Aquilæ towards ι Aquilæ (curved path).
29	Shot from a point a few degrees above θ Ceti towards β Ceti.
30	From near α Arietis moved towards η Piscium.
31	Appeared near α Persei moved towards and disappeared a little to left of β Persei.
32	From midway between β and η Aquilæ towards δ Aquilæ.
33	Appeared several degrees above Jupiter (R.A. = $23^{h.}\ 11^{m.}$: N.P.D. = 96° 45′) disappeared near δ Aquarii.
34	Shot from ζ Persei towards the Pleiades.
35	From direction of γ Arietis towards η Piscium.
36	From a point a few degrees to left of the Pleiades towards λ Tauri.
37	Shot from α Persei towards κ Persei.
38	Passed midway between Capella and β Aurigæ and moved towards β Tauri.
39	From a little to left of the Pleiades towards Aldebaran.
40	From direction of α Ursæ Majoris disappeared near γ Ursæ Majoris.
41	From direction of β Aurigæ disappeared beyond θ Aurigæ.
42	From near ϵ Persei disappeared a little beyond ζ Persei.
43	Shot from near β Tauri towards ζ Tauri.
44	From ϵ Cassiopeiæ towards ψ Cassiopeiæ.
45	From direction of δ Serpentis passed between λ and α Serpentis towards ϵ Serpentis.
46	From a point between β and ι Cephei towards α Cephei.
47	From direction of γ Ophiuchi towards μ Ophiuchi.
48	From a point a little above γ Cephei towards ψ Cassiopeiæ.
49	From γ Ursæ Minoris to a little below α Draconis.
50	From θ Draconis passed between τ and ϕ Herculis.
51	From near Polaris to a little below α Draconis.
52	From β Cassiopeiæ passed near 1 Cassiopeiæ towards δ Cephei.
53	From a little below γ Ursæ Majoris towards 2 Canum Venaticorum (disappeared behind trees).

Month and Day, 1891.		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	13	0. 14. 46	T.	4	White	0·5	None	12	54
	,,	0. 19. 16	T.	3	Bluish-white	0·8	Slight	10	55
	,,	0. 23. 39	T.	2	White	0·6	None	10	56
	,,	0. 31. 6	T.	2	White	0·4	None	5	57
	,,	0. 39. 45	T.	3	Bluish-white	0·7	None	10	58
	,,	0. 47. 36	T.	3	White	0·5	None	8	59
	30	21. 21. 0	N.	Jupiter.	Yellow	3·0	Fine	...	60
September	10	22. 34. 43	A.	1	Bluish-white	0·2	None	3	61
	,,	22. 46. 10	A.	2	Bluish-white	0·4	None	9	62
November	30	22. 38. 44	T.	4	Bluish-white	0·5	None	10	63
	,,	23. 14. 14	T.	2	Bluish-white	1·0	Slight	20	64
	,,	23. 27. 7	T.	3	Bluish-white	0·5	None	8	65
	,,	23. 36. 26	T.	1	Bluish-white	0·8	Slight	15	66
	,,	23. 39. 40	T.	3	White	0·4	None	9	67

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.
54	From direction of Polaris to θ Ursæ Minoris.
55	From γ Ursæ Minoris to a point midway between α and κ Draconis.
56	From a point between β and τ Cassiopeiæ towards θ Cassiopeiæ.
57	From direction of γ Ceti described circular path by East towards δ Ceti.
58	From δ Draconis to a point a little above ζ Draconis.
59	From ϕ Andromedæ towards μ Andromedæ.
60	Passed above α Draconis and moved slowly towards α Persei.
61	From a point a little to the South of ζ Draconis moved towards η Draconis.
62	From a little to the North of 38 Ursæ Majoris moved directly towards and disappeared a little beyond β Ursæ Majoris.
63	From a little above Castor towards θ Geminorum.
64	From θ Ursæ Majoris pursued curved path towards λ Draconis.
65	From South of α Ursæ Majoris towards λ Draconis.
66	From a point midway between α and κ Draconis to a little south of β Ursæ Minoris.
67	From between ι and κ Ursæ Majoris passed close to and disappeared a little beyond θ Ursæ Majoris.