RESULTS

OF THE

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS

MADE AT

THE ROYAL OBSERVATORY, GREENWICH,

IN THE YEAR

1893:

UNDER THE DIRECTION OF

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

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ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS.

1893.

GREENWICH MAGNETICAL AND METEOROLOGICAL OBSERVATIONS,
1893.

INTRODUCTION.

§ 1. *Personal Establishment and Arrangements.*

During the year 1893 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, George A. Allworth, Thomas F. Claxton, Henry James MacManus, Albert Walter, Percival D. Beadle, and Ernest William Wenborn.

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 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 photographic dry-bulb and wet-bulb thermometer 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.

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.

In the year 1891 the Central Octagon of the new Physical Observatory was erected in the South Ground, and in the year 1893 the South Wing was added to the building, considerable masses of iron being introduced, viz., 10 tons in the case of the Central Octagon, the centre of which is about 115 feet from the declination magnet on a bearing 12° East of South (magnetic), and 16 tons in the South Wing at a mean distance of about 145 feet on a bearing 5° East of South (magnetic) from the declination magnet. The principal masses of iron were brought into the South Ground as follows :—on 1891 March 24 and 25, 7 and 3 tons respectively, and on 1893 February 11 and 14, $3\frac{3}{4}$ and $5\frac{1}{2}$ tons respectively. In no case could any disturbance of the magnetic registers be detected.

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* 1893.

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 adopted for one division of the striding level was 1″·05 until January 16. Between 1893 January 16 and February 3 the theodolite was in the hands of Messrs. Troughton and Simms for alteration and adjustment. A new striding level was applied at the same time and the value of one division of this level was found to be 1″·5. 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, prior to the above-mentioned alterations in the instrument, to be very small. It appeared that the pivot at the illuminated end of the axis is too large, and that a correction of $-1^{\text{div}}\cdot3$ equivalent to 1″·4 is required to the level indication with illuminated pivot west, and this value was used until 1893 January 16. A re-determination of the inequality of the pivots

made after the adjustment of the instrument indicates that the correction required is now $-4^{div}\cdot5$ equivalent to $-6''\cdot75$, with illuminated pivot west, the position for observation of a circumpolar star.

The value in arc of one revolution of the telescope-micrometer is $1'.34''\cdot2$.

The reading for the line of collimation of the theodolite telescope before its removal, was found by ten double observations on 1892 August 26, to be $100^{r}\cdot348$; on 1892 October 7, $100^{r}\cdot345$; and on 1892 November 29, $100^{r}\cdot336$. The value used until 1893 January 16 was $100^{r}\cdot350$. After the return of the instrument from Messrs. Troughton and Simms' factory the reading for the line of collimation of the telescope was re-determined, and was found on 1893 February 4 to be $100^{r}\cdot160$; on February 7, $100^{r}\cdot209$; on March 15, $100^{r}\cdot231$; on June 6, $100^{r}\cdot188$; and on December 6, $100^{r}\cdot228$. The value used from 1893 February 4 to the end of the year was $100^{r}\cdot200$.

The effect of the plane glass in front of the outer box of the declination-magnet at the end of the box towards the theodolite was determined by ten double observations made on 1891 November 25, which showed that in the ordinary position of the glass the theodolite readings were diminished by $19''\cdot1$. Two other sets of observations, made on 1892 November 29 and 1893 December 6, gave $18''\cdot4$ and $19''\cdot9$ respectively. The mean of these, $19''\cdot1$ has been added to all readings throughout the year 1893.

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 1893 was $26'.2''\cdot2$, being the mean of determinations made on 1889 December 4, 1890 August 12, 1891 November 26, 1892 November 29, and 1893 December 7, giving respectively $25'.54''\cdot2$, $26'.8''\cdot2$, $25'.55''\cdot1$, $26'.7''\cdot1$, and $26'.6''\cdot5$. With the collimator in its usual position, above the magnet, the quantity $26'.2''\cdot2$ 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 found to be $\frac{1}{153}$ on 1892 November 30, and $\frac{1}{155}$ on 1893 December 7. During the year 1893 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 1891 November 25, to be 31^{s}·03, and on 1892 November 29, 31^{s}·01.

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 January 16 was 27°. 6′. 10″·7 ; from February 4 to April 30, 27°. 0′. 54″·7 ; and from May 1 to December 31, 27°. 0′. 39″·2.

In regard to the manner of making observations with the upper declination magnet :—The observer on looking into the theodolite telescope sees the image of the diagonal cross of the magnet collimator vibrating alternately right and left. The time of vibration of the magnet being about 30 seconds, he first applies his eye to the telescope about one minute, or two vibrations, before the pre-arranged time of observation, and, with the vertical wire carried by the telescope-micrometer, bisects the magnet-cross at its next extreme limit of vibration, reading the micrometer. He similarly observes the next following extreme vibration, in the opposite direction, and so on, taking in all four readings. The mean of each pair of adjacent readings of the micrometer is taken, giving three means, and the mean of these three is adopted. In practice this is done by adding the first and fourth readings to twice the second and third, and dividing the sum by 6. Should the magnet be nearly free from vibration, two bisections only of the cross are made, one at the vibration next before the pre-arranged time, the other at the vibration following. The verniers of the theodolite-circle are then read. The excess of the adopted micrometer-reading above the reading for the line of collimation of the telescope being converted into arc and applied to the mean circle-reading, and also the corrections for collimation of the magnet and for collimation of the plane glass in front of its box, the concluded circle-

reading corresponding to the position of the magnet is found. The difference between this reading and the adopted reading of the circle for the south astronomical meridian gives, when, as is usually the case, no correction for torsion of the skein is necessary, the observed value of absolute declination, afterwards used for determining the value of the photographed base line on the photographic register of the lower declination magnet. The times of observation of the upper declination magnet are usually $9^h.\ 5^m$, $13^h.\ 5^m$, $15^h.\ 5^m$, and $21^h.\ 5^m$ of Greenwich civil time, reckoning from midnight.

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 occasionally 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 *xxxii*) are measured.

HORIZONTAL FORCE MAGNET.—The horizontal force magnet, for measure of the variations of horizontal magnetic force, was made by Meyerstein of Göttingen, and like the two declination magnets, is 2 feet long, $1\frac{1}{2}$ 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 1893 January 4 the following observations were made for determination of the angle of torsion :—

1893, 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
Jan. 4	146	50·27	8·24	21·26	230. 30	50·94	8·62	20·82
	147	58·51	8·31	20·98	231. 30	59·56	7·41	21·04
	148	66·82		20·80	232. 30	66·97		21·28

From these observations it appeared that the times of vibration and scale readings were sensibly the same when the torsion circle read 146°. 56′, marked end west, and 231°. 18′, marked end east, the difference being 84°. 22′. Half this difference, or 42°. 11′, is therefore the angle of torsion when the magnet is transverse to the meridian. The value adopted in the reduction of the observations during the year 1893 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 1893 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 *xiv* and *xv*), 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 *xxxii*) 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 $(t-32) \times ·0000936 + (t-32)^2 \times ·000002074$ in which t is the temperature in degrees Fahrenheit. The decrease of horizontal force for an increase of 1° of temperature (Fahrenheit) would thus be ·00021 at 60°, ·00023 at 65°, and ·00025 at 70°.

VERTICAL FORCE MAGNET.—The vertical force magnet, for measure of the variations of vertical magnetic force, is by Troughton and Simms. It is 1 ft. 6 in. long and lozenge shaped, being broad at the centre and pointed at the ends; it is mounted on a solid brick pier capped with stone, situated in the western arm of the basement, its position being nearly symmetrical with that of the horizontal force magnet in the eastern arm. The supporting frame consists of two pillars, connected at their bases, on whose tops are the agate planes upon which rest the extreme parts of the continuous steel knife edge, attached to the magnet carrier by clamps and pinching screws. The knife edge, eight inches long, passes through an aperture in the magnet. The axis of the magnet is approximately transverse to the magnetic meridian, its marked end being east; its axis of vibration is thus nearly north and south magnetic. The magnet carrier is of iron; at its southern end there is fixed a small plane mirror for use in eye observations, whose plane makes with the vertical plane through the magnet an angle of $52\frac{3}{4}$° 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 63 observations made during the course of the year this was found to be $19^{s}\cdot322$.

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 1893 December 29 gave for the time of vibration of the magnet in the horizontal plane, $16^{s}\cdot685$. This value has been used throughout for the year 1893.

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 $T' = 16^{s}\cdot685$, $T = 19^{s}\cdot322$, and dip $= 67°.\ 18'$, the change of vertical force corresponding to change of one division of scale reading was found to be 0·0004097, and this value has been used throughout the year 1893 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 *xxiii*), the movement of the spot of light on the cylinder for a change of 0·01 of vertical force is thus found to be, 6·425 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 *xxxii*) 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 1882 October 17 to 23, in a similar manner to those for the horizontal force magnet (page *xxi*), 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 INSTRUMENTS.—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 :—

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

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

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

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

$$\frac{\text{Log. } A_1-\text{Log. } A_2}{\text{modulus}}\times\frac{r_1^2\times r_2^2}{r_2^2-r_1^2}=(\text{Log. } A_1-\text{Log. } A_2)\times 5\cdot64.$$

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

$\dfrac{H}{F}$ = 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 $\dfrac{H}{F}=\dfrac{\theta}{90^\circ-\theta}$,

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 corrected time of vibration of the deflecting magnet, printed in the tables of results, is the mean of 100 vibrations observed immediately before, and of 100 vibrations observed immediately after the observations of deflexion, corrected for temperature, rate of chronometer, semi-arc of vibration, induction, and torsion force.

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 $2\frac{1}{2}$ 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 $7\frac{1}{2}$ 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 are not 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 5 days in the year 1893 which have been classed as days of great disturbance, viz.: April 26, July 16, August 7, 18, and November 2. Other days of lesser disturbance are January 5–6, 21–22, February 4–5, 5–6, March 14–15, 25, 26–27, April 27, June 9–10, 18–19, 19–20, July 15, 21–22, August 6, September 8, 9, 26–27, 29–30, 30–October 1, November 1, 3–4, December 5–6. 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, in the formation of Tables I. and II. for declination, Tables III. to VI. for horizontal force, and in Tables VII. to X. for vertical force, are April 26, July 16, August 7, 18, and November 2. 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 *xxi*) 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 *xxv*). 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 comparable 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 January 8, which should be taken as 1010 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

$$\text{H.F. in metrical measure} \times \sin 1' = 1{\cdot}8287 \times \sin 1' = 0{\cdot}0005319.$$

For variation of horizontal force, the factor is

$$\text{H.F. in metrical measure} = 1{\cdot}8287,$$

and for variation of vertical force

$$\text{V. F. in metrical measure} = \text{H. F. in metrical measure} \times \tan \text{dip},$$
$$= 1{\cdot}8287 \times \tan 67°.17'.46'' = 4{\cdot}3708.$$

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 ot 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 *xxxii*), 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 :—

1893.	a_5.	b_5.
Declination	−0′·09	−0′·03
Horizontal Force.....	+0·7	−1·4
Vertical Force	+0·1	−0·6

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 1893.	Declination.	Horizontal Force.	Vertical Force.
Sums of Squares of Observed Values (Table XII.)	515′·71	569209·9	21712·4
Sums of Squares of Residuals after the introduction of m	205·82	97408·8	4837·2
" " a_1 and b_1	73·35	25569·5	2558·3
" " a_2 and b_2	13·48	4702·3	282·1
" " a_3 and b_3	1·18	860·0	32·0
" " a_4 and b_4	0·19	58·7	9·1
" " a_5 and b_5	0·09	28·1	4·0

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.

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 1893 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 *xxxii*.

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 1893, 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 (xxxi).

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 *xxxiii*, 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	6·425	163·19
On the Plates -	2·580	65·53	1·363	34·62	3·534	89·76

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 *xl*).

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

= ·0175 of Horizontal Force

and Vertical Force = Horizontal Force × tan. dip [dip = 67°. 18′]

= Horizontal Force × 2·3901

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	2·69	68·3
On the Plates -	1·47	37·4	1·36	34·6	1·48	37·6

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 1893	=	3·9661
Millimètre-milligramme-second,	or Metric unit,	„	„	=	1·8287
Centimètre-gramme-second,	or C. G. S. unit,	„	„	=	0·18287

Dividing therefore the scale values last given by 3·9661, 1·8287, and 0·18287 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	9·4	0·62	15·9	0·34	8·7	0·68	17·2	0·37	9·5
Metric - -	1·47	37·2	0·81	20·5	1·36	34·4	0·75	18·9	1·47	37·3	0·81	20·5
C. G. S. - -	14·7	372·	8·1	205·	13·6	344·	7·5	189·	14·7	373·	8·1	205·

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 March 25, 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 and wet bulb readings throughout the year.

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 − 1°·0 has been applied, and to those of No. 38338, for minimum temperature of the air, a correction of + 0°·2 throughout. The readings of No. 68726 for maximum temperature of evaporation, required a correction of + 0°·2, and those of No. 3627 for minimum temperature of evaporation 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°·1 has been applied. The maximum thermometer is Negretti and Zambra, No. 68725, which requires no correction. The minimum thermometer is Hicks No. 262739, to the readings of which the following corrections have been applied: below 34° 0°·0, 34° to 39° + 0°·1, 39° to 43° + 0°·2, 43° to 49° + 0°·3, 49° to 54° + 0°·4, 54° to 60° + 0°·5, 60° to 65° + 0°·6, and above 65° + 0°·7. 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°·5. 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 on Negretti and Zambra's principle, with its bulb blackened, and the thermometer enclosed in a glass sphere from which the air has been exhausted. The thermometer employed throughout the year was Negretti and Zambra, No. 49230. 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.

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. 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, with the exception of that on 1893 December 12.

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 ordinarily the same as that of the magnetic registers. On 1893 April 22, Mr. Kullberg applied a special gearing to the clock, which is so arranged that the table carrying the record can either be driven at the usual rate, or 12 times as fast, in order to give a largely increased time scale for the register of wind pressure during gales, the ordinary sheet thus giving a register for two hours instead of 24.

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 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 1893 eight rain-gauges were employed, placed at different elevations above the ground, complete information in regard to which will be found at page (xcviii) 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 *xxxii*), 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 (lxiii) and (lxiv)) have been calculated from the corresponding mean hourly values of air and evaporation temperatures (pages (lxii) and (lxiii)).

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 16 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 (lxi) and (xcviii), is formed from the records of this gauge. In this numeration only those days are counted on which the fall amounted to or exceeded $0^{in}\cdot005$.

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

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 the foot notes on the right-hand pages (xxxv) to (lvii), and in the abstract table, page (lxi), is the mean found from observations made usually at 9^h, 12^h (noon), 15^h, and 21^h, of each civil day.

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

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

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

The following is the notation employed for Electricity :—

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

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

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

In regard to the comparisons of the extremes and means, &c. of meteorological elements with average values, contained in the foot notes, it may be mentioned that 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 (lxii) and (lxiii), do not in some cases agree with the monthly means given in the daily results, pages (xxxiv) to (lvii), and in the table on page (lxi), 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 (lxxxv), 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 (xcii), 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 16 of the "Daily Results of the Meteorological Observations" being adopted in selecting the days. These additional tables are given on pages (xcvi) and (xcvii) 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 1893 were Mr. Claxton, Mr. MacManus, and Mr. Beadle; their observations are distinguished by the initials C, M, and B, respectively.

W. H. M. CHRISTIE.

Royal Observatory, Greenwich,
1895 November 27.

ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

MAGNETICAL OBSERVATIONS

(EXCLUDING THE DAYS OF GREAT MAGNETIC DISTURBANCE).

1893.

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

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

1893.

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

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

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

1893.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	′	′	′	′	′	′	′	′	′	′	′	′
Midn.	0·0	0·3	1·8	4·0	4·7	5·2	4·7	3·9	1·9	1·2	0·5	0·0
1h	0·4	0·4	2·0	3·9	4·7	4·7	4·8	3·3	1·6	1·7	1·3	0·3
2	1·2	0·3	2·0	4·0	4·1	4·5	4·6	3·2	1·8	1·8	1·9	0·7
3	2·0	0·4	1·8	3·7	3·9	4·3	4·1	3·2	1·7	1·7	2·1	1·3
4	2·2	0·6	1·8	3·2	3·5	3·7	3·6	3·0	2·1	2·1	2·2	1·7
5	2·0	0·6	1·8	3·1	2·3	2·4	2·1	2·1	2·0	2·2	2·0	1·5
6	2·0	0·7	1·5	2·4	0·9	0·8	0·5	1·0	1·5	1·8	2·1	1·5
7	2·1	0·8	0·8	1·2	0·0	0·0	0·0	0·0	0·5	1·1	1·8	1·5
8	2·0	0·9	0·0	0·0	0·1	0·2	0·5	0·2	0·0	0·0	1·2	1·5
9	2·2	1·6	0·3	0·5	1·6	1·7	1·9	1·5	1·2	0·0	0·9	1·0
10	3·1	3·0	2·3	2·9	4·4	5·0	4·1	4·5	4·1	1·9	2·1	1·4
11	4·7	5·6	5·9	7·1	8·1	8·6	7·7	8·3	7·6	5·4	4·5	2·9
Noon.	5·8	7·3	9·7	11·6	11·2	11·6	10·9	11·9	10·5	8·5	6·6	4·6
13h	6·2	7·8	10·9	13·6	12·7	13·0	12·7	13·1	11·6	9·5	7·4	5·7
14	5·8	7·6	10·7	13·4	12·5	13·4	12·9	12·5	11·0	9·1	7·0	5·7
15	5·1	6·6	9·3	11·6	11·4	12·3	11·7	10·7	9·3	7·9	5·6	5·1
16	4·4	5·2	7·2	9·4	9·4	10·7	10·0	8·3	7·0	6·3	4·4	4·3
17	3·9	4·0	5·0	7·3	7·6	8·7	8·5	6·3	5·2	4·8	3·8	3·3
18	3·2	3·1	4·0	5·8	6·3	7·4	7·1	5·2	4·3	3·4	3·2	2·8
19	2·4	2·2	3·2	5·3	5·6	6·4	6·3	5·2	3·4	2·4	2·7	2·4
20	1·6	1·2	2·6	4·9	5·3	5·9	5·8	5·0	2·7	1·8	1·8	1·4
21	0·8	0·4	2·3	4·6	5·2	5·6	5·6	5·0	2·6	0·9	0·8	0·8
22	0·5	0·0	2·1	4·6	5·3	5·5	5·9	4·8	2·5	0·8	0·3	0·4
23	0·2	0·2	1·9	4·5	5·0	5·3	5·5	4·7	2·2	1·1	0·0	0·3
Means	2·66	2·53	3·79	5·52	5·66	6·12	5·90	5·29	4·10	3·22	2·76	2·17

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.*)

1893.

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	475	038	580	131	575	135	490	091	525	117	599	179	595	203	728	303	838	446	641	237	554	122	676	248
2	481	044	623	186	553	135	539	138	623	195	598	209	599	229	741	357	789	388	660	254	...	...	725	207
3	500	048	489	064	502	089	485	081	627	221	592	200	593	238	761	355	799	386	577	157	583	179	781	208
4	405	953	473	026	472	071	494	081	647	239	602	230	622	254	826	425	810	390	621	203	656	248	851	282
5	453	967	290	818	573	117	517	125	613	224	531	156	667	295	742	338	822	394	636	213	668	201	711	169
6	325	878	336	869	542	134	545	134	604	191	562	170	654	284	716	300	736	323	646	233	681	193	692	204
7	365	940	420	009	541	140	509	110	610	173	576	170	659	291	...	...	732	348	618	226	695	251	684	254
8	430	010	440	000	501	109	546	121	534	111	574	178	609	259	555	171	716	320	667	259	664	244	646	238
9	405	977	452	005	548	130	549	124	570	159	679	263	612	264	658	305	675	238	696	288	600	177	657	232
10	390	962	455	025	561	143	553	142	511	093	539	128	640	280	694	354	695	232	632	219	612	180	666	236
11	363	950	500	082	547	110	550	127	526	115	544	126	660	295	750	405	720	259	668	255	651	235	687	240
12	392	993	532	055	518	107	460	040	533	125	590	165	718	348	800	467	700	282	682	254	690	258	674	234
13	424	011	536	075	510	104	481	029	558	169	619	211	717	328	689	361	714	301	602	182	650	192	722	311
14	432	024	548	140	492	103	518	076	538	161	665	278	736	320	725	405	754	386	657	275	690	225	716	279
15	442	034	472	047	431	013	505	061	586	211	660	292	642	219	690	378	714	342	717	333	663	231	682	240
16	445	034	337	938	429	025	533	091	658	250	614	256	...	...	673	363	712	367	719	335	645	234	710	282
17	510	094	366	953	445	005	538	113	767	390	612	269	578	172	658	369	734	357	737	331	705	270	674	249
18	517	118	431	013	449	009	557	137	734	335	685	345	593	182	...	...	701	314	740	320	611	171	714	270
19	450	034	487	081	473	024	583	165	648	230	598	255	677	273	441	163	758	413	720	290	614	172	685	269
20	474	039	430	024	497	043	588	182	644	240	554	206	708	316	554	247	705	328	725	305	645	217	689	269
21	433	022	442	026	552	094	582	193	658	247	625	226	772	371	610	295	703	280	746	333	649	209	683	251
22	401	966	477	021	550	092	579	180	649	250	653	237	675	276	615	275	701	261	743	335	711	267	706	293
23	413	033	503	033	587	138	562	190	649	253	671	258	667	251	676	326	677	242	751	311	617	170	708	304
24	465	073	523	067	608	150	634	218	700	294	692	255	711	312	690	303	660	240	727	304	647	207	618	200
25	514	058	574	118	617	129	526	142	650	242	692	257	697	298	700	304	687	269	570	154	683	267	571	136
26	518	069	560	106	396	988	...	...	612	206	653	259	705	294	694	288	550	156	582	174	712	292	596	190
27	470	052	533	091	322	916	409	996	604	186	736	354	732	316	708	290	691	299	625	209	626	159	542	141
28	502	060	519	089	414	003	500	084	630	210	737	345	714	294	705	301	713	302	622	221	652	212	574	149
29	492	072			420	000	543	135	645	246	601	197	751	350	739	309	707	299	636	218	604	157	673	219
30	480	072			462	037	522	133	689	269	592	184	722	318	737	353	630	229	636	192	655	237	614	189
31	536	135			468	050			574	146			741	323	795	401			585	160			596	173

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.

1893.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d												
1	66°·2	65°·7	66°·1	67°·8	67°·4	66°·9	68°·1	66°·7	68°·1	67°·6	66°·4	66°·6
2	66·2	66·2	67·0	67·7	66·6	68·2	69·0	68·4	67·7	67·5	...	62·7
3	65·6	66·7	67·2	67·6	67·5	68·1	69·6	67·5	67·2	66·9	67·6	60·1
4	65·6	65·8	67·7	67·2	67·4	68·9	69·1	67·7	66·9	67·0	67·4	60·3
5	64·1	64·7	65·4	68·1	68·2	68·8	68·9	67·6	66·6	66·8	64·9	61·6
6	65·8	64·9	67·4	67·3	67·2	68·1	69·0	67·1	67·2	67·2	64·6	64·0
7	66·7	67·3	67·7	67·8	66·2	67·5	69·1	...	68·4	68·1	65·9	66·5
8	66·9	66·1	68·1	66·7	66·8	67·9	69·8	68·4	67·9	67·4	66·9	67·4
9	66·6	65·8	67·0	66·7	67·3	67·1	69·9	69·7	66·2	67·4	66·8	66·7
10	66·6	66·5	67·0	67·3	67·0	67·3	69·4	70·2	65·1	67·2	66·4	66·5
11	67·2	67·0	66·2	66·8	67·3	67·0	69·2	70·0	65·2	67·2	67·1	65·8
12	67·8	64·5	67·3	66·9	67·4	66·7	69·0	70·5	67·0	66·6	66·4	66·1
13	67·2	65·2	67·5	65·6	68·2	67·4	68·2	70·7	67·2	66·9	65·3	67·3
14	67·4	67·4	68·2	66·0	68·7	68·3	67·1	71·0	69·1	68·5	65·0	66·2
15	67·4	66·7	67·0	65·9	68·8	69·1	66·8	71·3	68·9	68·4	66·4	66·0
16	67·3	67·8	67·6	66·0	67·4	69·5	...	71·4	70·0	68·4	67·3	66·6
17	67·1	67·2	66·1	66·7	68·7	70·1	67·5	72·2	68·7	67·5	66·3	66·7
18	67·8	67·0	66·1	66·9	67·8	70·2	67·3	...	68·3	66·9	66·1	65·9
19	67·1	67·5	65·7	67·0	67·0	70·1	67·6	72·6	70·0	66·5	66·0	67·1
20	66·3	67·5	65·5	67·5	67·6	69·9	68·1	71·5	68·7	66·9	66·6	66·9
21	67·3	67·1	65·3	68·2	67·3	67·8	67·7	71·2	66·8	67·2	66·1	66·4
22	66·3	65·4	65·3	67·8	67·8	67·1	67·8	70·2	66·1	67·4	65·9	67·2
23	68·6	64·8	65·7	68·9	67·9	67·2	67·1	69·8	66·3	66·1	65·8	67·6
24	68·1	65·4	65·3	67·1	67·5	66·2	67·8	68·3	66·9	66·8	66·1	67·0
25	65·4	65·4	64·0	68·4	67·4	66·3	67·8	67·9	67·0	67·1	67·1	66·3
26	65·7	65·5	67·4	...	67·5	68·0	67·3	67·5	68·0	67·4	66·9	67·5
27	67·0	66·0	67·5	67·2	67·0	68·5	67·1	67·0	68·1	67·1	64·9	67·7
28	66·0	66·5	67·3	67·1	66·9	68·1	66·9	67·6	67·3	67·7	66·1	66·7
29	66·9		66·9	67·4	67·8	67·6	67·7	66·5	67·4	67·0	65·8	65·5
30	67·4		66·7	68·2	66·9	67·4	67·6	68·4	67·7	65·9	67·0	66·7
31	67·7		67·0		66·6		67·0	68·0		66·7		66·8
Means	66°·75	66°·20	66°·65	67°·23	67°·45	68°·04	68°·15	69°·20	67°·53	67°·20	66°·24	65°·88

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.*)

1893.

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.	41	72	86	115	166	195	248	267	179	188	209	231	206	223	236	253	231	238	205	222	124	138	66	92
1h	47	76	83	109	164	191	229	248	170	182	201	218	194	209	231	246	228	232	203	215	127	134	72	90
2	49	73	77	98	168	190	217	234	163	172	191	206	189	201	216	228	228	232	202	212	129	131	71	87
3	59	78	81	98	167	184	220	235	160	165	188	200	184	194	214	224	216	216	205	212	136	136	72	83
4	72	86	91	103	166	178	228	238	163	165	183	193	188	195	220	227	213	210	204	211	143	143	84	90
5	87	99	104	113	177	187	234	241	163	163	177	185	180	185	201	206	206	203	218	223	147	147	99	105
6	94	103	110	117	180	188	228	233	144	144	141	146	147	150	165	168	176	173	216	219	151	149	108	112
7	97	104	103	110	157	162	201	204	108	108	87	90	101	101	105	108	141	138	192	195	146	144	105	107
8	79	84	76	81	113	116	156	159	57	54	38	38	52	52	43	43	81	78	133	136	112	110	96	100
9	40	42	34	36	51	51	83	83	15	12	5	5	14	14	4	4	23	23	57	60	60	60	67	69
10	6	6	2	4	2	0	10	10	0	0	0	0	0	0	0	0	0	0	2	5	17	17	31	33
11	0	0	0	0	0	0	0	0	13	13	22	22	16	19	22	22	6	3	0	0	0	0	0	0
Noon.	10	10	39	36	40	40	54	57	52	54	67	70	75	78	86	89	78	78	26	29	14	12	4	4
13h	42	44	56	56	84	89	112	117	89	96	123	128	126	131	163	168	128	130	69	74	43	45	19	23
14	53	58	69	74	124	134	175	182	139	146	182	190	182	189	216	226	166	170	118	128	69	76	42	51
15	45	52	77	84	150	162	225	237	175	184	223	233	227	237	246	256	184	188	156	166	81	93	54	65
16	37	46	83	92	168	185	258	273	201	213	254	266	271	283	265	277	189	196	163	175	103	115	67	81
17	50	59	92	101	169	189	269	286	226	235	288	300	299	311	267	282	194	203	162	174	113	123	62	76
18	54	66	100	109	179	199	278	295	248	257	317	332	321	333	267	282	208	217	179	196	120	130	62	83
19	58	75	102	116	185	207	284	296	254	261	318	335	317	332	288	305	231	243	176	193	129	143	63	89
20	51	72	102	121	176	200	284	296	240	247	292	309	295	312	295	315	235	247	182	199	127	141	57	85
21	46	72	98	119	165	189	270	285	218	223	261	281	260	277	284	304	237	244	188	205	126	140	58	84
22	51	77	92	116	164	191	257	274	201	208	233	255	246	256	271	293	245	252	195	210	126	138	65	88
23	42	73	89	115	167	196	251	270	189	198	213	235	236	246	260	280	240	247	196	213	115	129	62	88
Means corrected for Temperature.	63·6		88·5		151·0		209·2		153·7		186·2		188·7		200·2		173·4		161·3		108·1		74·4	

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

1893.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	67°·5	66°·9	67°·3	67°·6	67°·6	68°·5	68°·5	69°·5	67°·7	67°·5	66°·6	66°·4	67°·63
1h	67·4	66·8	67·2	67·6	67·7	68·3	68·4	69·4	67·6	67·3	66·3	66·1	67·51
2	67·2	66·6	67·0	67·5	67·6	68·2	68·3	69·3	67·6	67·2	66·1	66·0	67·38
3	67·0	66·4	66·8	67·4	67·4	68·1	68·2	69·2	67·4	67·1	66·0	65·8	67·23
4	66·8	66·2	66·6	67·2	67·3	68·0	68·1	69·1	67·3	67·1	66·0	65·6	67·11
5	66·7	66·1	66·5	67·1	67·2	67·9	68·0	69·0	67·3	67·0	66·0	65·6	67·03
6	66·6	66·0	66·4	67·0	67·2	67·8	67·9	68·9	67·3	66·9	65·9	65·5	66·95
7	66·5	66·0	66·3	66·9	67·2	67·7	67·8	68·9	67·3	66·9	65·9	65·4	66·90
8	66·4	65·9	66·2	66·9	67·1	67·6	67·8	68·8	67·3	66·9	65·9	65·5	66·86
9	66·3	65·8	66·1	66·8	67·1	67·6	67·8	68·8	67·4	66·9	66·0	65·4	66·83
10	66·2	65·8	66·0	66·8	67·2	67·6	67·8	68·8	67·4	66·9	66·0	65·4	66·82
11	66·2	65·7	66·1	66·8	67·2	67·6	67·9	68·8	67·3	66·8	66·0	65·3	66·81
Noon.	66·2	65·6	66·1	66·9	67·3	67·7	67·9	68·9	67·4	66·9	65·9	65·3	66·84
13h	66·3	65·7	66·3	67·0	67·5	67·8	68·0	69·0	67·5	67·0	66·1	65·5	66·98
14	66·4	65·9	66·5	67·1	67·5	67·9	68·1	69·2	67·6	67·2	66·3	65·7	67·12
15	66·5	66·0	66·6	67·3	67·6	68·0	68·2	69·2	67·6	67·2	66·5	65·8	67·21
16	66·6	66·1	66·8	67·4	67·7	68·1	68·3	69·3	67·7	67·3	66·5	65·9	67·31
17	66·6	66·1	66·9	67·5	67·6	68·1	68·3	69·4	67·8	67·3	66·4	65·9	67·33
18	66·7	66·1	66·9	67·5	67·6	68·2	68·3	69·4	67·8	67·5	66·4	66·2	67·38
19	66·9	66·3	67·0	67·3	67·5	68·3	68·4	69·5	67·9	67·5	66·6	66·4	67·47
20	67·1	66·5	67·1	67·3	67·5	68·3	68·5	69·6	67·9	67·5	66·6	66·5	67·53
21	67·3	66·6	67·1	67·4	67·4	68·4	68·5	69·6	67·7	67·5	66·6	66·4	67·54
22	67·3	66·7	67·2	67·5	67·5	68·5	68·2	69·7	67·7	67·4	66·5	66·3	67·54
23	67·5	66·8	67·3	67·6	67·6	68·5	68·2	69·6	67·7	67·5	66·6	66·4	67·61

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.*)

1893.

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	834	107	849	138	778	055	792	033	770	024	757	017	791	038	751	026	753	003	676	915	602	862	496	771
2	810	091	826	101	809	067	788	038	741	005	761	994	815	039	778	025	758	016	682	927	...	...	425	783
3	779	071	881	143	831	091	788	025	748	993	753	990	839	057	750	012	752	018	696	954	613	865	352	760
4	792	084	878	151	827	070	778	032	756	008	791	011	835	064	760	020	747	020	670	930	592	844	330	732
5	753	079	833	106	797	086	813	029	775	008	794	016	821	054	755	000	731	999	664	922	565	854	384	761
6	780	080	835	118	820	070	791	038	747	001	786	023	823	052	774	021	725	991	659	915	539	839	415	735
7	809	086	862	112	838	085	790	033	726	999	756	018	839	063	...	...	766	007	665	894	547	824	470	743
8	800	083	851	132	853	090	774	038	714	976	768	013	864	078	796	031	759	019	660	912	559	817	498	756
9	819	085	818	099	833	091	765	015	744	996	764	016	863	070	824	036	732	028	658	905	565	840	480	744
10	825	087	829	093	824	080	777	020	731	989	750	002	829	053	856	054	700	009	675	933	553	832	483	749
11	850	104	837	089	795	074	751	026	758	008	750	008	813	037	841	048	693	995	663	923	545	807	479	756
12	856	097	793	102	813	060	740	002	747	992	759	025	813	046	856	052	713	973	658	926	532	809	468	741
13	838	100	790	058	827	083	727	004	770	009	750	997	796	048	879	073	708	958	655	919	514	810	482	729
14	839	091	823	064	855	069	713	977	777	995	778	013	796	069	900	086	726	942	668	903	488	784	480	751
15	814	087	846	112	829	081	722	974	809	029	802	026	779	054	918	101	727	964	694	931	512	783	459	740
16	802	070	835	066	831	089	725	996	770	032	812	030	...	...	909	084	748	957	709	959	534	790	457	721
17	800	050	869	119	805	078	730	980	788	017	838	043	802	068	921	079	732	979	692	952	529	793	468	732
18	808	037	849	107	780	051	729	987	802	049	826	027	800	066	...	...	712	970	686	959	528	803	445	722
19	819	071	859	113	772	045	739	995	805	073	805	010	792	054	014	168	728	952	659	932	507	788	460	726
20	807	088	872	119	748	029	756	008	800	035	826	040	790	042	924	101	738	988	649	907	506	772	457	728
21	818	082	876	134	729	051	782	025	802	049	802	060	805	065	905	091	692	960	647	909	500	768	443	724
22	809	073	834	138	725	047	787	039	784	025	767	038	798	058	876	079	667	933	643	903	483	764	439	693
23	864	101	793	100	731	044	804	030	804	049	751	017	789	060	850	064	643	903	623	900	478	755	470	713
24	868	101	790	065	729	038	768	024	779	020	733	025	784	038	821	066	636	881	627	889	468	739	473	735
25	827	116	780	063	720	020	793	022	807	054	728	001	792	050	804	056	635	893	662	937	474	728	452	712
26	823	104	772	061	825	068	...	...	796	046	755	994	782	048	790	050	663	904	636	894	489	751	457	700
27	868	120	777	052	848	098	810	064	788	048	769	008	763	038	765	040	639	884	628	890	466	768	476	721
28	843	126	783	049	812	055	787	045	772	032	777	029	768	039	744	008	650	904	629	868	464	741	464	724
29	851	128			786	017	777	020	796	048	810	072	778	036	733	006	669	923	617	885	494	773	453	734
30	886	136			789	051	783	020	783	045	789	051	776	040	752	987	702	949	594	877	490	748	467	727
31	883	122			792	050			772	030			770	028	753	003			587	855			466	722

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.

1893.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d												
1	66°·3	65°·5	66°·1	67°·8	67°·2	66°·9	67°·5	66°·2	67°·4	67°·9	66°·9	66°·2
2	65·9	66·2	67·0	67·4	66·7	68·2	68·6	67·5	67·0	67·6	...	62·3
3	65·4	66·8	66·9	68·0	67·6	68·0	68·9	66·8	66·6	67·0	67·3	59·9
4	65·4	66·3	67·7	67·2	67·3	68·8	68·4	66·9	66·3	66·9	67·3	60·2
5	63·8	66·3	65·5	69·0	68·2	68·7	68·2	67·6	66·5	67·0	65·5	61·4
6	65·0	65·8	67·4	67·5	67·2	68·0	68·4	67·5	66·6	67·1	65·0	64·1
7	66·1	67·4	67·5	67·7	66·3	66·8	68·6	...	67·8	68·4	66·1	66·3
8	65·8	65·9	68·0	66·7	66·8	67·6	69·1	68·1	66·9	67·3	67·0	67·0
9	66·6	65·9	67·0	67·4	67·3	67·3	69·4	69·2	65·2	67·5	66·2	66·7
10	66·8	66·7	67·1	67·7	67·0	67·3	68·6	69·8	64·6	67·0	66·0	66·6
11	67·2	67·3	66·0	66·2	67·4	67·0	68·6	69·4	64·9	66·9	66·8	66·1
12	67·8	64·6	67·5	66·8	67·6	66·6	68·2	69·9	66·9	66·5	66·1	66·3
13	66·8	66·5	67·1	66·1	67·9	67·5	67·3	70·0	67·4	66·7	65·2	67·5
14	67·3	67·8	69·1	66·7	68·9	68·1	66·3	70·4	69·0	68·1	65·2	66·4
15	66·3	66·6	67·3	67·3	68·8	68·6	66·2	70·5	68·0	68·0	66·4	65·9
16	66·5	68·3	67·0	66·4	66·8	68·9	...	70·9	69·3	67·4	67·1	66·7
17	67·4	67·4	66·3	67·4	68·4	69·5	66·6	71·7	67·5	66·9	66·7	66·7
18	68·4	67·0	66·4	67·0	67·5	69·7	66·6	...	67·0	66·3	66·2	66·1
19	67·3	67·2	66·3	67·1	66·5	69·5	66·8	71·9	68·6	66·3	65·9	66·6
20	65·9	67·5	65·9	67·3	68·1	69·1	67·3	70·8	67·4	67·0	66·6	66·4
21	66·7	67·0	64·0	67·7	67·5	67·0	66·9	70·4	66·5	66·8	66·5	65·9
22	66·7	64·8	64·0	67·3	67·8	66·4	66·9	69·6	66·6	66·9	65·9	67·2
23	68·0	64·7	64·4	68·5	67·6	66·6	66·4	69·1	66·9	66·1	66·1	67·7
24	68·2	66·2	64·6	67·1	67·8	65·4	67·2	67·6	67·6	66·8	66·4	66·8
25	65·5	65·8	65·0	68·4	67·5	66·3	67·0	67·3	67·0	66·2	67·2	66·9
26	65·9	65·5	67·7	...	67·4	67·9	66·6	66·9	67·8	67·0	66·8	67·7
27	67·3	66·2	67·4	67·2	66·9	67·9	66·2	66·2	67·6	66·8	64·9	67·6
28	65·8	66·6	67·7	67·0	66·9	67·3	66·4	66·7	67·2	67·9	66·1	66·9
29	66·1		68·3	67·7	67·3	66·8	67·0	66·3	67·2	66·5	66·0	65·9
30	67·4		66·8	68·0	66·8	66·8	66·7	68·1	67·5	65·8	67·0	66·9
31	67·9		67·0		67·0		67·0	67·4		66·5		67·1
Means	66°·56	66°·42	66°·65	67°·37	67°·42	67°·68	67°·46	68°·64	67°·09	67°·00	66°·29	65°·87

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.)*

1893.

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.	35	5	36	7	46	25	64	51	65	56	56	39	53	42	44	31	28	25	25	15	23	10	29	4
1h	28	0	27	2	40	21	58	45	60	51	49	34	46	37	40	29	24	21	20	14	16	10	23	4
2	23	1	21	0	36	21	52	41	57	48	46	33	44	37	37	28	21	18	15	11	9	7	15	0
3	20	2	19	2	36	25	48	39	57	53	45	34	45	43	37	30	16	15	12	10	6	6	13	2
4	16	0	17	5	36	29	47	41	57	55	48	41	50	50	39	34	15	16	11	9	4	4	11	2
5	14	2	16	6	36	32	45	41	59	57	52	47	54	56	41	39	15	16	9	9	5	5	11	4
6	13	4	15	9	33	31	46	44	60	58	52	50	54	56	41	41	18	17	11	13	5	7	9	5
7	14	7	18	12	35	35	50	48	56	56	51	51	50	54	44	44	25	24	16	18	6	8	9	7
8	13	10	20	18	35	39	49	47	48	48	41	43	41	47	40	42	23	22	20	22	9	11	8	6
9	10	9	12	12	23	29	38	38	33	33	26	28	27	33	25	27	17	14	15	17	8	8	5	5
10	6	7	1	1	9	15	20	22	14	14	10	12	13	17	10	12	5	4	5	7	3	3	2	2
11	2	5	0	0	0	2	8	8	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	2
Noon.	0	1	4	2	0	0	0	0	4	2	4	2	0	0	4	2	1	0	5	3	6	4	3	3
13h	8	5	12	6	11	7	11	7	17	13	17	12	10	5	18	11	13	10	17	13	15	9	9	2
14	18	13	22	14	28	19	31	25	36	29	34	27	24	17	36	27	28	25	30	24	27	16	19	8
15	27	20	34	26	47	34	50	41	53	46	51	44	43	34	54	43	44	39	43	37	39	26	29	16
16	32	25	43	33	64	49	65	56	67	60	68	59	61	52	66	55	56	51	51	43	44	31	34	17
17	37	28	47	35	73	56	75	64	81	74	82	73	75	66	71	58	60	53	54	46	42	31	37	20
18	45	33	47	35	72	55	80	71	86	82	92	79	81	72	67	54	62	55	55	43	39	28	41	18
19	51	33	50	33	69	52	77	71	85	81	94	81	81	72	61	48	60	53	53	43	38	25	43	15
20	53	31	52	31	67	48	72	68	81	79	88	73	74	63	56	41	56	49	48	38	35	22	45	15
21	49	21	49	24	63	44	67	61	76	74	80	63	70	59	52	37	46	43	41	31	31	18	43	15
22	45	17	47	20	57	36	65	56	72	68	72	53	64	59	49	32	37	34	34	26	27	16	39	14
23	42	12	40	13	52	29	64	53	69	60	64	47	56	51	43	28	30	27	29	19	23	10	33	8
Means corrected for Temperature.	12·1		14·4		30·5		43·3		49·9		42·7		42·7		33·0		26·3		21·3		13·1		8·1	

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

1893.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	67°·4	67°·2	67°·2	67°·7	67°·6	68°·1	67°·8	68°·9	67°·1	67°·3	66°·6	66°·4	67°·44
1h	67·3	67·0	67·1	67·7	67·6	68·0	67·7	68·8	67·1	67·1	66·3	66·1	67·32
2	67·0	66·8	66·9	67·6	67·6	67·9	67·6	68·7	67·1	67·0	66·1	65·9	67·18
3	66·8	66·6	66·7	67·5	67·4	67·8	67·4	68·6	67·0	66·9	66·0	65·7	67·03
4	66·7	66·4	66·5	67·4	67·3	67·6	67·3	68·5	66·9	66·9	66·0	65·6	66·92
5	66·5	66·3	66·4	67·3	67·3	67·5	67·2	68·4	66·9	66·8	66·0	65·5	66·84
6	66·4	66·1	66·3	67·2	67·3	67·4	67·2	68·3	67·0	66·7	65·9	65·4	66·77
7	66·3	66·1	66·2	67·2	67·2	67·3	67·1	68·3	67·0	66·7	65·9	65·3	66·72
8	66·1	65·9	66·0	67·2	67·2	67·2	67·0	68·2	67·0	66·7	65·9	65·3	66·64
9	66·0	65·8	65·9	67·1	67·2	67·2	67·0	68·2	67·1	66·7	66·0	65·2	66·62
10	65·9	65·8	65·9	67·0	67·2	67·2	67·1	68·2	67·0	66·7	66·0	65·2	66·60
11	65·8	65·8	66·1	67·1	67·2	67·3	67·2	68·3	66·9	66·8	66·0	65·1	66·63
Noon.	65·9	65·9	66·2	67·1	67·3	67·4	67·3	68·4	67·0	66·9	66·1	65·2	66·73
13h	66·1	66·1	66·4	67·3	67·4	67·5	67·5	68·6	67·1	67·0	66·3	65·5	66·90
14	66·2	66·2	66·6	67·4	67·5	67·6	67·6	68·7	67·1	67·1	66·5	65·7	67·02
15	66·3	66·2	66·8	67·5	67·5	67·6	67·7	68·8	67·2	67·1	66·6	65·8	67·09
16	66·3	66·3	66·9	67·5	67·5	67·7	67·7	68·8	67·2	67·2	66·6	66·0	67·14
17	66·4	66·4	67·0	67·6	67·5	67·7	67·7	68·9	67·3	67·2	66·5	66·0	67·18
18	66·5	66·4	67·0	67·5	67·4	67·9	67·7	68·9	67·3	67·4	66·5	66·3	67·23
19	66·8	66·6	67·0	67·4	67·4	67·9	67·7	68·9	67·3	67·3	66·6	66·5	67·28
20	67·0	66·8	67·1	67·3	67·3	68·0	67·8	69·0	67·3	67·3	66·6	66·6	67·34
21	67·3	67·0	67·1	67·4	67·3	68·1	67·8	69·0	67·1	67·3	66·6	66·5	67·37
22	67·3	67·1	67·2	67·5	67·4	68·2	67·5	69·1	67·1	67·2	66·5	66·4	67·38
23	67·4	67·1	67·3	67·6	67·6	68·1	67·5	69·0	67·1	67·3	66·6	66·4	67·42

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, 1893.	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° 14′·7	25	1092	782	46	4773
February	17. 13·8	39	1100	734	71	4808
March	17. 14·5	76	1064	771	139	4650
April	17. 14·0	119	1019	745	218	4454
May	17. 12·6	210	1022	670	384	4467
June	17. 12·3	229	1020	654	419	4458
July	17. 11·2	282	1052	596	516	4598
August	17. 10·5	328	1051	559	600	4594
September	17. 8·8	313	964	468	572	4213
October	17. 8·2	251	914	436	459	3995
November	17. 8·3	213	795	442	390	3475
December	17. 7·9	231	735	420	422	3213
Means	17° 11′·4	.....	.....	606	.....	.....
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 1·8287 and 0·18287 respectively for the year, and of whole Vertical Force (applicable to column 6) are 4·3708 and 0·43708 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 1893.

(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.	1·80	179·9	24·2	95·8	329·0	105·8
1h	1·87	172·9	20·7	99·5	316·2	90·5
2	1·96	165·7	18·8	104·3	303·0	82·2
3	1·97	162·5	20·2	104·8	297·2	88·3
4	1·93	163·6	22·2	102·7	299·2	97·0
5	1·46	165·1	24·6	77·7	301·9	107·5
6	0·84	152·2	26·3	44·7	278·3	115·0
7	0·27	124·6	28·7	14·4	227·9	125·4
8	0·00	81·3	28·0	0·0	148·7	122·4
9	0·66	31·9	19·5	35·1	58·3	85·2
10	2·68	0·0	8·1	142·6	0·0	35·4
11	5·82	0·3	0·1	309·6	0·5	0·4
Noon.	8·63	40·1	0·0	459·1	73·3	0·0
13h	9·80	85·4	6·7	521·3	156·2	29·3
14	9·58	129·0	18·7	509·6	235·9	81·7
15	8·33	156·8	32·2	443·1	286·7	140·7
16	6·67	177·2	42·6	354·8	324·0	186·2
17	5·15	188·6	48·7	274·0	344·9	212·9
18	4·10	202·0	50·5	218·1	369·4	220·7
19	3·41	209·9	49·0	181·4	383·8	214·2
20	2·78	205·7	44·9	147·9	376·2	196·2
21	2·33	195·6	39·2	123·9	357·7	171·3
22	2·18	190·2	34·3	116·0	347·8	149·9
23	2·02	184·5	28·2	107·5	337·4	123·3
Means . . .	3·59	140·2	26·5	191·2	256·4	115·9
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 1·8287 and 0·18287 respectively, and of whole Vertical Force (applicable to column 6) are 4·3708 and 0·43708 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.*)

1893.

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	9·4	225	4·2	98	9·7	322	16·2	325	16·3	366	15·2	287	15·7	432	14·6	351	13·7	207	12·8	372	18·8	287	6·8	154
2	7·7	150	7·4	167	10·0	246	11·8	280	12·3	257	14·5	304	13·5	329	14·2	378	14·3	260	18·0	415	...	...	3·9	71
3	5·4	193	10·9	240	14·3	306	11·6	421	13·9	253	16·3	359	12·9	400	14·6	399	14·1	287	16·7	332	8·7	437	8·0	218
4	7·7	305	16·4	268	12·8	280	12·8	296	11·3	236	16·4	389	13·1	234	14·1	353	11·0	232	11·9	257	9·7	243	5·5	110
5	12·7	191	18·5	295	7·7	193	14·9	235	13·6	264	12·0	415	12·9	296	14·1	332	16·0	384	14·0	380	7·2	196	21·2	361
6	14·8	219	12·7	159	6·8	268	13·8	303	11·0	228	14·2	447	13·7	351	13·7	365	10·8	454	8·7	292	9·3	139	7·9	207
7	8·3	299	10·6	131	8·1	213	12·6	376	13·2	359	11·0	450	15·0	314	...	...	12·0	364	12·4	370	8·5	213	3·9	115
8	6·0	141	10·2	152	11·0	322	13·1	370	17·8	372	11·1	399	13·3	368	19·9	556	11·9	448	10·4	237	7·7	232	8·5	157
9	10·3	408	7·0	157	9·7	229	13·2	363	15·8	351	17·0	564	15·0	363	11·0	340	17·5	438	9·1	237	9·1	325	8·1	128
10	8·6	250	6·7	223	6·7	134	15·8	337	14·3	278	13·4	496	13·7	275	13·0	395	12·3	536	12·9	416	14·0	167	6·4	90
11	9·1	304	8·8	193	10·4	171	15·0	314	10·5	248	13·3	435	11·9	277	13·7	397	13·1	445	10·0	332	7·4	260	5·0	109
12	9·1	264	6·5	140	8·4	181	20·8	414	11·6	319	13·0	267	12·2	329	16·8	463	11·0	383	10·9	237	8·9	166	7·3	129
13	7·1	154	8·4	315	11·4	229	16·0	364	13·9	377	14·2	336	15·5	322	15·1	465	13·7	326	15·0	250	9·5	233	3·7	126
14	6·8	194	9·5	257	18·8	179	13·6	373	15·4	386	14·0	312	19·0	477	12·8	345	15·2	323	12·1	263	11·3	180	5·9	98
15	5·1	178	16·3	138	19·1	432	16·6	344	16·0	301	17·0	310	13·3	582	12·2	424	14·5	349	9·2	185	6·6	208	3·8	148
16	5·3	214	17·1	320	13·7	253	18·9	372	12·8	491	17·4	327	...	...	11·6	278	13·5	330	10·4	332	9·0	172	6·3	218
17	5·7	134	13·5	162	12·5	287	16·5	374	17·3	430	13·9	312	14·0	475	10·7	308	13·9	340	14·0	290	13·8	192	4·0	73
18	7·8	157	10·5	247	12·5	300	11·3	330	16·0	362	17·0	325	11·8	280	...	...	13·4	306	11·8	275	15·5	164	4·4	86
19	15·8	165	8·1	107	14·7	277	15·9	459	12·6	363	14·2	535	11·4	335	15·1	460	14·0	320	9·2	261	7·4	199	5·7	164
20	8·0	155	11·4	216	13·0	345	15·2	373	13·2	318	12·0	363	11·5	410	11·6	388	9·8	314	9·0	287	7·1	204	6·5	106
21	16·1	206	9·7	290	15·5	310	14·8	263	12·3	299	11·7	384	15·9	474	11·3	250	9·9	240	9·5	201	8·3	227	6·0	125
22	14·5	182	10·8	294	14·9	305	12·0	317	15·1	197	11·2	282	14·1	425	12·0	357	9·1	215	9·1	220	5·6	214	4·0	152
23	8·5	249	8·1	251	13·7	288	11·7	263	12·0	277	12·7	195	11·3	407	14·2	325	12·5	230	10·3	244	5·3	127	4·9	134
24	7·2	145	8·1	141	12·8	239	15·9	344	14·6	160	12·5	224	15·0	409	14·0	305	11·1	250	13·0	287	11·0	117	16·9	394
25	9·8	47	8·9	220	14·3	235	14·0	247	15·3	299	13·4	335	10·3	239	12·1	317	11·6	307	18·0	345	11·6	135	12·9	294
26	7·7	129	7·3	195	13·9	406	...	...	12·3	273	13·6	377	15·5	388	16·5	275	21·6	518	12·7	340	9·0	249	7·2	28
27	8·2	82	6·7	122	12·9	399	11·9	418	14·4	287	14·0	365	14·1	397	14·0	297	9·8	395	8·3	387	11·1	295	11·0	241
28	5·7	94	9·0	172	16·6	331	11·0	334	14·0	284	16·6	554	12·0	447	16·6	356	11·0	297	10·2	288	10·2	255	8·0	250
29	7·8	236			17·3	383	11·2	247	13·0	350	15·7	667	13·3	440	17·7	354	16·9	285	11·3	461	10·4	303	9·6	197
30	4·2	77			12·2	294	14·3	245	18·7	277	14·7	556	14·2	362	14·9	442	17·7	388	8·2	236	8·0	168	15·2	296
31	4·1	81			13·1	252			13·5	317			13·4	332	14·7	277			9·2	270			6·3	216
Means.....	8·5	188	10·1	202	12·5	278	14·2	335	14·0	309	14·1	386	13·6	372	14·0	364	13·2	339	11·6	300	9·7	217	7·6	168

The mean of the twelve monthly values is, for Declination 11′·92, and for Horizontal Force 288·2.

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, 1893.	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	6·2	104	33	36·8	509	223
February	7·8	121	35	54·6	677	248
March	10·9	207	56	64·9	1253	289
April	13·6	296	71	71·0	1724	346
May	12·7	261	82	68·2	1510	431
June	13·4	335	81	73·9	1984	415
July	12·9	333	72	69·5	1934	404
August	13·1	315	58	68·2	2002	279
September	11·6	252	55	67·5	1537	332
October	9·5	223	46	58·0	1398	279
November	7·4	149	31	41·2	908	189
December	5·7	112	20	34·7	555	130
Means	10′·40	225·7	53·3	59′·04	1332·6	297·1

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, 1893.	m	a_1	b_1	a_2	b_2	a_3	b_3	a_4	b_4
	DECLINATION WEST.								
	′	′	′	′	′	′	′	′	′
January	2·66	− 2·24	− 0·62	+ 0·15	+ 0·93	− 0·51	− 0·11	+ 0·12	+ 0·05
February	2·53	− 3·01	− 1·46	+ 0·90	+ 1·20	− 0·43	− 0·29	+ 0·32	+ 0·14
March	3·79	− 2·80	− 2·26	+ 1·44	+ 2·10	− 0·81	− 1·02	+ 0·39	+ 0·30
April	5·52	− 2·46	− 3·07	+ 1·81	+ 2·53	− 1·02	− 1·28	+ 0·43	+ 0·30
May	5·65	− 2·23	− 3·28	+ 2·14	+ 2·11	− 0·93	− 0·63	+ 0·14	− 0·04
June	6·12	− 2·37	− 3·69	+ 2·06	+ 2·26	− 0·87	− 0·48	+ 0·10	− 0·13
July	5·90	− 2·08	− 3·63	+ 1·98	+ 2·12	− 0·78	− 0·54	0·00	+ 0·01
August	5·29	− 2·63	− 3·01	+ 2·29	+ 1·79	− 1·23	− 0·90	+ 0·19	+ 0·04
September	4·10	− 3·20	− 2·22	+ 1·73	+ 1·79	− 1·06	− 0·84	+ 0·40	− 0·01
October	3·22	− 2·63	− 1·63	+ 1·04	+ 2·14	− 0·73	− 0·78	+ 0·55	+ 0·20
November	2·76	− 2·16	− 0·88	+ 0·43	+ 1·46	− 0·73	− 0·32	+ 0·36	+ 0·42
December	2·17	− 1·83	− 0·95	+ 0·03	+ 1·09	− 0·34	− 0·44	+ 0·09	+ 0·24
For the Year	4·14	− 2·47	− 2·22	+ 1·33	+ 1·79	− 0·79	− 0·64	+ 0·26	+ 0·13
	HORIZONTAL FORCE.								
January	63·6	+ 24·5	+ 8·9	− 20·7	+ 4·2	+ 5·1	− 14·5	+ 1·8	+ 10·1
February	88·5	+ 38·2	− 10·0	− 22·2	+ 7·1	+ 5·5	− 16·1	+ 4·6	+ 8·7
March	151·0	+ 68·3	− 25·7	− 38·9	+ 25·6	+ 12·1	− 19·9	+ 4·1	+ 11·8
April	209·2	+ 89·6	− 52·5	− 56·4	+ 27·3	+ 18·1	− 24·6	+ 0·8	+ 10·4
May	153·7	+ 69·0	− 68·2	− 39·7	+ 27·0	− 1·0	− 11·9	+ 7·0	+ 5·1
June	186·2	+ 82·7	− 100·1	− 43·4	+ 36·7	− 7·2	− 8·7	+ 7·3	+ 4·2
July	188·7	+ 78·4	− 100·5	− 46·7	+ 35·3	− 3·4	− 10·9	+ 7·1	+ 2·3
August	200·2	+ 89·7	− 90·3	− 27·1	+ 44·3	− 8·0	− 28·8	+ 0·7	+ 3·7
September	173·4	+ 88·4	− 45·7	− 22·0	+ 33·8	− 2·4	− 25·7	+ 3·5	+ 11·3
October	161·3	+ 81·8	− 8·3	− 41·0	+ 25·7	+ 14·7	− 25·1	+ 2·4	+ 10·2
November	108·1	+ 51·0	− 2·4	− 34·8	+ 8·1	+ 9·8	− 13·1	− 0·2	+ 8·1
December	74·4	+ 28·3	+ 6·9	− 25·0	+ 0·2	+ 14·4	− 7·8	− 2·4	+ 5·1
For the Year	146·5	+ 65·8	− 40·7	− 34·8	+ 22·9	+ 4·8	− 17·2	+ 3·1	+ 7·6
	VERTICAL FORCE.								
January	12·1	− 0·2	− 12·9	− 7·2	− 3·5	+ 1·1	+ 1·2	− 1·2	+ 0·3
February	14·4	0·0	− 13·0	− 9·8	− 2·3	+ 3·4	− 0·8	− 1·5	+ 0·2
March	30·5	+ 6·8	− 9·9	− 16·5	− 2·7	+ 5·5	+ 0·6	− 2·7	− 0·4
April	43·3	+ 16·0	− 10·9	− 16·2	− 4·7	+ 7·4	+ 1·6	− 1·9	+ 0·8
May	49·9	+ 21·7	− 11·9	− 20·7	− 2·0	+ 4·8	− 1·7	− 1·0	+ 1·2
June	42·7	+ 14·1	− 15·0	− 22·6	− 3·1	+ 4·4	− 1·3	+ 0·2	+ 1·6
July	42·7	+ 17·3	− 7·2	− 21·6	− 4·0	+ 4·6	− 0·8	+ 0·1	− 1·5
August	33·0	+ 6·2	− 6·7	− 16·9	+ 2·7	+ 8·0	− 1·1	− 1·3	+ 0·9
September	26·3	+ 6·5	− 17·9	− 12·6	− 0·4	+ 5·1	0·0	− 1·8	+ 1·4
October	21·3	+ 1·3	− 15·2	− 10·1	− 0·4	+ 5·1	0·0	− 2·5	+ 1·7
November	13·1	+ 0·2	− 10·8	− 5·7	+ 1·4	+ 3·6	+ 0·2	− 1·2	+ 0·6
December	8·1	+ 0·4	− 7·1	− 4·2	− 1·0	+ 1·8	− 0·8	− 0·7	− 0·9
For the Year	28·1	+ 7·5	− 11·5	− 13·7	− 1·7	+ 4·6	− 0·2	− 1·3	+ 0·5

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, 1893.	m	c_1	α	α'	c_2	β	β'	c_3	γ	γ'	c_4	δ	δ'
	DECLINATION WEST.												
	′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′
January	2·66	2·32	254. 33	256. 58	0·94	8. 53	13. 43	0·53	257. 29	264. 44	0·13	67. 11	76. 51
February	2·53	3·35	244. 13	247. 42	1·50	36. 53	43. 51	0·51	235. 51	246. 18	0·35	65. 31	79. 27
March	3·79	3·59	231. 6	233. 14	2·55	34. 31	38. 47	1·30	218. 39	225. 3	0·49	52. 15	60. 47
April	5·52	3·94	218. 40	218. 40	3·11	35. 32	35. 32	1·64	218. 35	218. 35	0·53	55. 0	55. 0
May	5·66	3·96	214. 13	213. 21	3·00	45. 28	43. 44	1·12	235. 55	233. 19	0·15	107. 0	103. 32
June	6·12	4·38	212. 41	212. 47	3·06	42. 22	42. 34	1·00	241. 8	241. 26	0·16	142. 26	142. 50
July	5·90	4·18	209. 48	211. 10	2·90	43. 3	45. 47	0·95	235. 12	239. 18	0·01	0. 0	5. 28
August	5·29	4·00	221. 11	222. 6	2·91	52. 7	53. 57	1·53	233. 45	236. 30	0·19	79. 11	82. 51
September	4·10	3·89	235. 16	233. 58	2·49	43. 59	41. 23	1·35	231. 29	227. 35	0·40	91. 4	85. 52
October	3·22	3·10	238. 9	234. 38	2·37	25. 54	18. 52	1·07	223. 16	212. 43	0·59	69. 52	55. 48
November	2·76	2·33	247. 46	244. 7	1·52	16. 26	9. 8	0·80	246. 30	235. 33	0·55	40. 35	25. 59
December	2·17	2·06	242. 39	241. 41	1·09	1. 40	359. 44	0·56	217. 33	214. 39	0·26	20. 31	16. 39
For the Year	4·14	3·32	228. 0	228. 0	2·23	36. 37	36. 37	1·02	231. 7	231. 7	0·28	63. 45	63. 45
	HORIZONTAL FORCE.												
	63·6	26·1	° ′ 69. 58	° ′ 72. 23	21·1	° ′ 281. 21	° ′ 286. 11	15·3	° ′ 160. 40	° ′ 167. 55	10·3	° ′ 9. 50	° ′ 19. 30
January	88·5	39·5	104. 42	108. 11	23·3	287. 43	294. 41	17·0	161. 15	171. 42	9·9	27. 54	41. 50
February	151·0	73·0	110. 40	112. 48	46·6	303. 21	307. 37	23·3	148. 44	155. 8	12·5	19. 19	27. 51
March	209·2	103·9	120. 20	120. 20	62·6	295. 51	295. 51	30·5	143. 44	143. 44	10·4	4. 35	4. 35
April	153·7	97·0	134. 40	133. 48	48·0	304. 13	302. 29	11·9	184. 58	182. 22	8·7	53. 57	50. 29
May	186·2	129·9	140. 26	140. 32	56·8	310. 15	310. 27	11·3	219. 47	220. 5	8·4	60. 18	60. 42
June	188·7	127·5	142. 4	143. 26	58·6	307. 5	309. 49	11·4	197. 30	201. 36	7·4	71. 57	77. 25
July	200·2	127·2	135. 12	136. 7	51·9	328. 30	330. 20	29·9	195. 26	198. 11	3·8	10. 5	13. 45
August	173·4	99·5	117. 19	116. 1	40·3	326. 56	324. 20	25·8	185. 19	181. 25	11·8	17. 16	12. 4
September	161·3	82·3	95. 50	92. 19	48·4	302. 2	295. 0	29·1	149. 41	139. 8	10·4	13. 8	359. 4
October	108·1	51·0	92. 43	89. 4	35·8	283. 1	275. 43	16·4	143. 7	132. 10	8·1	358. 14	343. 38
November	74·4	29·1	76. 22	75. 24	25·0	270. 30	268. 34	16·4	118. 35	115. 41	5·6	335. 8	331. 16
December	146·5	77·4	121. 42	121. 42	41·7	303. 22	303. 22	17·9	164. 26	164. 26	8·2	21. 59	21. 59
For the Year													
	VERTICAL FORCE.												
	12·1	12·9	° ′ 180. 45	° ′ 183. 10	8·0	° ′ 244. 24	° ′ 249. 14	1·6	° ′ 44. 11	° ′ 51. 26	1·3	° ′ 283. 8	° ′ 292. 48
January	14·4	13·0	180. 2	183. 31	10·1	256. 32	263. 30	3·5	102. 40	113. 7	1·6	278. 0	291. 56
February	30·5	12·0	145. 32	147. 40	16·8	260. 45	265. 1	5·5	83. 14	89. 38	2·7	260. 46	269. 18
March	43·3	19·4	124. 17	124. 17	16·9	253. 46	253. 46	7·6	77. 59	77. 59	2·0	292. 53	292. 53
April	49·9	24·8	118. 44	117. 52	20·8	264. 33	262. 49	5·1	109. 55	107. 19	1·6	319. 37	316. 9
May	42·7	20·6	136. 52	136. 58	22·8	262. 5	262. 17	4·6	106. 37	106. 55	1·6	8. 56	9. 20
June	42·7	18·7	112. 30	113. 52	22·0	259. 25	262. 9	4·7	100. 32	104. 38	1·5	175. 17	180. 45
July	33·0	9·2	137. 19	138. 14	17·2	279. 0	280. 50	8·1	97. 45	100. 30	1·6	303. 1	306. 41
August	26·3	19·1	160. 6	158. 48	12·6	268. 15	265. 39	5·1	93. 44	89. 50	2·3	309. 29	304. 17
September	21·3	15·3	175. 15	171. 44	10·1	267. 32	260. 30	5·1	89. 54	79. 21	3·0	304. 44	290. 40
October	13·1	10·8	178. 49	175. 10	5·9	284. 5	276. 47	3·6	87. 37	76. 40	1·4	294. 42	280. 6
November	8·1	7·1	177. 6	176. 8	4·3	256. 50	254. 54	1·9	114. 55	112. 1	1·2	220. 52	217. 0
December	28·1	13·8	146. 53	146. 53	13·8	262. 59	262. 59	4·6	93. 1	93. 1	1·4	290. 27	290. 27
For the Year													

TABLE XVII.—SEPARATE RESULTS of OBSERVATIONS of MAGNETIC DIP made in the Year 1893.

Greenwich Civil Time, 1893.	Needle.	Magnetic Dip.	Observer.	Greenwich Civil Time, 1893.	Needle.	Magnetic Dip.	Observer.	Greenwich Civil Time, 1893.	Needle.	Magnetic Dip.	Observer.
d h		° ′ ″		d h		° ′ ″		d h		° ′ ″	
Jan. 2. 15	C 1	67. 18. 49	N	May 2. 12	C 2	67. 17. 40	C	Sept. 2. 12	B 1	67. 17. 5	N
5. 14	D 1	67. 18. 33	N	3. 14	B 2	67. 17. 26	C	5. 16	B 2	67. 16. 16	N
6. 14	D 2	67. 19. 5	N	8. 14	B 1	67. 18. 1	C	6. 16	C 2	67. 17. 32	N
9. 15	C 2	67. 19. 43	N	10. 11	C 1	67. 17. 46	C	11. 14	D 1	67. 19. 54	C
10. 14	B 1	67. 18. 0	N	12. 16	D 2	67. 18. 16	N	12. 16	D 2	67. 19. 16	N
11. 14	B 2	67. 16. 13	N	13. 12	D 1	67. 18. 11	C	13. 15	C 1	67. 16. 19	C
20. 15	B 2	67. 16. 39	N	17. 12	D 1	67. 18. 39	C	18. 16	C 1	67. 17. 6	N
21. 12	B 1	67. 17. 28	N	18. 15	D 2	67. 17. 49	C	19. 15	D 2	67. 18. 44	C
23. 15	C 2	67. 18. 55	N	23. 14	C 1	67. 17. 47	C	20. 16	D 1	67. 19. 15	N
24. 15	D 2	67. 19. 12	N	24. 16	B 1	67. 16. 14	N	26. 14	B 2	67. 17. 3	C
26. 15	D 1	67. 19. 31	N	26. 16	B 2	67. 15. 30	N	26. 15	C 2	67. 18. 31	C
30. 15	C 1	67. 18. 23	N	30. 14	C 2	67. 17. 51	N	28. 15	B 1	67. 16. 41	C
Feb. 4. 12	C 2	67. 17. 3	N	June 2. 16	B 1	67. 16. 1	C	Oct. 2. 15	C 1	67. 17. 57	C
6. 15	B 2	67. 18. 10	N	5. 14	B 2	67. 15. 4	C	3. 15	D 1	67. 19. 11	C
8. 13	B 1	67. 16. 23	N	6. 16	C 2	67. 16. 52	N	7. 11	D 2	67. 20. 2	C
9. 15	C 1	67. 20. 13	N	9. 14	D 1	67. 18. 30	C	10. 16	C 2	67. 19. 8	C
10. 16	D 2	67. 20. 18	N	13. 14	D 2	67. 17. 33	N	12. 14	B 1	67. 16. 42	N
13. 16	D 1	67. 20. 38	N	13. 15	C 1	67. 17. 12	N	14. 12	B 2	67. 15. 52	C
16. 16	D 1	67. 19. 57	N	17. 12	C 1	67. 17. 48	N	18. 14	B 2	67. 15. 25	N
18. 12	D 2	67. 20. 34	N	19. 13	D 2	67. 18. 56	C	19. 15	B 1	67. 15. 58	N
20. 15	C 1	67. 17. 50	N	21. 14	D 1	67. 18. 55	C	23. 15	C 2	67. 16. 34	N
21. 15	B 1	67. 18. 32	N	24. 12	C 2	67. 17. 3	C	26. 15	D 2	67. 19. 2	N
22. 15	B 2	67. 16. 41	N	27. 14	B 2	67. 14. 57	C	27. 15	D 1	67. 17. 59	C
24. 16	C 2	67. 17. 59	N	28. 14	B 1	67. 15. 38	C	28. 12	C 1	67. 19. 37	C
Mar. 3. 16	B 1	67. 17. 11	N	July 3. 15	C 1	67. 16. 44	C	Nov. 6. 14	C 2	67. 18. 20	C
6. 16	C 2	67. 17. 56	N	4. 16	D 1	67. 19. 7	C	6. 16	B 2	67. 16. 34	C
7. 14	B 2	67. 16. 55	N	7. 15	D 2	67. 19. 13	C	7. 15	B 1	67. 16. 35	C
8. 15	D 1	67. 18. 39	N	10. 16	C 2	67. 16. 52	N	9. 14	C 1	67. 18. 36	C
13. 15	D 2	67. 18. 12	N	11. 15	B 1	67. 15. 42	N	11. 12	D 1	67. 19. 54	C
14. 15	C 1	67. 19. 5	N	15. 12	B 2	67. 16. 3	C	14. 15	D 2	67. 19. 6	N
17. 16	C 1	67. 17. 36	N	17. 15	B 2	67. 14. 38	N	17. 15	D 2	67. 18. 33	C
20. 16	D 2	67. 17. 58	N	19. 14	B 1	67. 15. 18	C	21. 15	D 1	67. 19. 39	N
22. 15	D 1	67. 18. 42	N	22. 12	C 2	67. 19. 28	C	22. 14	C 1	67. 16. 41	N
23. 15	C 2	67. 16. 29	N	24. 16	D 2	67. 19. 3	N	24. 15	B 1	67. 14. 47	N
24. 15	B 2	67. 17. 7	N	27. 14	D 1	67. 18. 38	C	27. 15	B 2	67. 15. 20	N
25. 12	C 2	67. 18. 16	N	28. 15	C 1	67. 18. 11	C	28. 15	C 2	67. 19. 4	N
28. 15	B 1	67. 18. 3	N								
Apr. 4. 15	C 1	67. 18. 1	N	Aug. 2. 15	C 2	67. 17. 54	C	Dec. 2. 11	B 1	67. 16. 47	C
6. 14	D 1	67. 18. 39	N	3. 15	B 2	67. 14. 59	C	4. 15	B 2	67. 15. 31	C
7. 15	D 2	67. 18. 50	N	8. 14	B 1	67. 16. 16	C	6. 13	C 2	67. 18. 21	C
10. 15	C 2	67. 17. 40	N	9. 14	C 1	67. 16. 36	C	9. 12	D 1	67. 19. 1	C
12. 16	B 1	67. 18. 58	N	10. 15	D 2	67. 17. 49	C	12. 15	D 2	67. 18. 5	C
13 15	B 2	67. 17. 1	N	12. 12	D 1	67. 18. 37	C	15. 11	C 1	67. 16. 52	C
18. 12	B 1	67. 18. 3	N	18. 11	D 1	67. 19. 37	C	19. 15	C 1	67. 18. 5	N
18. 14	B 2	67. 17. 9	N	22. 14	D 2	67. 17. 59	C	20. 14	D 2	67. 17. 8	N
21. 16	C 2	67. 16. 37	N	22. 16	C 1	67. 19. 36	N	23. 12	D 1	67. 18. 33	C
24. 16	D 2	67. 17. 46	N	24. 16	B 1	67. 17. 57	N	27. 14	C 2	67. 19. 15	C
25. 14	D 1	67. 18. 48	C	28. 16	B 2	67. 15. 20	N	28. 15	B 2	67. 15. 27	C
26. 14	C 1	67. 15. 49	N	29. 15	C 2	67. 17. 4	N	30. 12	B 1	67. 17. 51	C

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 C are those of Mr. Nash and Mr. Claxton.

TABLE XVIII.—MONTHLY and YEARLY MEANS of MAGNETIC DIP in the YEAR 1893.

Monthly Means of Magnetic Dip.

Month, 1893.	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. 17. 44	2	67. 16. 26	2	67. 18. 36	2
February	67. 17. 27	2	67. 17. 25	2	67. 19. 2	2
March	67. 17. 37	2	67. 17. 1	2	67. 18. 21	2
April	67. 18. 30	2	67. 17. 5	2	67. 16. 55	2
May	67. 17. 8	2	67. 16. 28	2	67. 17. 46	2
June	67. 15. 50	2	67. 15. 0	2	67. 17. 30	2
July	67. 15. 30	2	67. 15. 20	2	67. 17. 28	2
August	67. 17. 6	2	67. 15. 10	2	67. 18. 6	2
September	67. 16. 53	2	67. 16. 40	2	67. 16. 42	2
October	67. 16. 20	2	67. 15. 38	2	67. 18. 47	2
November	67. 15. 41	2	67. 15. 57	2	67. 17. 39	2
December	67. 17. 19	2	67. 15. 29	2	67. 17. 28	2
Means	67. 16. 55	Sum 24	67. 16. 8	Sum 24	67. 17. 52	Sum 24

Month, 1893.	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. 19. 19	2	67. 19. 2	2	67. 19. 8	2
February	67. 17. 31	2	67. 20. 18	2	67. 20. 26	2
March	67. 17. 34	3	67. 18. 40	2	67. 18. 5	2
April	67. 17. 9	2	67. 18. 43	2	67. 18. 18	2
May	67. 17. 46	2	67. 18. 25	2	67. 18. 2	2
June	67. 16. 57	2	67. 18. 42	2	67. 18. 15	2
July	67. 18. 10	2	67. 18. 52	2	67. 19. 8	2
August	67. 17. 29	2	67. 19. 7	2	67. 17. 54	2
September	67. 18. 2	2	67. 19. 35	2	67. 19. 0	2
October	67. 17. 51	2	67. 18. 35	2	67. 19. 32	2
November	67. 18. 42	2	67. 19. 46	2	67. 18. 50	2
December	67. 18. 48	2	67. 18. 47	2	67. 17. 37	2
Means	67. 17. 55	Sum 25	67. 19. 3	Sum 24	67. 18. 41	Sum 24

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 1893.

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	24	67. 16. 55	67. 16. 32	67. 17. 46
	B 2	24	67. 16. 8		
6-inch Needles	C 1	24	67. 17. 52	67. 17. 53	
	C 2	25	67. 17. 55		
3-inch Needles	D 1	24	67. 19. 3	67. 18. 52	
	D 2	24	67. 18. 41		

TABLE XIX.—DETERMINATIONS OF THE ABSOLUTE VALUE OF HORIZONTAL MAGNETIC FORCE IN THE YEAR 1893.

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

Greenwich Civil Time, 1893.	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 18. 15	1·0	43·0	10. 9. 5	5·724	100	41·6	N
	1·3		4. 36. 22	5·721	100	41·5	
February 14. 15	1·0	51·6	10. 8. 22	5·728	100	50·6	N
	1·3		4. 36. 22	5·730	100	50·4	
March 16. 15	1·0	55·0	10. 7. 41	5·742	100	55·0	N
	1·3		4. 36. 5	5·732	100	54·1	
April 14. 16	1·0	52·1	10. 8. 32	5·734	100	52·2	N
	1·3		4. 36. 4	5·731	100	52·9	
May 17. 16	1·0	64·8	10. 5. 31	5·730	100	65·4	N
	1·3		4. 34. 52	5·732	100	64·8	
June 15. 15	1·0	70·0	10. 5. 18	5·739	100	71·0	N
	1·3		4. 34. 36	5·744	100	72·1	
July 13. 15	1·0	65·3	10. 4. 35	5·740	100	65·5	N
	1·3		4. 34. 18	5·735	100	66·0	
August 15. 15	1·0	76·0	10. 5. 10	5·749	100	77·1	N
	1·3		4. 34. 26	5·743	100	78·2	
September 15. 15	1·0	65·3	10. 5. 28	5·739	100	65·5	N
	1·3		4. 34. 35	5·737	100	67·0	
October 13. 15	1·0	59·6	10. 5. 29	5·737	100	58·9	N
	1·3		4. 35. 2	5·735	100	59·9	
November 15. 14	1·0	48·6	10. 7. 4	5·737	100	47·1	N
	1·3		4. 35. 34	5·734	100	48·7	
December 15. 15	1·0	50·4	10. 6. 26	5·738	100	49·5	N
	1·3		4. 35. 20	5·739	100	49·6	

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 35° Fahrenheit

Computation of the Values of Horizontal Force in Absolute Measure.

Greenwich Civil Time, 1893.	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 $\frac{m}{X}$.	Corrected Time of Vibration of Deflecting Magnet.	Log mX.	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 18. 15	0·08823	0·08831	−0·00231		8·94683	5·7293	0·14460	0·3513	3·9709	1·8308	1·8281
Feb. 14. 15	0·08826	0·08844	−0·00519		8·94722	5·7324	0·14418	0·3513	3·9672	1·8292	1·8285
Mar. 16. 15	0·08821	0·08840	−0·00536		8·94700	5·7387	0·14325	0·3508	3·9640	1·8277	1·8286
Apr. 14. 16	0·08829	0·08835	−0·00180		8·94708	5·7349	0·14381	0·3511	3·9661	1·8287	1·8280
May 17. 16	0·08805	0·08816	−0·00327		8·94602	5·7290	0·14478	0·3511	3·9754	1·8330	1·8270
June 15. 15	0·08810	0·08816	−0·00175		8·94613	5·7369	0·14362	0·3506	3·9696	1·8303	1·8278
July 13. 15	0·08792	0·08799	−0·00197	−0·00295	8·94528	5·7353	0·14383	0·3504	3·9745	1·8326	1·8292
Aug. 15. 15	0·08817	0·08820	−0·00079		8·94643	5·7390	0·14334	0·3507	3·9669	1·8291	1·8281
Sept. 15. 15	0·08805	0·08808	−0·00096		8·94583	5·7358	0·14375	0·3506	3·9715	1·8312	1·8298
Oct. 13. 15	0·08796	0·08814	−0·00485		8·94575	5·7367	0·14357	0·3505	3·9711	1·8310	1·8315
Nov. 15. 14	0·08802	0·08814	−0·00333		8·94591	5·7412	0·14284	0·3503	3·9670	1·8291	1·8293
Dec. 15. 15	0·08796	0·08809	−0·00378		8·94563	5·7437	0·14246	0·3500	3·9666	1·8289	1·8286
Means ...	...	...	...	...	...	...	...	...	3·9692	1·8301	1·8287

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

TABLE XIX.—*continued*—DETERMINATIONS OF THE ABSOLUTE VALUE OF HORIZONTAL MAGNETIC FORCE IN THE YEAR 1893.

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

Greenwich Civil Time, 1893.	Distances of Centres of Magnets.	Temperature Centigrade.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature Centigrade.	Observer.
	cms.	°	° ′ ″	s		°	
January 19. 15	30	6·5	20. 12. 18	4·214	100	5·6	N
	40		8. 21. 8	4·220	100	6·9	
February 15. 15	30	10·0	20. 9. 20	4·225	100	9·1	N
	40		8. 20. 5	4·225	100	9·6	
June 14. 14	30	20·3	19. 57. 35	4·231	100	19·6	N
	40		8. 15. 27	4·232	100	21·6	
July 18. 15	30	18·5	19. 59. 22	4·232	100	18·1	N
	40		8. 15. 52	4·232	100	19·1	
August 17. 15	30	25·5	19. 52. 52	4·241	100	25·9	N
	40		8. 13. 22	4·239	100	26·8	
September 14. 15	30	17·9	19. 55. 50	4·236	100	17·0	N
	40		8. 14. 30	4·232	100	18·2	
October 17. 15	30	16·7	19. 56. 50	4·234	100	16·6	N
	40		8. 15. 5	4·241	100	17·5	
November 16. 14	30	9·9	19. 58. 10	4·230	100	9·1	N
	40		8. 16. 2	4·230	100	10·0	
December 14. 15	30	10·6	19. 59. 18	4·232	100	10·5	N
	40		8. 16. 32	4·228	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, 1893.	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. $\frac{m}{X}$	Corrected 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. 19. 15	4675·1	4660·7	+ 6·35	+ 5·72	3·66695	4·2144	2·19238	850·5	0·18311	1·8311	1·8315
Feb. 15. 15	4672·5	4659·3	+ 5·83		3·66677	4·2196	2·19135	849·3	0·18293	1·8293	1·8287
June 14. 14	4654·1	4641·6	+ 5·54		3·66509	4·2146	2·19250	848·8	0·18353	1·8353	1·8329
July 18. 15	4656·2	4640·9	+ 6·77		3·66515	4·2174	2·19191	848·3	0·18339	1·8339	1·8353
Aug. 17. 15	4649·8	4635·3	+ 6·39		3·66459	4·2188	2·19171	847·5	0·18347	1·8347	1·8333
Sept. 14. 15	4641·6	4626·7	+ 6·63		3·66380	4·2218	2·19099	846·0	0·18348	1·8348	1·8329
Oct. 17. 15	4642·3	4629·1	+ 5·87		3·66395	4·2260	2·19013	845·4	0·18327	1·8327	1·8311
Nov. 16. 14	4630·9	4621·6	+ 4·12		3·66306	4·2264	2·18996	844·3	0·18342	1·8342	1·8341
Dec. 14. 15	4636·7	4627·8	+ 3·98		3·66362	4·2252	2·19022	845·1	0·18336	1·8336	1·8329
Means ...	...	...	...	...	...	...	...	...	0·18333	1·8333	1·8325

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

Year.	Gibson Instrument.	Elliott Instrument.	Excess by Elliott Instrument.
1891	1·8254	1·8288	0·0034
1892	1·8269	1·8290	0·0021
1893	1·8290	1·8325	0·0035

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 7, 8, 15, 25, 26, February 1, 11, 13, 26, 27, March 10, 13, 18, 19, 20, April 4, 9, 21, 22, 23, May 2, 14, 17, 21, 28, June 8, 13, 17, 22, 24, July 5, 6, 10, 30, 31, August 1, 9, 16, 17, 27, September 4, 7, 13, 23, 24, October 9, 11, 16, 21, 22, November 7, 11, 15, 20, 21, December 7, 13, 18, 21, 22.

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 1·8287 and 4·3708 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.)

1893.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
	′	′	′	′	′	′	′	′	′	′	′	′	′
Midnight	0·0	1·4	3·6	4·9	5·2	5·5	5·1	5·1	3·7	2·8	1·0	0·4	3·23
1h	0·3	1·5	3·7	4·8	5·4	5·1	4·9	4·9	3·5	2·8	2·0	0·8	3·31
2	1·3	1·4	3·5	4·7	5·6	4·9	4·6	4·8	3·8	2·6	1·8	1·3	3·36
3	2·4	1·5	3·1	4·6	5·4	4·6	4·7	4·5	2·9	2·6	1·8	1·5	3·30
4	2·3	1·4	2·9	4·5	4·4	3·9	4·1	4·0	2·3	3·2	2·2	1·1	3·02
5	2·5	1·2	2·7	4·1	2·8	2·1	2·6	2·7	2·3	2·5	2·2	0·9	2·38
6	2·7	0·7	2·1	2·8	1·3	0·3	0·9	1·2	1·4	2·1	1·8	0·9	1·52
7	2·5	0·3	1·2	1·5	0·2	0·2	0·1	0·0	0·3	1·3	1·2	0·7	0·79
8	2·2	0·0	0·0	0·0	0·0	0·0	0·0	0·6	0·0	0·1	0·4	0·6	0·33
9	2·1	0·2	0·3	0·3	1·1	1·1	1·2	1·9	1·2	0·0	0·0	0·0	0·78
10	2·9	1·4	2·0	1·7	4·2	3·4	3·9	4·2	4·3	1·9	1·3	0·4	2·63
11	4·5	4·1	5·7	5·8	8·7	7·1	7·6	7·6	8·0	5·2	4·2	1·6	5·84
Noon	5·9	5·8	9·7	9·9	12·7	10·3	10·9	10·6	10·9	8·2	6·6	3·2	8·72
13h	7·0	6·6	11·4	12·7	14·1	11·6	12·7	12·2	11·7	9·2	7·5	3·9	10·05
14	6·6	6·3	11·4	12·6	13·5	12·0	13·0	11·8	11·6	9·1	6·5	4·2	9·88
15	6·0	5·2	9·6	10·9	11·5	10·5	12·0	10·2	9·8	7·6	5·6	3·7	8·55
16	5·1	4·1	7·5	9·0	9·1	9·1	9·8	8·1	7·4	6·1	4·8	2·8	6·91
17	4·8	3·4	5·6	7·0	7·4	7·8	7·6	6·1	6·0	5·1	4·2	2·3	5·61
18	4·3	3·0	5·1	5·8	6·3	6·7	6·5	5·1	5·3	4·5	3·5	2·2	4·86
19	3·9	2·9	4·5	5·7	6·0	6·0	5·8	5·2	4·9	4·1	3·1	1·8	4·49
20	3·3	2·5	4·1	5·5	6·1	5·8	5·5	4·7	4·3	3·3	2·5	1·1	4·06
21	2·8	2·1	3·8	5·5	5·9	5·7	5·7	4·6	4·4	2·6	2·2	1·0	3·86
22	2·3	1·8	4·0	5·3	5·9	5·8	6·2	4·6	4·4	2·6	1·9	0·7	3·79
23	2·1	1·7	3·7	5·0	5·6	5·3	5·9	4·6	3·5	2·4	1·8	0·7	3·52
24	1·9	1·6	3·6	4·8	5·6	5·4	5·5	4·5	3·1	2·2	2·1	0·2	3·38
Means 0h—23h	3·32	2·52	4·63	5·61	6·18	5·62	5·89	5·39	4·91	3·83	2·92	1·58	4·37
Means 1h—24h	3·40	2·53	4·63	5·60	6·20	5·61	5·90	5·36	4·89	3·80	2·97	1·57	4·37

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.*)

1893.

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.	56	102	141	258	215	393	254	464	211	386	193	353	227	415	241	441	229	419	180	329	139	254	55	101	178·4	326·2
1h	60	110	142	260	202	369	239	437	205	375	175	320	205	375	231	422	215	393	165	302	146	267	44	80	169·1	309·2
2	63	115	143	262	192	351	235	430	208	380	171	313	198	362	230	421	215	393	165	302	139	254	45	82	167·0	305·4
3	78	143	151	276	193	353	232	424	205	375	176	322	194	355	230	421	200	366	173	316	135	247	50	91	168·1	307·4
4	92	168	148	271	185	338	233	426	195	357	167	305	191	349	227	415	204	373	175	320	139	254	57	104	167·8	306·7
5	103	188	150	274	188	344	240	439	189	346	155	283	185	338	211	386	186	340	179	327	149	272	71	130	167·2	305·6
6	103	188	147	269	181	331	246	450	163	298	127	232	158	289	177	324	162	296	166	304	157	287	89	163	156·3	285·9
7	102	187	141	258	165	302	238	435	119	218	86	157	110	201	112	205	130	238	140	256	151	276	88	161	131·8	241·2
8	84	154	110	201	120	219	200	366	46	84	44	80	62	113	54	99	86	157	100	183	109	199	84	154	91·6	167·4
9	56	102	54	99	42	77	130	238	0	0	14	26	20	37	14	26	29	53	44	80	47	86	52	95	41·8	76·6
10	30	55	12	22	0	0	30	55	3	5	0	0	0	0	0	0	0	0	0	0	0	0	24	44	8·3	15·1
11	0	0	0	0	3	5	0	0	29	53	22	40	14	26	14	26	31	57	2	4	0	0	0	0	9·6	17·6
Noon	30	55	44	80	37	68	24	44	109	199	61	112	82	150	79	144	75	137	46	84	18	33	19	35	52·0	95·1
13h	62	113	82	150	95	174	80	146	157	287	119	218	127	232	148	271	138	252	87	159	53	97	32	59	98·3	179·8
14	70	128	112	205	150	274	161	294	214	391	172	315	167	305	199	364	186	340	113	207	99	181	50	91	141·1	257·9
15	69	126	118	216	189	346	227	415	260	475	208	380	214	391	240	439	195	357	147	269	134	245	64	117	172·1	314·7
16	62	113	125	229	209	382	259	474	280	512	228	417	254	464	260	475	193	353	171	313	162	296	86	157	190·7	348·7
17	90	165	135	247	204	373	274	501	287	525	253	463	272	497	258	472	212	388	175	320	177	324	91	166	202·3	370·1
18	104	190	151	276	220	402	276	505	287	525	273	499	308	563	263	481	238	435	204	373	183	335	109	199	218·0	398·6
19	106	194	170	311	240	439	282	516	283	518	289	528	305	558	279	510	253	463	208	380	186	340	120	219	226·8	414·7
20	109	199	181	331	238	435	287	525	283	518	278	508	291	532	280	512	269	492	212	388	191	349	112	205	227·6	416·2
21	107	196	180	329	234	428	271	496	287	525	258	472	277	507	276	505	266	486	220	402	201	368	110	201	223·9	409·6
22	111	203	168	307	228	417	268	490	264	483	253	463	259	474	263	481	272	497	226	413	188	344	94	172	216·2	395·3
23	114	208	171	313	223	408	248	454	256	468	241	441	253	463	251	459	262	479	210	384	183	335	87	159	208·2	380·9
24	118	216	168	307	219	400	251	459	258	472	228	417	228	417	253	463	251	459	205	375	181	331	72	132	202·7	370·7
Means 0h—23h	77·5	141·7	124·0	226·8	164·7	301·2	205·6	376·0	189·2	346·0	165·1	302·0	182·2	333·2	189·0	345·8	176·9	323·5	146·2	267·3	128·6	235·1	68·0	124·4	151·4	276·9
1h—24h	80·1	146·5	125·1	228·9	164·9	301·5	205·5	375·8	191·1	349·5	166·6	304·6	182·2	333·3	189·5	346·7	177·8	325·2	147·2	269·2	130·3	238·3	68·8	125·7	152·4	278·8

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.)

1893.

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.	14	61	13	57	49	214	41	179	70	306	41	179	48	210	40	175	54	236	24	105	22	96	9	39	35·4	154·8
1h	11	48	9	39	43	188	43	188	68	297	42	184	46	201	38	166	52	227	26	114	18	79	13	57	34·1	149·0
2	7	31	7	31	39	170	39	170	70	306	40	175	48	210	42	184	50	219	28	122	18	79	13	57	33·4	146·2
3	11	48	9	39	41	179	43	188	70	306	42	184	54	236	44	192	44	192	26	114	14	61	16	70	34·5	150·7
4	11	48	14	61	43	188	49	214	68	297	46	201	58	253	44	192	48	210	24	105	14	61	18	79	36·4	159·1
5	13	57	14	61	46	201	53	232	70	306	50	219	66	288	51	223	50	219	20	87	14	61	22	96	39·1	170·8
6	17	74	14	61	46	201	52	227	74	323	56	245	69	302	49	214	46	201	26	114	10	44	18	79	39·7	173·8
7	18	79	16	70	54	236	54	236	72	315	56	245	67	293	53	232	46	201	32	140	10	44	18	79	41·3	180·8
8	24	105	22	96	56	245	56	245	66	288	48	210	55	240	49	214	40	175	32	140	14	61	18	79	40·0	174·8
9	16	70	18	79	44	192	46	201	50	219	32	140	43	188	35	153	28	122	26	114	12	52	18	79	30·7	134·1
10	8	35	10	44	26	114	28	122	22	96	18	79	29	127	13	57	12	52	16	70	2	9	10	44	16·2	70·8
11	0	0	6	26	4	17	8	35	0	0	0	0	12	52	1	4	0	0	2	9	0	0	8	35	3·4	14·8
Noon	0	0	2	9	0	0	0	0	0	0	2	9	0	0	0	0	0	0	0	0	3	13	4	17	0·9	4·0
13h	1	4	0	0	3	13	1	4	14	61	16	70	2	9	4	17	6	26	6	26	7	31	6	26	5·5	23·9
14	9	39	2	9	15	66	15	66	36	157	26	114	12	52	22	96	18	79	12	52	13	57	9	39	15·8	68·8
15	13	57	6	26	31	135	31	135	56	245	34	149	24	105	32	140	31	135	22	96	19	83	15	66	26·2	114·3
16	19	83	8	35	41	179	43	188	70	306	42	184	42	184	39	170	41	179	32	140	23	101	13	57	34·4	150·5
17	21	92	12	52	45	197	49	214	82	358	47	205	60	262	43	188	41	179	32	140	25	109	15	66	39·3	171·8
18	21	92	10	44	45	197	55	240	86	376	51	223	64	280	41	179	47	205	30	131	21	92	7	31	39·8	174·2
19	21	92	8	35	43	188	57	249	78	341	49	214	64	280	37	162	47	205	30	131	21	92	8	35	38·6	168·7
20	19	83	11	48	41	179	57	249	76	332	47	205	64	280	29	127	47	205	30	131	21	92	2	9	37·0	161·7
21	13	57	5	22	43	188	49	214	74	323	43	188	62	271	27	118	48	210	26	114	15	66	0	0	33·7	147·6
22	11	48	11	48	39	170	49	214	72	315	37	162	52	227	23	101	42	184	26	114	19	83	6	26	32·3	141·0
23	10	44	9	39	39	170	47	205	72	315	33	144	48	210	22	96	40	175	24	105	17	74	2	9	30·2	132·2
24	8	35	5	22	37	162	49	214	70	306	33	144	46	201	23	101	42	184	24	105	15	66	6	26	29·8	130·5
Means 0h—23h	12·8	56·1	9·8	43·0	36·5	159·5	40·2	175·6	59·0	257·8	37·4	163·7	45·4	198·3	32·4	141·7	36·6	159·8	23·0	100·6	14·7	64·2	11·2	48·9	29·9	130·8
1h—24h	12·6	55·0	9·5	41·5	36·0	157·3	40·5	177·1	59·0	257·8	37·1	162·2	45·3	198·0	31·7	138·6	36·1	157·7	23·0	100·6	14·4	62·9	11·0	48·4	29·7	129·8

ROYAL OBSERVATORY, GREENWICH.

MAGNETIC DISTURBANCES

AND

EARTH CURRENTS.

1893.

MAGNETIC DISTURBANCES in DECLINATION, HORIZONTAL FORCE, and VERTICAL FORCE, recorded at the ROYAL OBSERVATORY, GREENWICH, in the Year 1893.

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).

1893.

January

1. $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Sharp wave in Dec. (− 20′): in H.F. (+ ·005) followed till 2. 1^h by small fluctuations in Dec. (± 5′), in H.F. (± ·0014). 18^h to 20^h Small fluctuations in V.F.
2. 20^h to 23^h Fluctuations in Dec. (± 3′): wave in H.F. (− ·0015): small fluctuations in V.F.
3. $18\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Wave in Dec. (− 7′): fluctuations in H.F. (± ·001): very small fluctuations in V.F.
5. 12^h to 6. 12^h. See Plate I.
6. 13^h to 7. 1^h Small fluctuations in Dec. and H.F.
8. $2\frac{1}{2}^h$ to $3\frac{1}{2}^h$ Wave in Dec. (+ 4′).
9. 0^h to 10. 4^h Fluctuations in Dec. (± 5′): in H.F. (± ·001). 9. 18^h to 20^h Wave in H.F. (− ·003). 9. 17^h to 22^h Long wave in V.F. (+ ·0012).
10. 21^h to $22\frac{1}{2}^h$ Wave in Dec. (− 18′): in H.F. (+ ·0026): in V.F. (− ·0003).
11. 17^h to 23^h Fluctuations in Dec. (± 7′): in H.F. (± ·0021). 21^h to 23^h Wave in V.F. (− ·0005).
12. 3^h to 5^h Wave in Dec. (+ 5′).
12. 16^h to 13. 3^h Fluctuations in Dec. (± 4′), with wave 12. $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ (− 10′): in H.F. (± ·001), with waves 12. $19\frac{1}{2}^h$ to 21^h (+ ·002), $21\frac{3}{4}^h$ to $23\frac{3}{4}^h$ (+ ·003), and 13. $1\frac{3}{4}^h$ to 3^h (+ ·002): small fluctuations in V.F., with waves 12. 22^h to 13. $0\frac{1}{2}^h$ (− ·0005), and 13. 2^h to 3^h (− ·0003).
14. 23^h to 15. 2^h Fluctuations in Dec. (± 3′): double wave in H.F. (− ·001 to + ·001): decrease of V.F. (− ·0004).
18. 1^h to 6^h Small fluctuations in Dec. and H.F.
18. 23^h to 19. 4^h Long wave in Dec. (− 11′), with small superposed fluctuations. 18. $18\frac{1}{2}^h$ to 19. 2^h Fluctuations in H.F. (± ·001): in V.F. small.
19. 18^h to 20. 13^h Fluctuations in Dec. (± 3′), with waves 19. 18^h to 19^h (− 6′): 19. $20\frac{1}{2}^h$ to 22^h (− 9′): in H.F. (± ·001), with wave 20. 0^h to $1\frac{1}{2}^h$ (− ·002): small fluctuations in V.F.
20. 20^h to 21. 9^h Small fluctuations in Dec. and H.F. 21. 0^h to $1\frac{1}{2}^h$ Wave in H.F. (+ ·0025). 21. 0^h to 3^h Wave in V.F. (− ·0004).
21. 12^h to 22. 12^h. See Plate I.
22. 12^h to 23. 5^h Fluctuations in Dec. (± 3′), with irregular wave 22. 16^h to 19^h (− 11′): small fluctuations in H.F., with waves 22. 12^h to 14^h (− ·0025), 22. 20^h to 21^h (+ ·0025). 22. 12^h to 19^h Increase of V.F. (+ ·0011).

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January 23. 20^h to 24. 4^h Small fluctuations in Dec., with wave 23. 20^h to $21\frac{3}{4}^h$ (− 6′). 23. 20^h to 24. 1^h Small fluctuations in H.F. and V.F.

24. 17^h to 18^h Wave in Dec. (− 5′) : in H.F. (+ ·001).

24. 19^h to 25. 4^h Long irregular wave in Dec. (− 7′), with small superposed fluctuations : small fluctuations in H.F.

26. 17^h to 27. 5^h Small fluctuations in Dec. and H.F. 26. $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Sharp wave in H.F. (+ ·0025). 26. 20^h to 23^h Wave in V.F. (− ·0003).

27. 16^h to $20\frac{1}{2}^h$ Small fluctuations in Dec. and H.F.

28. $0\frac{1}{2}^h$ to 3^h Fluctuations in Dec. (± 3′). $0\frac{1}{2}^h$ to 2^h Wave in H.F. (+ ·002) : in V.F. (− ·0003).

29. 9^h to 30. 1^h Small rapid fluctuations in Dec., H.F., and V.F. 29. $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Wave in H.F. (+ ·002).

31. $1\frac{1}{2}^h$ to 2^h Wave in Dec. (+ 4′) : in H.F. and V.F. small.

February 2. 8^h to 23^h Small rapid fluctuations in Dec., H.F., and V.F. 15^h to $17\frac{1}{2}^h$ Wave in H.F. (− ·002). 13^h to 16^h Increase of V.F. (+ ·0007).

3. 17^h to 4. 2^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001). 3. 13^h to 22^h Long wave in V.F. (+ ·0005).

4. $6\frac{1}{2}^h$ to 8^h Wave in Dec. (+ 5′) : in H.F. (+ ·001) : decrease of V.F. (− ·0005).

4. 12^h to 6. 12^h. See Plates I. and II.

6. 12^h to 7. 3^h Fluctuations in Dec. (± 3′), with waves 6. 20^h to $21\frac{1}{2}^h$ (− 5′), and 6. $23\frac{1}{2}^h$ to 7. $0\frac{1}{2}^h$ (+ 6′) : small rapid fluctuations in H.F., with waves 6. 14^h to 15^h (− ·002), and 6. 17^h to $18\frac{1}{2}^h$ (− ·002) : small fluctuations in V.F. 7. 0^h to 2^h Decrease of V.F. (− ·0005).

7. 14^h to 15^h Wave in Dec. (− 6′), with superposed fluctuations (± 3′). 18^h to 21^h Double-crested wave in Dec. (− 10′ and − 13′). 13^h to 23^h Fluctuations in H.F. (± ·0015), with successive waves 18^h to 20^h (+ ·0026 and + ·0027) : small fluctuations in V.F., followed till 8. 10^h by small fluctuations both in Dec. and H.F.

8. 18^h to 9. 3^h Small fluctuations in Dec., with wave 8. 22^h to 9. $0\frac{3}{4}^h$ (− 11′) : in H.F. (± ·001) : in V.F. small.

9. 18^h to 10. 11^h Small fluctuations in Dec. and H.F.

11. 12^h to 15^h Small rapid fluctuations in Dec., H.F., and V.F.

14. $3\frac{3}{4}^h$ Sudden increase of Dec. (+ 5′) : of H.F. (+ ·002) : small increase of V.F.

14. 13^h to 16^h Small fluctuations in Dec. and H.F.

14. 21^h to 15. 6^h Fluctuations in Dec. (± 4′) : in H.F. (± ·001), with wave 14. 21^h to $22\frac{1}{2}^h$ (+ ·003) : small fluctuations in V.F.

15. 13^h to 16. 7^h Fluctuations in Dec. (± 6′). 15. 19^h to 16. 5^h Double wave in H.F. (+ ·003), and (+ ·005), with superposed fluctuations (± ·001), followed by small fluctuations in Dec. till 16. 15^h, and in H.F. till 16. 19^h. 15. 20^h to 16. 7^h Long wave in V.F. (− ·002), with superposed fluctuations (± ·0003).

16. 20^h to 17. 1^h Small rapid fluctuations in Dec. (± 5′) : two successive waves in H.F. 16. $22\frac{1}{2}^h$ to 17. 1^h (+ ·0030) and (+ ·0035) : wave in V.F. 16. 22^h to 17. 1^h (− ·0008).

17. 5^h to 18. 10^h Fluctuations in Dec. (± 5′), with two successive waves 17. 20^h to 18. 0^h (− 10′) and (− 11′) : in H.F. (± ·0015), with waves 17. $23\frac{1}{2}^h$ to 18. $0\frac{1}{2}^h$ (+ ·0025), 18. $3\frac{1}{2}^h$ to 18. 5^h (+ ·0015), 18. $5\frac{1}{2}^h$ to $6\frac{1}{2}^h$ (+ ·0016) : long irregular wave in V.F. 17. 10^h to 18. 1^h (+ ·0010), with superposed small fluctuations.

18. 12^h to 20. 11^h Small fluctuations in Dec. and H.F. 18. $17\frac{1}{2}^h$ to 19^h Wave in Dec. (− 5′). 19. 12^h to 15^h Double wave in Dec. (+ 5′) and (− 4′) : waves in H.F. 19. $0\frac{1}{2}^h$ to 3^h (+ ·002), 19. 13^h to $14\frac{1}{2}^h$ (− ·002) : small fluctuations in V.F.

20. 17^h to $18\frac{1}{2}^h$ Wave in Dec. (− 7′) : in H.F. (− ·0015). 15^h to 22^h Increase of V.F. (+ ·0004).

20. $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 6′) : in H.F. (+ ·0025) : decrease of V.F. (− ·0005).

21. 12^h to 21^h Small occasional fluctuations in Dec., H.F., and V.F.

22. 12^h to 23^h Small occasional fluctuations in Dec. and H.F.

25. 10^h to 18^h Occasional small rapid fluctuations in Dec. and H.F.

27. $0\frac{3}{4}^h$ to 2^h Wave in Dec. (− 4′) : in H.F. (+ ·001) : decrease of V.F. (− ·0003).

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March

1. $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in Dec. (+ 5′) : in H.F. (+ ·0025) : in V.F. small, followed till $19\frac{1}{2}^h$ by small fluctuations in both H.F. and V.F. $19\frac{1}{2}^h$ to $20\frac{3}{4}^h$ Wave in Dec. (− 6′) : in H.F. (− ·004). $18\frac{1}{2}^h$ to 22^h Wave in V.F. (+ ·0006).
2. $22\frac{1}{2}^h$ to 3. 3^h Double wave in Dec. (− 5′) and (+ 10′) : small irregular waves in H.F. (No register of V.F.)
3. 11^h to 4. 15^h Occasional small fluctuations in Dec. and H.F. 3. $18\frac{1}{2}^h$ to 19^h Wave in H.F. (+ ·002) : small fluctuations in V.F.
5. $5\frac{1}{4}^h$ to 7^h Wave in Dec. (+ 7′).
6. $4\frac{1}{2}^h$ to 6^h Wave in Dec. (+ 10′) : in H.F. (+ ·001) : in V.F. (− ·004).
7. $21\frac{1}{2}^h$ to 8. 3^h Double wave in Dec. (− 5′) and (+ 4′) : fluctuations in H.F. (± ·001). 8. 0^h to 8^h Long wave in V.F. (− ·0004).
8. $16\frac{1}{2}^h$ to 18^h Wave in Dec. (− 9′) : in H.F. (− ·0015). $19\frac{1}{2}^h$ to 20^h Sharp wave in Dec. (− 7′) : in H.F. (+ ·003), followed till $23\frac{1}{2}^h$ in Dec. by fluctuations (± 3′). 15^h to 23^h Small fluctuations in V.F.
9. 17^h to 20^h Irregular wave in Dec. (− 6′) : in H.F. (− ·0015). 12^h to 22^h Long wave in V.F. (+ ·0004).
11. $0\frac{3}{4}^h$ to 3^h Wave in Dec. (+ 8′) : small fluctuations in H.F. : decrease of V.F. (− ·0004).
12. $17\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 7′). 17^h to 23^h Fluctuations in H.F. (± ·001). 12. 13^h to 13. 1^h Long wave in V.F. (+ ·0015).
13. 12^h to 21^h Small fluctuations in Dec., H.F., and V.F.
14. 3^h to 7^h Small fluctuations in Dec., H.F., and V.F.
14. 15^h to 15. 3^h. See Plate II.
15. 3^h to 15^h Small rapid fluctuations in Dec., H.F., and V.F. $5\frac{1}{2}^h$ to $6\frac{3}{4}^h$ Wave in Dec. (+ 7′).
15. 15^h to 24^h. See Plate II.
16. 0^h to 2^h Wave in Dec. (+ 8′) : in H.F. (+ ·0026) : decrease in V.F. (− ·0005).
16. 13^h to 22^h Fluctuations in Dec. (± 5′) : in H.F. (± ·001). 16^h to 18^h Wave in Dec. (− 8′) : in H.F. (+ ·0012). 20^h to 22^h Wave in Dec. (− 7′) : in H.F. (+ ·0025). 14^h to 21^h Long wave in V.F. (+ ·001).
24. 14^h to $17\frac{1}{2}^h$ Double wave in H.F. (− ·001) and (+ ·001). 21^h to $23\frac{1}{2}^h$ Wave in Dec. (− 8′) : in H.F. and V.F. small.
25. 0^h to 26. 0^h. See Plate II.
26. 0^h to 6^h Small rapid fluctuations in Dec. and H.F.
26. 6^h to 27. 6^h. See Plate III.
27. 15^h to 19^h Irregular wave in Dec. (− 11′) : double wave in H.F. (− ·001) and (+ ·002). Small fluctuations in V.F.
27. 21^h to 28. 1^h Small fluctuations in Dec., H.F., and V.F., with wave in Dec. 27. 23^h to 28. 1^h (+ 8′).
28. 4^h to 10^h Small fluctuations in Dec. and H.F.
28. 12^h to 29. 6^h Fluctuations in Dec. (± 7′), with wave 28. 16^h to $18\frac{1}{2}^h$ (− 9′) : successive waves 28. $21\frac{1}{2}^h$ to 29. 0^h (− 13′) and (− 6′). 29. $1\frac{1}{2}^h$ to 3^h wave (+ 8′) : in H.F. (± ·0025) with waves 28. 14^h to 15^h (− ·002), 28. $16\frac{1}{2}^h$ to $17\frac{3}{4}^h$ (− ·0025) : successive waves 28. 22^h to 29. 0^h (+ ·004) and (+ ·0024) : irregular wave 29. 2^h to 4^h (+ ·002) : fluctuations in V.F. (± ·0003).
29. 11^h to 16^h Small fluctuations in Dec., H.F., and V.F.
29. 20^h to 30. 1^h Two successive waves in Dec. (− 5′) and (− 7′), with intermediate small fluctuations : in H.F. small fluctuations. 29. 22^h to $23\frac{1}{2}^h$ Decrease of V.F. (− ·0006).

April

1. 1^h to 3^h Wave in Dec. (+ 4′) : in H.F. (+ ·0015) : decrease of V.F. (− ·0003).
3. 0^h to 9^h Small fluctuations in Dec. and H.F. : in H.F. (± ·001). 0^h to $1\frac{1}{2}^h$ Decrease of V.F. (− ·0005).
5. 12^h to 20^h Small fluctuations in Dec. : in H.F. (± ·001) : long wave in V.F. (+ ·0005).
6. 11^h to 17^h Small fluctuations in Dec. and H.F.
6. 23^h to 7. 8^h Small fluctuations in Dec. and H.F.
8. 1^h to 10^h Small rapid fluctuations in Dec. and H.F.
11. $23\frac{3}{4}^h$ Decrease of Dec. (− 10′) : of V.F. (− ·0004). 11. $23\frac{3}{4}^h$ to 12. $0\frac{1}{2}^h$ Wave in H.F. (+ ·003), followed till 12. 10^h in Dec., H.F., and V.F. by small fluctuations.

1893.

April

12. 13^h to 13. 6^h Small fluctuations in Dec. and H.F. 12. 13^h to 13. 3^h Long wave in V.F. (+ ·001).

13. 12^h to 14. 23^h Fluctuations in Dec. (± 3′), with wave 13. $19\frac{1}{2}^h$ to 21^h (− 8′): in H.F. (± ·001): in V.F. small.

15. $20\frac{1}{2}^h$ to 23^h Irregular wave in Dec. (− 10′): fluctuations in H.F. (± ·001), followed till 16. 9^h by minor fluctuations in both Dec. and H.F.

16. 15^h to 18. 0^h Occasional small fluctuations in Dec. and H.F. 16. 23^h to 17. 0^h Decrease of V.F. (− ·0004). 18. $1\frac{1}{2}^h$ to 7^h Double wave in Dec. (+ 6′) and (− 4′).

19. 1^h to 3^h Wave in Dec (+ 4′): in H.F. small.

19. 3^h to 20. 5^h Small fluctuations in H.F. 19. 23^h to 20. 4^h Two successive waves in Dec. (− 6′) and (− 4′).

20. 14^h to 23^h Small fluctuations in H.F.

24. 12^h to 25. 2^h Small fluctuations in Dec.: in H.F. [occasionally rapid] (± ·001). 24. $23\frac{1}{2}^h$ to 25. 1^h Wave in H.F. (+ ·002). 24. 22^h to 25. 2^h Double wave in V.F. (+ ·0003) and (− ·0003).

26. $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Wave in Dec. (− 5′). 0^h to $1\frac{1}{2}^h$ Wave in H.F. (+ ·0015). 0^h to $0\frac{3}{4}^h$ Decrease of V.F. (− ·0004).

26. 12^h to 27. 12^h. See Plate III.

27. 12^h to 28. 18^h Rapid fluctuations in Dec. (± 3′): in H.F. (± ·001): in V.F. small.

30. 11^h to 16^h Small fluctuations in H.F.

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3. 12^h to 18^h Two successive waves in H.F. (+ ·0020) and (+ ·0025). 15^h to 17^h Increase of V.F. (+ ·0004).

4. 11^h to 6. 4^h Occasional small fluctuations in Dec. and H.F. 5. $21\frac{1}{2}^h$ to 23^h Wave in Dec. (+ 6′): in H.F. (+ ·002): decrease of V.F. (− ·0004).

7. 16^h to 8. 5^h Fluctuations in Dec. (± 6′): in H.F. (± ·001), followed till 8. 18^h by small rapid fluctuations both in Dec. and H.F. 7. 23^h to 8. 5^h Wave in Dec. (− 15′) with superposed fluctuations (± 6′). 7. 16^h to 20^h Wave in H.F. (+ ·003), with small superposed fluctuations. 8. 0^h to 1^h Sharp wave in H.F. (+ ·003). 7. 16^h to 8. 5^h Double wave in V.F. (+ ·001) and (− ·0006).

9. 5^h to 16^h Small fluctuations in Dec. and H.F.

9. 19^h to 10. 3^h Fluctuations in Dec. (± 5′): in H.F. (± ·0015): in V.F. (± ·0003). 10. 0^h to $2\frac{1}{2}^h$ Double wave in Dec. (+ 10′) and (− 8′).

10. 19^h to 22^h Irregular wave in Dec. (− 8′): in H.F. small fluctuations.

11. $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Wave in Dec. (+ 5′): increase of V.F. (+ ·0004).

11. 12^h to 12. 6^h Small fluctuations in Dec. and H.F. 12. 2^h to 6^h Double wave in Dec. (− 4′) and (+ 4′).

12. $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 5′): small fluctuations in H.F.

14. 3^h to 4^h Wave in Dec. (+ 4′): in H.F. and V.F. small.

14. 18^h to 15. 0^h Small fluctuations in Dec. and H.F.

15. $19\frac{1}{2}^h$ to 21^h Wave in Dec. (− 4′): in H.F. (− ·002).

17. 14^h to $14\frac{3}{4}^h$ Small wave in Dec.: in H.F. (+ ·001), followed till 18. 3^h in H.F. by small fluctuations.

18. 12^h to 16^h Fluctuations in Dec. (± 4′). 14^h to 17^h Two successive waves in H.F. (+ ·0020) and (+ ·0024), followed by small fluctuations: in V.F. small.

19. 12^h to 20. 18^h Very small fluctuations in Dec. and H.F.

21. 15^h to 22. 6^h Very small fluctuations in Dec. and H.F.

23. 18^h to 24. 1^h Small fluctuations in H.F. 23. $22\frac{1}{2}^h$ to $22\frac{3}{4}^h$ Decrease of Dec. (− 5′).

24. 19^h to 26. 11^h Rapid fluctuations in Dec. (± 3′), with wave 24. $19\frac{3}{4}^h$ to 21^h (− 7′): in H.F. (± ·001).

26. $23\frac{1}{2}^h$ to 27. $1\frac{1}{2}^h$ Wave in Dec. (+ 4′): in H.F. (+ ·001), followed till 10^h by small fluctuations, both in Dec. and H.F.

30. $6\frac{1}{2}^h$ to 22^h Rapid fluctuations in Dec. (± 4′): in H.F. (± ·001): in V.F. small.

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June 2. 9^h to 3. 3^h Small fluctuations in H.F.

3. 23^h to 4. 9^h Small rapid fluctuations in Dec., H.F. and V,F.

4. 11^h to 5. 0^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001), with wave 4. $13\frac{3}{4}^h$ to $15\frac{1}{2}^h$ (+ ·002), followed till 5. 11^h by small fluctuations in both Dec. and H.F. 4. 14^h to 22^h Long wave in V.F. (+ ·001).

5. 12^h to 22^h Small fluctuations in Dec., with wave $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ (— 8′) : in H.F. ($\pm$ ·0015), followed till 6. 11^h by small rapid fluctuations in both Dec. and H.F. : small fluctuations in V.F.

6. 12^h to 21^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) with waves $16\frac{1}{2}^h$ to $17\frac{1}{2}^h$ (+ ·003) and 20^h to 21^h (+ ·002) : small fluctuations in V.F.

9. 12^h to 10. 12^h. See Plate IV.

10. $14\frac{1}{2}^h$ to $15\frac{1}{2}^h$ Wave in H.F. (— ·002).

10. 19^h to $20\frac{1}{2}^h$ Wave in Dec. (— 6′) : double wave in H.F. (— ·001) and (+ ·001), followed till 12. 1^h by fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) : small fluctuations in V.F.

14. 12^h to 16. 2^h Frequent fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) : in V.F. small.

18. 12^h to 20. 12^h. See Plate IV.

20. 12^h to 21. 22^h Small rapid fluctuations in Dec. : in H.F. ($\pm$ ·001), with wave 20. 16^h to 19^h (+ ·004) : small fluctuations in V.F.

26. 13^h to $15\frac{1}{2}^h$ Small fluctuations in Dec. : in H.F. ($\pm$ ·001) : in V.F. small.

27. 20^h to 28. 3^h Small fluctuations in Dec. : in H.F. ($\pm$ ·001), with irregular wave 27. $22\frac{1}{2}^h$ to 28. 2^h (+ ·002). 27. 22^h to 28. 4^h Wave in V.F. (— ·0006).

28. 9^h to 21^h Small fluctuations in Dec. : long wave in H.F. (+ ·006), with superposed fluctuations ($\pm$ ·0015) : small fluctuations in V.F.

29. 7^h to 30. 3^h Fluctuations in Dec. ($\pm$ 7′) : in H.F. ($\pm$ ·002). 29. 16^h to 22^h Irregular wave in H.F. (+ ·005), with superposed fluctuations ($\pm$ ·0015). 29. 12^h to 30. 0^h Long wave in V.F. (+ ·0017), with small superposed fluctuations.

30. 6^h to July 1. 6^h Small fluctuations in Dec., with wave July 1. 2^h to 5^h (+ 8′) : fluctuations in H.F. ($\pm$ ·001), with irregular wave 30. 17^h to 20^h (+ ·003) : small fluctuations in V.F.

July 1. 19^h to 2. 1^h Two successive waves in Dec. (— 7′) and (— 5′), followed by small fluctuations till 2. 8^h : fluctuations in H.F. ($\pm$ ·001). 1. 21^h to 2. 0^h Decrease of V.F. (— ·0005).

2. 11^h to 4. 3^h Very small fluctuations in Dec. and H.F.

7. 16^h to 19^h Wave in H.F. (— ·0015).

7. 23^h to 8. $0\frac{1}{2}^h$ Small wave in Dec. : in H.F. (+ ·001) : slight decrease of V.F.

11. 13^h to 12. 0^h Small rapid fluctuations in H.F.

12. 14^h to 19^h Small fluctuations in Dec. : in H.F. ($\pm$ ·002).

13. 15^h to 14. 2^h Small fluctuations in H.F.

14. 12^h to 15. 3^h Fluctuations in Dec. ($\pm$ 3′), with wave 15. $0\frac{1}{2}^h$ to $2\frac{1}{2}^h$ (+ 15′) : in H.F. ($\pm$ ·001), with wave 15. $1\frac{1}{2}^h$ to 3^h (+ ·003) : small fluctuations in V.F. with waves 14. 14^h to 22^h (+ ·002) and 15. $1\frac{3}{4}^h$ to 4^h (— ·0008).

15. 12^h to 16. 12^h. See Plate V.

16. 12^h to 17. 15^h Small rapid fluctuations in Dec., H.F. and V.F.

18. $1\frac{1}{2}^h$ to 15^h Very small fluctuations in Dec., H.F. and V.F.

19. 12^h to 19^h Fluctuations in H.F. ($\pm$ ·001). $15\frac{1}{2}^h$ to 16^h Decrease of Dec. (— 7′).

20. 22^h to 21. 12^h Small rapid fluctuations in Dec. and H.F.

21. 12^h to 22. 12^h. See Plate V.

22 12^h to 22. 22^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·0015), with wave 18^h to $19\frac{1}{2}^h$ (+ ·003), followed till 23. 12^h by small rapid fluctuations. 22. 15^h to 21^h Wave in V.F. (+ ·0008).

23. 19^h to 24. 22^h Fluctuations in Dec. ($\pm$ 5′), occasionally rapid : in H.F. ($\pm$ ·001).

25. 13^h to 17^h Double wave in H.F. (+ ·001) and (— ·0015).

26. $18\frac{3}{4}^h$ to $20\frac{3}{4}^h$ Wave in H.F. (+ ·0015). $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Wave in Dec. (— 3′).

27. 1^h to $2\frac{1}{2}^h$ Wave in Dec. (+ 7′) : in H.F. (+ ·001) : decrease of V.F. (— ·0004).

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July
27. $14\frac{1}{2}^h$ to 18^h Two successive waves in H.F. (+ ·001) and (+ ·0015).
27. 20^h to $21\frac{1}{2}^h$ Wave in Dec. (− 5′).
28. $13\frac{1}{2}^h$ to 17^h Two successive waves in H.F. (− ·0025) and (− ·0015): small fluctuations in Dec.
28. 19^h to 20^h. Wave in Dec. (− 5′): in H.F. (+ ·002): small fluctuations in V.F.
29. 14^h to 23^h Fluctuations in H.F. (± ·001), with wave 18^h to 20^h (+ ·002). 22^h to 23^h Wave in Dec. (+ 4′): in H.F. (+ ·001): decrease of V.F. (− ·0003).
30. 23^h to 31. 0^h Wave in Dec. (+ 3′): in H.F. (+ ·001): slight decrease of V.F.

August
2. 15^h to 23^h. Small fluctuations in Dec. and H.F.
3. 17^h to 4. 7^h Small rapid fluctuations in Dec., H.F., and V.F. 3. 19^h to 20^h Sharp wave in H.F. (+ ·0014).
4. 15^h to 5. 3^h Fluctuations in H.F. (± ·001).
5. 12^h to 18^h Long wave in H.F. (+ ·002).
6. 0^h to 8. 0^h. See Plate VI.
8. 0^h to 9^h Fluctuations in Dec. (± 3′): in H.F. (± ·001): in V.F. small.
8. 15^h to 23^h Very small fluctuations in Dec. 16^h to 20^h Long wave in H.F. (+ ·002), with small superposed fluctuations.
9. 16^h to 10. 1^h Small fluctuations in H.F.
10. 15^h to 11. 3^h Occasional small fluctuations in Dec.: frequent fluctuations in H.F. (± ·001): in V.F. small.
11. 12^h to 12. 3^h Small rapid fluctuations in Dec., H.F., and V.F.
12. 6^h to 13. 4^h Fluctuations in Dec. (± 5′): in H.F. (± ·002): in V.F. (± ·0004), followed till 13. 11^h by small rapid fluctuations in both Dec. and H.F. 12. $23\frac{1}{2}^h$ to 13. $0\frac{1}{2}^h$ Wave in Dec. (− 7′). 13. $1\frac{1}{2}^h$ to $3\frac{1}{2}^h$ Successive waves in Dec. (both + 8′). 12. 23^h to 13. 0^h Sharp wave in H.F. (+ ·004).
13. 12^h to 14. 8^h Fluctuations in Dec. (± 3′): in H.F. (± ·001): in V.F. small.
15. 16^h to 17^h Wave in Dec. (− 6′): in H.F. (+ ·003): in V.F. (+ ·0003), followed till 21^h by small fluctuations in both Dec. and H.F.
16. $3\frac{1}{4}^h$ to $4\frac{1}{2}^h$ Wave in Dec. (+ 5′).
18. 0^h to 19. 0^h. See Plate VII.
19. 0^h to 20. 22^h Fluctuations in Dec. (± 3′), with wave 20. $19\frac{1}{2}^h$ to 22^h (− 6′): in H.F. (± ·001). 19. 12^h to 20. 0^h Long wave in V.F. (+ ·0015).
21. 3^h to 7^h Small rapid fluctuations in Dec., H.F., and V.F.
22. 7^h to 23. 19^h Occasional small fluctuations in Dec., with wave 23. 0^h to 4^h (− 10′): in H.F. (± ·001), with wave 22. 23^h to 23. 2^h (+ ·0025). 23. 0^h to 3^h Wave in V.F. (− ·0008).
25. $0\frac{3}{4}^h$ Sudden increase (slight) of Dec., H.F., and V.F.
29. 7^h to 30. 3^h Small fluctuations in Dec. and H.F.
30. 13^h to 31. 0^h Small fluctuations in Dec., with wave 17^h to 18^h (− 5′): in H.F. (± ·001): wave in V.F. (+ ·0006).
31. 12^h to 19^h Small fluctuations in H.F.

September
1. 0^h to 3^h Double wave in Dec. (+ 3′) and (− 3′): wave in H.F. (+ ·002): in V.F. (− ·0003).
1. 20^h to 2. 8^h Fluctuations in Dec. (± 3′), with wave 1. $21\frac{1}{2}^h$ to 2. 0^h (− 7′): in H.F. (± ·001), with double wave 1. 21^h to 2. 0^h (+ ·001) and (− ·002): waves in V.F. 1. 22^h to 2. 0^h (− ·0003), 2. 4^h to 6^h (− ·0003).
2. 13^h to 3. 6^h Fluctuations in Dec. (± 3′): in H.F. (± ·001). 3. 1^h to 6^h Two successive waves in Dec. (+ 6′) and (+ 5′). 3. $1\frac{1}{2}^h$ to $2\frac{1}{2}^h$ Decrease of V.F. (− ·0004).
3. 15^h to 17^h Small fluctuations in H.F.
4. 1^h to 9^h Small fluctuations in Dec. and H.F.

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September 5. $1\frac{1}{2}^h$ to 3^h Wave in Dec. (+ 6′). 2^h to 3^h Wave in H.F. (+ ·001) : decrease of V.F. (− ·0003).

5. 12^h to 18^h Small fluctuations in Dec. and H.F.

5. 22^h to 6. 9^h Double wave in Dec. (+ 10′) and (− 15′), with superposed fluctuations (± 3′) : fluctuations in H.F. (± ·001), with waves 5. $22\frac{1}{2}^h$ to 6. $0\frac{1}{2}^h$ (+ ·004), 6. $4\frac{1}{2}^h$ to $6\frac{1}{2}^h$ (− ·004) : small fluctuations in V.F. 5. 23^h to 6. 0^h Decrease of V.F. (− ·0008).

7. 15^h to 8. 0^h Small rapid fluctuations in H.F.

8. 0^h to 10. 0^h. See Plates VII. and VIII.

10. 22^h to 11. 8^h Fluctuations in Dec. (± 3′), with wave 11. 2^h to 4^h (+ 9′) : in H.F. small, with wave 11. 5^h to 7^h (− ·002). 11. $2\frac{1}{2}^h$ to 7^h Wave in V.F. (− ·0005).

11. 12^h to 12. 3^h Small fluctuations in Dec. and H.F., with waves in Dec. 11. 19^h to 20^h (− 5′), 11. $23\frac{1}{2}^h$ to 12. $0\frac{1}{2}^h$ (+ 5′) : in H.F. 11. $12\frac{1}{2}^h$ to $13\frac{1}{2}^h$ (− ·002), 11. 19^h to 20^h (− ·001), 11. $23\frac{3}{4}^h$ to 12. $0\frac{1}{2}^h$ (+ ·0016) : occasional small fluctuations in V.F.

12. $18\frac{1}{2}^h$ to 20^h Wave in Dec. (− 4′) : in H.F. (+ ·001).

13. 13^h to 16. 1^h Fluctuations in Dec. [occasionally rapid] (± 4′), with wave 15. $1\frac{1}{2}^h$ to $3\frac{1}{2}^h$ (+ 10′) : in H.F. (± ·0015), with waves 14. $21\frac{1}{2}^h$ to $23\frac{1}{2}^h$ (+ ·0025), 15. $22\frac{1}{2}^h$ to 16. $0\frac{1}{2}^h$ (+ ·0025) : occasional small fluctuations in V.F., with waves 15. $2\frac{1}{2}^h$ to 5^h (− ·0003), 15. $22\frac{1}{2}^h$ to 16. 1^h (− ·0003).

16. 21^h to 18. 4^h Fluctuations in Dec. [occasionally rapid] (± 3′), with irregular waves 17. 2^h to 4^h (+ 6′), 17. $18\frac{1}{4}^h$ to $19\frac{1}{2}^h$ (− 13′) : two successive waves 17. 23^h to 18. 3^h (− 10′) and (− 5′) : in H.F. (± ·001), with waves 16. 22^h to 17. 0^h (+ ·0025), 17. $18\frac{1}{4}^h$ to 19^h (+ ·004), 17. 21^h to 18. 0^h (+ ·0045), with superposed fluctuations (± ·001). 18. 1^h to 3^h (+ ·002). 17. 13^h to 18. 2^h Irregular wave in V.F. (+ ·0012). 18. 1^h to 4^h Wave in V.F. (− ·0004).

18. 16^h to 18^h Wave in Dec. (− 8′) : in H.F. (− ·003) : in V.F. small.

18. 22^h to 19. 22^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001), with wave 19. 1^h to 4^h (+ ·0015).

20. 6^h to 17^h Small rapid fluctuations in Dec., H.F., and V.F.

21. 1^h to 3^h Wave in Dec. (+ 5′) : in H.F. (+ ·001), followed till 12^h by small fluctuations both in Dec. and H.F. 1^h to 2^h Decrease of V.F. (− ·0004).

21. 20^h to 23. 15^h Small fluctuations in Dec., H.F., and V.F.

23. 19^h to 20^h Wave in Dec. (− 4′).

25. 22^h to 26. 12^h Small fluctuations in Dec., H.F., and V.F.

26. 12^h to 27. 12^h. See Plate VIII.

27. 20^h to 28. 11^h Small fluctuations in Dec. and H.F., with waves in Dec., 28. $3\frac{1}{2}^h$ to 5^h (+ 7′) : in H.F. 0^h to $1\frac{1}{2}^h$ (+ ·003). $0\frac{1}{2}^h$ to 1^h Decrease of V.F. (− ·0004) : 4^h to $4\frac{1}{2}^h$ (− ·0004).

29. 12^h to 30. 12^h. See Plate VIII.

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

October 1. 20^h to 2. 7^h Small fluctuations in Dec., H.F., and V.F. 1. $23\frac{1}{2}^h$ to 2. 0^h Sharp wave in H.F. (+ ·002).

2. 12^h to 3. 3^h Fluctuations in Dec. (± 3′), with sharp waves 2. 18^h to 20^h (− 10′), 2. $21\frac{1}{2}^h$ to $22\frac{1}{4}^h$ (+ 17′), 3. 1^h to 3^h (+ 8′) : in H.F. (± ·0015), with waves 2. $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ (− ·004), 3. $1\frac{1}{2}^h$ to 3^h (+ ·002), followed till 3. 11^h by small rapid fluctuations in both Dec. and H.F. 2. 15^h to 22^h Irregular wave in V.F. (+ ·0015). 22^h to $22\frac{1}{2}^h$ Increase of V.F. (+ ·0004). 3. 2^h to $3\frac{1}{2}^h$ Wave in V.F. (− ·0004).

3. 15^h to 4. 0^h Small fluctuations in Dec. : in H.F. (± ·001) : in V.F. small. 15^h to 17^h Decrease of Dec. (− 16′). 22^h to $23\frac{1}{2}^h$ Wave in Dec. (− 6′).

4. 17^h to 22^h Two successive waves in Dec. (− 5′) and (− 6′). $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Wave in H.F. (− ·001).

5. $4\frac{1}{2}^h$ to 8^h Wave in Dec. (+ 7′) : in H.F. (+ ·002) : in V.F. (− ·0003).

5. 13^h to 17^h Small fluctuations in Dec., 5. 17^h to 19^h Decrease in Dec. (− 12′), 5. 19^h to 21^h Two successive waves in Dec. (− 8′) and (− 7′), 6. 3^h to 4^h Wave in Dec. (+ 5′), 6^h to 8^h Long wave in Dec. (+ 5′). 5. 12^h to 6. 10^h Numerous fluctuations in H.F. (± ·0015). 5. 13^h to 18^h Long wave in V.F. (+ ·0005), followed by small fluctuations to 6. 9^h.

6. 12^h to 7. 12^h Frequent fluctuations in Dec. (± 5′), with wave 6. $16\frac{1}{2}^h$ to 18^h (− 10′) : successive waves 6. $20\frac{1}{2}^h$ to 22^h (both − 5′) : irregular wave 7. 3^h to 6^h (+ 8′) : fluctuations in H.F. (± ·002). 6. 15^h to 19^h Wave in V.F. (+ ·0004) : 6. 20^h to 23^h (− ·0003) : 7. 1^h to 7^h (− ·0005).

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October 7. 13^h to 8. 1^h Occasional fluctuations in Dec., H.F., and V.F., with two successive waves in Dec. 7. $17\frac{1}{2}^h$ to 20^h (both $-$ 5′), and successive waves between 7. $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ (both $-$ 5′). 7. 23^h to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0016) : in V.F. small.

8. 18^h to 9. 14^h Small fluctuations in Dec., H.F., and V.F. 8. $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. ($-$ 4′) : in H.F. (+ ·001). 8. 22^h to 23^h Wave in Dec. ($-$ 5′) : in H.F. (+ ·0006).

10. 1^h to 6^h Two successive waves in Dec. (+ 7′) and (+ 8′). $1\frac{3}{4}^h$ to $3\frac{1}{2}^h$ Wave in H.F (+ ·002). 1^h to 3^h Decrease of V.F. ($-$ ·0007), followed till 21^h by fluctuations in Dec. ($\pm$ 3′) and in H.F. ($\pm$ ·0015).

12. 1^h to 10^h Small fluctuations in Dec., H.F., and V.F.

12. 20^h to 13. 23^h Occasional waves in Dec. ($-$ 8′) and (+ 5′) : in H.F. (+ ·001) and ($-$ ·002), with superposed fluctuations : in V.F. small.

14. 17^h to 15. 19^h Frequent fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) : in V.F. small.

16. 2^h to 17. 15^h Very small occasional fluctuations in Dec. and H.F.

17. 17^h to 19. 0^h Fluctuations in Dec. ($\pm$ 3′), with waves 17. 17^h to 20^h ($-$ 7′), 17. 22^h to 18. 0^h ($-$ 5′), 18. 19^h to 20^h ($-$ 7′) : in H.F. ($\pm$ ·001) with wave 18. 22^h to 19. 0^h (+ ·003) : decrease of V.F. 17. 21^h to 23^h ($-$ ·0003) : 18. 22^h to 23^h ($-$ ·0003).

24. 12^h to 26. 6^h Fluctuations in Dec. ($\pm$ 3′) with waves 25. $2\frac{1}{4}^h$ to $3\frac{1}{2}^h$ (+ 10′), 25. $15\frac{1}{4}^h$ to 17^h (sharp) ($-$ 14′) : in H.F. ($\pm$ ·001), with waves 25. $2\frac{1}{4}^h$ to 4^h (+ ·002), 25. 15^h to $15\frac{1}{2}^h$ (sharp) (+ ·004). 25. $2\frac{1}{2}^h$ to 3^h Decrease of V.F. ($-$ ·0006). 25. 12^h to 26. 2^h Long irregular wave in V.F. (+ ·0012), with superposed fluctuations.

26. 13^h to 22^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. ($\pm$ ·001) : in V.F. small, followed till 28. 5^h by small rapid fluctuations in Dec., H.F., and V.F. 26. 19^h to 22^h Double wave in H.F. (+ ·002) and ($-$ ·003). 26. 20^h to 21^h Increase of V.F. (+ ·0004).

28. 12^h to 21^h Fluctuations in Dec. ($\pm$ 3′), with wave $17\frac{1}{2}^h$ to $19\frac{1}{2}^h$ (+ 10′) : in H.F. ($\pm$ ·001) : in V.F. small.

29. 8^h to 30. 1^h Fluctuations in Dec. ($\pm$ 5′), with wave 29. 16^h to 18^h ($-$ 15′) : in H.F. ($\pm$ ·002), with sharp wave $18\frac{1}{2}^h$ to 19^h (+ ·004), followed till 30. 19^h by small and occasionally sharp fluctuations in both Dec. and H.F. : small fluctuations in V.F.

31. 17^h to 21^h Two successive waves in Dec. ($-$ 7′) and ($-$ 8′) : small fluctuations in H.F.

November 1. 12^h to 2. 12^h. See Plate IX.

2. 12^h to 2. 19^h Small fluctuations in Dec. and H.F.

3. 2^h to 12^h Small fluctuations in Dec. and H.F. 2^h to 4^h Wave in Dec. (+ 10′). $2\frac{1}{2}^h$ to 3^h Wave in H.F. (+ ·002). 2^h to 9^h Long wave in V.F. ($-$ ·0007).

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

4. 20^h to 21^h Irregular wave in Dec. ($-$ 4′).

5. $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Wave in Dec. ($-$ 5′).

6. $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Wave in Dec. (+ 4′) : in H.F. (+ ·001).

6. 6^h to $8\frac{1}{2}^h$ Shallow wave in Dec. (+ 3′).

6. 17^h to 7. 10^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. small. 6. 21^h to 22^h Wave in Dec. ($-$ 7′) : in H.F. ($-$ ·002).

8. $1\frac{1}{2}^h$ to 3^h Wave in Dec. (+ 15′) : in H.F. (+ ·002) : in V.F. ($-$ ·0007), followed till 9. 7^h by small and occasionally rapid fluctuations in both Dec. and H.F.

9. $12\frac{1}{2}^h$ to 14^h Wave in H.F. ($-$ ·002). 18^h to 20^h Irregular wave in Dec. ($-$ 8′) : small fluctuations in H.F.

10. 12^h to 18^h Fluctuations in Dec. ($\pm$ 3′) : in H.F. small. 21^h to $23\frac{1}{2}^h$ Wave in Dec. ($-$ 8′) : in H.F. (+ ·002).

12. 11^h to 13. 17^h Small fluctuations in Dec., H.F., and V.F. 12. $19\frac{3}{4}^h$ to $21\frac{1}{2}^h$ Wave in Dec. ($-$ 7′) : in H.F. (+ ·002) : in V.F. small.

14. 0^h to 3^h Wave in Dec. (+ 7′) : in H.F. [irregular] (+ ·0015) : decrease of V.F. ($-$ ·0003).

14. 18^h to 19^h Wave in Dec. ($-$ 4′) : small fluctuations in H.F.

14. $21\frac{1}{2}^h$ to 15. 0^h Wave in Dec. ($-$ 8′) : in H.F. (+ ·0015).

16. 19^h to 17. 0^h Two successive waves in Dec. ($-$ 5′) and ($-$8′) : small fluctuations in H.F.

1893.

November 17. 20^h to 18. 3^h Long irregular wave in Dec. (− 15′), with small superposed fluctuations : fluctuations in H.F. (± ·001) : in V.F. small.

22. $5\frac{3}{4}^h$ Slight sudden increase of Dec. and H.F.

22. 18^h to 23. 0^h Small fluctuations in Dec. : in H.F. (± ·001).

24. $22\frac{1}{2}^h$ to 25. 3^h Irregular wave in Dec. (− 13′). 24. 22^h to 25. 0^h Wave in H.F. (+ ·002).

25. 23^h to 26. 2^h Fluctuations in Dec. (± 3′) : in H.F. (± ·001).

26. 21^h to 22^h Wave in Dec. (− 7′).

27. 12^h to 29. 4^h Frequent small rapid fluctuations in Dec. and H.F., with several positive and negative waves to small extent. 27. 21^h to 22^h Decrease of V.F. (− ·0005).

29. 15^h to 30. 22^h Fluctuations in Dec. (± ·003), with waves 29. 15^h to 16^h (− 9′), 29. $23\frac{1}{2}^h$ to 30. 1^h (− 7′) : in H.F. (± ·001), with waves 30. 14^h to 15^h (− ·002), 30. 20^h to 21^h (+ ·002) : small fluctuations in V.F.

December 1. 2^h to 4^h Irregular wave in Dec. (+ 6′). 17^h to 20^h Irregular wave in Dec. (− 9′), with small superposed fluctuations : small fluctuations in H.F. and V.F.

4. 22^h to 5. 12^h Minor fluctuations in Dec. and H.F.

5. 12^h to 6. 12^h. See Plate X.

6. 12^h to 23^h Very small rapid fluctuations in Dec. and H.F. 20^h to 21^h Wave in Dec. (− 7′).

8. 10^h to 10. 5^h Small fluctuations in Dec. and H.F., with waves 8. 16^h to 18^h in Dec. (− 8′), in H.F. (− ·002) : 8. 21^h to $22\frac{1}{2}^h$ in Dec. (− 8′), in H.F. (+ ·002): 9. 0^h to 3^h in Dec. (+ 8′), in H.F. (+ ·0015). 9. 0^h to 2^h Decrease of V.F. (− ·0005).

11. 20^h to 12. 2^h Small fluctuations in Dec. and H.F.

15. 15^h to 19^h Small fluctuations in Dec. and H.F.

15. $23\frac{3}{4}^h$ to 16. 1^h Wave in H.F. (+ ·0012).

19. 0^h to 2^h Small fluctuations in Dec. and H.F.

24. 8^h to 25. 3^h Fluctuations in Dec. (± 5′) : in H.F. small. 24. 16^h to 25. 3^h Long irregular wave in Dec. (− 13′), with superposed fluctuations (± 5′) : several irregular waves in H.F. (+ ·001) and (− ·001). 24. 18^h to 25. 3^h Long irregular wave in V.F. (− ·001), with small superposed fluctuations.

25. 11^h to 21^h Small fluctuations in Dec., with waves $15\frac{1}{2}^h$ to $17\frac{1}{2}^h$ (− 8′), $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ (− 5′) : small fluctuations in H.F. and V.F.

26. 19^h to 27. 19^h Fluctuations in Dec., with wave 27. $16\frac{1}{2}^h$ to 18^h (− 8′) : in H.F. small, with wave 27. $16\frac{1}{4}^h$ to $17\frac{1}{2}^h$ (− ·002) : petty irregularities in V.F.

28. 1^h to 29. 1^h Small fluctuations in Dec. : in H.F. (± ·001) : in V.F. small.

29. 23^h to 30. 7^h Long irregular wave in Dec. (− 15′), with superposed fluctuations (± 4′) : fluctuations in H.F. (± ·0015) : irregular wave in V.F. (− ·0005), with small superposed fluctuations.

30. 12^h to 23^h Small rapid fluctuations in Dec. and H.F.

EXPLANATION OF THE PLATES.

The magnetic motions figured on the Plates are—

(1.) Those for days of great disturbance—April 26–27, July 15–16, August 7, 18, November 1–2.

(2.) Those for days of lesser disturbance—January 5–6, 21–22, February 4–5, 5–6, March 14–15, 25, 26–27, June 9–10, 18–19, 19–20, July 21–22, August 6, September 8, 9, 26–27, 29–30, 30–October 1, November 3–4, December 5–6.

(3.) Those for four quiet days, January 17, April 21, August 17, November 20, 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 $0^{in}\cdot81 = 20\cdot5^{mm.}$ in the declination curve, by $0^{in}\cdot75 = 18\cdot9^{mm.}$ in the horizontal force curve, and by $0^{in}\cdot81 = 20\cdot5^{mm.}$ in the vertical force curve.

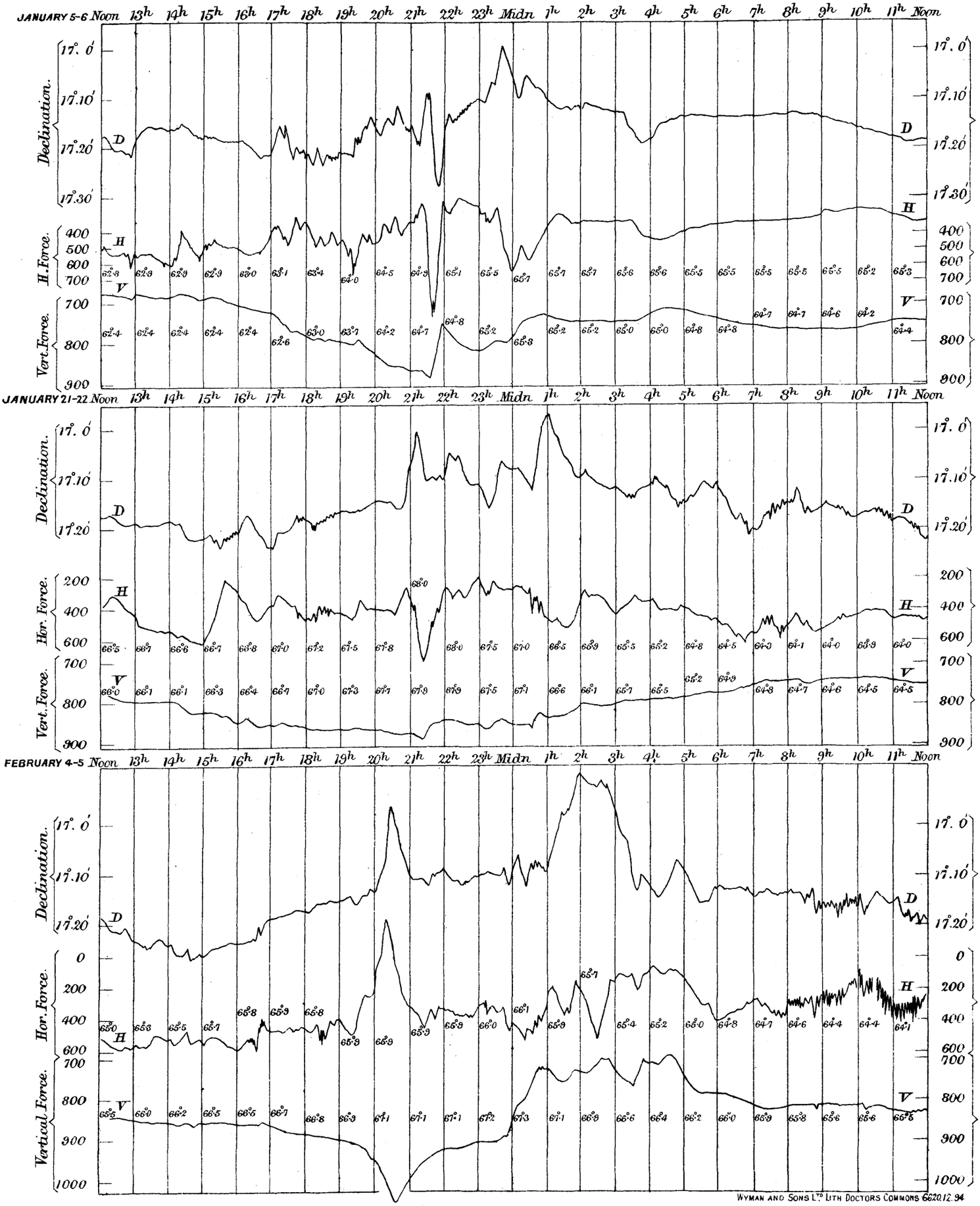
Downward motion indicates increase of declination and of horizontal and vertical force.

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.

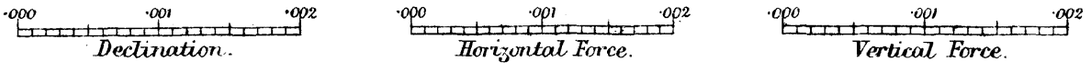
The temperatures (Fahrenheit) of the horizontal and vertical force magnets at each hour are given in small figures on the Diagrams.

Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.

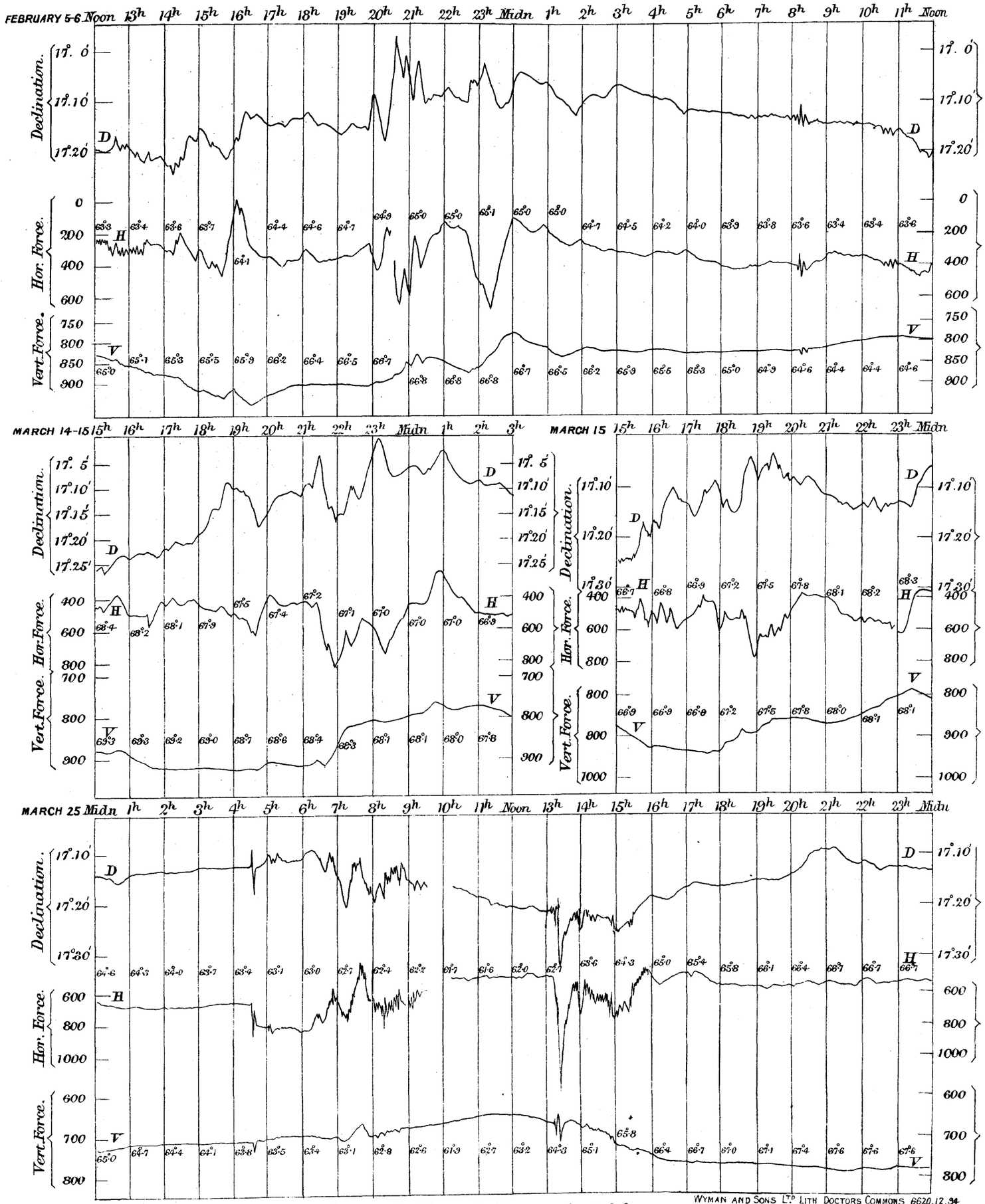


WYMAN AND SONS L.TD LITH DOCTORS COMMONS 6620.12.94

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



Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.

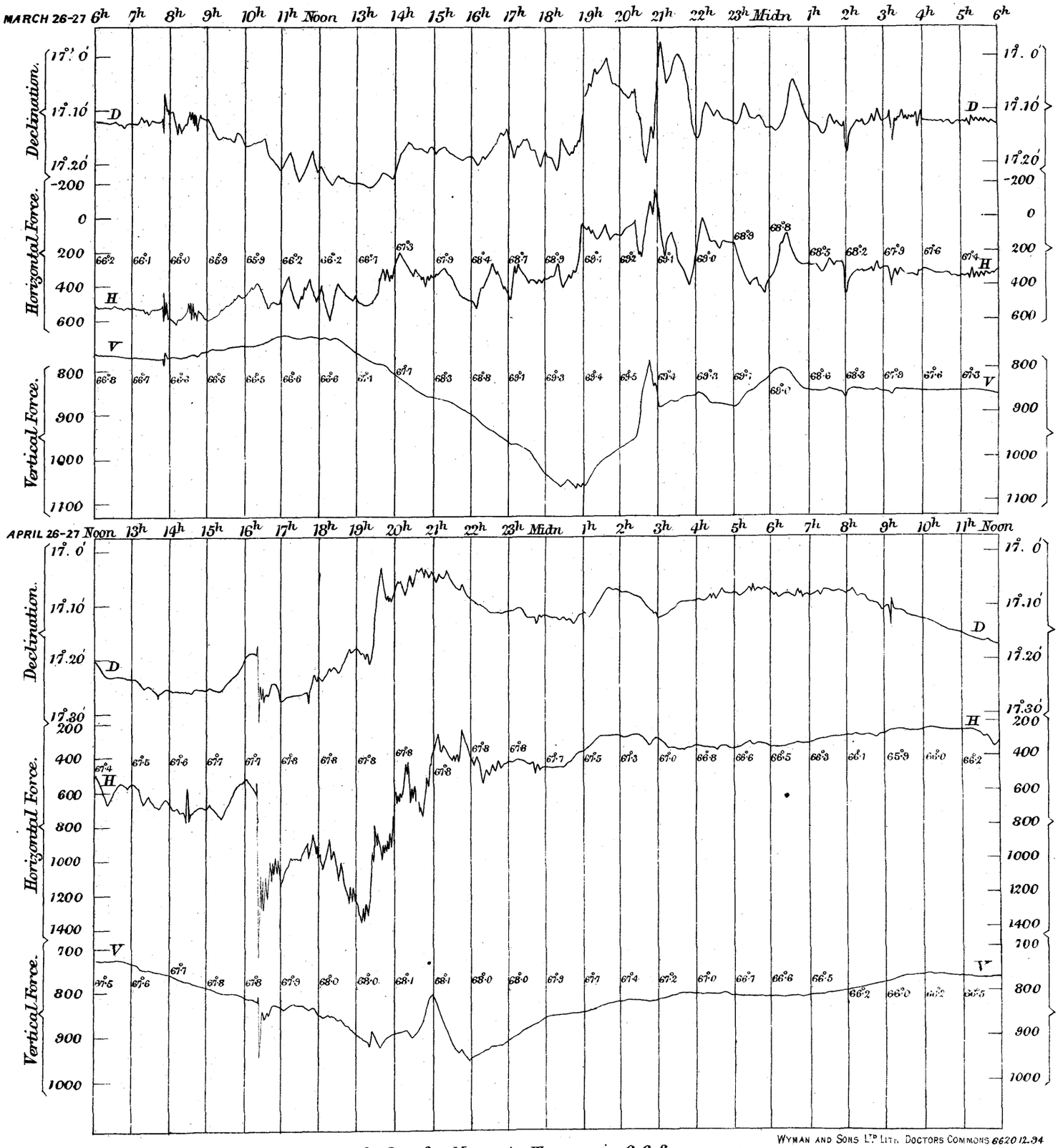


Scales for Magnetic Elements in C.G.S. measure.

Declination. Horizontal Force. Vertical Force.

WYMAN AND SONS LTD LITH DOCTORS COMMONS 6620.12.94

Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.



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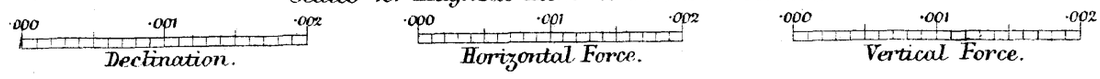
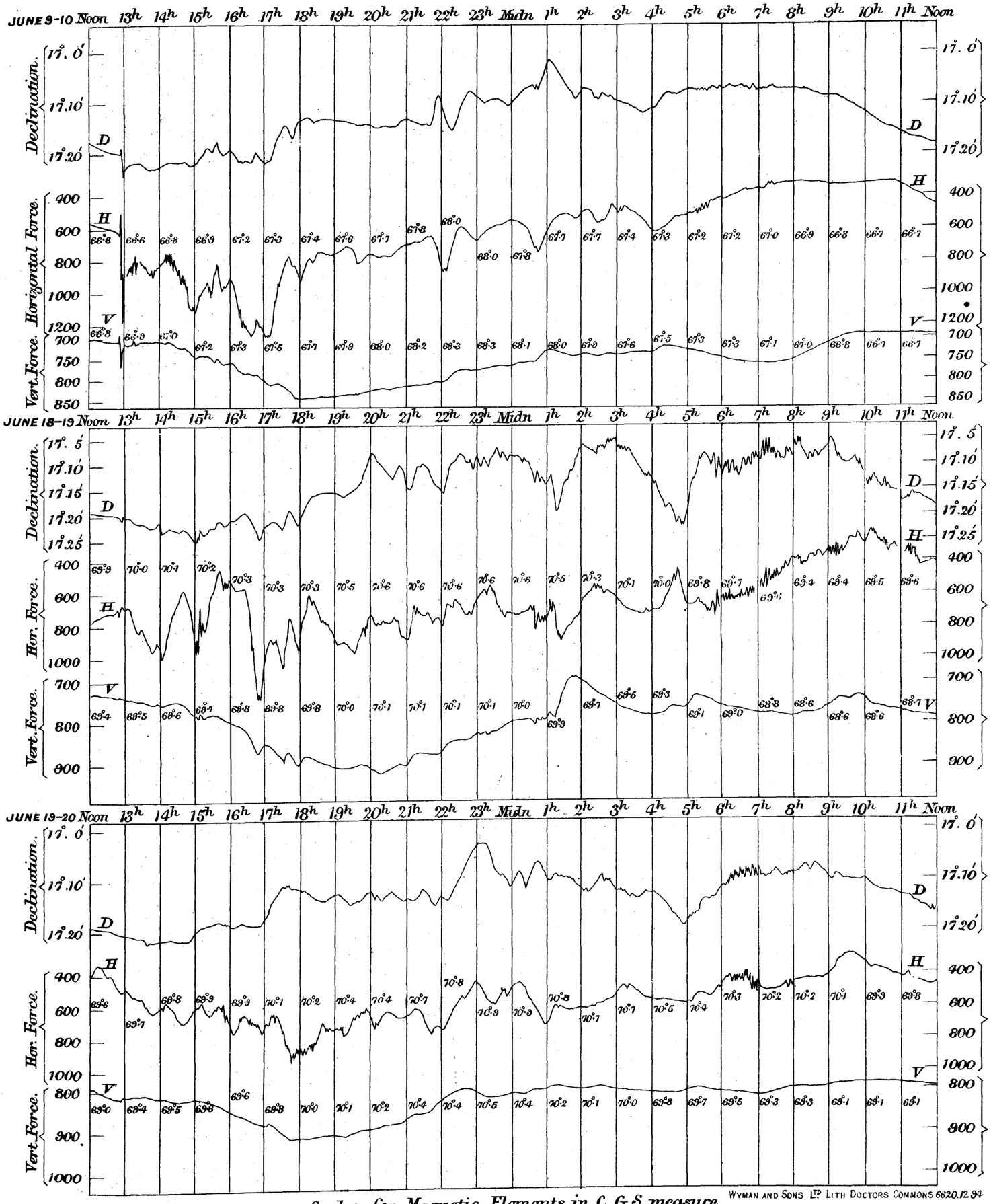
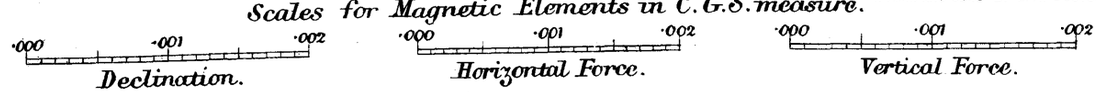
Scales for Magnetic Elements in C.G.S. measure.



Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.



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



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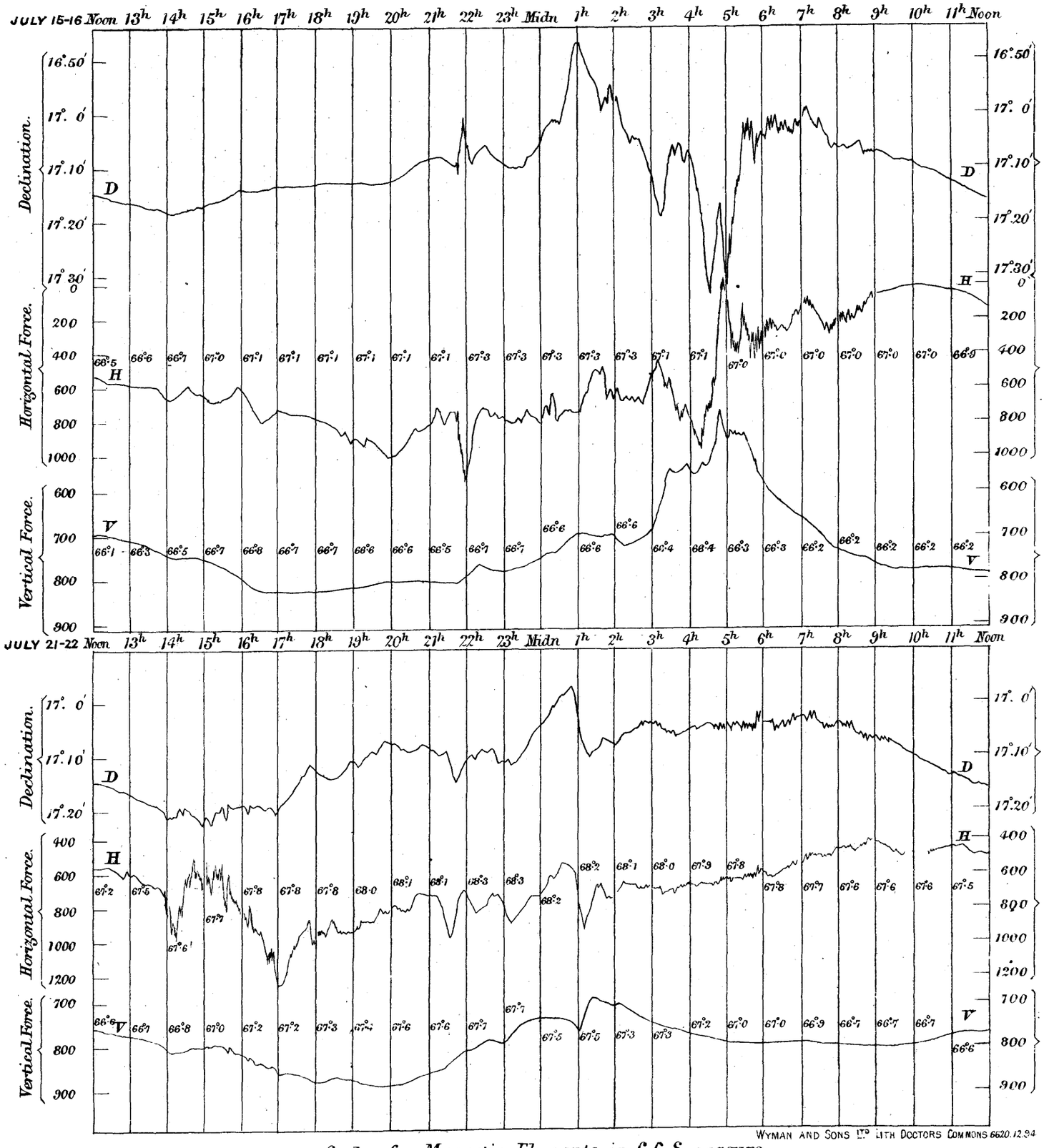
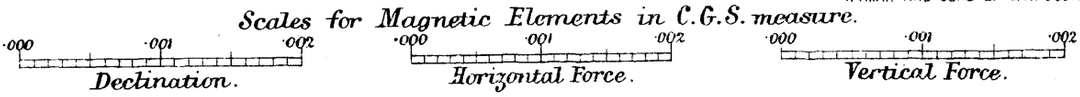
Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.

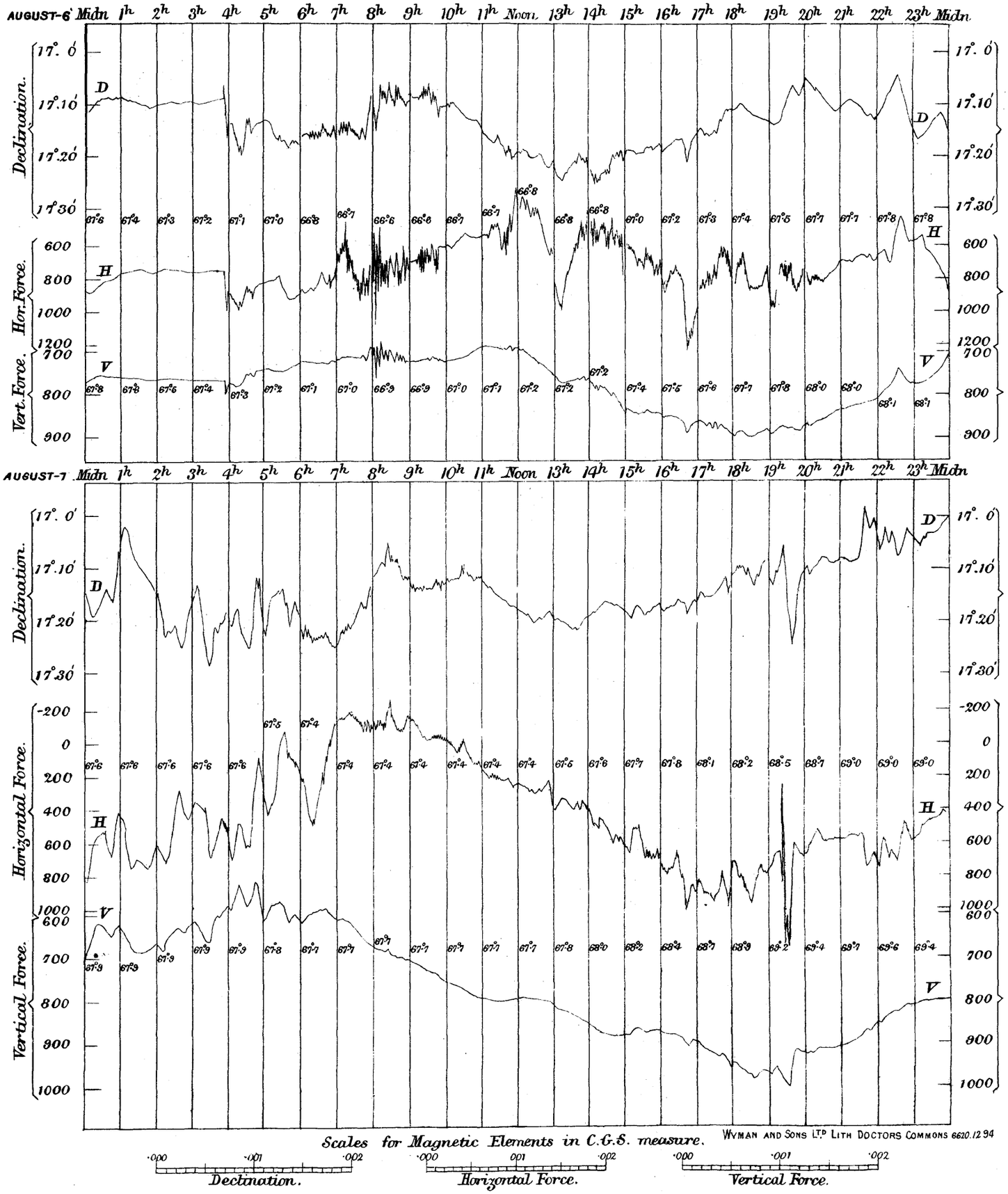


WYMAN AND SONS LTD LITH DOCTORS COMMONS 6620.12.94

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



Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.



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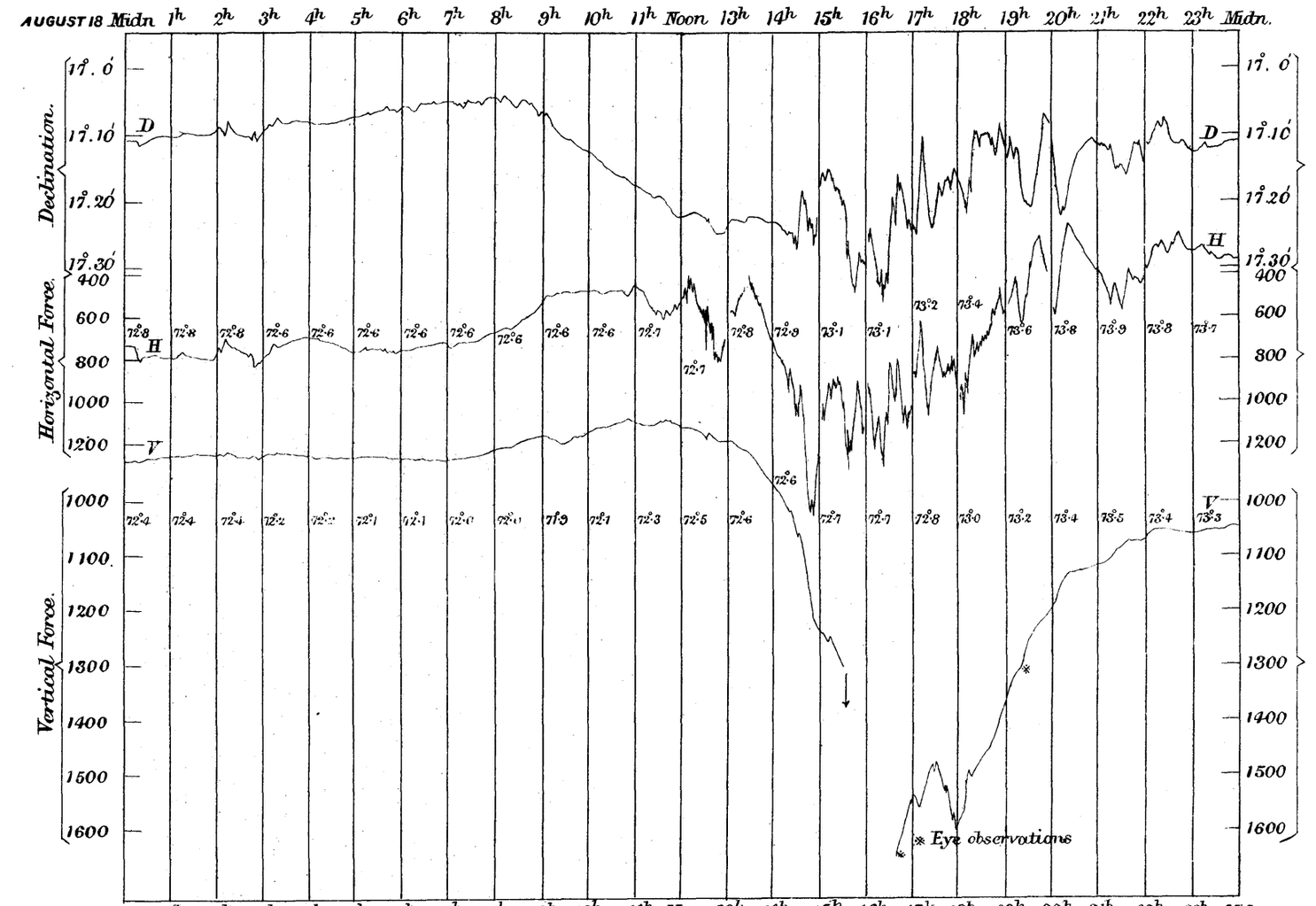
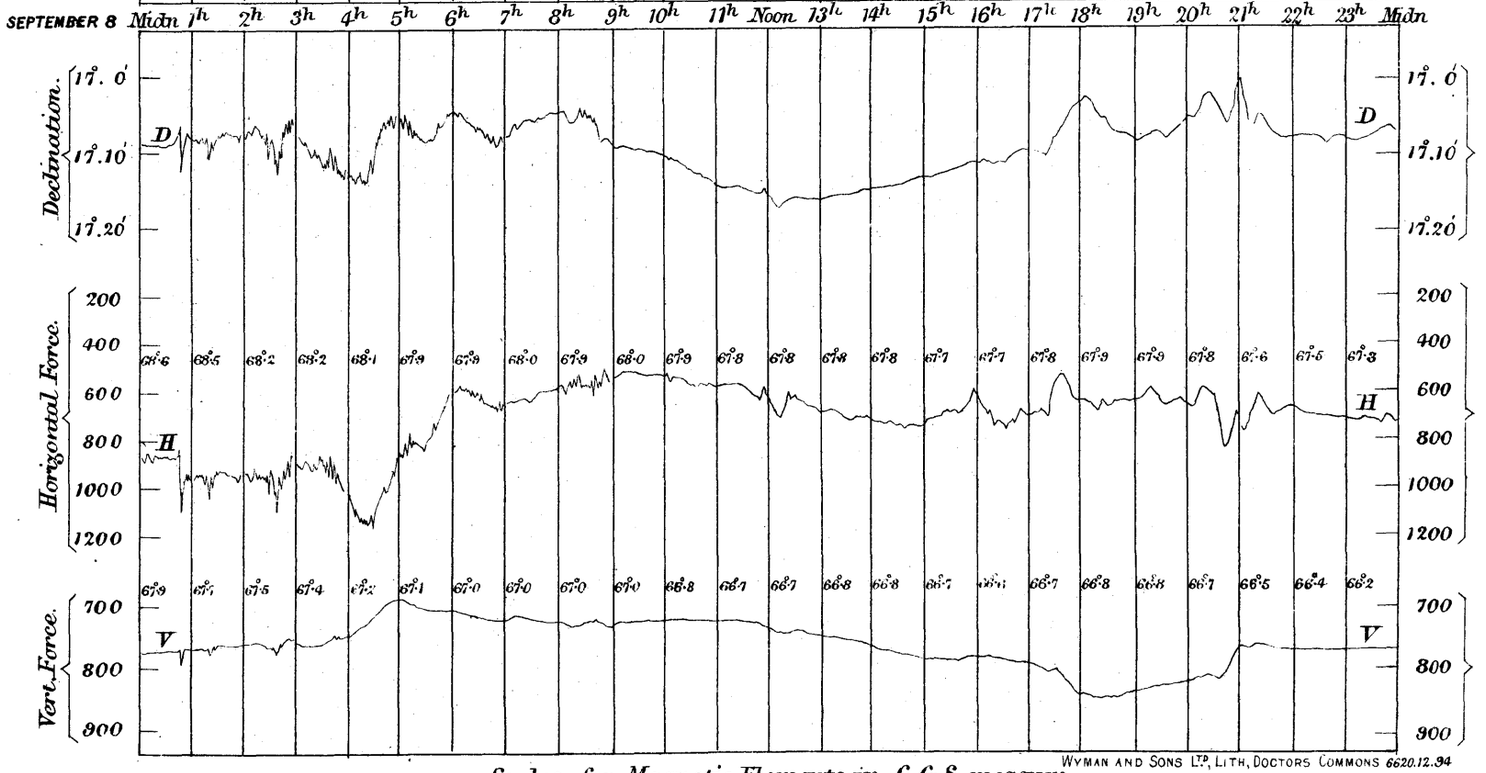
Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.





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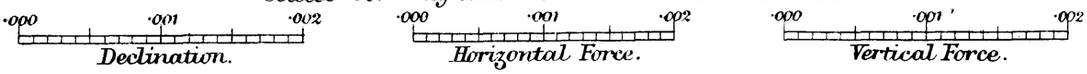
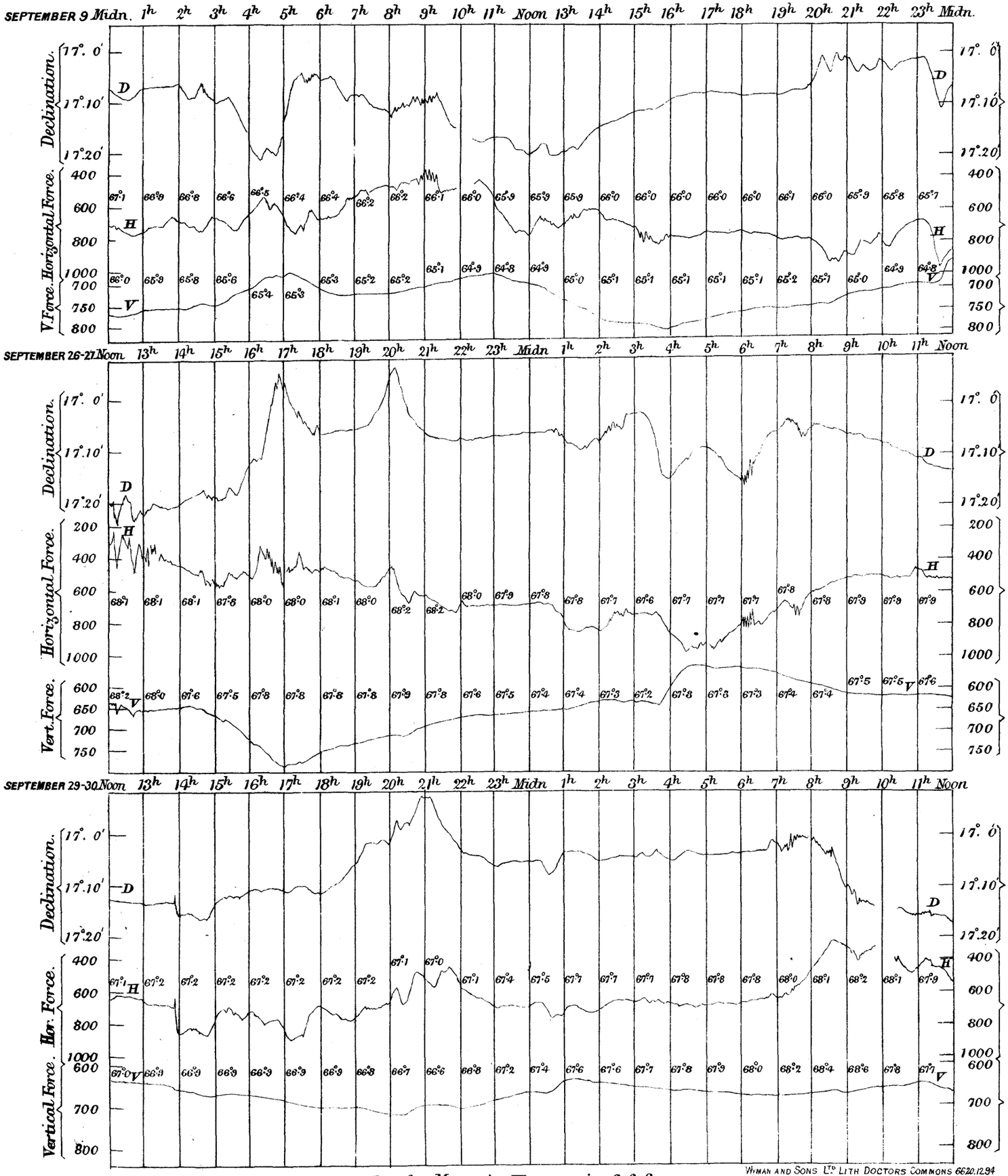
Scales for Magnetic Elements in C.G.S. measure.



Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.



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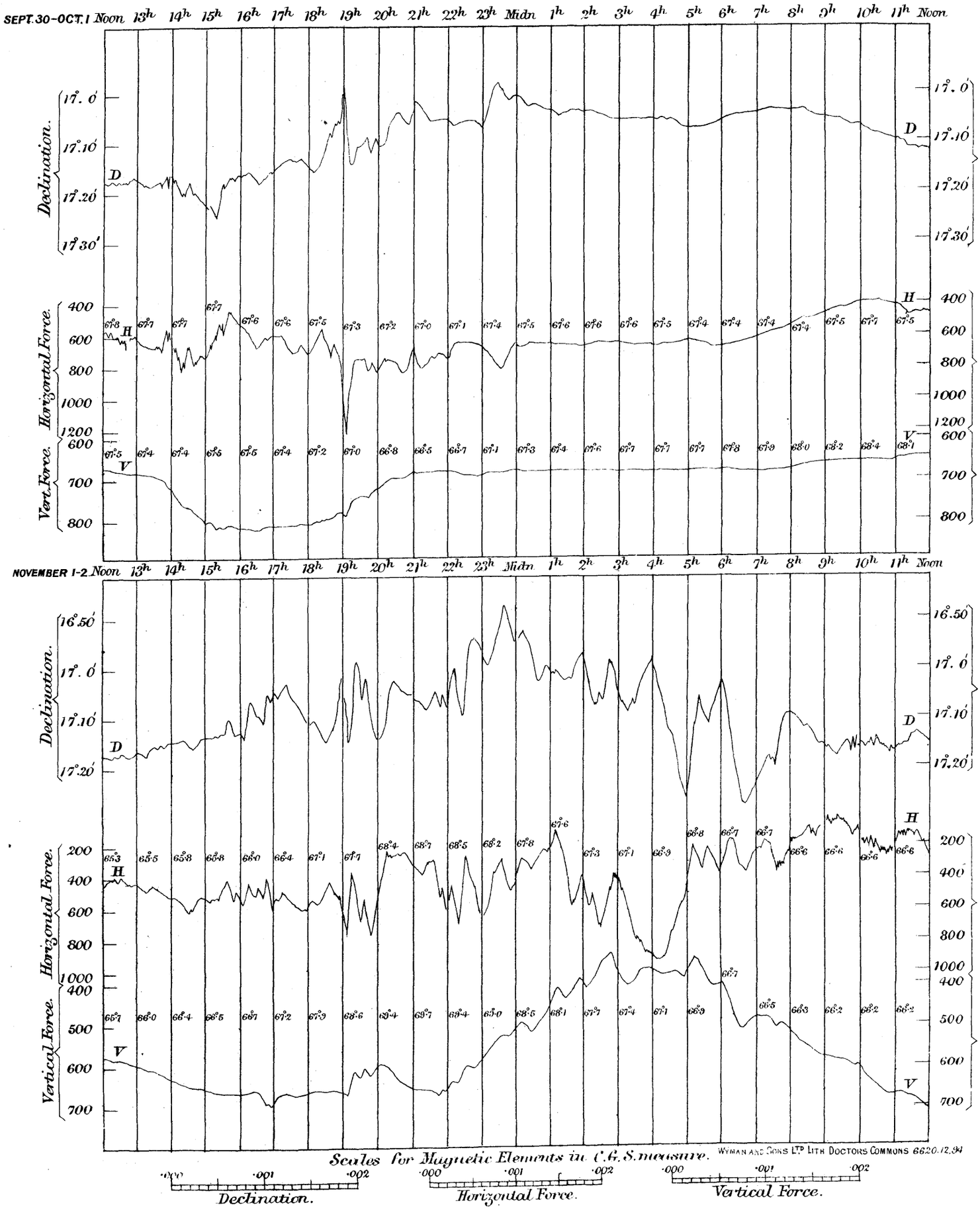
Scales for Magnetic Elements in C.G.S. measure.

·000 ·001 ·002 *Declination.*

·000 ·001 ·002 *Horizontal Force.*

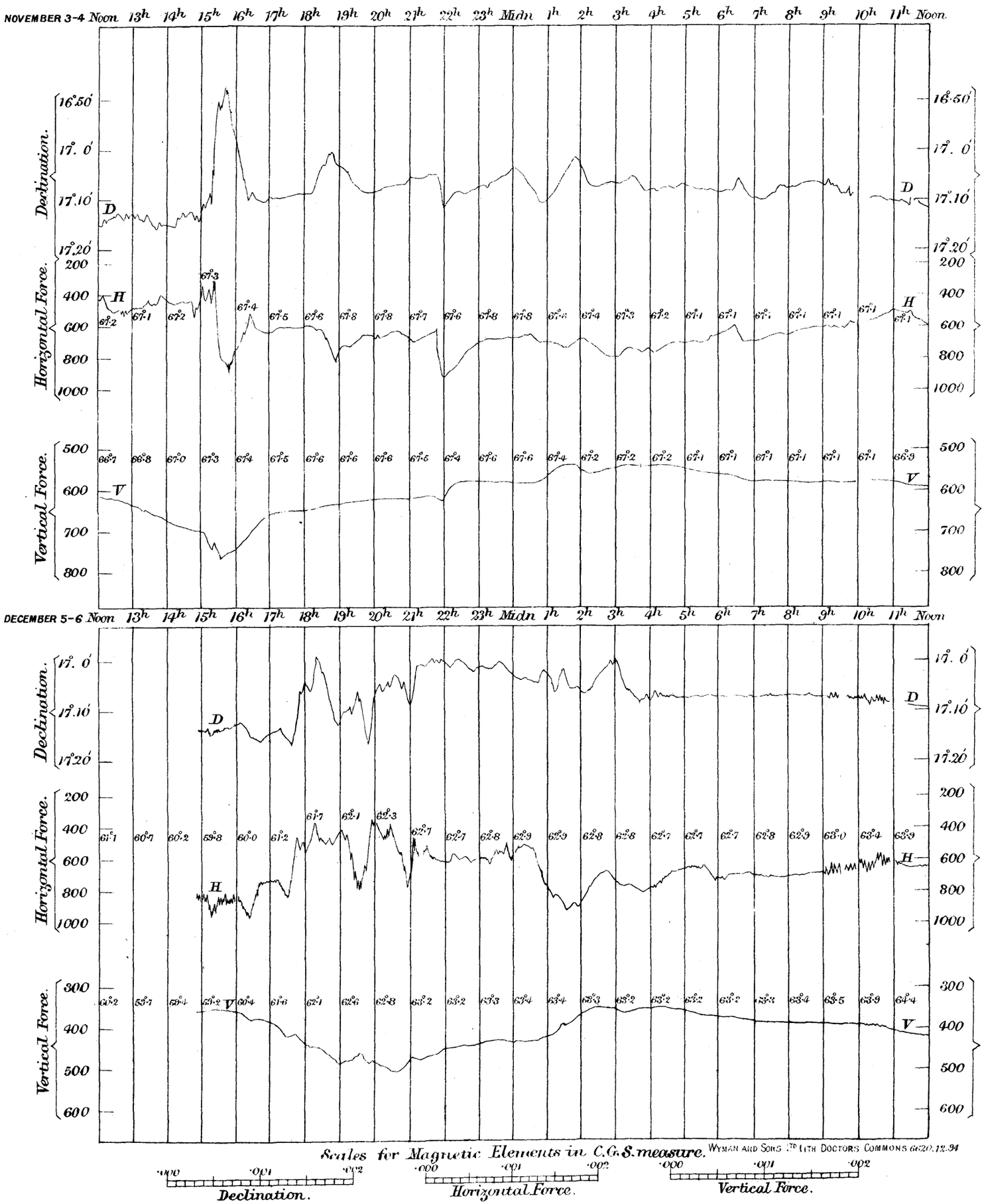
·000 ·001 ·002 *Vertical Force.*

Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.



WYMAN AND SONS LTD LITH DOCTORS COMMONS 6620.12.94

Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1893.



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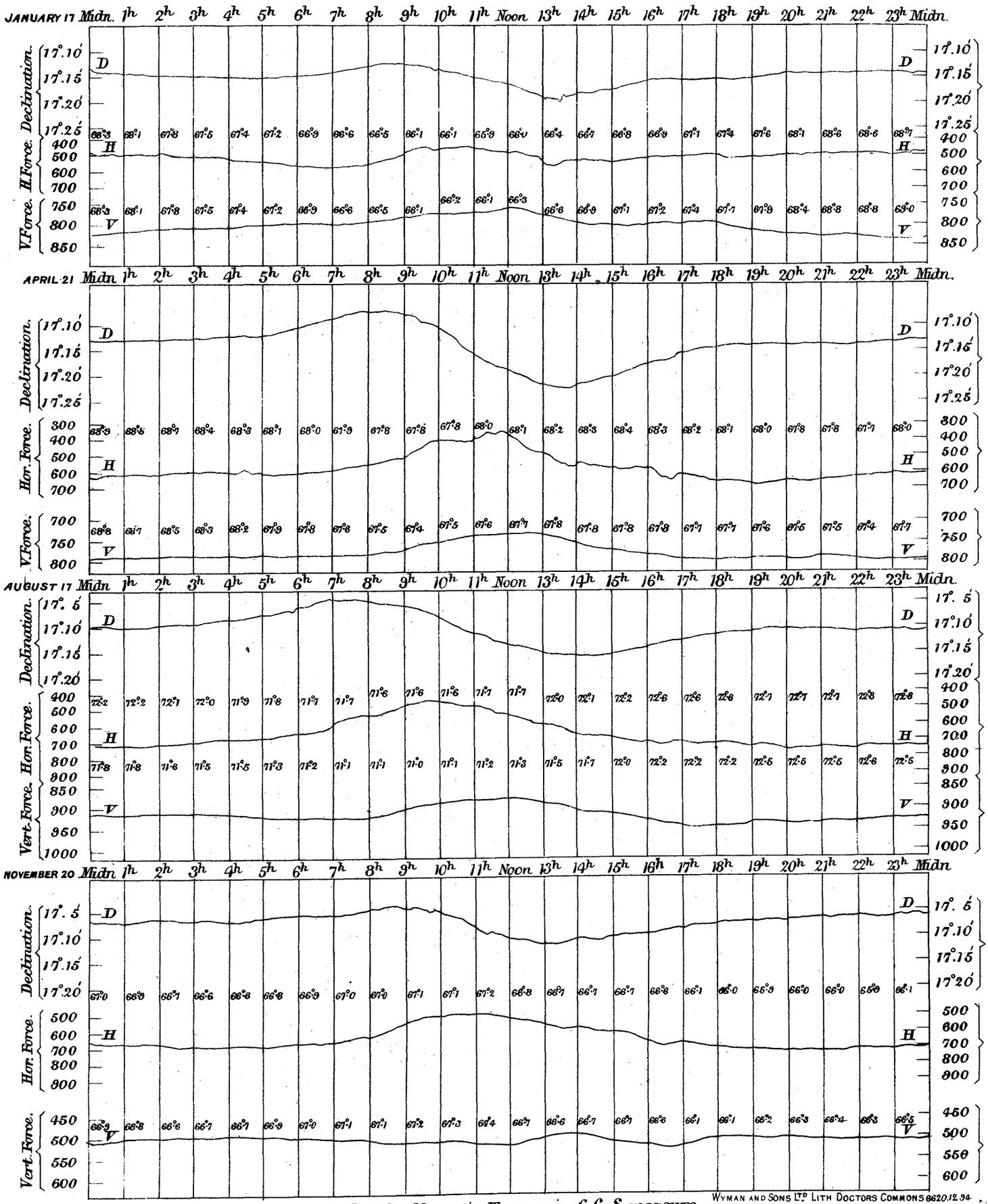
Types of Magnetic Diurnal Variations at four seasons of the year recorded at the Royal Observatory, Greenwich, 1893.



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

Declination. ·000 ·001 ·002

Horizontal Force. ·000 ·001 ·002

Vertical Force. ·000 ·001 ·002

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ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

METEOROLOGICAL OBSERVATIONS.

1893.

MONTH and DAY, 1893.	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	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Jan. 1	...	29·720	29·4	19·0	10·4	26·4	−12·1	25·7	22·4	4·0	12·7	0·0	85	39·8	18·0	0·040	0·0	mP : sP
2	Greatest Dec. N.: Full	29·826	27·6	19·5	8·1	24·0	−14·5	23·2	18·5	5·5	11·9	0·0	78	44·3	17·9	0·000	0·2	sP : ... : ...
3	...	29·994	30·9	18·2	12·7	25·8	−12·7	24·9	20·3	5·5	9·2	1·2	79	45·5	16·6	0·009	0·8	... : mP : vP
4	...	30·211	28·7	17·9	10·8	22·0	−16·4	21·9	21·3	0·7	5·1	0·0	97	28·7	14·0	0·000	0·0	mP : ... : ...
5	...	30·209	26·3	13·9	12·4	21·7	−16·6	21·6	20·9	0·6	3·8	0·0	96	27·4	13·9	0·000	0·0	... : sP : vP, wN
6	...	30·005	31·6	26·3	5·3	29·0	− 9·2	28·0	24·4	4·6	8·8	2·2	82	45·1	25·0	0·000	3·0	sP : mP : vP
7	...	29·706	32·7	26·5	6·2	29·3	− 8·8	28·6	26·3	3·0	5·5	0·7	88	35·0	26·5	0·046	0·0	mP
8	In Equator	29·554	34·0	32·4	1·6	32·9	− 5·1	32·3	31·2	1·7	3·2	0·6	94	36·7	31·0	0·171	2·0	wP : vN : mP
9	Last Quarter	29·576	37·4	34·0	3·4	35·0	− 2·9	34·8	34·5	0·5	1·9	0·0	98	38·1	32·0	0·321	0·0	... : wN, wP
10	...	29·850	40·1	32·7	7·4	34·9	− 3·0	33·6	31·6	3·3	5·0	1·6	87	52·8	30·0	0·000	0·0	vP : mP
11	...	30·089	36·6	30·7	5·9	33·6	− 4·3	31·7	28·3	5·3	8·3	0·8	80	41·8	27·4	0·000	1·2	mP : mP : vP, wN
12	Apogee	30·019	35·8	33·2	2·6	34·6	− 3·3	33·9	32·8	1·8	3·1	1·0	93	38·3	30·9	0·047	0·8	wP : vP : wP, wN
13	...	29·869	39·4	33·3	6·1	37·0	− 1·0	35·3	32·9	4·1	6·4	1·3	85	44·0	31·9	0·012	0·0	mP, wN : mP, wwN
14	...	29·572	38·0	32·0	6·0	35·3	− 2·9	33·5	30·7	4·6	8·2	1·0	83	39·0	29·0	0·000	0·0	mP : sP : mP
15	...	29·967	32·0	23·0	9·0	28·4	− 9·9	26·8	20·7	7·7	10·2	2·0	71	49·3	19·0	0·003	1·0	mP, wwN : sP : vP
16	Greatest Declination S.	29·677	38·8	23·3	15·5	31·6	− 6·9	30·5	27·9	3·7	12·6	0·2	85	38·8	19·0	0·229	1·2	vP : vP, vN
17	...	29·716	37·5	28·6	8·9	31·7	− 6·8	31·0	29·4	2·3	3·4	1·0	91	37·5	28·6	0·074	3·8	wP, wN : vP, wN : vP
18	New	30·024	44·1	27·1	17·0	36·8	− 1·7	36·1	35·1	1·7	4·4	0·0	94	44·1	24·1	0·149	0·0	mP, wN : vN, vP : mP
19	...	30·235	41·2	36·7	4·5	39·4	+ 0·9	38·7	37·8	1·6	3·0	1·0	94	43·0	31·8	0·002	0·0	mP
20	...	30·196	42·1	37·0	5·1	39·4	+ 1·0	37·5	35·0	4·4	9·2	0·0	85	46·2	31·2	0·000	0·0	wP : mP
21	...	30·219	42·3	34·0	8·3	39·0	+ 0·7	36·5	33·2	5·8	8·6	3·1	80	48·3	29·9	0·004	0·0	mP
22	...	30·102	44·1	35·0	9·1	41·7	+ 3·4	40·3	38·6	3·1	4·4	0·5	89	45·0	33·5	0·034	0·2	vP, vN : vP, wN
23	In Equator	29·931	49·7	40·8	8·9	46·0	+ 7·6	44·0	41·7	4·3	5·3	2·6	86	50·7	34·8	0·000	0·8	mP
24	...	29·963	47·3	43·1	4·2	45·6	+ 7·1	43·7	41·5	4·1	5·5	2·6	86	51·3	38·5	0·000	0·0	wP : mP
25	First Quarter	29·981	45·0	35·6	9·4	40·4	+ 1·6	39·6	38·6	1·8	3·7	0·5	94	49·0	33·1	0·000	0·2	wP : mP
26	...	29·736	45·6	37·5	8·1	42·7	+ 3·7	41·5	40·1	2·6	4·6	0·7	90	51·0	35·8	0·161	0·8	wP : vP, vN
27	...	29·819	40·4	31·6	8·8	35·3	− 4·0	34·9	34·3	1·0	2·4	0·0	96	45·7	28·9	0·003	0·5	wP : mP
28	Perigee	29·631	44·5	36·2	8·3	39·7	+ 0·2	38·0	35·8	3·9	9·7	0·5	86	79·0	31·2	0·006	8·2	wP : mP
29	Greatest Declination N.	29·400	50·3	41·0	9·3	46·4	+ 6·7	44·6	42·6	3·8	6·9	1·3	87	58·0	37·0	0·108	7·3	wP, wwN
30	...	29·834	51·4	40·1	11·3	46·1	+ 6·3	44·5	42·7	3·4	5·9	1·3	89	65·1	36·9	0·000	1·7	wP : mP
31	...	29·785	52·2	45·9	6·3	48·8	+ 9·0	47·2	45·4	3·4	6·4	1·3	89	61·8	43·1	0·027	6·5	wwP : wP
Means	...	29·884	39·3	31·2	8·1	35·5	− 3·0	34·3	32·1	3·3	6·4	0·9	87·6	45·7	28·4	Sum 1·446	1·3	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 29in·884, being 0in·106 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 52°·2 on January 31 ; the lowest in the month was 13°·9 on January 5 ; and the range was 38°·3.
The mean of all the highest daily readings in the month was 39°·3, being 3°·8 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 31°·2, being 2°·4 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 8°·1, being 1°·4 *less* than the average for the 50 years, 1841–1890.
The mean of the month was 35°·5, being 3°·0 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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	0·3	7·9	E : NE	N : NNE	2·5	0·0	0·15	235	10, sn : 10, sn, glm	4, li.-cl : 1, li.-cl
2	1·4	7·9	NNW : N	NNE : N : WSW	2·8	0·0	0·30	304	0 : v, li.-cl : v, cu.-s, li.-cl, slt.-sn	1. cu.-s, li.-cl : 0 : v
3	0·0	7·9	WSW	SW : WSW	1·0	0·0	0·03	237	v, li.-cl : 3, li.-cl : 10, sn	v, oc.-sn : p.-cl : 0, h, slt.-f, fr
4	0·0	7·9	SW	N : NW	0·0	0·0	0·00	72	p.-cl : f : 10, f	0, slt.-f : 0, f : 0, slt.-f, ho.-fr
5	0·0	7·9	NNW : WSW : Calm	Calm	0·0	0·0	0·00	43	f, ho.-fr : 10, f	10, f : v, f : 10, f
6	0·2	8·0	E	E : ESE	0·5	0·0	0·02	165	10, slt.-f, sn : 10 : 10, oc.-sn	10 : 10
7	0·0	8·0	E	ENE	1·0	0·0	0·03	210	10, sn : 10	10 : 10
8	0·0	8·0	ENE	E	1·6	0·0	0·09	249	10 : 10 : 10, th.-r	10, oc.-th.-r : 10, oc.-m.-r
9	0·0	8·1	ENE	NE	0·3	0·0	0·01	229	10, f : 10, f : 10, slt.-f, oc.-th.-r	10, c.-r : 10, c.-r
10	1·0	8·1	NE	NE	1·8	0·0	0·19	349	10 : 10 : 8, cu.-s, li.-cl	5, ci.-cu, cu.-s, li.-cl : v : 10
11	3·1	8·1	NE : NNE	NE : N	1·4	0·0	0·10	263	10 : p.-cl : v, sn	2, li.-cl : 10 : 10, m.-r, sn, slt.-f
12	0·0	8·2	N : NE	Variable	2·1	0·0	0·11	192	10 : 10, slt.-f	10 : 10, slt.-r : 10, sl, shs.-r, tk.-f
13	0·0	8·2	NW : W	W : NW	1·8	0·0	0·16	283	10, slt.-shs : 10, slt.-f : 10, glm	2, li.-cl : 10, oc.-slt.-r
14	0·0	8·2	W : NW	N : NNE	7·5	0·0	0·30	326	10 : 10, glm : 10	9, th.-cl, so.-ha : v : 10, w
15	3·0	8·3	N : NNE	N : NNW : SSW	4·5	0·0	0·82	376	10, w : 10, slt.-sn : 4, li.-cl	v, li.-cl : 0
16	0·0	8·3	SSW	SSW : NNW	2·1	0·0	0·26	315	10 : 10, sn	10, th.-r, sn, hl : 10, fq.-r : v, th.-r
17	0·0	8·3	SE	SSE : NNW : WSW	0·6	0·0	0·02	138	10, sh.-r : 10, fr : 10, fr.-r	10, sn, fr.-r : 10 : 10, slt.-sn
18	0·0	8·4	W : WSW	NNW : WSW	1·3	0·0	0·06	222	p.-cl, fr : 10, r	10 : 0
19	0·0	8·4	WSW	SW	0·0	0·0	0·00	163	10 : 10, f, glm	10 : 10 : v
20	0·0	8·5	SW : WSW : NW	NW : WSW : WNW	2·0	0·0	0·10	287	p.-cl, f : 10, slt.-f	4, li.-cl : 3, li.-cl
21	0·0	8·5	WSW : WNW	NW : N	10·9	0·0	0·79	431	p.-cl : 8, li.-cl, w	10, w : 10, slt.-r
22	0·0	8·6	SE : SW : WNW	WNW : WSW	1·4	0·0	0·14	288	10, slt.-r : 10	10, oc.-slt.-r : 10 : 10
23	0·0	8·6	SW : W : WNW	WNW : WSW	3·0	0·0	0·28	346	10 : 10, slt.-r	10, li.-sc, oc.-slt.-r : 10 : 10
24	0·0	8·7	SW	SW	2·7	0·0	0·27	361	10 : 10	10 : p.-cl : 9, cu, ci.-cu
25	0·0	8·7	WSW	SW : S	1·8	0·0	0·05	190	p.-cl : 10, slt.-f, glm	10 : 10
26	0·0	8·8	SSE : SSW	S : SSW : N	2·7	0·0	0·34	356	10 : 10, sc, fq.-th.-r	10, fq.-r : 10, hy.-r
27	0·3	8·8	NNW : NW : SW	ESE	1·7	0·0	0·04	156	10, slt.-r : 0, ho.-fr : 0, tk.-f	0, tk.-f : 0, slt.-f : 10
28	4·2	8·9	SE : SSE	SSE	3·4	0·0	0·35	312	10 : 5, cu.-s, li.-cl	p.-cl : 10 : 10
29	0·0	8·9	S	SSW : WSW	5·6	0·0	1·09	495	10, oc.-r, w : 10, sc, fq.-th.-r, w	10, th.-r, w : 0
30	0·1	9·0	SW : SSW	SSW	6·2	0·0	0·34	377	0 : 10, slt.-f : 9, cu.-s, li.-cl	10 : 10, oc.-slt.-r
31	0·0	9·0	SSW : SW	SW : SSW	5·9	0·0	0·66	420	10, sh.-r, w : 10, li.-sc	10, th.-cl : 10, th.-cl
Means	0·4	8·4	...	...	...	...	0·23	271		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 34°·3, being 2°·9 *lower* than
The mean *Temperature of the Dew Point* for the month was 32°·1, being 3°·3 *lower* than
The mean *Degree of Humidity* for the month was 87·6, being 1·2 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·182, being 0in·025 *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 559 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 7·9.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·052. The maximum daily amount of *Sunshine* was 4·2 hours on January 28.

The highest reading of the *Solar Radiation Thermometer* was 79°·0 on January 28; and the lowest reading of the *Terrestrial Radiation Thermometer* was 13°·9 on January 5.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 0·8; for the 6 hours ending 15h. was 0·3; and for the 6 hours ending 21h. was 0·2.

The *Proportions of Wind* referred to the cardinal points were N. 7, E. 5, S. 8, and W. 10. One day was calm.

The *Greatest Pressure of the Wind* in the month was 10·9 lbs. on the square foot on January 21. The mean daily *Horizontal Movement of the Air* for the month was 271 miles; the greatest daily value was 495 miles on January 29; and the least daily value was 43 miles on January 5.

Rain fell on 15 days in the month, amounting to 1in·446, as measured by gauge No. 6 partly sunk below the ground; being 0in·543 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Feb. 1	Full	29·714	47·4	39·8	7·6	44·7	+ 5·0	42·3	39·5	5·2	10·5	0·6	82	63·9	35·2	0·218	4·0	wwP, wwN : wP : vP, vN
2	...	29·811	54·2	39·8	14·4	46·1	+ 6·4	45·2	44·2	1·9	7·6	1·1	94	66·2	39·0	0·125	0·8	wP, wwN
3	...	30·070	45·4	41·5	3·9	43·7	+ 4·0	43·2	42·6	1·1	1·3	0·4	96	47·2	40·0	0·060	0·2	wP, wwN
4	...	30·202	43·5	31·3	12·2	37·6	− 2·2	36·0	33·8	3·8	10·1	0·3	86	80·7	27·0	0·000	0·8	wP : mP
5	In Equator	30·236	39·5	25·4	14·1	31·9	− 7·9	31·5	30·5	1·4	7·4	0·0	94	71·0	21·6	0·000	0·0	mP
6	...	30·197	42·4	23·1	19·3	32·6	− 7·1	31·6	29·6	3·0	7·3	0·0	88	68·8	21·9	0·000	0·0	mP
7	...	30·059	52·4	38·2	14·2	45·8	+ 6·4	44·0	41·9	3·9	9·8	0·0	86	74·0	35·0	0·031	2·0	wP : mP
8	Last Quarter	29·764	48·7	34·5	14·2	43·3	+ 4·2	40·5	37·2	6·1	11·8	2·6	79	68·2	30·7	0·007	3·0	wP, wwN : wP
9	Apogee	29·635	48·1	33·6	14·5	41·6	+ 2·9	40·3	38·7	2·9	5·9	1·4	90	54·8	30·0	0·109	1·7	wP : wP, wN
10	...	29·315	51·1	40·2	10·9	45·6	+ 7·2	41·8	37·4	8·2	12·0	3·7	73	79·7	35·2	0·009	6·5	wP, wwN : vP, wwN
11	...	29·508	52·0	37·3	14·7	45·2	+ 6·9	43·4	41·3	3·9	6·4	1·5	87	60·6	35·0	0·094	5·0	wP, wwN : ...
12	Greatest Declination S.	29·578	43·8	32·2	11·6	37·6	− 0·9	35·4	32·4	5·2	10·6	2·0	82	62·1	30·0	0·034	3·8	... : wP, wN
13	...	29·558	48·8	33·4	15·4	40·9	+ 2·1	38·3	35·0	5·9	9·0	1·7	80	71·1	30·0	0·038	1·5	... : vP, vN
14	...	29·241	52·4	40·8	11·6	47·4	+ 8·2	46·0	44·5	2·9	5·2	1·1	90	62·4	36·5	0·128	5·5	wP, wN : vP, sN
15	...	29·533	49·9	36·7	13·2	44·1	+ 4·5	43·2	42·1	2·0	5·9	0·5	93	56·1	32·2	0·022	1·2	sP : vP, sN : mP
16	New	29·478	50·9	39·1	11·8	45·9	+ 6·1	43·6	41·0	4·9	8·2	2·6	83	83·3	36·0	0·005	4·5	wP : vP, vN : mP, sN
17	...	29·814	48·1	35·0	13·1	41·2	+ 1·4	39·1	36·5	4·7	11·6	0·7	84	85·1	32·0	0·047	5·0	vP, vN : mP : vP, vN
18	...	29·874	55·1	43·0	12·1	49·7	+10·0	47·7	45·6	4·1	6·6	0·8	86	71·0	39·0	0·002	6·8	wP
19	In Equator	29·629	58·8	46·1	12·7	50·2	+10·6	47·1	43·8	6·4	16·9	0·8	79	93·5	41·8	0·109	4·5	wP, vN : mP
20	...	29·378	50·3	39·0	11·3	43·7	+ 4·2	41·5	38·9	4·8	10·9	2·2	83	67·5	30·5	0·037	2·7	wP : ssN, ssP
21	Perigee	28·669	47·4	39·2	8·2	44·3	+ 4·8	43·6	42·8	1·5	2·8	0·4	95	50·6	38·1	0·517	5·3	ssN, wP : vP, ssN
22	...	28·857	39·2	34·2	5·0	37·1	− 2·5	36·4	35·4	1·7	3·5	0·7	94	41·0	34·0	0·315	0·5	ssN : vP, sN : vN, vP
23	First Quarter	29·274	35·8	31·7	4·1	33·4	− 6·4	32·2	30·0	3·4	6·5	1·3	87	45·2	31·7	0·031	2·2	vP : vP : sP
24	...	29·156	37·1	30·5	6·6	32·9	− 7·0	31·4	28·4	4·5	7·3	2·8	83	49·0	28·5	0·000	2·3	mP : sP
25	Greatest Declination N.	29·110	41·7	29·2	12·5	34·1	− 5·9	32·2	28·9	5·2	10·4	2·6	80	70·9	27·0	0·002	1·7	sP : vP
26	...	28·911	47·6	35·5	12·1	40·4	+ 0·3	38·5	36·1	4·3	6·9	2·3	85	77·0	30·0	0·477	8·8	mP, vN : ssP, ssN
27	...	29·132	42·2	35·0	7·2	37·6	− 2·5	36·2	34·3	3·3	7·8	0·2	88	57·4	31·2	0·287	1·5	wP : ssN, ssP
28	...	29·639	47·1	32·9	14·2	38·8	− 1·4	36·2	32·7	6·1	13·9	0·3	80	81·0	28·3	0·014	4·0	vP, mN : sP
Means	...	29·548	47·2	35·7	11·5	41·3	+ 1·8	39·6	37·3	4·0	8·4	1·2	86·0	66·4	32·4	Sum 2·718	3·1	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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}·548, being 0^{in}·251 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 58°·8 on February 19; the lowest in the month was 23°·1 on February 6; and the range was 35°·7.
The mean of all the highest daily readings in the month was 47°·2, being 1°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 35°·7, being 1°·4 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 11°·5, being 0°·5 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 41°·3, being 1°·8 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.		
Feb. 1	2·2	9·1	SSW : SW : WSW	WNW : W : SW	16·0	0·0	1·52	535	10, r : 10, st.-w	2, cu.-s, li.-cl, st.-w : 1, li.-cl : 10, r
2	0·0	9·2	SW : WSW	WSW : NW : W	16·6	0·0	1·14	410	10, oc.-slt.-r : 10, r, st.-w	10, st.-w, oc.-slt.-r : 10, oc.-slt.-r
3	0·0	9·2	SSW : SE	SSE : ESE	0·3	0·0	0·00	119	10, slt.-r : 10, oc.-th.-r,glm	10, oc.-slt.-r : 10, fq.-th.-r: 10
4	7·0	9·3	ESE	SE : ESE	0·6	0·0	0·04	150	10 : 1, li.-cl	1, li.-cl : 0 : v
5	4·5	9·3	E : SE	S	0·2	0·0	0·00	100	p.-cl, ho.-fr : p.-cl	0 : 0, ho.-fr
6	5·7	9·4	SSE : SSW	SSW : S	0·8	0·0	0·03	157	0, ho.-fr : 0, f	0 : 0 : 10
7	3·9	9·4	SSW : SW	WSW : SW	1·6	0·0	0·18	349	10 : 10, oc.-r : 4, li.-cl, h	1, li.-cl : 0
8	1·9	9·5	SSW : SW	WSW	10·7	0·0	1·07	508	v : 10, slt.-r, sqs : 9, li.-cl, so.-ha	3, li.-cl, sh.-r : 0, d
9	0·0	9·6	SW	SW	5·5	0·0	1·14	476	0, d : 0 : 10	10, sc, slt.-r : 10, c.-r, w : 10, sq, r
10	1·2	9·6	WSW	WNW : W : WSW	22·5	0·0	4·14	793	v, w : 10, oc.-r, g	10, oc.-slt.-r, g : 6, th.-cl, w : v, li.-cl
11	0·1	9·7	SW	SW : WSW	5·7	0·0	1·14	521	10, shs.-r : 10, oc.-slt.-r, gt.-glm, w	10, r : 10 : 0
12	0·7	9·8	SW : WSW	NW : WSW	7·1	0·0	0·76	443	0 : 0 : 8, li.-cl	10, oc.-r : 0
13	0·1	9·8	SW : SSW	SW : SSW	4·6	0·0	0·61	422	0 : 8, cu.-s, li.-cl	10, oc.-slt.-r : 10, oc.-r
14	0·0	9·9	SSW	SSW : SW	14·5	0·0	2·15	588	10, r, w : 10, sc, oc.-slt.-r, w	10, sc, fq.-r, st.-w : 0
15	0·0	9·9	SSW : SSE	SSE	1·6	0·0	0·06	236	0, d : 5, ci.-cu : 10	10, oc.-slt.-r : 10, slt.-r
16	0·6	10·0	SSE : SSW	SSW : S	4·5	0·0	0·42	364	p.-cl : 6, li.-cl : 10, oc.-slt.-r	9, cu.-s, li.-cl : 4, li.-cl : v, sh.-r
17	4·1	10·1	S : SW	SW : S : SSE	1·8	0·0	0·17	296	v, sh.-r : 2, cu.-s, li.-cl	6, cu, cu.-s : 10, slt.-r : 10, c.-r
18	0·1	10·1	SSW	SSW	5·3	0·0	0·86	500	10 : 10, slt.-r	10, oc.-slt.-r : 10, oc.-slt.-r
19	6·0	10·2	SSW	S : SSE : SSW	1·8	0·0	0·21	322	10, r : 10 : 7, li.-cl	0 : 0 : v
20	2·4	10·3	SSW : S	SW : S : SE	5·4	0·0	0·36	354	0 : 0 : p.-cl, oc.-r	p.-cl : p.-cl, r : 10, r
21	0·0	10·3	SE : SSE : SW	WSW : WNW	3·3	0·0	0·32	334	10, fq.-r : 10, hy.-r : 10, hy.-r	10, c.-r : 10, glm : 10, r, w
22	0·0	10·4	WNW	NW : NNW	3·0	0·0	0·59	451	10, oc.-r : 10, r, oc.-sn	10, r, sn : 10, slt.-r : 10
23	0·0	10·5	N : NNE	NNE	2·3	0·0	0·15	306	10, slt.-sn : 10, oc.-sn	10, oc.-sn : 10, oc.-sn
24	0·1	10·5	NE : E	E : ENE	0·5	0·0	0·01	179	10 : 10, slt.-sn	10, slt.-sn : 5, th.-cl : v, li.-cl
25	1·7	10·6	NE : N : NNW	NNW : WSW : SSE	0·6	0·0	0·03	200	p.-cl, fr : ho.-fr : 4, th.-cl, so.-ha	2, th.-cl : 2, th.-cl, lu.-ha
26	1·2	10·7	SE : SSE	SSW : SW	19·6	0·0	1·21	535	p.-cl : 10, hy.-r, w	v, hy.-sqs : 0 : v, w
27	0·0	10·7	SW : S	SE : NE	3·3	0·0	0·19	290	v : v, li.-cl : 10, r	10, c.-r : 10, c.-r
28	7·2	10·8	N	NE : SSE	0·6	0·0	0·00	179	10, c.-r : p.-cl : 0	0 : 2, li.-cl : th.-cl, h, lu.-ha
Means	1·8	9·9	...	...	...	...	0·66	361		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 39°·6, being 1°·8 *higher* than
The mean *Temperature of the Dew Point* for the month was 37°·3, being 1°·7 *higher* than
The mean *Degree of Humidity* for the month was 86·0, being *the same as*
The mean *Elastic Force of Vapour* for the month was 0in·223, being 0in·015 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·6, being 0gr·2 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 546 grains, being 7 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 6·9.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·182. The maximum daily amount of *Sunshine* was 7·2 hours on February 28.

The highest reading of the *Solar Radiation Thermometer* was 93°·5 on February 19; and the lowest reading of the *Terrestrial Radiation Thermometer* was 21°·6 on February 5.

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

The *Proportions of Wind* referred to the cardinal points were N. 3, E. 4, S. 13, and W. 8.

The *Greatest Pressure of the Wind* in the month was 22·5 lbs. on the square foot on February 10. The mean daily *Horizontal Movement of the Air* for the month was 361 miles; the greatest daily value was 793 miles on February 10; and the least daily value was 100 miles on February 5.

Rain fell on 22 days in the month, amounting to 2in·718, as measured by gauge No. 6 partly sunk below the ground; being 1in·234 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Mar. 1	...	29·560	57·2	35·5	21·7	46·6	+ 6·4	44·6	42·4	4·2	7·8	1·3	86	84·0	31·0	0·174	9·0	vP, vN : vP, ssN
2	Full	29·788	56·9	45·3	11·6	50·3	+ 9·9	46·8	43·1	7·2	10·2	2·5	77	80·2	39·9	0·000	0·2	wP : mP : mP
3	...	30·125	47·4	41·5	5·9	45·1	+ 4·6	43·1	40·8	4·3	8·6	0·2	85	58·0	40·0	0·039	2·5	vP, sN : mP
4	In Equator	30·008	56·2	41·8	14·4	49·4	+ 8·7	47·4	45·2	4·2	9·8	0·2	86	76·7	36·0	0·100	2·3	wP : mP : sP
5	...	30·048	54·2	39·6	14·6	48·5	+ 7·6	45·7	42·7	5·8	8·2	3·7	81	67·2	34·0	0·002	0·0	sP : mP : mP
6	...	30·114	51·3	41·0	10·3	47·4	+ 6·3	45·0	42·4	5·0	8·6	1·8	84	59·8	35·0	0·000	1·0	mP : vP
7	...	30·150	54·0	38·1	15·9	47·1	+ 6·1	44·7	42·0	5·1	11·0	0·9	83	78·9	32·0	0·000	2·0	mP : sP : sP
8	Apogee	30·151	61·0	39·1	21·9	49·4	+ 8·5	45·2	40·7	8·7	20·1	1·5	72	94·4	31·2	0·000	0·0	mP : vP
9	...	30·008	60·1	37·8	22·3	48·0	+ 7·2	45·7	43·2	4·8	11·8	0·5	84	96·9	35·0	0·000	1·0	mP : sP
10	Last Quarter	30·113	52·0	38·1	13·9	45·5	+ 4·8	40·8	35·4	10·1	15·8	2·7	68	88·2	31·1	0·000	0·0	mP : vP : sP
11	Greatest Declination S.	30·130	56·5	32·4	24·1	43·7	+ 3·1	39·9	35·4	8·3	15·4	2·8	72	97·7	28·8	0·000	0·2	sP : mP : sP
12	...	29·775	62·3	38·4	23·9	49·5	+ 8·8	43·1	36·3	13·2	25·7	3·9	61	108·0	31·7	0·000	1·0	sP : mP
13	...	29·551	56·0	39·0	17·0	48·6	+ 7·7	45·7	42·6	6·0	11·0	1·0	80	82·0	31·0	0·006	0·8	mP : vP, vN
14	...	29·617	54·2	44·1	10·1	48·9	+ 7·7	46·8	44·6	4·3	7·8	0·6	85	70·1	40·3	0·010	0·0	wP : vP
15	...	29·639	56·9	45·2	11·7	49·2	+ 7·8	46·7	44·0	5·2	9·8	1·5	83	94·8	43·0	0·004	2·2	mP : vP, sN
16	...	29·542	56·5	37·3	19·2	46·2	+ 4·7	43·3	40·0	6·2	11·6	2·6	80	96·8	32·5	0·068	3·8	wP : vP, ssN
17	...	29·732	46·0	34·3	11·7	39·1	− 2·5	35·0	29·6	9·5	16·1	5·7	69	90·2	29·6	0·023	0·0	mP : vP, sN : vP
18	New: In Equator	30·038	45·6	29·7	15·9	37·4	− 4·2	33·0	26·9	10·5	17·6	5·3	66	99·8	24·0	0·000	6·0	sP : vP : mP
19	...	30·264	45·0	24·2	20·8	34·2	− 7·3	31·1	25·7	8·5	16·1	5·5	71	79·0	20·9	0·000	0·0	sP : vP : mP
20	Perigee	30·256	55·0	26·7	28·3	40·1	− 1·3	36·5	31·8	8·3	17·6	2·4	72	95·0	22·9	0·000	0·0	mP : vP : wN, sP
21	...	30·217	59·3	28·8	30·5	43·6	+ 2·2	39·5	34·6	9·0	20·0	0·6	71	99·0	24·6	0·000	0·2	vP : mP
22	...	30·144	55·4	34·0	21·4	43·2	+ 1·7	41·7	39·9	3·3	13·0	0·0	88	98·3	27·9	0·003	0·8	sP : mP : sP
23	...	30·120	64·3	35·7	28·6	47·4	+ 5·6	43·4	38·9	8·5	21·6	0·0	73	107·0	33·5	0·004	0·0	sP : mP : sP
24	First Quarter: Greatest Dec. N.	30·207	62·5	34·2	28·3	47·7	+ 5·6	43·1	38·0	9·7	21·1	1·8	70	105·0	29·4	0·000	0·0	sP : vP : sP
25	...	30·250	62·8	32·2	30·6	46·7	+ 4·3	42·6	38·0	8·7	19·8	0·7	72	108·3	26·8	0·000	4·0	sP
26	...	30·094	57·8	29·1	28·7	43·7	+ 0·8	40·4	36·5	7·2	17·9	0·9	75	103·0	26·9	0·000	1·0	sP
27	...	29·944	57·9	32·1	25·8	44·0	+ 0·7	40·6	36·6	7·4	19·8	0·5	75	101·0	28·2	0·000	0·0	sP : mP
28	...	29·981	57·0	34·2	22·8	45·6	+ 1·9	40·8	35·3	10·3	23·8	0·7	68	107·6	27·0	0·000	0·0	mP : mP : sP
29	...	29·917	64·0	33·0	31·0	47·5	+ 3·4	42·5	36·9	10·6	22·1	0·5	67	108·0	27·5	0·000	0·0	mP : vP
30	...	29·796	68·0	33·2	34·8	50·5	+ 5·9	44·0	37·1	13·4	25·7	0·7	60	108·1	26·8	0·000	0·0	sP : vP, wN
31	In Equator	29·698	69·3	38·6	30·7	52·8	+ 7·8	44·8	36·8	16·0	27·0	7·1	55	115·2	29·9	0·000	0·0	mP
Means	...	29·967	56·9	35·9	20·9	46·0	+ 4·3	42·4	38·2	7·9	15·9	1·9	74·8	92·2	30·9	Sum 0·433	1·2	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 result for March 3 for Barometer is deduced from eye-observations, on account of temporary interruption of the photographic register.

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 29in·967, being 0in·214 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 69°·3 on March 31 ; the lowest in the month was 24°·2 on March 19 ; and the range was 45°·1.
The mean of all the highest daily readings in the month was 56°·9, being 7°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 35°·9, being 0°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 20°·9, being 6°·2 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 46°·0, being 4°·3 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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	1·5	10·8	SSE : S : SSW	SW : WSW	7·3	0·0	0·99	533	10 : 10, sc, r, w	v, r, w : 9, th.-cl
2	1·0	10·9	WSW	WSW	9·2	0·0	0·95	506	v, li.-cl : 5, li.-cl, w	10 : v, th.-cl
3	0·0	11·0	ESE : SE	SE : SSE	1·3	0·0	0·02	188	10, r : 10	10 : 10 : 10, m.-r
4	1·5	11·1	SSE : SSW	WSW : WNW	1·1	0·0	0·05	258	10, r : 10 : 10, oc.-slt.-r	p.-cl, cu.-s, li.-cl : 0 : 0
5	0·0	11·1	SW : WSW : WNW	NW : WNW	1·6	0·0	0·10	323	p.-cl : p.-cl, slt.-sh : 6, li.-cl	10 : 10
6	0·0	11·2	W : WSW : NW	NW : NNW	0·6	0·0	0·00	183	v : 10	10 : 10, oc.-slt.-r
7	0·2	11·2	SW : WSW	WSW : WNW	2·1	0·0	0·13	267	10 : 8, cu.-s, th.-cl	9, li.-cl : 8, th.-cl
8	3·8	11·3	WSW : WNW : SW	NE : S : SW	0·3	0·0	0·02	178	li.-cl : r, li.-cl, slt.-f, h : 0, h	1, li.-cl : 0, slt.-m
9	1·4	11·4	SW	WSW	1·6	0·0	0·13	259	0 : 0, f : v, li.-cl	v, li.-cl : 1, li.-cl
10	4·8	11·4	NW	NW	4·6	0·0	0·63	412	0 : 0 : 1, th.-cl	1, li.-cl : 0
11	4·4	11·5	SW : SSW	SW : SSW	1·8	0·0	0·12	266	0, ho.-fr : 0, slt.-m : 1, li.-cl	3, th.-cl, so.-ha : 0
12	9·3	11·6	SSW	SSW : S	2·6	0·0	0·26	342	0, ho.-fr : 0	1, th.-cl : 0
13	1·6	11·6	SSW : SW : N	ESE : S : SSW	1·1	0·0	0·01	142	0, ho.-fr : 0, h, slt.-f	9, th.-cl : 10, oc.-slt.-r
14	0·7	11·7	SW	WSW : SW	1·3	0·0	0·08	265	10, slt.-r : 8, li.-cl, glm	10, oc.-slt.-r : 10 : v, slt.-r
15	1·4	11·8	SW	SW	5·0	0·0	0·65	451	10 : 10	10, oc.-slt.-r : v, slt.-r : v
16	2·7	11·8	SW : WSW	WSW	7·3	0·0	0·97	520	10 : 10 : v, w, oc.-slt.-r	v, hy.-shs, gt.-glm : 0
17	4·3	11·9	WSW : W	NW : WNW	7·1	0·0	1·31	563	0, ho.-fr : 0 : v, r, sn, w	8, ci.-cu, cu.-s : 0
18	7·5	12·0	WSW : NW : NNW	N : NNE	4·0	0·0	0·54	347	0, ho.-fr : v, li.-cl	2, li.-cl : 0
19	4·0	12·0	W : SW : Calm	N : S	0·1	0·0	0·00	111	0, ho.-fr : 0, h	0, h, f : 0, slt.-f
20	9·5	12·1	SW	SW	0·0	0·0	0·00	127	0, ho.-fr : 0	0 : 0, slt.-f
21	9·1	12·2	Calm : SE	ESE	0·5	0·0	0·01	79	0, ho.-fr : 0 : 0, tk.-f	0 : 0, slt.-f
22	5·2	12·2	E	E	0·6	0·0	0·04	154	10 : 10, f	1, th.-cl : 0 : 10, th.-cl, f
23	7·6	12·3	E : NE	SE	0·4	0·0	0·02	99	10, f : 10, f : 0	0 : 0 : 0, slt.-f
24	10·1	12·4	Calm : NE	E	1·1	0·0	0·02	140	0, slt.-f : 0, slt.-h	0 : 0 : 0, slt.-f
25	9·9	12·4	NE : ENE	ENE : ESE	0·4	0·0	0·03	128	0, ho.-fr : 0	0 : 0
26	7·0	12·5	NNE : ENE	E	0·4	0·0	0·02	134	0, ho.-fr : 4, th.-cl	4, th.-cl, so.-ha : 2, li.-cl, lu.-ha
27	9·4	12·6	NE	E : ENE	2·7	0·0	0·17	224	p.-cl, ho.-fr : 2, li.-cl	0 : 0
28	10·7	12·6	ENE : E	E	2·8	0·0	0·23	257	0, ho.-fr : 0	0 : 0
29	10·0	12·7	ENE	E : Calm	1·3	0·0	0·04	177	0, ho.-fr, slt.-f : 0	0 : 0 : r, li.-cl, slt.-f, lu.-ha
30	5·6	12·8	Calm : SW	SW : SSW	0·7	0·0	0·02	132	1, li.-cl, ho.-fr : 5, th.-cl, slt.-f, so.-ha	3, th.-cl : 0
31	10·9	12·8	SW	SW : S	1·6	0·0	0·09	246	0, ho.-fr : 0 : 4, li.-cl	2, li.-cl : 1, li.-cl : 0
Means	5·0	11·8	...	...	...	...	0·25	258		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 42°·4, being 3°·1 *higher* than
The mean *Temperature of the Dew Point* for the month was 38°·2, being 1°·9 *higher* than
The mean *Degree of Humidity* for the month was 74·8, being 6·3 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·231, being 0in·017 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·7, being 0gr·2 *greater* 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 4·0.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·423. The maximum daily amount of *Sunshine* was 10·9 hours on March 31.

The highest reading of the *Solar Radiation Thermometer* was 115°·2 on March 31; and the lowest reading of the *Terrestrial Radiation Thermometer* was 20°·9 on March 19.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 0·6; 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. 3, E. 8, S. 9, and W. 10. One day was calm.

The *Greatest Pressure of the Wind* in the month was 9·2 lbs. on the square foot on March 2. The mean daily *Horizontal Movement of the Air* for the month was 258 miles; the greatest daily value was 563 miles on March 17; and the least daily value was 79 miles on March 21.

Rain fell on 7 days in the month, amounting to 0in·433, as measured by gauge No. 6 partly sunk below the ground; being 1in·028 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
April 1	Full	29·780	70·8	37·1	33·7	54·7	+ 9·3	45·8	37·2	17·5	28·4	5·3	52	116·3	28·9	0·000	0·0	sP : wP : vP, wN
2	...	29·998	62·7	41·5	21·2	50·6	+ 4·9	45·9	41·0	9·6	18·8	3·5	70	103·7	36·7	0·000	0·0	mP : wP
3	...	30·081	63·0	36·4	26·6	48·4	+ 2·4	43·4	37·9	10·5	19·0	3·6	67	109·3	30·0	0·000	0·0	mP : wP, wN : vP
4	...	30·073	59·9	35·1	24·8	48·2	+ 2·0	42·9	37·1	11·1	20·0	2·9	65	112·1	29·0	0·000	0·0	vP, wN : mP
5	Apogee	30·029	53·0	42·1	10·9	47·0	+ 0·8	45·6	44·1	2·9	6·6	0·7	90	93·2	37·1	0·000	3·7	mP : vP : sP
6	...	30·048	55·8	41·4	14·4	46·8	+ 0·6	45·4	43·9	2·9	8·6	0·2	90	105·7	41·4	0·000	5·3	mP : vP
7	...	30·199	66·6	36·7	29·9	49·6	+ 3·5	46·1	42·4	7·2	18·5	0·7	76	108·0	36·5	0·000	5·0	sP : mP
8	Greatest Declination S.	30·297	59·5	39·2	20·3	45·2	− 0·7	43·0	40·5	4·7	13·3	1·5	84	101·8	35·5	0·000	1·7	mP
9	Last Quarter	30·221	56·3	38·5	17·8	45·4	− 0·2	43·0	40·3	5·1	11·2	0·0	83	107·9	36·0	0·000	6·3	mP
10	...	30·055	66·6	35·5	31·1	50·4	+ 4·9	44·9	39·1	11·3	23·4	0·5	65	115·7	29·9	0·000	1·5	sP : mP
11	...	30·108	48·1	37·6	10·5	42·9	− 2·6	39·3	35·0	7·9	11·8	2·8	74	68·0	33·8	0·000	12·5	vP : mP
12	...	30·184	49·2	33·7	15·5	42·2	− 3·5	36·9	30·4	11·8	16·6	3·6	64	86·0	26·5	0·000	5·0	mP : vP
13	...	30·168	52·4	30·2	22·2	42·4	− 3·6	38·0	32·7	9·7	16·4	3·5	70	95·0	24·7	0·000	1·2	vP
14	...	30·177	58·6	36·2	22·4	45·7	− 0·7	40·7	35·0	10·7	18·0	4·6	67	104·4	30·1	0·000	3·8	sP : vP, wN
15	In Equator	30·039	66·3	34·2	32·1	49·6	+ 2·7	43·9	37·8	11·8	23·8	2·9	64	115·7	27·1	0·000	6·0	mP : vP, wN
16	New	29·986	63·2	37·4	25·8	51·3	+ 4·0	46·1	40·7	10·6	18·1	3·4	67	90·2	31·0	0·000	0·8	sP : vP
17	Perigee	30·066	51·5	42·3	9·2	47·1	− 0·6	44·9	42·5	4·6	6·3	2·5	85	63·2	39·5	0·035	6·2	wP : mP
18	...	29·940	70·6	40·3	30·3	54·7	+ 6·6	49·4	44·3	10·4	19·4	2·2	67	114·9	36·1	0·000	0·0	mP : wP : vP
19	...	29·779	72·4	44·2	28·2	58·0	+ 9·7	50·5	43·7	14·3	27·5	2·5	59	121·0	38·0	0·000	0·0	mP : vP : sP
20	...	29·852	80·0	43·0	37·0	60·1	+11·6	52·4	45·6	14·5	29·4	4·4	60	128·5	36·9	0·061	5·0	ssP, ssN
21	Greatest Declination N.	29·977	77·1	44·3	32·8	59·5	+11·0	51·4	44·3	15·2	30·1	3·1	57	124·6	37·4	0·000	2·0	mP
22	...	29·964	66·5	44·3	22·2	55·1	+ 6·6	49·1	43·3	11·8	28·8	2·9	65	119·0	39·2	0·000	3·3	mP : wP : mP
23	First Quarter	29·873	75·0	42·0	33·0	56·7	+ 8·3	49·9	43·6	13·1	27·5	2·4	62	121·8	35·0	0·000	0·7	mP : wP : mP
24	...	29·866	77·3	42·2	35·1	58·6	+10·2	51·0	44·2	14·4	27·7	3·1	59	130·2	34·6	0·000	2·0	vP, wP : mP
25	...	29·863	76·6	42·5	34·1	58·6	+10·2	49·8	41·9	16·7	34·3	4·2	54	129·4	34·0	0·000	0·0	mP
26	...	29·860	71·3	41·2	30·1	55·1	+ 6·7	47·8	40·8	14·3	25·9	2·1	59	126·0	30·8	0·000	0·0	sP, mP : mP
27	...	29·829	62·6	42·2	20·4	50·2	+ 1·7	46·3	42·2	8·0	16·0	2·6	75	120·3	34·5	0·000	2·7	wP : mP
28	In Equator	29·792	66·0	41·4	24·6	52·2	+ 3·6	47·7	43·1	9·1	17·8	2·0	71	116·9	34·1	0·000	2·3	vP : wP
29	...	29·758	65·7	45·1	20·6	53·6	+ 4·8	47·3	41·1	12·5	23·8	3·6	62	109·0	40·0	0·023	1·7	wP, wN : vP, vN
30	Full	29·834	60·0	41·0	19·0	50·0	+ 1·0	43·7	37·0	13·0	22·4	3·1	62	113·0	32·3	0·000	2·7	sP : vP, wN
Means	...	29·990	64·2	39·6	24·5	51·0	+ 3·8	45·7	40·4	10·6	20·3	2·7	68·2	109·0	33·9	Sum 0·119	2·7	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 29in·990, being 0in·249 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 80°·0 on April 20; the lowest in the month was 30°·2 on April 13; and the range was 49°·8.
The mean of all the highest daily readings in the month was 64°·2, being 7°·0 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 39°·6, being 0°·7 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 24°·5, being 6°·2 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 51°·0, being 3°·8 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS.						CLOUDS AND WEATHER.	
			OSLER'S.					ROBINSON'S.	A.M.	P.M.
			General Direction.		Pressure on the Square Foot.			Horizontal Movement of the Air.		
			A.M.	P.M.	Greatest.	Least.	Mean of 24 Hourly Measures.			
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
April 1	10·0	12·9	Calm : SSE	SSE : NNE	0·6	0·0	0·02	111	0, ho.-fr : 0, slt.-f : 2, li.-cl	1, li.-cl : 2 li.-cl : p.-cl
2	9·2	13·0	NNW : N	NE : E	1·7	0·0	0·12	271	10 : 2, li.-cl	0 : 0
3	10·9	13·0	NE	E	0·7	0·0	0·03	209	0 : 0	0 : 0
4	11·3	13·1	NE : E	E : ENE	1·3	0·0	0·03	235	0, ho.-fr : 0	0 : 0
5	3·9	13·2	E	E	1·6	0·0	0·06	322	10 : 10 : v, li.-cl	v, li.-cl : 10
6	4·6	13·2	E : ENE	ESE : E	1·3	0·0	0·04	232	10 : 10	v, li.-cl : 10 : 10, slt.-f
7	9·6	13·3	NNE : ENE	E : ENE : NNE	0·7	0·0	0·01	146	10, f : 10, tk.-f : 0	0 : 0
8	5·1	13·4	NNE	NE : E	1·3	0·0	0·10	275	10 : 10	3, li.-cl : v
9	8·7	13·4	NE	E : ESE : ENE	1·1	0·0	0·07	244	10 : 10 : 1, li.-cl	0 : 0, m : 10, slt.-f
10	11·2	13·5	NNE : NE	ENE : E	2·3	0·0	0·12	247	0, ho.-fr : 0	0 : 0
11	0·3	13·6	NE : ENE	ENE	5·7	0·0	0·97	487	10 : 10, w	10, w : 9, th.-cl, so.-ha : 10
12	3·1	13·6	NE	NE	2·4	0·0	0·28	314	10 : 10	9, cu.-s, li.-cl : 0, ho.-fr
13	3·0	13·7	W : Calm : NNE	NE	2·4	0·0	0·19	232	10 : 10, oc.-slt.-r	8, cu.-s, li.-cl : v
14	6·5	13·7	ENE : SE	Variable	0·3	0·0	0·01	116	10 : 9, n : 2, th.-cl	1, th.-cl, gt.-glm, m : 0 : 0
15	11·8	13·8	SW	SW	1·4	0·0	0·09	249	0, ho.-fr : 0 : 2, li.-cl, so.-ha	2, li.-cl, so.-ha : 0
16	3·9	13·9	SW : WSW	WSW	0·5	0·0	0·04	188	0 : 3, li.-cl, h	3, li.-cl, h : 10, oc.-slt.-r
17	0·0	13·9	Calm : ENE	E	3·0	0·0	0·23	248	10 : 10, r : 10, slt.-r	10 : v
18	4·9	14·0	E : ESE	SE : E	0·3	0·0	0·00	126	10 : 3, ci.-cu, li.-cl	v, ci.-cu, th.-cl, so.-ha : 2, th.-cl
19	10·4	14·1	ENE	E	1·6	0·0	...	195	0, d : 2, li.-cl : v, th.-cl, so.-ha	2, th.-cl : v, th.-cl : 1, li.-cl
20	5·4	14·1	E : SE	SE : NE	1·3	0·0	...	161	v : 10, shs.-r : 4, li.-cl, slt.-r	2, li.-cl : p.-cl, t, slt.-sh : 0
21	11·8	14·2	Calm : E	ESE : E	1·8	0·0	...	199	0 : 0, slt.-f	0 : 0
22	11·9	14·2	E	E	2·8	0·0	...	297	0 : 0	0 : 0
23	11·7	14·3	NE	E	0·4	0·0	0·00	163	0 : 0	0 : 0
24	11·5	14·4	Calm : NE	ESE : E	2·5	0·0	0·03	169	0, d : 0, slt.-m	0 : 0
25	11·5	14·4	Calm : NE	E	1·6	0·0	0·04	210	0 : 3, cu.-s, li.-cl	2, li.-cl : 1, li.-cl
26	12·6	14·5	NNE : ENE	E : ENE	0·6	0·0	0·02	233	0 : 0	0 : 0 : 9, cu.-s
27	7·8	14·5	NE : ENE	ENE	1·1	0·0	0·05	239	10 : 10 : 7, li.-cl	0 : 0
28	7·4	14·6	ENE	E : ENE	0·0	0·0	0·00	130	10 : 10 : 3, li.-cl, so.-ha	0 : p.-cl : 10
29	3·4	14·7	Calm : NW	WNW : W : WSW	4·7	0·0	0·30	270	10 : 10 : 6, li.-cl, slt.-h	v, li.-cl, so.-ha : p.-cl : 10
30	7·6	14·7	WSW : WNW	WNW : WSW	5·2	0·0	0·57	385	p.-cl : 3, li.-cl : 8, cu.-s	p.-cl : v, li.-cl
Means	7·7	13·8	...	...	...	...	0·13	230		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 45°·7, being 1°·8 *higher* than
The mean *Temperature of the Dew Point* for the month was 40°·4, being 0°·2 *higher* than
The mean *Degree of Humidity* for the month was 68·2, being 8·4 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·251, being 0in·002 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·8, being 0gr·1 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 544 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 3·1.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·557. The maximum daily amount of *Sunshine* was 12·6 hours on April 26.

The highest reading of the *Solar Radiation Thermometer* was 130°·2 on April 24; and the lowest reading of the *Terrestrial Radiation Thermometer* was 24°·7 on April 13.

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

The *Proportions of Wind* referred to the cardinal points were N. 7, E. 16, S. 3, and W. 3. One day was calm.

The *Greatest Pressure of the Wind* in the month was 5·7 lbs. on the square foot on April 11. The mean daily *Horizontal Movement of the Air* for the month was 230 miles; the greatest daily value was 487 miles on April 11; and the least daily value was 111 miles on April 1.

Rain fell on 3 days in the month, amounting to 0in·119, as measured by gauge No. 6 partly sunk below the ground; being 1in·542 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, the receiving surface of which is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
May 1	...	29·911	65·1	40·6	24·5	51·8	+ 2·6	47·5	43·1	8·7	19·4	1·5	73	98·0	34·1	0·007	4·7	mP : wP, ssN : vP, vN
2	...	29·851	68·0	44·1	23·9	54·8	+ 5·4	49·8	45·0	9·8	18·9	0·9	69	111·1	36·4	0·000	3·8	mP : wP, wwN
3	Apogee	29·965	68·6	50·0	18·6	57·7	+ 8·0	53·0	48·7	9·0	17·5	2·6	72	107·4	41·0	0·000	1·0	mP : vP
4	...	30·163	77·0	44·0	33·0	59·0	+ 9·0	53·5	48·6	10·4	23·6	0·6	68	126·0	35·8	0·000	0·0	vP : wP
5	Greatest Declination S.	30·210	73·2	43·0	30·2	55·9	+ 5·6	51·0	46·4	9·5	18·2	2·2	71	121·5	36·0	0·000	5·0	mP : vP, wN : mP
6	...	30·239	67·3	40·4	26·9	52·9	+ 2·3	46·8	40·7	12·2	24·7	0·2	64	125·7	32·6	0·000	3·0	mP : wP : mP
7	...	30·191	63·0	38·0	25·0	49·7	− 1·1	44·4	38·7	11·0	21·5	2·3	66	130·1	29·4	0·000	0·0	mP : vP, vN
8	...	30·137	67·8	39·4	28·4	53·4	+ 2·4	48·2	43·0	10·4	20·5	1·4	68	129·8	33·9	0·000	2·0	mP : mP, wN
9	Last Quarter	30·073	73·9	46·2	27·7	58·0	+ 6·8	50·7	44·1	13·9	26·5	3·4	60	137·0	39·0	0·000	0·0	wP, wwN : vP, vN
10	...	30·089	73·9	44·6	29·3	57·9	+ 6·4	49·6	42·1	15·8	27·2	3·8	56	130·0	36·2	0·000	0·0	mP
11	...	30·120	74·5	41·2	33·3	57·1	+ 5·4	48·3	40·2	16·9	29·4	4·8	54	131·5	30·2	0·000	1·0	mP : wP : vP
12	In Equator	29·990	80·4	42·3	38·1	61·7	+ 9·7	52·4	44·3	17·4	29·9	4·8	54	129·8	33·9	0·000	0·0	wP : vP, vN
13	...	29·984	76·2	49·2	27·0	61·4	+ 9·1	54·8	49·1	12·3	25·3	1·7	64	130·1	39·7	0·000	0·0	mP : mP : vP
14	...	29·863	74·0	47·9	26·1	59·4	+ 6·8	54·6	50·3	9·1	19·9	1·0	72	125·6	41·5	0·000	0·0	wP
15	New	29·718	79·0	47·5	31·5	61·0	+ 8·2	55·4	50·6	10·4	25·0	1·9	69	135·1	39·0	0·000	3·5	mP : wP, wwN : wP
16	Perigee	29·645	75·0	51·2	23·8	61·0	+ 7·9	56·5	52·6	8·4	16·3	2·2	74	129·2	43·5	0·012	1·5	vP : vP, mN
17	...	29·439	69·0	49·2	19·8	58·0	+ 4·7	56·5	55·1	2·9	10·4	0·0	90	102·7	41·6	0·300	2·5	vP, vN : vP
18	Greatest Declination N.	29·447	69·6	47·3	22·3	57·6	+ 4·0	53·8	50·3	7·3	16·6	0·0	77	122·2	40·0	0·005	9·0	mP : wP : mN, mP
19	...	29·510	68·9	50·2	18·7	58·0	+ 4·1	53·8	50·0	8·0	18·2	1·4	75	124·5	45·7	0·026	5·0	wP, wwN : wP, wwN : mP
20	...	29·507	69·0	50·6	18·4	57·8	+ 3·6	53·5	49·6	8·2	19·3	3·6	74	128·2	45·0	0·020	2·5	wP : vP, vN : mP
21	...	29·560	67·0	48·7	18·3	57·0	+ 2·4	51·9	47·2	9·8	18·4	1·9	69	121·0	43·5	0·000	3·0	mP, wN : wP
22	First Quarter	29·717	75·9	50·0	25·9	61·3	+ 6·3	53·3	46·3	15·0	32·0	2·4	58	140·2	43·0	0·000	0·0	wP : vN, wP
23	...	29·770	71·1	48·3	22·8	58·8	+ 3·5	54·9	51·4	7·4	15·3	1·1	76	128·2	37·8	0·024	1·2	mP : wP : vP
24	...	29·785	66·1	46·4	19·7	57·9	+ 2·3	52·9	48·4	9·5	15·7	1·0	70	111·6	39·6	0·000	3·8	mP : vP, wN : vP
25	In Equator	29·942	74·2	47·7	26·5	61·2	+ 5·5	54·3	48·3	12·9	22·3	3·4	63	137·0	38·2	0·000	1·0	mP : vP, wN : vP, wN
26	...	30·030	63·5	52·5	11·0	58·3	+ 2·4	52·4	47·1	11·2	14·8	4·8	67	87·5	47·0	0·000	3·0	mP : vP : wP, wN
27	...	30·050	68·0	49·0	19·0	57·4	+ 1·4	51·7	46·5	10·9	18·4	4·6	67	116·2	41·5	0·000	0·0	mP : vP, wN
28	...	30·008	74·1	44·8	29·3	58·9	+ 2·9	53·5	48·7	10·2	18·4	3·1	69	124·8	36·1	0·000	1·0	sP : wP, wN
29	...	29·894	75·4	50·2	25·2	59·9	+ 3·7	56·0	52·6	7·3	21·1	0·9	78	124·5	42·1	0·080	1·0	mP : vP : vP, vN
30	Apogee : Full	29·900	58·0	46·8	11·2	52·3	− 4·2	48·7	45·0	7·3	14·3	1·2	77	104·0	41·0	0·056	3·0	vP, sN : mP
31	...	29·865	62·2	39·2	23·0	51·2	− 5·6	45·4	39·4	11·8	20·9	1·8	64	109·5	30·0	0·000	0·0	mP : vP, wN
Means	...	29·889	70·6	46·1	24·5	57·4	+ 4·2	51·9	46·9	10·5	20·6	2·1	68·6	121·9	38·5	Sum 0·530	2·0	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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}·889, being 0^{in}·103 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 80°·4 on May 12; the lowest in the month was 38°·0 on May 7; and the range was 42°·4.
The mean of all the highest daily readings in the month was 70°·6, being 6°·5 *higher* than the average for the 50 years, 1841-1890.
The mean of all the lowest daily readings in the month was 46°·1, being 2°·4 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 24°·5, being 4°·1 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 57°·4, being 4°·2 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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	0·3	14·8	WSW	WSW : SW	2·0	0·0	0·23	306	p.-cl : 10, slt.-r	10, slt.-r : 10 : p.-cl, slt.-r
2	2·4	14·8	SSW : SW	SSW : SW	1·4	0·0	0·10	265	p.-cl : 9, th.-cl, so.-ha	9, th.-cl, so.-ha : 10, sh.-r
3	1·3	14·9	SW : NW : NNW	NNW : N : NE	0·9	0·0	0·05	190	10 : 10	9, th.-cl : v, li.-cl : 0
4	7·6	14·9	Calm : ENE	SSE : SSW	0·4	0·0	0·00	117	0 : f : 2, ci.-s, li.-cl	4, li.-cl : 2, li.-cl
5	9·7	15·0	SW : Calm : NE	E : ENE	3·3	0·0	0·26	231	0 : 4, li.-cl	0 : 0
6	10·2	15·1	ENE : ESE	E : ENE	2·4	0·0	0·26	269	0, d : 0	0 : 0
7	11·2	15·1	ENE	ENE : NE	3·4	0·0	0·60	358	0 : 1, li.-cl	3, li.-cl : v, slt.-r : 0
8	10·0	15·2	NE : ENE	ENE : NE	3·3	0·0	0·45	373	0 : 6, cu.-s, li.-cl	3, li.-cl : 0
9	11·6	15·2	NNE : NE	ENE : NE	5·0	0·0	0·62	413	0 : p.-cl : 1, cu, li.-cl, w	4, cu, cu.-s, li.-cl : 0
10	13·1	15·3	NNE : NE	NE	3·3	0·0	0·38	367	0 : 0	1, li.-cl : 0 : 0
11	13·0	15·3	NNE : NE	NE : E : ESE	1·6	0·0	0·10	208	0 : 0	0 : p.-cl : 0
12	5·9	15·4	SW	WSW : NW : N	1·4	0·0	0·10	223	0 : p.-cl : v, th.-cl, so.-ha	6, th.-cl : 7, th.-cl : 2, li.-cl
13	12·3	15·4	N : NE	NE : ENE	2·1	0·0	0·13	195	0 : 2, li.-cl : 2, cu, cu.-s, li.-cl	2, li.-cl : 2, li.-cl : p.-cl
14	5·3	15·5	ENE	E : ENE	1·1	0·0	0·10	216	10 : 10 : 4, th.-cl, so.-ha	v, th.-cl : v : 0
15	4·3	15·5	NE : ENE	E	2·5	0·0	0·12	195	p.-cl : 6, th.-cl, so.-ha	10, slt.-r : 10
16	2·9	15·6	ENE	Variable	1·0	0·0	0·01	129	10, shs.-r : 9, cu.-s, th.-cl	10, oc.-shs : 2, th.-cl, m
17	0·0	15·6	ENE	ENE : SW	1·1	0·0	0·05	164	10 : 10, slt.-r : 10, fq.-shs	10, oc.-slt.-r, t : 10, r, t : v
18	5·8	15·7	SSW : S	SSW : S	2·4	0·0	0·21	249	0 : p.-cl, li.-shs : 9, cu, cu.-s, shs.-r	8, cu.-s, li.-cl : 8, cu.-s : 0
19	5·7	15·7	SSE : SSW	SSW	7·3	0·0	0·62	371	v : p.-cl : v, shs.-r	7, cu, cu.-s, li.-cl : v, li.-cl
20	5·4	15·8	SSW	SSW	4·0	0·0	0·52	350	p.-cl : v, oc.-shs	v, shs.-r : 9, th.-cl
21	3·2	15·8	SSW	Variable	0·5	0·0	0·03	137	10 : 9, cu.-s	p.-cl : 10, th.-cl
22	9·4	15·9	Calm : NW	W : SW	0·3	0·0	0·00	164	10 : 3, li.-cl	v, t : 0 : 0
23	5·0	15·9	SSW	SSW : SW	1·6	0·0	0·18	270	0 : 0 : v	10 : 10, r : v
24	4·1	16·0	SW : WSW	W : NW	2·0	0·0	0·18	289	p.-cl, d : 9, cu, li.-cl	10 : p.-cl
25	11·1	16·0	NW : SW	W : WNW : NNW	1·8	0·0	0·13	284	p.-cl : 6, cu.-s, li.-cl	5, cu.-s, li.-cl : v, li.-cl
26	0·4	16·0	NW : NNW	NNW	1·7	0·0	0·14	256	10 : 10	10 : 10
27	0·8	16·1	NNW	NNW : N : NNE	2·4	0·0	0·09	183	10 : 10	10 : p.-cl : 0
28	3·9	16·1	Calm : NNW	NNW : NE : Calm	1·0	0·0	0·01	76	p.-cl : v, li.-cl : v, li.-cl, h	10 : 10, slt.-r, glm
29	3·4	16·1	Calm : N	N : E : ENE	1·4	0·0	0·03	114	p.-cl : p.-cl : v, cu, cu.-s, li.-cl	s, cu.-s, glm, slt.-r, t : 10, hy.-shs : 10
30	0·5	16·2	NE : NNE	NNE	1·3	0·0	0·12	256	10, sh.-r : 10	10 : 10
31	4·7	16·2	N : NNW	N : NE	1·3	0·0	0·08	211	p.-cl : 9, cu.-s, li.-cl	8, cu.-s, li.-cl : 1, th.-cl
Means	6·0	15·6	...	...	...	...	0·19	240		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 51°·9, being 2°·7 *higher* than
The mean *Temperature of the Dew Point* for the month was 46°·9, being 1°·6 *higher* than
The mean *Degree of Humidity* for the month was 68·6, being 6·4 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·322, being 0in·019 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·6, being 0gr·2 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 535 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 5·7.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·387. The maximum daily amount of *Sunshine* was 13·1 hours on May 10.

The highest reading of the *Solar Radiation Thermometer* was 140°·2 on May 22; and the lowest reading of the *Terrestrial Radiation Thermometer* was 29°·4 on May 7.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·3; 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. 8, S. 7, and W. 6. One day was calm.

The *Greatest Pressure of the Wind* in the month was 7·3 lbs. on the square foot on May 19. The mean daily *Horizontal Movement of the Air* for the month was 240 miles; the greatest daily value was 413 miles on May 9; and the least daily value was 76 miles on May 28.

Rain fell on 9 days in the month, amounting to 0in·530, as measured by gauge No. 6 partly sunk below the ground; being 1in·473 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, 2 inches whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
June 1	Greatest Declination S.	29·835	65·4	37·3	28·1	53·0	− 4·2	47·4	41·8	11·2	22·8	1·4	66	107·0	29·8	0·000	0·0	mP : vP, wN
2	...	29·766	68·1	44·3	23·8	56·0	− 1·7	50·9	46·1	9·9	19·1	2·9	69	129·6	36·5	0·000	0·0	wP : mP
3	...	29·789	73·0	39·1	33·9	57·0	− 1·0	50·7	44·9	12·1	23·8	0·4	64	133·1	31·1	0·000	0·0	sP : wP, wwN
4	...	29·997	77·0	52·0	25·0	61·2	+ 3·0	54·8	49·3	11·9	23·8	3·6	65	124·0	44·3	0·006	0·5	wwP : vP, vN : wP
5	...	30·116	76·2	52·8	23·4	61·9	+ 3·6	56·1	51·2	10·7	21·4	3·2	68	131·1	45·5	0·000	1·5	wwP : vP : vP, wN
6	...	30·211	73·3	46·6	26·7	59·4	+ 1·1	54·2	49·6	9·8	22·5	0·6	70	126·0	40·1	0·000	1·2	vP : wP, wwN
7	Last Quarter	30·197	74·2	51·5	22·7	60·5	+ 2·3	55·4	51·0	9·5	23·5	1·2	71	126·8	45·5	0·176	8·0	ssP, ssN : wP : mP
8	In Equator	30·143	74·7	49·3	25·4	60·0	+ 1·8	54·2	49·1	10·9	21·6	3·0	67	134·0	41·5	0·000	3·8	wP : mP
9	...	30·121	76·8	47·2	29·6	58·9	+ 0·7	53·4	48·5	10·4	25·2	1·7	69	131·8	39·1	0·000	4·2	mP
10	...	30·162	69·2	51·2	18·0	58·5	+ 0·3	53·5	49·0	9·5	17·3	2·8	71	131·2	46·8	0·000	0·8	wP
11	...	30·061	70·3	49·2	21·1	57·9	− 0·5	52·4	47·4	10·5	20·3	2·6	68	130·0	44·2	0·000	1·2	mP : wP
12	...	29·933	68·5	51·4	17·1	56·7	− 1·9	51·6	46·9	9·8	18·0	2·6	70	126·1	45·5	0·000	7·3	mP
13	Perigee	29·813	79·8	51·7	28·1	65·1	+ 6·3	57·1	50·5	14·6	28·9	1·6	59	137·9	45·9	0·000	1·5	wP : wwP, vN : wP
14	New: Greatest Dec. N.	29·700	83·2	52·6	30·6	68·3	+ 9·4	58·9	51·5	16·8	34·2	2·4	54	144·2	45·9	0·000	0·0	wP : wwP, wwN : vP, sN
15	...	29·784	84·7	57·2	27·5	68·8	+ 9·8	61·1	55·1	13·7	29·8	3·0	61	140·2	50·1	0·000	0·0	mP : wP : mP
16	...	29·965	88·8	53·0	35·8	69·8	+10·8	60·7	53·7	16·1	32·3	1·5	56	141·9	45·2	0·000	0·0	mP : vP : mP
17	...	30·115	88·8	54·2	34·6	71·7	+12·6	60·8	52·6	19·1	34·4	0·9	51	146·3	46·1	0·000	0·0	vP : wP
18	...	30·121	85·1	54·1	31·0	68·2	+ 9·0	58·9	51·6	16·6	34·5	5·1	55	138·5	45·0	0·000	0·0	wP : wP, wN
19	...	29·824	91·0	50·6	40·4	70·6	+11·1	61·1	53·8	16·8	31·2	2·6	56	131·1	42·7	0·000	0·0	mP : vP, vN
20	...	29·690	66·7	49·2	17·5	60·0	+ 0·1	56·1	52·7	7·3	14·4	2·3	77	91·4	42·0	0·018	0·0	wP, wN : vP
21	First Quarter; In Equator	29·686	68·4	48·2	20·2	58·2	− 2·1	52·7	47·8	10·4	17·5	2·9	69	95·7	39·9	0·000	0·2	wP : wwP, wwN : vN, wP
22	...	29·454	78·2	49·2	29·0	62·4	+ 1·7	54·2	47·2	15·2	27·4	5·7	57	135·0	42·2	0·000	2·3	wP : vP, vN
23	...	29·209	68·4	52·1	16·3	58·2	− 2·8	53·3	48·9	9·3	18·2	1·2	72	123·0	46·0	0·334	4·7	vP, vN : vP, wN
24	...	29·344	63·1	49·1	14·0	55·0	− 6·2	51·0	47·2	7·8	15·6	2·7	75	88·6	44·5	0·044	1·0	vP, vN
25	...	29·625	71·0	47·8	23·2	57·4	− 3·9	51·4	45·9	11·5	19·8	2·1	65	120·0	41·1	0·000	2·0	mP : wP : vP
26	Apogee	29·650	68·0	48·2	19·8	58·3	− 3·1	54·5	51·1	7·2	14·8	2·2	77	115·6	40·2	0·026	5·2	vP : mP
27	...	29·531	74·7	55·6	19·1	63·4	+ 2·0	61·4	59·7	3·7	10·8	0·7	88	114·2	52·0	0·207	8·5	wP : vP, vN
28	Greatest Declination S.	29·539	75·8	55·5	20·3	64·3	+ 3·0	58·3	53·3	11·0	22·3	1·1	67	132·8	49·0	0·011	6·8	wP : vN, mP
29	Full	29·803	75·9	54·5	21·4	61·9	+ 0·7	56·3	51·5	10·4	16·2	5·7	69	129·0	48·2	0·000	2·2	wP, wN : vP, wN
30	...	30·002	81·8	48·6	33·2	64·8	+ 3·6	57·2	50·9	13·9	27·2	2·3	61	131·0	41·3	0·000	0·0	mP : wP : mP
Means	...	29·840	75·3	50·1	25·2	61·6	+ 2·2	55·3	50·0	11·6	23·0	2·4	66·2	126·2	43·2	Sum 0·822	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

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 $29^{in}·840$, being $0^{in}·029$ *higher* than the average for the 50 years, 1841-1890.

TEMPERATURE OF THE AIR.

The highest in the month was 91°·0 on June 19; the lowest in the month was 37°·3 on June 1; and the range was 53°·7.
The mean of all the highest daily readings in the month was 75°·3, being 4°·4 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 50°·1, being 0°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 25°·2, being 4°·2 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 61°·6, being 2°·2 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.		
June 1	1·7	16·2	SW : NW	NW : N : NE	1·0	0·0	0·03	168	10 : 8, th.-cl, so.-ha	10 : 10
2	7·2	16·3	ENE : ESE	ESE	1·0	0·0	0·03	147	10 : 3, cu, li.-cl	2, cu, li.-cl : 0
3	10·5	16·3	ENE : E	NE : SE : SW	1·0	0·0	0·00	129	0 : 6, cu.-s, li.-cl	3, cu, cu.-s : 3, cu.-s, li.-cl : p.-cl
4	6·0	16·3	SW : W	W : WNW : WSW	6·5	0·0	0·14	276	10 : 0 : 4, cu, slt.-h	4, li.-cl, sq : 3, li.-cl : 0
5	4·5	16·4	WSW : WNW	N : NE	1·6	0·0	0·08	239	10 : 7, cu.-s, li.-cl	4, cu.-s, li.-cl : 6, cu.-s, li.-cl : p.-cl
6	5·5	16·4	NE	NE : E : S	0·0	0·0	0·00	124	p.-cl : p.-cl : 0	0 : v : 10, r
7	9·3	16·4	S : SE	NE : ESE : E	1·4	0·0	0·07	146	10, r : 10 : 3, ci.-cu	1, cu.-s, li.-cl : 0 : 10
8	9·9	16·4	E : NE	NE : E	1·7	0·0	0·20	249	10 : 10 : 3, cu, li.-cl	3, cu : 2, th.-cl : 0
9	8·3	16·4	ENE : NE	NE : E	1·7	0·0	0·21	253	0 : 10 : p.-cl	0 : 0 : v
10	2·7	16·5	NNE : NE	E	1·4	0·0	0·14	207	10 : 10	6, cu, li.-cl : p.-cl
11	3·4	16·5	NE	NE	1·3	0·0	0·01	192	10 : 10	10 : 10
12	5·6	16·5	NE : ENE	ENE : E	1·3	0·0	0·01	196	10 : 10	1, li.-cl : 0 : v
13	12·5	16·5	ENE	E : ENE	2·7	0·0	0·22	281	10 : 0	1, li.-cl : 0
14	11·2	16·5	ENE : E	E : ENE	2·7	0·0	0·26	256	0 : 1, ci.-cu, li.-cl	1, li.-cl : v, n, t
15	8·0	16·5	NE : ENE	E : ESE	2·0	0·0	0·06	183	p.-cl : 1, ci.-cu, li.-cl	1, th.-cl : 2, th.-cl, m
16	13·3	16·5	N : NNE	N : E	1·0	0·0	0·02	148	0 : 0	0 : 0
17	13·3	16·6	Calm : ENE	E	0·7	0·0	0·01	120	0 : 0	0 : 0
18	13·6	16·6	E : NE	ENE	1·6	0·0	0·11	188	0 : 0	0 : 1, li.-cl : 0
19	9·7	16·6	NE : N	NE : W : NNE	2·1	0·0	0·07	149	0 : 0 : 2, cu, th.-cl, h	5, cu.-s : 3, li.-cl, l
20	0·0	16·6	NNE : ENE	NE : SE	0·8	0·0	0·10	219	0 : 10, r : 10, th.-r	10 : 10 : 0
21	0·0	16·6	SE : SW	ESE : SSW	0·5	0·0	0·01	127	10 : 10	10, th.-r : 8, cu.-s : 2, li.-cl
22	4·9	16·6	S : SSW	SW : WSW	3·3	0·0	0·26	293	p.-cl : 10 : 10, slt.-r	8, cu.-s, li.-cl : 10, n : 10, r
23	5·8	16·6	SW : W	W : SW	5·0	0·0	0·68	391	10, c.-r : 10, hy.-r : v, sh.-r	8, cu.-s, li.-cl, w : v, cu.-s, li.-cl
24	0·4	16·6	SW : W	W : WSW	3·9	0·0	0·74	421	10, sh.-r : 10, w	10 : 8, cu.-s, n, oc.-shs : 0
25	5·2	16·6	WSW	WSW : SW	2·5	0·0	0·26	344	0 : 0 : 10	8, cu, cu.-s : v, th.-cl
26	0·6	16·5	S : SE : E	ESE : SSE	0·3	0·0	0·00	129	v : 10, shs.-r : 10, slt.-r	9, cu.-s, li.-cl : 10, oc.-slt.-r : 10, slt.-r, l
27	0·6	16·5	SSE : SSW	SSW	3·4	0·0	0·42	349	10, shs.-r : 10, slt.-r	10, slt.-r : 10, hy.-r : v, li.-cl
28	9·5	16·5	SSW	SSW	14·9	0·0	1·62	489	10, slt.-r : p.-cl : 4, cu, cu.-s, w	3, cu, cu.-s, li.-cl, w : 3, n, w : 0
29	1·6	16·5	SW	SW : NW	3·0	0·0	0·37	329	10 : 10 : 9, cu.-s	10, oc.-slt.-r : 10 : 1, li.-cl, s
30	13·2	16·5	Calm : Variable	E	1·0	0·0	0·06	122	0, d, m : 0	1, li.-cl : 0 : 0
Means	6·6	16·5	...	...	...	...	0·21	229		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 55°·3, being 0°·3 *higher* than
The mean *Temperature of the Dew Point* for the month was 50°·0, being 1°·1 *lower* than
The mean *Degree of Humidity* for the month was 66·2, being 7·8 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·361, being 0in·014 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·0, being 0gr·2 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 529 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 4·8.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·400. The maximum daily amount of *Sunshine* was 13·6 hours on June 18.

The highest reading of the *Solar Radiation Thermometer* was 146°·3 on June 17 ; and the lowest reading of the *Terrestrial Radiation Thermometer* was 29°·8 on June 1.

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

The *Proportions of Wind* referred to the cardinal points were N. 6, E. 12, S. 7, and W. 5.

The *Greatest Pressure of the Wind* in the month was 14·9 lbs. on the square foot on June 28. The mean daily *Horizontal Movement of the Air* for the month was 229 miles ; the greatest daily value was 489 miles on June 28; and the least daily value was 120 miles on June 17.

Rain fell on 8 days in the month, amounting to 0in·822, as measured by gauge No. 6 partly sunk below the ground ; being 1in·200 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
July 1	...	29·973	79·2	52·0	27·2	65·2	+ 3·9	59·3	54·5	10·7	21·3	1·6	69	137·1	44·0	0·000	1·7	vP : wP
2	...	29·953	85·0	58·3	26·7	68·9	+ 7·5	61·6	55·9	13·0	28·9	2·1	62	136·2	55·1	0·000	2·3	wP : mP : wN, vP
3	...	29·943	80·6	55·6	25·0	66·1	+ 4·4	59·5	54·1	12·0	24·8	3·2	66	136·2	52·0	0·000	0·0	wP : mP
4	...	29·808	76·4	54·9	21·5	63·4	+ 1·5	57·2	52·0	11·4	21·3	3·4	66	134·7	51·6	0·120	0·0	wP : wP, wN : ssP, ssN
5	...	29·643	78·0	53·9	24·1	64·5	+ 2·4	60·9	57·9	6·6	16·0	1·5	79	126·3	53·6	0·121	2·0	ssP, ssN : wP : mP
6	In Equator: Last Quarter	29·805	85·1	54·1	31·0	68·0	+ 5·8	60·6	54·8	13·2	26·4	2·0	62	132·3	48·7	0·000	0·0	mP : wP : mP
7	...	29·768	89·9	52·7	37·2	71·5	+ 9·4	61·8	54·5	17·0	30·1	1·8	55	140·2	44·5	0·000	0·0	mP : wP : mP
8	...	29·575	89·9	58·8	31·1	71·2	+ 9·2	62·9	56·6	14·6	28·0	3·8	60	144·5	53·3	0·136	3·2	wP : vP, ssN
9	...	29·614	72·4	55·1	17·3	62·3	+ 0·3	57·8	54·0	8·3	17·8	2·5	75	122·0	51·8	0·342	11·5	wwP : vN : ...
10	...	29·709	76·2	55·4	20·8	64·4	+ 2·3	58·1	52·9	11·5	20·6	2·7	66	126·2	50·6	0·000	6·0	... : vP
11	Perigee	29·528	76·6	57·0	19·6	64·7	+ 2·4	58·5	53·3	11·4	22·4	0·4	67	130·5	52·0	0·190	7·0	wP : wP : sP, sN
12	Greatest Declination N.	29·390	68·4	55·8	12·6	60·1	− 2·5	58·6	57·3	2·8	7·4	0·8	91	131·4	50·6	1·101	4·3	vP, vN
13	New	29·507	66·8	55·5	11·3	59·9	− 3·0	57·0	54·5	5·4	9·9	1·7	83	98·5	53·7	0·005	0·0	wP : vP
14	...	29·693	61·4	50·5	10·9	56·3	− 6·8	53·8	51·4	4·9	8·7	1·8	84	84·7	45·0	0·003	0·0	mP : vP, vN : vP
15	...	29·793	65·0	47·1	17·9	55·7	− 7·5	53·1	50·7	5·0	13·1	0·2	84	98·0	41·1	0·004	1·0	mP : vP, wN : vP
16	...	29·707	63·7	52·6	11·1	57·5	− 5·7	55·1	52·9	4·6	8·7	1·6	85	89·6	46·1	0·122	0·0	mP : vN, mP : mP
17	...	29·736	70·3	52·6	17·7	61·0	− 2·1	55·5	50·7	10·3	19·3	1·6	69	118·0	46·1	0·006	0·0	mP, sN : vP, wN
18	In Equator	29·806	73·5	51·5	22·0	61·3	− 1·7	54·5	48·6	12·7	22·7	2·7	63	122·1	44·6	0·000	2·0	sP : vP, wN
19	...	29·567	72·6	59·7	12·9	62·9	− 0·1	60·5	58·5	4·4	9·7	1·5	86	105·3	57·3	0·133	1·0	ssP, ssN : mP
20	First Quarter	29·416	70·2	58·5	11·7	62·9	− 0·1	61·2	59·8	3·1	4·9	1·1	90	96·1	54·0	0·239	3·0	wP, sN : ...
21	...	29·546	76·4	54·5	21·9	64·0	+ 1·0	59·8	56·3	7·7	16·2	1·5	76	128·8	48·4	0·000	0·0	... : mP
22	...	29·766	74·0	54·6	19·4	63·5	+ 0·6	56·4	50·5	13·0	23·6	1·5	63	125·7	45·0	0·006	0·2	mP : vP, wN
23	...	29·964	75·5	49·7	25·8	61·4	− 1·4	56·2	51·7	9·7	21·8	0·6	71	125·5	41·9	0·262	6·0	sP : wP, wN : mP, ssN
24	Apogee	29·724	77·9	59·1	18·8	66·7	+ 4·1	62·3	58·8	7·9	14·6	0·0	76	126·2	53·2	0·016	4·0	wP : mP
25	...	29·677	73·0	57·7	15·3	63·3	+ 0·9	56·7	51·2	12·1	19·6	4·6	65	122·3	51·8	0·000	0·8	wP : vP, wN
26	Greatest Declination S.	29·706	70·6	54·2	16·4	60·4	− 1·9	56·2	52·6	7·8	18·9	1·9	75	118·0	48·0	0·074	0·0	wP : ssP, ssN : vP, vN
27	...	29·972	71·0	53·5	17·5	60·5	− 1·8	55·3	50·8	9·7	18·7	2·4	70	128·3	45·5	0·000	2·0	wwP : mP : mP
28	Full	30·085	72·0	47·5	24·5	60·6	− 1·7	55·9	51·7	8·9	18·2	1·5	73	120·7	39·2	0·000	0·0	mP : wwP, wwN
29	...	29·901	72·1	58·3	13·8	62·6	+ 0·3	59·1	56·1	6·5	13·5	2·7	80	106·0	53·8	0·149	0·0	wP : vP, vN
30	...	29·712	70·0	54·5	15·5	60·2	− 2·1	56·2	52·7	7·5	15·3	2·7	76	119·0	51·0	0·252	0·0	mP : sP, sN : mP, wN
31	...	29·723	69·3	50·8	18·5	57·9	− 4·4	53·3	49·2	8·7	18·0	4·0	72	119·6	43·1	0·049	0·0	mP : vP, vN
Means	...	29·733	74·3	54·4	19·9	62·9	+ 0·4	57·9	53·8	9·1	18·1	2·0	72·9	121·0	48·9	Sum 3·330	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

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}·733, being 0^{in}·060 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 89°·9 on July 7 and 8 ; the lowest in the month was 47°·1 on July 15 ; and the range was 42°·8.
The mean of all the highest daily readings in the month was 74°·3, being 0°·3 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 54°·4, being 1°·3 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 19°·9, being 1°·0 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 62°·9, being 0°·4 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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	7·9	16·5	ENE : E	E	2·5	0·0	0·22	205	o : 10, m : o	3, li.-cl : 4, s, li.-cl : 10
2	8·9	16·5	E : NE	NE : E	1·4	0·0	0·04	147	10 : 10 : 1, ci.-cu, li.-cl	1, li.-cl : 3, li.-ci : v
3	6·2	16·4	E : ENE	E : ESE	1·4	0·0	0·10	207	p.-cl : 5, ci.-cu, cu.-s, li.-cl	3, ci.-cu, li.-cl : v, s, cu.-s
4	6·3	16·4	ENE	E : NE	4·7	0·0	0·61	352	10 : v, li.-cl	5, li.-cl : 8, th.-cl : 10, r
5	0·8	16·4	N : NE	ENE : ESE : N	3·4	0·0	0·19	216	10, c.-r : 10 : 10	10 : o
6	13·0	16·4	N : NE	E : ESE	2·3	0·0	0·08	182	o : o	o : o
7	13·4	16·3	E : ENE : SE	S : E	1·3	0·0	0·03	116	o, d : o	o : o : v
8	7·4	16·3	E : SSE : SSW	SW : SSW	3·8	0·0	0·15	199	1, li.-cl : v, li.-cl	v, sh.-r : 10, t.-sm : 10, sh.-r
9	8·9	16·3	SSW	SSW	7·8	0·0	1·09	393	10 : p.-cl : 10, fq.-hy.-shs, t	p.-cl : o
10	6·3	16·3	S : SSW	SSW : S	5·3	0·0	0·32	234	p.-cl : 9, cu.-s, li.-cl, slt.-sh	v, cu, cu.-s : o : v
11	5·4	16·2	SE : S	S : SE	3·0	0·0	0·30	202	10 : v, cu, cu.-s	7, cu, cu.-s : 10, r : v, r
12	0·4	16·2	ESE : ENE : E	Calm : NNW	1·0	0·0	0·02	97	10 : 10, hy.-r : 10, t.-sm, hy.-r	10, t.-sm, hy.-r, gt.-glm : p.-cl, oc.-slt.-r
13	0·0	16·2	W : NNW	N	1·3	0·0	0·09	209	10, slt.-r : 10, slt.-r	10 : 10
14	0·0	16·1	N : S	NNE : Calm	1·4	0·0	0·02	93	10 : 10, gt.-glm	10, gt.-glm : 10, slt.-r : v, h, m
15	0·0	16·1	SW : Calm	Variable : Calm	0·2	0·0	0·00	40	10 : 10, slt.-f, gt.-glm	10, gt.-glm : 10, m
16	0·7	16·1	SW : E	N : SW	0·3	0·0	0·00	82	10, l : 10, r	10, r : v, li.-cl : o
17	4·3	16·0	WSW	WSW : WNW	5·4	0·0	0·72	351	v : 10, sh.-r	v, cu, ci.-cu, ci.-s : v, cu.-s, li.-cl, slt.-r
18	7·7	16·0	W : NW	W : SW	3·3	0·0	0·47	357	o : 6, cu.-s, li.-cl	8, cu.-s, li.-cl : 10, th.-r
19	0·1	16·0	SW	SSW	3·9	0·0	0·88	421	10 : 10	10, oc.-r : 10, sc, r, w
20	0·5	15·9	SSW	SSW : SW	4·5	0·0	0·37	287	10, oc.-r : 10, hy.-shs, w	10, oc.-th.-r : 10, hy.-r : p.-cl
21	2·9	15·9	SW	SW : SSW	1·0	0·0	0·05	185	p.-cl : v, cu.-s, li.-cl	10 : o
22	7·1	15·8	SW : NNW : W	NW : WSW	3·3	0·0	0·25	273	10, sh.-r : v, li.-cl	3, li.-cl : o
23	1·6	15·8	SW	SSW	3·0	0·0	0·27	265	o : 10	10, slt.-r : 10, c.-r
24	2·4	15·7	SW	WSW	5·9	0·0	0·57	387	10, oc.-shs : 10, slt.-sh	v, cu, cu.-s, w : v
25	7·0	15·7	WSW	WSW	4·9	0·0	0·72	419	10 : 7, cu.-s, w	v, ci.-cu, cu.-s : v, slt.-r
26	4·1	15·7	SW : NNW	NW : N	2·4	0·0	0·10	227	p.-cl : 9, cu.-s, li.-cl, t.-sm	v, cu, cu.-s, n, t : 10, r : o
27	4·2	15·6	N : NNW	N : NNE	1·8	0·0	0·20	252	10 : 6, cu, cu.-s	9, cu.-s : p.-cl : o
28	6·4	15·6	NNE : NE	SE : S	0·3	0·0	0·01	110	o, hy.-d : o : 1, th.-cl, slt.-m	10, th.-cl : 10
29	0·0	15·5	SW	NW : W	1·4	0·0	0·05	172	10 : 10, m	10, hy.-r : 10, li.-sh, glm : 10, hy.-sh
30	3·2	15·5	NNW : WNW	NW : NNW	4·7	0·0	0·30	257	10, shs.-r : 10, slt.-r	v, hy.-r, t : p.-cl : v, li.-cl
31	2·8	15·4	WSW : W : NW	NW : WNW	4·9	0·0	0·32	291	p.-cl : 10 : v, cu, cu.-s	10, r : v : 10
Means	4·5	16·0	...	...	...	...	0·28	233		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 57°·9, being 0°·1 *higher* than
The mean *Temperature of the Dew Point* for the month was 53°·8, being 0°·1 *lower* than
The mean *Degree of Humidity* for the month was 72·9, being 0·9 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·415, being 0in·001 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·6, being *the same as*
The mean *Weight of a Cubic Foot of Air* for the month was 526 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 6·5.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·282. The maximum daily amount of *Sunshine* was 13·4 hours on July 7.

The highest reading of the *Solar Radiation Thermometer* was 144°·5 on July 8; and the lowest reading of the *Terrestrial Radiation Thermometer* was 39°·2 on July 28.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·2; 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. 6, S. 9, and W. 9. One day was calm.

The *Greatest Pressure of the Wind* in the month was 7·8 lbs. on the square foot on July 9. The mean daily *Horizontal Movement of the Air* for the month was 233 miles; the greatest daily value was 421 miles on July 19; and the least daily value was 40 miles on July 15.

Rain fell on 18 days in the month, amounting to 3in·330, as measured by gauge No. 6 partly sunk below the ground; being 0in·860 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Aug. 1	...	29·783	69·6	48·6	21·0	59·5	− 2·7	53·8	48·7	10·8	18·4	3·2	68	119·6	42·7	0·000	0·0	mP : vP, wN
2	In Equator	29·705	72·7	55·3	17·4	62·7	+ 0·6	57·5	53·1	9·6	21·4	1·7	71	115·4	47·0	0·039	0·0	wwP : vP : vP, wN
3	...	29·686	68·8	54·6	14·2	62·2	+ 0·1	58·2	54·8	7·4	11·2	3·8	77	105·4	46·2	0·000	1·0	mP : wP, wN : mP
4	...	29·560	72·4	55·9	16·5	61·4	− 0·8	58·8	56·6	4·8	11·3	1·3	85	127·0	49·0	0·574	6·8	wP, sN : ssP, ssN
5	Last Quarter	29·698	70·7	52·8	17·9	60·3	− 2·0	55·3	50·9	9·4	14·9	2·8	71	121·0	45·5	0·008	2·8	vP : vP, sN
6	...	29·919	72·0	48·5	23·5	59·1	− 3·3	53·8	49·1	10·0	18·9	3·6	70	122·7	40·3	0·008	2·2	mP : wP : mP
7	...	29·906	79·3	55·3	24·0	65·6	+ 3·1	60·5	56·3	9·3	16·5	4·9	73	136·3	50·0	0·000	2·3	wP : wP : mP
8	Greatest Dec. N.: Perigee	29·959	83·3	54·7	28·6	68·9	+ 6·4	61·6	55·9	13·0	27·0	1·9	62	137·5	46·8	0·000	0·0	mP : wP : mP
9	...	29·878	83·0	59·5	23·5	70·9	+ 8·4	64·5	59·6	11·3	24·0	1·5	67	130·8	50·0	0·000	3·0	mP : wP : mP
10	...	29·785	83·7	61·0	22·7	70·7	+ 8·2	64·3	59·4	11·3	22·4	3·4	67	128·0	52·0	0·100	0·0	vP, sN : wP, wN : mP
11	New	29·932	83·3	59·2	24·1	69·7	+ 7·2	63·7	59·1	10·6	21·4	2·1	69	138·3	51·0	0·000	0·2	mP : wP, wwN : mP
12	...	29·986	81·0	62·1	18·9	69·7	+ 7·2	66·2	63·5	6·2	12·4	1·6	81	131·3	56·4	0·071	1·8	vP, sN : wP, wN : mP
13	...	30·001	83·0	59·6	23·4	70·4	+ 8·0	65·5	61·7	8·7	18·5	0·7	74	139·1	52·2	0·000	0·0	wP : wwP
14	...	30·034	85·1	57·4	27·7	71·0	+ 8·7	63·6	58·0	13·0	23·5	3·6	63	132·6	51·8	0·000	0·0	wP
15	In Equator	30·025	88·5	57·7	30·8	72·7	+10·6	64·4	58·2	14·5	26·6	4·2	60	137·0	52·3	0·000	0·0	wP : wP, wN : wP
16	...	29·942	93·0	57·2	35·8	74·8	+12·8	64·2	56·6	18·2	32·5	5·9	53	137·0	49·1	0·000	0·0	mP : wP, wN : wP
17	...	29·872	94·2	60·0	34·2	76·2	+14·4	65·6	58·1	18·1	33·9	4·7	53	136·9	53·8	0·000	0·7	mP : wP, wwN : wP
18	...	29·672	95·1	66·8	28·3	77·9	+16·3	66·2	58·1	19·8	36·5	5·9	51	146·2	58·1	0·000	3·0	wP : wP, vN : vP
19	First Quarter	29·735	82·7	59·8	22·9	69·0	+ 7·6	62·1	56·7	12·3	22·8	3·4	64	140·1	54·0	0·000	4·0	wP : wP, wwN : mP
20	Apogee	29·677	80·0	58·3	21·7	66·8	+ 5·5	62·0	58·2	8·6	20·2	2·1	74	134·8	50·4	0·020	10·0	wP : vN, wP : mP
21	...	29·536	82·0	58·0	24·0	68·3	+ 7·2	62·4	57·8	10·5	24·5	4·9	68	135·0	50·0	0·006	9·3	wP : wP, wwN
22	Greatest Declination S.	29·695	75·0	55·1	19·9	63·7	+ 2·7	58·5	54·1	9·6	18·5	3·2	72	130·3	46·0	0·018	4·5	wP : wP, wwN : mP
23	...	29·792	66·2	55·0	11·2	60·2	− 0·7	57·8	55·7	4·5	11·2	1·9	86	110·0	50·0	0·286	4·8	mP : vP, sN : vP, sN
24	...	29·902	73·4	52·3	21·1	61·7	+ 0·9	56·0	51·1	10·6	19·8	2·6	69	124·8	46·1	0·000	0·8	mP : vP
25	...	30·074	73·6	50·4	23·2	61·0	+ 0·2	54·4	48·7	12·3	22·9	2·0	64	129·4	42·9	0·000	0·0	mP : vP
26	...	30·059	66·0	47·5	18·5	58·1	− 2·7	52·5	47·5	10·6	16·2	3·1	68	105·7	38·0	0·000	0·5	mP : vP
27	Full	29·976	63·1	47·1	16·0	55·4	− 5·3	51·4	47·6	7·8	11·9	0·0	75	89·8	39·5	0·000	1·5	mP : mP, vN
28	...	30·086	68·2	47·3	20·9	57·3	− 3·3	52·5	48·1	9·2	17·6	1·7	71	124·8	38·2	0·000	0·0	mP : vP
29	In Equator	30·118	71·3	43·2	28·1	57·7	− 2·6	52·8	48·4	9·3	20·5	1·0	71	127·8	33·8	0·000	2·0	mP : vP, wN
30	...	29·956	76·0	56·8	19·2	63·7	+ 3·6	58·3	53·8	9·9	19·9	4·4	71	116·3	51·5	0·000	2·0	mP : vP, wN
31	...	29·798	72·5	54·7	17·8	61·9	+ 2·0	58·0	54·7	7·2	15·1	0·6	78	119·2	49·5	0·116	0·0	ssP, ssN : vP, sN
Means	...	29·863	77·7	55·2	22·5	65·4	+ 3·8	59·6	54·8	10·6	20·4	2·8	69·2	126·8	47·9	Sum 1·246	2·0	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 results on August 26 and 27 for Air and Evaporation Temperatures are deduced from eye-observations, on account of failure of the photographic register.

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 $29^{in}·863$, being $0^{in}·081$ *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 95°·1 on August 18 ; the lowest in the month was 43°·2 on August 29 ; and the range was 51°·9.
The mean of all the highest daily readings in the month was 77°·7, being 4°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 55°·2, being 2°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 22°·5, being 2°·7 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 65°·4, being 3°·8 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.		
Aug. 1	2·8	15·3	WSW : NW	W : WSW	1·8	0·0	0·11	251	10 : 8, cu, cu.-s	7, cu.-s, li.-cl : 10, slt.-r
2	5·3	15·3	SW : NW	NW : W : WSW	2·4	0·0	0·28	281	10, r : v, cu, li.-cl	v, cu, cu.-s : v : 3, th.-cl
3	1·2	15·2	SW : SSW	SSW : SW	7·8	0·0	1·06	433	p.-cl, lu.-ha : 8, li.-cl : 10, w	10 : 10, oc.-m.-r
4	2·7	15·2	SSW : SW	SW	12·9	0·0	0·29	323	10, r : 10, sh.-r	10, t.-sm, hy.-r, gt.-glm : v
5	6·7	15·1	WSW	W : NW : NNW	3·7	0·0	0·44	364	0 : p.-cl : 9, n, cu, cu.-s	v, cu, li.-cl, li.-sh : v, li.-cl : 0
6	6·2	15·1	Variable	SW	1·0	0·0	0·06	147	0 : p.-cl : 3, cu.-s, li.-cl	3, li.-cl : 10, th.-cl : 10, sh.-r
7	7·4	15·0	SSW : SW	SW : SSW	1·7	0·0	0·16	234	10 : 10 : 8, cu, li.-cl, li.-sh	3, li.-cl : 0
8	9·0	15·0	Variable	SE : E	2·4	0·0	0·18	171	0, hy.-d : 2, th.-cl, so.-ha	4, li.-cl : 0, hy.-d
9	11·9	14·9	E	ENE	3·6	0·0	0·33	258	0, hy.-d : 0, m	0 : 0, l
10	6·9	14·9	Variable	SW	1·3	0·0	0·08	193	v, t.-sm, hy.-r : p.-cl : 10	5, li.-cl : 0 : v, l
11	4·7	14·8	WSW	SW	1·8	0·0	0·05	239	0, l, t : 6, cu.-s, li.-cl	5, cu.-s, li.-cl : 10
12	1·6	14·7	SW	WSW : NNW	1·0	0·0	0·03	178	10, hy.-r : 10	10, sh.-r : p.-cl : 0
13	4·0	14·7	Calm : E	ENE : ESE	0·7	0·0	0·02	120	0, f : 3, li.-cl	4, li.-cl : v, li.-cl
14	9·3	14·6	Calm : ESE	SE : E	0·7	0·0	0·02	104	v : 0	0 : 0
15	10·3	14·6	Calm : SW	S : SSE	0·5	0·0	0·00	119	0 : 1, th.-cl	0 : 0
16	11·3	14·5	SSW : SW	SW : SSW	2·0	0·0	0·06	211	0 : 0	1, th.-cl : 2, th.-cl, so.-ha : 0
17	11·5	14·4	SSW	SSW : SE	1·0	0·0	0·02	151	0 : 0	0 : 0
18	11·3	14·4	SSE : S	SSW : SW	4·9	0·0	0·40	312	0 : 0	0 : v, li.-cl : v, shs.-r, l
19	6·3	14·3	SW	SSW	2·4	0·0	0·27	296	10 : 8, cu.-s, li.-cl	5, li.-cl : 0
20	7·1	14·3	SSW	SSW	8·5	0·0	1·26	410	0 : 0 : 4, cu.-s, w	p.-cl, th.-r, w : 3, li.-cl, w : 10, w
21	6·0	14·2	SSW	SSW : SW	8·0	0·0	0·93	448	10 : 10, oc.-slt.-r	3, li.-cl : v, li.-cl
22	4·5	14·1	SSW	SW	8·0	0·0	0·92	397	0 : 10 : 9, cu.-s, li.-cl, shs.-r	7, cu.-s, li.-cl : 3, li.-cl
23	1·7	14·1	SSW : NW	WNW : SW	0·6	0·0	0·01	159	10 : 10, r, t, gt.-glm	10, m.-r, gt.-glm : v, sh.-r : 3, li.-cl
24	10·6	14·0	WSW	WSW	9·9	0·0	0·77	376	0 : 7, li.-cl, w	v, cu, cu.-s : 3, li.-cl : 3, th.-cl
25	9·5	13·9	SW : W : WNW	NW : NNW	2·0	0·0	0·11	265	0 : 0, m : 3, cu.-s, li.-cl	4, li.-cl : 2, li.-cl : 0
26	3·3	13·9	WSW : NNW	NNW	1·7	0·0	0·10	230	0 : 6, cu, cu.-s	10 : 10 : p.-cl
27	0·4	13·8	SW : NNW	NNW : N	1·7	0·0	0·05	197	0, d : 10 : 10	10 : v, s, th.-cl : 0
28	2·0	13·8	NNW : N	NNE	1·7	0·0	0·13	249	0 : 10 : 9, cu.-s, li.-cl	8, cu.-s, li.-cl : 10 : 0
29	8·5	13·7	Calm : NNE	NNE : E	1·8	0·0	0·05	114	0, d : 0, slt.-m	v, li.-cl : 10
30	3·5	13·7	N : NNE : Calm	NNE : Calm : NNW	1·3	0·0	0·02	51	10 : 10 : p.-cl, m	6, cu.-s : v, li.-cl : v, li.-cl
31	0·9	13·6	NW : WSW	NNW : N	2·5	0·0	0·04	103	p.-cl, m : 10, slt.-r	9, cu.-s, li.-cl, slt.-sh : 10, hy.-r
Means	6·1	14·5	...	...	...	...	0·27	238		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 59°·6, being 2°·0 *higher* than
The mean *Temperature of the Dew Point* for the month was 54°·8, being 0°·6 *higher* than
The mean *Degree of Humidity* for the month was 69·2, being 7·6 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·430, being 0in·009 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·7, being *the same as*
The mean *Weight of a Cubic Foot of Air* for the month was 526 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 4·8.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·420. The maximum daily amount of *Sunshine* was 11·9 hours on August 9.

The highest reading of the *Solar Radiation Thermometer* was 146°·2 on August 18; and the lowest reading of the *Terrestrial Radiation Thermometer* was 33°·8 on August 29.

The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·5; 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. 5, E. 3, S. 12, and W. 10. One day was calm.

The *Greatest Pressure of the Wind* in the month was 12·9 lbs. on the square foot on August 4. The mean daily *Horizontal Movement of the Air* for the month was 238 miles; the greatest daily value was 448 miles on August 21; and the least daily value was 51 miles on August 30.

Rain fell on 11 days in the month, amounting to 1in·246, as measured by gauge No. 6 partly sunk below the ground; being 1in·104 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Sept. 1	...	29·853	66·0	54·5	11·5	60·0	+ 0·3	57·9	56·0	4·0	9·0	1·4	87	100·0	54·5	0·133	0·0	wP, wN : wP, vN
2	...	29·941	71·3	54·0	17·3	62·3	+ 2·6	58·1	54·5	7·8	12·6	4·0	76	113·0	47·0	0·000	0·0	wP : vP : wP
3	Last Quarter	30·086	68·9	52·0	16·9	60·4	+ 0·8	55·9	52·0	8·4	14·9	2·6	73	118·3	44·0	0·000	0·0	wP
4	Perigee: Greatest Dec. N.	30·034	71·1	48·3	22·8	58·9	− 0·5	54·8	51·1	7·8	17·1	0·8	76	121·1	40·3	0·000	3·0	vP : wP : mP
5	...	29·815	79·0	45·7	33·3	61·3	+ 2·0	55·8	51·1	10·2	24·3	0·8	70	126·1	38·3	0·000	1·0	mP : wP : mP
6	...	29·638	82·8	52·3	30·5	66·0	+ 6·9	57·8	51·1	14·9	30·1	4·6	59	129·4	42·0	0·008	0·0	mP : wP, wwN : wP
7	...	29·611	77·2	54·7	22·5	66·1	+ 7·2	60·0	55·0	11·1	21·9	3·2	68	125·0	47·0	0·012	1·2	wP : wP, wN
8	...	29·573	73·9	52·9	21·0	58·2	− 0·5	54·4	51·0	7·2	17·8	2·8	77	132·4	45·2	0·204	5·8	wP : ssP, ssN : mP
9	...	29·686	64·1	50·2	13·9	55·6	− 2·9	50·5	45·7	9·9	17·3	2·4	70	112·1	42·8	0·046	0·0	sP, sN : vP, vN : sP
10	New	29·832	65·2	44·4	20·8	54·5	− 3·8	48·6	42·9	11·6	22·0	3·4	65	122·0	37·0	0·000	0·0	mP : wP : mP
11	In Equator	30·030	66·4	46·3	20·1	55·8	− 2·3	50·3	45·2	10·6	18·9	5·0	67	118·9	38·6	0·000	1·0	mP : wP : mP
12	...	30·107	68·4	46·0	22·4	55·7	− 2·3	50·1	44·8	10·9	20·7	4·0	67	125·1	38·0	0·000	0·0	mP : wP : mP
13	...	30·017	70·0	39·4	30·6	56·2	− 1·7	50·8	45·8	10·4	20·7	2·2	68	100·3	31·2	0·000	0·0	mP : vP : mP
14	...	30·056	77·9	55·0	22·9	63·3	+ 5·5	59·2	55·7	7·6	18·0	2·3	77	115·0	45·0	0·000	0·0	mP : wP : wN, vP
15	...	29·973	76·5	48·6	27·9	62·0	+ 4·3	57·5	53·6	8·4	20·1	1·0	75	120·4	38·9	0·000	0·0	mP : vP, wN
16	...	29·693	65·9	47·2	18·7	58·6	+ 1·1	56·3	54·2	4·4	8·8	0·9	85	82·3	40·6	0·245	0·8	vP, sN : vP, vN
17	Apogee	29·570	64·2	51·2	13·0	57·1	− 0·2	52·2	47·7	9·4	17·9	1·1	71	113·9	45·4	0·006	2·2	wP : mP : sP
18	First Quarter: Greatest Dec. S.	29·511	67·3	51·6	15·7	59·1	+ 2·2	55·8	52·8	6·3	11·5	3·0	80	101·8	46·0	0·002	1·0	wP : wP : mP
19	...	29·348	67·9	57·0	10·9	61·8	+ 5·3	58·5	55·7	6·1	10·4	3·0	81	98·0	52·2	0·023	4·0	wP : wP : mP
20	...	29·272	66·7	48·0	18·7	56·1	0·0	51·8	47·7	8·4	18·4	1·9	73	117·1	41·2	0·039	2·0	wP : vP : vP, vN
21	...	29·327	55·4	41·0	14·4	48·9	− 6·8	46·1	43·1	5·8	9·2	1·5	80	75·0	33·4	0·000	0·0	mP : mP : sP, wN
22	...	29·473	63·4	41·5	21·9	50·2	− 5·2	45·2	39·9	10·3	21·9	3·7	68	115·0	36·6	0·000	0·0	mP : vP, sN
23	...	29·486	52·9	39·3	13·6	45·7	− 9·5	42·4	38·6	7·1	10·6	4·0	77	78·8	31·0	0·045	2·5	wP : ssN, vP
24	...	29·795	60·3	37·5	22·8	47·0	− 8·1	42·8	38·1	8·9	17·3	2·6	72	98·0	29·0	0·000	1·5	sP : mP : vP
25	Full: In Equator	29·841	60·8	41·4	19·4	50·7	− 4·3	47·1	43·3	7·4	13·1	2·3	76	101·7	30·5	0·000	0·0	mP : vP : vP, mN
26	...	29·795	65·8	45·2	20·6	54·7	− 0·2	51·2	47·9	6·8	14·9	1·5	77	109·4	39·2	0·000	1·5	mP : mP, wN
27	...	29·638	68·1	51·5	16·6	58·6	+ 3·7	56·1	53·9	4·7	9·9	1·1	84	104·1	44·6	0·244	4·5	ssN, vP : mP
28	...	29·580	63·1	48·4	14·7	56·2	+ 1·4	53·9	51·7	4·5	9·7	1·5	85	97·6	42·8	0·065	2·7	wP
29	Perigee	29·207	66·0	52·2	13·8	57·6	+ 3·0	54·0	50·7	6·9	15·8	3·0	78	116·2	49·1	0·181	6·8	vP, vN : ssP, ssN
30	...	29·191	64·0	48·2	15·8	54·9	+ 0·5	51·8	48·8	6·1	15·8	2·1	79	109·0	41·0	0·036	4·5	wP : vP, ssN : sP
Means	...	29·699	67·7	48·2	19·5	57·1	− 0·1	52·9	49·0	8·1	16·4	2·5	74·7	109·9	41·1	Sum 1·289	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

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$^{in.}$·699, being 0$^{in.}$·107 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 82°·8 on September 6; the lowest in the month was 37°·5 on September 24; and the range was 45°·3.
The mean of all the highest daily readings in the month was 67°·7, being 0°·4 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 48°·2, being 0°·9 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 19°·5, being 1°·3 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 57°·1, being 0°·1 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. OSLER'S. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	ROBINSON'S. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Sept. 1	0·1	13·5	ENE	Calm : WSW	0·5	0·0	0·01	113	10, r : 10, c.-r : 10	10, glm : 10 : v, th.-cl
2	1·8	13·4	WNW : NW	NNW : NNE	1·6	0·0	0·12	268	10 : 10	10 : 0
3	5·7	13·4	NNW : NNE : N	NE : SE	1·3	0·0	0·03	174	10 : 7, cu, li.-cl	10 : 10 : v
4	7·1	13·3	Calm : ESE	E : ESE	1·0	0·0	0·03	107	0, d : p.-cl, f : v, cu.-s, li.-cl	7, cu.-s, li.-cl : 0
5	8·0	13·2	Calm : ESE	S : SE	0·2	0·0	0·00	92	0 : 0, tk.-f : 0	3, li.-cl, so.-ha : v : 0
6	8·4	13·2	SW	SW	1·4	0·0	0·06	217	0 : 3, ci.-cu, li.-cl	2, cu.-s, ci.-cu : 10 : 10, sh.-r
7	6·7	13·1	SW : WSW	WSW : SW	5·3	0·0	0·82	398	10, slt.-r : 10 : 9, th.-cl, so.-ha	6, cu, cu.-s, li.-cl : 0
8	5·0	13·0	SW	SW	22·1	0·0	0·61	402	0 : p.-cl, slt.-r	v, t.-sm, hy.-sqs : v, th.-cl, prh : 0, l
9	4·3	13·0	WSW : NW : NNW	WNW : NNW	9·7	0·0	0·46	284	v, hy.-r, st.-w : p.-cl : 8, cu, li.-cl	5, cu, li.-cl : p.-cl : 10
10	7·6	12·9	NE	NE : ENE	2·1	0·0	0·07	234	v, d : 3, li.-cl	3, li.-cl : 3, li.-cl : 0
11	9·5	12·9	NE : ENE	E : ENE	5·0	0·0	0·37	295	p.-cl : 10, slt.-f, slt.-r : v, cu, li.-cl	0 : 0
12	7·9	12·8	NE : ENE	ENE : E	4·2	0·0	0·30	288	p.-cl : v, cu.-s, li.-cl	3, li.-cl : 0
13	4·0	12·7	NNW : SW : WSW	WSW	1·7	0·0	0·07	204	0, d : 0, slt.-f : 2, th.-cl, f	v, th.-cl, so.-ha : v : 0
14	5·0	12·7	SW : WSW : NW	Variable	0·4	0·0	0·00	171	p.-cl : 8, cu, li.-cl	6, cu, li.-cl : 3, cu, li.-cl : 0, d
15	8·9	12·6	SW : WSW	WSW : SSW	0·5	0·0	0·00	167	0, hy.-d : 0	0 : 1, li.-cl : 0, h
16	0·0	12·6	Calm : NNE	NNE	1·0	0·0	0·00	121	p.-cl : f : 10	10, fq.-r : 10, c.-r
17	3·7	12·5	NNW	NW : SW	2·0	0·0	0·14	267	10, c.-r : 10 : 3, cu.-s, li.-cl	10 : 10 : v
18	0·1	12·4	SW	SW	2·0	0·0	0·15	299	10 : 10	10 : 10 : v
19	0·2	12·3	SW	SSW : SW	6·0	0·0	0·84	409	10 : 10, sh.-r	10, oc.-th.-r : 10, oc.-th.-r
20	4·0	12·3	SW : WSW	WSW : S	1·0	0·0	0·04	205	10 : v	v, cu.-s, li.-cl : 10 : 10, slt.-r, l
21	0·0	12·2	SW : NE	ENE : NNW : SW	0·6	0·0	0·01	153	p.-cl, hy.-d : 10	10 : 10 : p.-cl
22	8·2	12·2	SW : WSW	WSW	4·9	0·0	0·39	298	p.-cl, d : 4, cu.-s, li.-cl	3, cu.-s, li.-cl : 0
23	2·0	12·1	SW	SW : NW : W	5·6	0·0	0·34	332	0 : 10 : 10, r	v, sh.-r : 0
24	5·5	12·0	SW : NW	NW : W : SW	1·7	0·0	0·11	262	0 : 0 : v, li.-cl, slt.-m	li.-cl : th.-cl : 0
25	1·3	11·9	SW : WSW : W	NW : W : SW	3·3	0·0	0·23	256	0 : 10 : 8, ci.-cu, li.-cl	v, li.-shs : 10 : 10, th.-cl
26	1·3	11·9	SW : SSW	SW : SSW	2·1	0·0	0·17	263	1, li.-cl : v, slt.-r : v, cu.-s, li.-cl	v, li.-cl, li.-sh : 0
27	1·2	11·8	SSW : SW : WSW	SW : WSW	1·7	0·0	0·20	317	10, hy.-r : 10, shs.-r : 8, th.-cl	10, slt.-sh : 4, th.-cl, lu.-ha
28	0·5	11·7	SW : SSW	SSW	5·3	0·0	0·55	389	0 : 1, li.-cl : 10, th.-cl, so.-ha	10, fq.-r : 10, fq.-r : 10, shs.-r
29	6·3	11·7	SSW : SW	SW : SSW	7·7	0·0	1·10	478	oc.-shs : 1, cu, li.-cl	v, shs.-r : 4, li.-cl : v, shs.-r
30	4·9	11·6	S : SW	WSW : SSW	4·2	0·0	0·14	278	10, shs.-r : 10, shs.-r : 8, cu.-s, li.-cl	2, li.-cl, li.-sh : 2, li.-cl : 0
Means	4·3	12·6	...	...	...	...	0·25	258		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 52°·9, being 1°·3 *lower* than
The mean *Temperature of the Dew Point* for the month was 49°·0, being 2°·4 *lower* than
The mean *Degree of Humidity* for the month was 74·7, being 6·1 *less* than
The mean *Elastic Force of Vapour* for the month was 0^{in}·348, being 0^{in}·031 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3^{grs}·9, being 0^{gr}·3 *less* 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 5·8.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·343. The maximum daily amount of *Sunshine* was 9·5 hours on September 11.

The highest reading of the *Solar Radiation Thermometer* was 132°·4 on September 8; and the lowest reading of the *Terrestrial Radiation Thermometer* was 29°·0 on September 24.

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

The *Proportions of Wind* referred to the cardinal points were N. 5, E. 3, S. 10, and W. 11. One day was calm.

The *Greatest Pressure of the Wind* in the month was 22·1 lbs. on the square foot on September 8. The mean daily *Horizontal Movement of the Air* for the month was 258 miles; the greatest daily value was 478 miles on September 29; and the least daily value was 92 miles on September 5.

Rain fell on 14 days in the month, amounting to 1^{in}·289, as measured by gauge No. 6 partly sunk below the ground; being 0^{in}·962 *less* than the average fall for the 50 years, 1841-1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Oct. 1	...	29·443	65·8	44·1	21·7	53·2	— 0·9	50·4	47·6	5·6	15·2	1·0	82	110·3	37·6	0·000	0·0	mP : wP : ...
2	Greatest Dec. N.: Last Quarter	29·398	63·7	46·9	16·8	52·9	— 0·9	49·9	46·9	6·0	14·4	0·8	80	105·7	40·7	0·080	2·0	... : mP, sN : vP, sN
3	...	29·175	59·9	43·8	16·1	50·0	— 3·5	46·6	43·0	7·0	15·4	1·0	78	108·0	37·1	0·023	1·0	vP, wN : mP : sP
4	...	29·055	62·0	43·8	18·2	50·1	— 3·1	46·1	41·9	8·2	17·5	3·1	74	113·6	36·7	0·004	3·0	mP : sP, sN : sP
5	...	29·122	60·6	45·2	15·4	52·4	— 0·6	48·9	45·3	7·1	13·1	3·1	77	98·0	37·8	0·135	2·7	mP : mP : mP, sN
6	...	29·335	62·0	47·0	15·0	52·8	+ 0·1	49·8	46·8	6·0	15·6	0·8	80	115·0	42·2	0·235	5·3	ssP, ssN : mP, wN : sP
7	...	29·415	63·0	44·4	18·6	53·3	+ 0·8	51·4	49·5	3·8	11·8	0·2	87	112·0	39·0	0·131	4·0	ssP, ssN
8	In Equator	29·548	62·8	43·8	19·0	52·5	+ 0·4	49·7	46·9	5·6	13·7	1·3	81	99·1	36·0	0·000	6·0	mP : mP : sP
9	New	29·526	65·3	41·7	23·6	52·6	+ 0·9	51·1	49·6	3·0	9·7	0·2	90	113·5	33·7	0·946	0·0	mP : mP : ssP, ssN
10	...	29·659	59·8	49·6	10·2	53·2	+ 1·9	50·0	46·8	6·4	13·7	0·6	79	108·8	43·7	0·302	1·2	ssN, wP : mP
11	...	29·662	62·9	48·0	14·9	55·3	+ 4·3	53·9	52·5	2·8	7·4	1·2	91	81·4	47·0	0·725	6·8	wP, mN : vP, vN
12	...	29·876	55·8	42·4	13·4	48·7	— 1·9	45·7	42·5	6·2	15·6	1·3	80	93·0	36·6	0·044	0·0	vP, vN : mP : sP
13	...	30·008	58·9	38·5	20·4	47·9	— 2·4	44·8	41·4	6·5	13·7	1·8	79	87·6	32·3	0·002	1·2	sP : mP
14	...	29·765	65·0	53·0	12·0	59·2	+ 9·1	57·5	56·0	3·2	5·2	1·1	90	84·8	48·5	0·185	3·8	sP, sN : wP
15	Apogee	29·793	65·2	57·2	8·0	60·3	+10·4	58·3	56·5	3·8	6·5	2·1	88	82·0	55·0	0·000	0·0	wwP : wP
16	Greatest Declination S.	29·820	66·7	55·2	11·5	59·5	+ 9·7	56·5	53·8	5·7	9·0	2·8	82	100·2	49·8	0·000	2·0	wwP : wP : mP
17	First Quarter	29·874	60·2	51·8	8·4	55·8	+ 6·2	54·7	53·7	2·1	4·4	0·8	92	71·0	50·6	0·587	0·0	wP : vP, wN
18	...	29·969	58·9	42·6	16·3	51·6	+ 2·1	48·9	46·2	5·4	11·8	0·8	82	99·4	37·5	0·452	2·0	vN, vP : sP
19	...	30·204	57·8	38·9	18·9	47·5	— 1·8	45·4	43·1	4·4	11·6	0·2	86	82·3	33·9	0·003	0·0	mP
20	...	30·209	59·9	45·7	14·2	51·9	+ 2·9	49·4	46·9	5·0	10·5	1·5	83	80·5	39·7	0·000	0·0	mP
21	. .	30·096	65·9	51·2	14·7	57·0	+ 8·2	53·1	49·5	7·5	14·8	2·8	76	88·7	47·8	0·000	2·5	mP
22	...	30·065	55·2	43·5	11·7	52·5	+ 4·0	50·7	48·9	3·6	7·0	0·8	88	66·2	39·5	0·214	3·5	wP : wwP, wwN : wP
23	In Equator	30·248	56·0	38·4	17·6	46·6	— 1·6	44·2	41·5	5·1	11·0	0·9	83	92·0	33·9	0·000	1·0	mP
24	...	30·213	56·3	44·0	12·3	49·0	+ 1·1	45·3	41·3	7·7	12·2	4·4	75	82·0	39·9	0·000	0·0	mP
25	Full	29·868	55·3	48·0	7·3	52·4	+ 4·8	48·8	45·1	7·3	10·8	1·8	77	64·7	42·0	0·037	1·7	wP : mP
26	...	29·646	54·6	44·5	10·1	48·5	+ 1·1	44·9	41·0	7·5	14·6	2·1	75	93·0	38·5	0·055	5·3	sP, sN : mP : mP, sN
27	Perigee	29·791	53·7	39·4	14·3	45·2	— 2·1	42·0	38·3	6·9	12·6	2·4	77	76·7	33·3	0·000	0·5	mP : vP
28	...	29·752	57·9	41·4	16·5	51·3	+ 4·1	48·1	44·8	6·5	10·3	3·5	79	75·2	35·5	0·004	1·8	mP : mP : wP
29	Greatest Declination N.	29·615	56·1	44·7	11·4	51·8	+ 4·8	47·0	42·1	9·7	16·4	3·8	70	86·0	38·0	0·000	0·7	wP : mP : sP
30	...	29·731	48·4	34·0	14·4	42·9	— 4·1	39·4	35·2	7·7	12·4	4·1	75	81·0	29 8	0·000	3·0	sP
31	Last Quarter	29·932	44·5	30·2	14·3	37·1	— 9·7	34·7	31·3	5·8	10·8	2·5	80	77·1	27·7	0·000	0·0	sP
Means	...	29·736	59·3	44·6	14·7	51·5	+ 1·4	48·6	45·7	5·8	11·9	1·8	81·2	91·3	39·4	Sum 4·164	2·0	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 results on October 31 for Air and Evaporation Temperatures are deduced from eye-observations on account of failure of the photographic registers.

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

The mean reading of the *Barometer* for the month was 29in·736, being 0in·020 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 66°·7 on October 16; the lowest in the month was 30°·2 on October 31; and the range was 36°·5.

The mean of all the highest daily readings in the month was 59°·3, being 1°·6 *higher* than the average for the 50 years, 1841–1890.

The mean of all the lowest daily readings in the month was 44°·6, being 1°·3 *higher* than the average for the 50 years, 1841–1890.

The mean of the daily ranges was 14°·7, being 0°·3 *greater* than the average for the 50 years, 1841-1890.

The mean for the month was 51°·5, being 1°·4 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.		
Oct. 1	6·0	11·6	SSW	SSW	0·5	0·0	0·01	154	o, d : o : 4,cu,li.-cl,slt.-f	p.-cl, slt.-r : v, li.-cl
2	6·3	11·5	SW	SSW : S	2·8	0·0	0·09	181	p.-cl, hy.-d : 3, cu, cu.-s, so.-ha	v, ci.-s, n : 4,li.-cl,slt.-r: 10, l, hy.-r
3	8·5	11·4	WSW	SW	2·8	0·0	0·27	313	v, shs.-r : 3, cu.-s, li.-cl	5, cu.-s, li.-cl : o, l
4	7·1	11·4	SW	SW	6·5	0·0	0·45	394	p.-cl : o : 4, cu.-s	v, shs.-r : v
5	3·6	11·3	SSW	S	3·1	0·0	0·16	279	p.-cl : 1, li.-cl : v, slt.-r	9,cu.-s,ci.-cu: v, so.-ha : 10, hy.-r
6	7·1	11·2	S : SSW	SW : S : SSE	2·7	0·0	0·19	285	10, hy.-r : o : 1, li.-cl	2,li.-cl, slt.-sh : o : p.-cl
7	3·8	11·2	SSE	S : SE	5·7	0·0	0·03	176	v, sh.-r : 2, li.-cl, slt.-f : v,li.-cl,sh.-r	v, shs.-r : p.-cl, l : 10, hy.-sq, r, l
8	5·4	11·1	S : SSW	SW : SSE : NE	0·7	0·0	0·02	191	o, d : 7, li.-cl	3, li.-cl : o, d
9	2·0	11·0	NE : N	ENE : W	1·7	0·0	0·04	162	o, f : p.-cl,tk.-f : 10, th.-cl, so.-ha	p.-cl : 10,hy.-r,l,t : v
10	5·2	11·0	WSW	SW : SSW : SSE	3·7	0·0	0·36	330	10, hy.-r : v, cu.-s, li.-cl	v, cu, cu.-s : 8, cu.-s : 10, r
11	1·0	10·9	S : SSW : SW	SW : NNW	4·6	0·0	0·47	294	10, oc.-slt. r, w : 10, r : v, cu, cu.-s, oc.-r	10, th.-r : 10, c.-r
12	5·7	10·9	WNW : NW	NW : W : SW	1·6	0·0	0·04	181	10, c.-r : o, m : 3, cu, li-cl	2, li.-cl : p.-cl, slt.-f
13	3·7	10·8	SW : WSW	SW : SSW	1·0	0·0	0·03	193	p.-cl, d : o : 6,cu.-s,th.-cl	9, cu, cu.-s : 10 : 10, slt.-r
14	0·0	10·7	SSW : SW	WSW : SW	5·3	0·0	0·71	449	10 : 10, hy.-shs : 10, slt.-r	10,oc.-slt.-r,w: 10 : 10, oc.-slt.-r
15	0·0	10·7	SW	SW	3·4	0·0	0·66	440	10 : 10	10 : 10
16	2·9	10·6	SW	SW : WSW	3·4	0·0	0·32	372	10 : 10 : v	10 : 10
17	0·0	10·5	SW	SW : Calm : ENE	0·4	0·0	0·00	135	10, slt.-r : 10, r	10, c.-r, gt.-glm : 10, c.-r
18	6·3	10·5	NE : NNE	NNE : N	1·6	0·0	0·10	253	10, hy.-r : v, cu, cu.-s	3, li.-cl : o, d, slt.-f
19	4·1	10·4	SW	WSW : SW	0·2	0·0	0·00	142	o, slt.-f, d : o, slt.-f : 6,cu.-s,th.-cl	6, th.-cl : o, slt.-f : 10
20	1·3	10·3	SW : SSW	SW : SSW	0·9	0·0	0·00	157	v : 10	7, cu.-s, li.-cl : 10
21	2·5	10·3	SW	SW : SSW	2·3	0·0	0·08	273	v, d : 7, ci.-cu, ci.-s	8, ci.-cu : v, th.-cl
22	0·0	10·2	SW	N : NNW	0·6	0·0	0·02	176	10 : 10, r	10, fq.-th.-r : 10 : o
23	1·7	10·2	NNW : SW	N : NNE : SE	0·3	0·0	0·01	120	o, d : o, slt.-f : 3,cu.-s.li.-cl	10 : 10
24	0·1	10·1	SW	SW	0·8	0·0	0·06	215	10 : 10 : 9,cu,li.-cl	10 : v, ci.-cu, lu.-ha
25	0·0	10·0	SW : SSW	SW	5·3	0·0	0·72	415	10 : 10	10, w : 10, r, w
26	5·0	10·0	SW	W : WSW	5·2	0·0	0·70	430	10, c.-r : o : v,cu.-s,li.-cl	3, cu.-s, w : 8, cu.-s : v, li.-cl
27	3·5	9·9	NW : WSW	WNW : WSW : SW	1·0	0·0	0·08	284	o : o, slt.-m: v, li.-cl	3, li.-cl : 3, li.-cl, lu.-co
28	0·7	9·8	SW	SW	7·6	0·0	1·17	506	10 : p.-cl : 10,slt.-r,w	10, w : 10, oc.-slt.-r, w
29	2·9	9·8	WSW	W : WNW	5·2	0·0	0·46	358	10 : v, cu, li.-cl	p.-cl : 10, th.-cl
30	4·1	9·7	NW : NNW	NNW	0·7	0·0	0·02	194	p.-cl : o	1, li.-cl : o : o
31	4·8	9·7	NNW	NNW	1·0	0·0	0·03	196	o, ho.-fr : o	5, li.-cl : o, slt.-f
Means	3·4	10·6	...	...	...	...	0·24	266		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 48°·6, being 0°·6 *higher* than
The mean *Temperature of the Dew Point* for the month was 45°·7, being 0°·2 *lower* than
The mean *Degree of Humidity* for the month was 81·2, being 4·4 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·307, being 0in·002 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·5, being *the same* as
The mean *Weight of a Cubic Foot of Air* for the month was 538 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 0·320. The maximum daily amount of *Sunshine* was 8·5 hours on October 3.
The highest reading of the *Solar Radiation Thermometer* was 115°·0 on October 6; and the lowest reading of the *Terrestrial Radiation Thermometer* was 27°·7 on October 31.
The mean daily distribution of *Ozone* for the 12 hours ending 9h. was 1·3; for the 6 hours ending 15h. was 0·4; and for the 6 hours ending 21h. was 0·3.
The *Proportions of Wind* referred to the cardinal points were N. 4, E. 2, S. 13, and W. 12.
The *Greatest Pressure of the Wind* in the month was 7·6 lbs. on the square foot on October 28. The mean daily *Horizontal Movement of the Air* for the month was 266 miles; the greatest daily value was 506 miles on October 28; and the least daily value was 120 miles on October 23.
Rain fell on 15 days in the month, amounting to 4in·164, as measured by gauge No. 6 partly sunk below the ground; being 1in·353 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Nov. 1	...	29·775	49·0	27·4	21·6	41·0	— 5·7	38·6	35·6	5·4	10·1	2·2	81	62·0	22·5	0·024	1·7	sP : vP, sN
2	...	29·592	52·0	45·4	6·6	48·1	+ 1·6	47·1	46·0	2·1	3·8	0·8	93	63·0	39·0	0·246	2·3	vP, vN : sP, wN
3	...	29·739	60·0	42·5	17·5	51·1	+ 4·8	49·3	47·4	3·7	6·8	0·7	87	80·2	34·9	0·003	1·5	mP
4	...	29·766	55·2	38·7	16·5	48·9	+ 2·8	46·8	44·5	4·4	6·6	1·7	85	61·0	35·0	0·047	4·5	wP : vP : sP
5	In Equator	29·748	41·9	35·0	6·9	38·7	— 7·2	36·8	34·2	4·5	8·3	1·4	85	47·8	29·2	0·002	0·0	mP : vP : mP
6	...	29·845	45·6	32·2	13·4	38·6	— 6·9	36·3	33·2	5·4	9·7	3·3	82	57·5	26·9	0·000	0·0	sP
7	...	30·064	46·2	32·4	13·8	37·5	— 7·6	35·8	33·5	4·0	10·3	1·1	86	77·0	26·9	0·000	3·0	sP
8	New	30·110	44·6	33·2	11·4	39·1	— 5·5	36·7	33·6	5·5	9·2	2·8	81	59·0	27·2	0·006	0·0	sP : vP, sN
9	...	30·068	44·1	37·3	6·8	40·0	— 4·0	37·4	34·0	6·0	11·0	0·9	79	96·0	30·8	0·006	3·0	vP, sN : mP
10	...	30·064	44·2	36·0	8·2	42·0	— 1·6	38·9	35·1	6·9	9·5	3·7	77	53·0	28·1	0·000	3·0	mP : mP : sP
11	...	30·147	49·3	39·8	9·5	45·0	+ 1·8	42·8	40·3	4·7	8·2	1·8	84	64·8	35·0	0·000	0·7	mP
12	Apogee : Greatest Dec. S.	30·161	45·0	36·1	8·9	40·4	— 2·5	38·0	34·9	5·5	11·0	1·9	81	83·1	27·5	0·000	2·3	mP : mP : sP
13	...	29·903	44·5	30·9	13·6	36·7	— 6·1	34·6	31·6	5·1	12·3	0·5	82	90·0	21·8	0·000	0·0	mP : sP : ssP
14	...	29·646	42·1	31·3	10·8	37·7	— 4·9	37·5	37·2	0·5	1·2	0·0	98	42·4	25·8	0·493	0·0	vP : ssP, ssN
15	...	29·613	44·9	38·1	6·8	41·8	— 0·7	41·0	40·0	1·8	3·7	0·7	94	49·1	38·0	0·210	0·0	vN, mP : mP : sP
16	First Quarter	29·641	47·5	40·8	6·7	44·3	+ 1·9	42·5	40·4	3·9	7·1	1·8	86	58·0	36·8	0·016	8·5	mP : wP : mP
17	...	29·003	59·3	38·5	20·8	50·5	+ 8·2	49·0	47·4	3·1	7·4	0·6	90	78·2	34·0	0·114	7·5	wP : wP : ssP, ssN
18	...	28·979	42·2	31·8	10·4	38·0	— 4·2	36·9	35·4	2·6	4·4	0·0	90	46·6	31·8	0·178	8·0	vP, ssN : ssP, ssN
19	In Equator	29·421	42·1	31·2	10·9	34·8	— 7·4	33·6	31·7	3·1	6·3	1·1	88	43·3	31·2	0·040	9·0	ssP : mP : ssP, ssN
20	...	29·834	43·0	39·1	3·9	41·0	— 1·1	38·4	35·1	5·9	9·9	2·6	80	52·2	36·3	0·017	0·8	vN, mP : mP
21	...	30·225	45·0	37·9	7·1	41·2	— 0·9	38·8	35·8	5·4	7·8	2·4	81	59·0	33·2	0·000	2·2	mP : sP
22	...	29·957	43·9	33·7	10·2	39·1	— 3·1	36·4	32·8	6·3	9·8	3·9	79	52·0	28·0	0·003	0·0	mP
23	Full	29·883	38·0	29·2	8·8	33·5	— 8·6	31·0	26·4	7·1	10·1	0·0	75	48·5	24·5	0·000	0·0	mP : sP : sP
24	Perigee	29·924	44·6	28·4	16·2	38·1	— 4·0	36·5	34·3	3·8	8·4	2·2	86	46·3	22·2	0·003	2·5	vP, vN : sP
25	Greatest Declination N.	29·630	50·8	41·0	9·8	46·5	+ 4·5	44·7	42·7	3·8	6·7	1·9	87	60·4	34·2	0·154	3·5	mP : wP : vP, vN
26	...	29·456	50·1	33·5	16·6	43·5	+ 1·6	41·6	39·3	4·2	6·7	1·0	85	50·1	29·0	0·247	1·0	vN, wP : ssP, ssN : mP
27	...	30·135	45·3	29·8	15·5	36·4	— 5·2	33·9	30·2	6·2	11·0	5·1	79	51·0	22·4	0·000	3·0	mP : sP : mP
28	...	30·138	52·6	45·0	7·6	49·7	+ 8·4	48·0	46·2	3·5	4·6	2·3	88	52·6	40·9	0·005	0·0	wP, wwN : wP
29	...	30·074	49·8	46·0	3·8	48·5	+ 7·5	45·9	43·1	5·4	6·9	3·8	82	53·0	44·0	0·000	1·2	wP : mP
30	Last Quarter	29·729	50·2	44·3	5·9	47·1	+ 6·4	45·8	44·4	2·7	5·5	1·1	91	60·0	38·8	0·014	3·8	mP : sP : mP, sN
Means	...	29·809	47·1	36·2	10·9	42·0	— 1·3	40·0	37·5	4·4	7·8	1·8	84·7	59·9	31·2	Sum 1·828	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

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 results on November 1 for Air and Evaporation Temperatures are deduced from eye-observations, on account of failure of the photographic registers.

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

The mean reading of the *Barometer* for the month was 29^{in}·809, being 0^{in}·065 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 60°·0 on November 3; the lowest in the month was 27°·4 on November 1; and the range was 32°·6.
The mean of all the highest daily readings in the month was 47°·1, being 1°·7 *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 1°·4 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 10°·9, being 0°·4 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 42°·0, being 1°·3 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. OSLER'S. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	ROBINSON'S. Horizontal Movement of the Air	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Nov. 1	0·0	9·6	SSW	SW : WSW	5·2	0·0	0·51	355	o, ho.-fr : p.-cl : 10,slt.-r,w	10, sc, oc.-slt.-r : 10, fq.-th.-r
2	0·0	9·5	SW : WSW	WSW	1·8	0·0	0·04	220	10, r : 10, c.-r	10, oc.-slt.-r : v, th.-cl
3	1·3	9·5	SSW	SW	5·2	0·0	0·19	307	v, hy.-d : 10	6,cu,cu.-s,li.-cl: v : 10
4	0·0	9·4	SW : N	NNE	5·2	0·0	0·21	327	10 : 10 : 10, gt.-glm, th.-r	10, th.-r : 8, th.-cl
5	0·0	9·4	NNE	SE : SW : NW	0·5	0·0	0·01	116	10 : 10, oc.-slt.-r	10,gt.-glm,slt.-f : o, f : o
6	1·0	9·3	NNW	N : NNE	2·3	0·0	0·30	314	o, ho.-fr : o : v, li.-cl	v, cu.-s, li.-cl : o
7	4·4	9·2	N	NNE : NE	5·9	0·0	0·20	269	o, ho.-fr : v, li.-cl	v, sh.-r, sq : v, ho.-fr
8	0·7	9·2	NNE	NNE	1·4	0·0	0·09	241	v, ho.-fr : 10, oc.-slt.-r	9, cu, cu.-s, li.-cl : 10, sh.-r
9	4·2	9·1	NE	ENE : NE	10·9	0·0	1·00	487	10, r : 10 : 4, cu, cu.-s, li.-cl, w	v, cu.-s, li.-cl, w : v, li.-cl, w
10	0·0	9·1	NE	NE : N	7·0	0·0	0·95	509	p.-cl, w : 10, w	10, w : v, sh.-r : 10
11	0·6	9·0	N : NNE	ENE : NE	4·5	0·0	0·30	343	10 : 10	v, cu : v, li.-cl
12	7·0	9·0	ENE	ENE : E	3·7	0·0	0·28	281	p.-cl : 2, li.-cl	o : o, ho.-fr
13	6·0	8·9	E : ENE	E : ESE	1·1	0·0	0·03	175	o, ho.-fr : o	o : o, h, ho.-fr
14	0·0	8·9	NE : Calm	NE	0·3	0·0	0·00	107	v : 10, f : 10, f, th.-r	10, fq.-th.-r, f : 10, c.-r
15	0·0	8·8	N : NNW	NNE : NE	0·9	0·0	0·03	218	10, c.-r : 10, slt.-r	10, slt.-r : 10
16	0·1	8·8	Calm : SE	SE : SSE	5·0	0·0	0·33	241	10 : 10	8, li.-cl : 10
17	0·5	8·7	S : SW	SSW : W : SW	8·7	0·0	1·07	473	10, oc.-r : 10, shs.-r	10, oc.-th.-r : 10,hy.-sq,hy.-r : o
18	0·0	8·7	SSW : N	N : NNW	18·0	0·0	2·02	454	v : 10, r : 10, glm	10, r, sn, w : 10, sn, st.-w
19	0·0	8·6	NNW	NNW : N	17·6	0·2	4·40	702	10, oc.-sn, st.-w : 10, oc.-sn,st.-w	10, st.-w : 10, slt.-r, st.-w
20	0·2	8·6	N : NNE	NNE	14·0	0·0	2·34	700	10,oc.-th.-r,st.-w : 10, st.-w	10, oc.-slt.-r, w : 10, slt.-r, w : v,li.-cl,w
21	1·3	8·5	NNE : N	N : NNW	3·4	0·0	0·17	330	p.-cl : 7, ci.-cu, li.-cl	10, th.-cl : 10
22	0·0	8·5	WSW : SW	WSW : NNW	5·9	0·0	0·27	366	10 : 10	v, cu, n, hy.-sh, sq : o : o, w
23	2·9	8·4	NNW	NNW : NW	4·0	0·0	0·67	384	o, w : o, w	p.-cl : o, w : v,lu.-co
24	0·0	8·4	SW	WSW	1·3	0·0	0·04	212	v : 10, slt.-sh	10 : 10, slt.-r : v
25	0·5	8·3	SW	SW : SSW	6·7	0·0	0·77	474	v : 9, cu.-s, li.-cl	10, r, w : 10, c.-r, w
26	0·0	8·3	SW : W : NW	NNW	9·5	0·0	1·36	456	10, c.-r : 10 : 10, r	10, r, w : 10, st.-w : v, w
27	0·8	8·2	NW : SW	SW	2·5	0·0	0·23	293	o, ho.-fr : o : p.-cl	v : 10 : 10
28	0·0	8·2	SW	SW	3·9	0·0	0·57	454	10, th.-r, w : 10	10 : 10
29	0·0	8·2	SW	SW	4·7	0·0	0·69	478	10 : 10	10 : 10
30	0·0	8·1	SSW	SSW	0·7	0·0	0·03	265	10 : 10	10 : v, slt.-r : 10,oc.-slt.-r
Means	1·0	8·8	...	...	...	...	0·64	352		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 40°·0, being 1°·6 *lower* than
The mean *Temperature of the Dew Point* for the month was 37°·5, being 2°·2 *lower* than
The mean *Degree of Humidity* for the month was 84·7, being 2·8 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·225, being 0in·019 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·6, being 0gr·2 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 550 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 8·0.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·119. The maximum daily amount of *Sunshine* was 7·0 hours on November 12.

The highest reading of the *Solar Radiation Thermometer* was 96°·0 on November 9; and the lowest reading of the *Terrestrial Radiation Thermometer* was 21°·8 on November 13.

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

The *Proportions of Wind* referred to the cardinal points were N. 12, E. 5, S. 5, and W. 8.

The *Greatest Pressure of the Wind* in the month was 18·0 lbs. on the square foot on November 18. The mean daily *Horizontal Movement of the Air* for the month was 352 miles; the greatest daily value was 702 miles on November 19; and the least daily value was 107 miles on November 14.

Rain fell on 16 days in the month, amounting to 1in·828, as measured by gauge No. 6 partly sunk below the ground; being 0in·438 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Dec. 1	...	29·674	46·0	27·7	18·3	37·7	— 2·9	36·2	34·2	3·5	8·6	1·3	87	46·0	23·0	0·112	0·0	vN, vP : vN, vP : sP
2	In Equator	30·225	35·2	24·5	10·7	28·6	—12·0	26·9	20·5	8·1	10·5	2·8	71	42·6	18·8	0·000	2·0	sP : ssP
3	...	30·196	37·7	20·2	17·5	29·8	—11·0	28·3	23·5	6·3	9·9	0·0	76	44·0	17·1	0·000	0·0	sP : ssP
4	...	30·029	45·1	37·7	7·4	41·1	0·0	40·3	39·3	1·8	3·5	0·5	94	45·1	34·0	0·016	0·0	sP
5	...	30·145	42·6	37·1	5·5	39·6	— 1·7	37·6	35·0	4·6	7·6	1·9	84	46·9	29·2	0·003	0·0	sP : vP, wN
6	...	29·935	50·1	37·4	12·7	44·6	+ 3·3	42·7	40·5	4·1	5·9	1·8	85	59·8	34·1	0·000	7·0	mP
7	...	29·609	48·0	37·4	10·6	44·5	+ 3·5	41·8	38·6	5·9	11·8	1·5	80	66·1	32·0	0·025	5·0	mP : sP
8	New	29·317	49·0	36·4	12·6	44·8	+ 4·2	43·2	41·4	3·4	5·1	2·3	88	53·1	31·0	0·061	8·0	mP, sN
9	Apogee: Greatest Dec. S.	29·215	49·3	34·8	14·5	42·1	+ 1·8	40·2	37·8	4·3	8·6	2·2	86	59·2	30·0	0·261	1·5	sP, ssN : sP
10	...	29·302	47·0	33·2	13·8	40·3	+ 0·4	38·8	36·9	3·4	7·5	1·4	88	48·2	28·0	0·079	9·0	sP : ssN, vP
11	...	29·324	47·0	33·5	13·5	41·5	+ 1·7	40·0	38·1	3·4	6·6	0·7	89	51·1	26·0	0·018	6·0	mP : vP : sP
12	...	29·290	48·2	32·2	16·0	43·5	+ 3·6	41·6	39·3	4·2	8·0	0·3	85	55·3	25·2	0·334	6·2	mP, sN : vP, ssN
13	...	29·032	56·3	40·2	16·1	50·6	+10·5	48·6	46·5	4·1	8·0	0·8	86	61·9	36·1	0·314	8·4	wP, sN : mP : mP, vN
14	...	29·627	48·4	33·3	15·1	41·0	+ 0·8	38·8	36·0	5·0	9·9	1·3	83	48·4	27·0	0·118	1·0	vP, vN : sP : sP
15	...	30·244	50·0	32·1	17·9	42·9	+ 2·6	40·9	38·5	4·4	7·6	2·8	84	57·0	26·2	0·001	0·0	sP : mP
16	First Quarter	30·328	51·0	40·5	10·5	47·5	+ 7·3	45·6	43·5	4·0	8·4	1·3	87	57·1	35·0	0·000	0·0	mP : mP : sP
17	In Equator	30·164	43·7	34·3	9·4	38·6	— 1·4	37·8	36·7	1·9	5·5	0·5	94	55·6	28·7	0·002	4·0	sP : sP : mP
18	...	29·893	45·7	35·7	10·0	40·4	+ 0·7	39·5	38·4	2·0	5·7	0·9	93	50·9	30·8	0·002	6·0	mP : mP : wwP
19	...	29·288	48·0	40·2	7·8	44·7	+ 5·4	43·0	41·0	3·7	6·9	0·7	87	56·2	34·8	0·175	6·2	wwP
20	...	28·780	49·4	36·6	12·8	42·8	+ 3·8	40·8	38·4	4·4	7·4	1·5	85	55·0	31·0	0·352	6·8	wwP : vP, vN : vP, vN
21	...	29·331	42·8	35·1	7·7	38·3	— 0·5	36·1	33·1	5·2	9·2	3·5	82	56·1	29·0	0·000	3·0	sP
22	...	29·636	50·1	35·2	14·9	42·5	+ 3·9	41·3	39·9	2·6	4·6	1·0	90	51·3	29·9	0·161	3·0	sP : mP : ssN, sP
23	Perigee: Full: Greatest Dec. N.	29·972	46·7	37·5	9·2	41·6	+ 3·2	40·5	39·1	2·5	5·3	0·2	92	77·0	31·8	0·002	1·8	sP
24	...	29·992	47·0	39·8	7·2	43·7	+ 5·4	42·7	41·5	2·2	5·3	0·0	92	57·0	32·5	0·026	6·8	mP
25	...	29·960	47·8	40·2	7·6	44·5	+ 6·2	41·9	38·8	5·7	10·6	1·0	80	54·2	34·9	0·117	4·5	wP, sN : sP : sP, ssN
26	...	30·229	47·0	35·6	11·4	41·7	+ 3·3	40·6	39·2	2·5	6·3	1·0	92	52·2	29·0	0·000	0·0	sP
27	...	30·276	45·4	35·5	9·9	41·1	+ 2·7	40·6	40·0	1·1	2·9	0·0	96	48·8	30·2	0·005	0·0	vP
28	...	30·419	45·2	37·4	7·8	41·5	+ 3·0	40·9	40·2	1·3	3·5	0·0	95	49·0	29·9	0·003	0·0	sP : vP
29	In Equator: Last Quarter	30·525	42·1	32·8	9·3	38·9	+ 0·3	37·9	36·6	2·3	8·1	0·5	92	58·0	27·2	0·000	0·0	mP : vP, wN : sP
30	...	30·533	37·9	27·8	10·1	33·0	— 5·6	32·2	30·6	2·4	4·6	0·0	91	53·3	20·6	0·000	0·0	mP : vP : sP, mN
31	...	30·330	32·8	24·6	8·2	28·8	— 9·8	28·7	28·3	0·5	2·2	0·0	98	33·0	20·5	0·006*	0·0	ssP : sP : vP
Means	...	29·833	45·9	34·4	11·5	40·7	+ 1·1	39·2	37·1	3·6	7·0	1·1	87·5	53·2	28·8	Sum 2·193	3·1	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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.

* Rainfall (Column 16). The amount entered on December 31 was derived from frost and fog.

The mean reading of the *Barometer* for the month was 29^{in}·833, being 0^{in}·042 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 56°·3 on December 13; the lowest in the month was 20°·2 on December 3; and the range was 36°·1.
The mean of all the highest daily readings in the month was 45°·9, being 1°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 34°·4, being 0°·4 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 11°·5, being 2°·3 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 40°·7, being 1°·1 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1893.	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 44 Hourly Measures.	ROBINSON'S. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours	hours.			lbs.	lbs.	lbs.	miles.		
Dec. 1	0·4	8·1	SSW : NNW	NNW	7·5	0·0	0·77	357	10, sh.-r : 10, r, sn	v, w : v, w : 0
2	3·4	8·1	N : NNE	NNE : N	0·8	0·0	0·01	155	0, ho.-fr : 0	0 : 0, ho.-fr
3	0·0	8·0	SW	SW	0·3	0·0	0·00	205	0, ho.-fr : p.-cl	10 : 0 : 10
4	0·0	8·0	WSW	WSW : N	1·3	0·0	0·03	233	10 : 10, slt.-f, slt.-r	10, slt.-f : 10, gt.-glm, slt.-f : v
5	0·0	8·0	NNE : N	N : SSW	0·7	0·0	0·01	146	v : 10	10 : 10, f
6	0·0	8·0	SW	SSW	1·8	0·0	0·08	319	10 : 9, th.-cl, so.-ha	10 : v : 10
7	3·4	7·9	SW : WSW	WSW : SW	3·2	0·0	0·45	435	10, shs.-r : 3, cu, li.-cl	0 : 0
8	0·0	7·9	S : SSW	SSW : SW	13·0	0·0	1·40	562	v : 10, sc, oc.-r, st.-w	10, fq.-th.-r, w : 0 : 10, l, w
9	3·3	7·9	SW : W	WSW : SW : S	7·8	0·0	0·31	304	10, hy.-r, hy.-sqs : 10 : 0	0 : 0, ho.-fr
10	0·0	7·9	S : SE : SSE	SSE : S	13·0	0·0	0·57	369	0, ho.-fr : v, sc : 10, w	10, oc.-r, st.-w : 1, th.-cl
11	0·0	7·8	SSE : SW	W : SW : S	1·7	0·0	0·05	244	10, r : 8, th.-cl	10 : 0, slt.-f
12	0·0	7·8	SSE : S	S : SSW	37·0	0·0	1·84	582	0 : 9, th.-cl, sh.-r, so.-ha, w	10, sc, g, hy.-r : 7, li.-cl
13	0·3	7·8	SSE : SSW	SSW	17·0	0·0	1·34	581	v, shs.-r : v, sc, w	v, st.-w, slt.-r : v, hy.-r
14	0·1	7·8	NW : N	NW : SW	2·4	0·0	0·07	247	10, fq.-r : 10 : 9, th.-cl	0 : 0
15	0·0	7·8	SSW	SW	3·8	0·0	0·32	379	p.-cl : 8, ci.-cu, li.-cl	8, th.-cl : v, lu.-ha, lu.-co
16	2·1	7·8	SW	SSW	2·4	0·0	0·18	348	0, hy.-d : 10 : v	10 : 10 : 0
17	1·4	7·7	SSW : SSE	SSW : SSE	0·2	0·0	0·00	164	0, ho.-fr : 6, th.-cl, slt.-f	10 : 10
18	0·0	7·7	S : SSW	SSW : SSE	0·8	0·0	0·03	194	10 : p.-cl : 8, cu-s., li.-cl	9, cu.-s, li.-cl, sc : v
19	0·5	7·7	S : SSE	SSE : S : SW	12·2	0·0	1·40	462	v : 10 : v, w	10, sc, st.-w, r : v, w
20	0·3	7·7	SSW : S : SSE	SSW : NW : WSW	10·0	0·0	1·60	525	v, w : 10, r, w	v, slt.-sh, w: 10, hy.-r, w : 10, th.-cl, oc.-slt.-r, w
21	2·8	7·7	SW	SW	3·3	0·0	0·41	418	v, th.-cl, lu.-ha : 0, ho.-fr : 0	0 : 0
22	0·0	7·7	SW : SSW	SSW : WSW : W	9·0	0·0	0·80	499	0, ho.-fr : 0 : 10, sc, r, w	10, oc.-slt.-r, w: 10, oc.-slt.-r : 0
23	3·2	7·7	SW	SW : S	0·3	0·0	0·05	274	0, d : 2, th.-cl	4, th.-cl : 0 : v
24	1·0	7·7	SSW	S	5·2	0·0	0·49	354	10 : 4, cu, li.-cl	5, li.-cl : 10 : 10, w, r
25	0·0	7·7	SSW : SW	WSW : SW	5·7	0·0	0·77	497	v, r, w : 0	p.-cl : v, sh.-r
26	0·0	7·8	WSW : SW	SW	0·9	0·0	0·01	181	0, ho.-fr : 0, h, f	0, h : 10, f : 10, slt.-f
27	0·0	7·8	SW : SSE	S	0·0	0·0	0·00	121	10, f : 10, f	p.-cl, r : 10 : 3, li.-cl, m
28	0·0	7·8	Calm : SE	Calm : S	0·0	0·0	0·00	49	v : v, f : 10, slt.-f	10, slt.-r : 10, slt.-f
29	0·1	7·8	S : SE	ESE : NE	0·0	0·0	0·00	99	10 : 10	5, ci.-cu, li.-cl: 4, li.-cl : p.-cl, slt.-f
30	2·5	7·8	Calm : E : ENE	E : NE : Calm	0·0	0·0	0·00	89	0, ho.-fr : 0, h, m	0 : 0, f, ho.-fr
31	0·0	7·8	SW	SW : WSW	0·0	0·0	0·00	130	0, f, ho.-fr : 4, th.-cl, f	10, f : 10, f
Means	0·8	7·8	...	...	...	...	0·42	307		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 39°·2, being 0°·9 *higher* than
The mean *Temperature of the Dew Point* for the month was 37°·1, being 0°·6 *higher* than
The mean *Degree of Humidity* for the month was 87·5, being 1·0 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·221, being 0in·005 *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 552 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 5·9.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·102. The maximum daily amount of *Sunshine* was 3·4 hours on December 2 and 7.

The highest reading of the *Solar Radiation Thermometer* was 77°·0 on December 23; and the lowest reading of the *Terrestrial Radiation Thermometer* was 17°·1 on December 3.

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 0·2.

The *Proportions of Wind* referred to the cardinal points were N. 3, E. 2, S. 17, and W. 8. One day was calm.

The *Greatest Pressure of the Wind* in the month was 37·0 lbs. on the square foot on December 12. The mean daily *Horizontal Movement of the Air* for the month was 307 miles; the greatest daily value was 582 miles on December 12; and the least daily value was 49 miles on December 28.

Rain fell on 16 days in the month, amounting to 2in·193, as measured by gauge No. 6 partly sunk below the ground; being 0in·423 *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, 1893		Reading.	Greenwich Civil Time, 1893.		Reading.	Greenwich Civil Time, 1893.		Reading.	Greenwich Civil Time, 1893.		Reading.
	d h m	in.		d h m	in.		d h m	in.		d h m	in.
January	4. 18. 45	30·265	January	8. 15. 20	29·509	April	14. 6. 55	30·236	April	13. 3. 55	30·120
	11. 20. 20	30·146		14. 15. 0	29·451		17. 13. 0	30·112		16. 18. 0	29·955
	15. 19. 55	30·098		16. 18. 25	29·403		22. 0. 0	30·010		19. 16. 50	29·734
	19. 3. 40	30·273		20. 5. 20	30·159	May	1. 7. 15	29·938		29. 18. 15	29·705
	21. 0. 10	30·259		23. 7. 0	29·903		5. 22. 30	30·256	May	2. 17. 40	29·789
	25. 11. 20	30·027		26. 21. 0	29·613		11. 9. 0	30·153		9. 15. 5	30·027
	27. 10. 40	29·893		29. 12. 50	29·273		13. 9. 10	30·015		12. 18. 0	29·895
	30. 13. 5	29·885	February	1. 6. 0	29·525		22. 22. 50	29·818		17. 16. 40	29·324
February	1. 21. 20	29·950		2. 10. 50	29·694		27. 21. 0	30·073		23. 17. 57	29·715
	5. 11. 35	30·256		8. 16. 10	29·694	June	6. 7. 45	30·250	June	2. 17. 0	29·743
	9. 0. 45	29·799		10. 10. 40	29·156		10. 10. 35	30·189		9. 16. 40	30·088
	10. 23. 10	29·615		11. 17. 0	29·460		18. 0. 20	30·185		14. 15. 55	29·657
	12. 22. 30	29·730		14. 14. 0	29·130		21. 7. 20	29·721		19. 17. 10	29·672
	15. 12. 0	29·593		16. 8. 50	29·408		25. 23. 0	29·710		23. 10. 40	29·154
	17. 19. 50	29·928		21. 14. 5	28·518		30. 8. 50	30·030		28. 4. 45	29·480
	23. 18. 15	29·326		25. 3. 0	29·002	July	6. 22. 25	29·868	July	5. 1. 20	29·590
	25. 20. 45	29·249		26. 12. 50	28·647		10. 7. 0	29·745		8. 19. 55	29·530
	27. 9. 10	29·206		27. 14. 45	29·117		15. 11. 57	29·815		12. 15. 20	29·370
	28. 22. 30	29·879	March	1. 13. 50	29·407		18. 12. 0	29·851		16. 13. 40	29·674
March	3. 12. 0	30·162		4. 16. 0	29·974		23. 9. 0	30·013		20. 9. 0	29·377
	8. 11. 15	30·195		9. 19. 55	29·929		28. 8. 15	30·129		25. 3. 45	29·656
	11. 1. 0	30·224		13. 3. 55	29·490					30. 12. 50	29·685
	15. 9. 5	29·678		16. 10. 40	29·490	August	1. 10. 5	29·811	August	2. 6. 0	29·665
	19. 10. 10	30·293		23. 15. 40	30·099		3. 0. 0	29·768		4. 13. 55	29·510
	25. 9. 10	30·293		31. 15. 50	29·662		6. 9. 45	29·960		7. 4. 25	29·882
April	3. 0. 25	30·125					8. 9. 30	29·977		10. 4. 20	29·720
	8. 9. 15	30·345	April	6. 3. 50	29·994		14. 9. 30	30·059		18. 11. 50	29·618
	12. 10. 0	30·220		10. 16. 25	29·986		19. 11. 15	29·771		21. 10. 20	29·464

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, 1893.	Reading.	Greenwich Civil Time, 1893.	Reading.	Greenwich Civil Time, 1893.	Reading.	Greenwich Civil Time, 1893.	Reading.
d h m	in.	d h m	in.	d h m	in.	d h m	in.
August 25. 23. 15	30·106	August 27. 17. 50	29·958	November 3. 8. 0	29·768	November 4. 5. 55	29·655
29. 0. 0	30·163	31. 16. 20	29·747	4. 21. 40	29·896	5. 15. 45	29·661
September 3. 10. 10	30·116	September 7. 5. 0	29·539	8. 10. 40	30·134	9. 17. 0	30·020
7. 21. 45	29·704	8. 17. 45	29·495	11. 21. 10	30·214	15. 2. 40	29·468
12. 9. 20	30·153	13. 16. 50	29·944	16. 0. 30	29·804	17. 17. 45	28·812
14. 12. 0	30·095	17. 3. 40	29·528	17. 21. 0	28·924	18. 5. 5	28·830
17. 22. 5	29·613	20. 4. 15	29·245	21. 21. 45	30·272	23. 0. 55	29·778
21. 9. 0	29·389	21. 16. 15	29·274	23. 20. 55	29·996	26. 2. 30	29·187
22. 21. 0	29·560	23. 10. 25	29·418	27. 10. 55	30·205		
24. 22. 0	29·905	27. 16. 25	29·605			December 1. 5. 40	29·489
28. 0. 55	29·699	30. 5. 35	29·113	December 2. 21. 40	30·308	4. 14. 0	29·969
October 1. 21. 25	29·519	October 4. 13. 45	29·006	5. 10. 15	30·198	7. 6. 35	29·545
6. 20. 45	29·480	7. 23. 5	29·360	7. 21. 55	29·649	9. 1. 10	29·050
8. 21. 30	29·665	9. 23. 20	29·397	10. 1. 55	29·436	10. 15. 5	29·146
10. 19. 30	29·805	11. 6. 5	29·626	10. 22. 40	29·323	11. 7. 5	29·232
13. 8. 20	30·046	14. 11. 40	29·713	12. 1. 3	29·470	12. 17. 0	29·060
17. 10. 5	29·909	18. 2. 40	29·806	12. 23. 45	29·225	13. 13. 35	28·955
20. 10. 30	30·242	22. 3. 55	30·025	16. 10. 30	30·369	19. 20. 0	28·955
23. 21. 50	30·302	26. 20. 0	29·590	20. 2. 30	29·080	20. 17. 20	28·389
27. 22. 5	29·897	29. 1. 30	29·575	22. 6. 5	29·686	22. 17. 0	29·527
31. 21. 5	30·000	November 2. 10. 0	29·505	24. 1. 0	30·100	25. 0. 5	29·754
				30. 1. 50	30·585		

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. On March 3 the eye-reading is employed, on account of temporary interruption of photographic registration.
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 1893.
[Extracted from the preceding Table.]

MONTH, 1893.	Readings of the Barometer.		Range.
	Highest.	Lowest.	
	in.	in.	in.
January	30·273	29·273	1·000
February	30·256	28·518	1·738
March	30·293	29·407	0·886
April	30·345	29·705	0·640
May	30·256	29·324	0·932
June	30·250	29·154	1·096
July	30·129	29·370	0·759
August	30·163	29·464	0·699
September	30·153	29·113	1·040
October	30·302	29·006	1·296
November	30·272	28·812	1·460
December	30·585	28·389	2·196

The highest reading in the year was $30^{in}·585$ on December 30. The lowest reading in the year was $28^{in}·389$ on December 20.
The range of reading in the year was $2^{in}·196$.

MONTHLY RESULTS of METEOROLOGICAL ELEMENTS for the YEAR 1893.

MONTH, 1893.	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 ...	29·884	52·2	13·9	38·3	39·3	31·2	8·1	35·5	− 3·0	34·3	32·1	87·6
February...	29·548	58·8	23·1	35·7	47·2	35·7	11·5	41·3	+ 1·8	39·6	37·3	86·0
March	29·967	69·3	24·2	45·1	56·9	35·9	20·9	46·0	+ 4·3	42·4	38·2	74·8
April	29·990	80·0	30·2	49·8	64·2	39·6	24·5	51·0	+ 3·8	45·7	40·4	68·2
May.....	29·889	80·4	38·0	42·4	70·6	46·1	24·5	57·4	+ 4·2	51·9	46·9	68·6
June	29·840	91·0	37·3	53·7	75·3	50·1	25·2	61·6	+ 2·2	55·3	50·0	66·2
July.....	29·733	89·9	47·1	42·8	74·3	54·4	19·9	62·9	+ 0·4	57·9	53·8	72·9
August	29·863	95·1	43·2	51·9	77·7	55·2	22·5	65·4	+ 3·8	59·6	54·8	69·2
September.	29·699	82·8	37·5	45·3	67·7	48·2	19·5	57·1	− 0·1	52·9	49·0	74·7
October ...	29·736	66·7	30·2	36·5	59·3	44·6	14·7	51·5	+ 1·4	48·6	45·7	81·2
November.	29·809	60·0	27·4	32·6	47·1	36·2	10·9	42·0	− 1·3	40·0	37·5	84·7
December..	29·833	56·3	20·2	36·1	45·9	34·4	11·5	40·7	+ 1·1	39·2	37·1	87·5
		Highest.	Lowest.	Annual Range.								
Means	29·816	95·1	13·9	81·2	60·5	42·6	17·8	51·0	+ 1·5	47·3	43·6	76·8

MONTH, 1893.	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 ...	0·182	2·1	559	1·3	7·9	15	1·446	106	82	70	33	91	161	115	61	25	0·23	271
February...	0·223	2·6	546	3·1	6·9	22	2·718	46	31	40	81	163	218	60	29	4	0·66	361
March	0·231	2·7	549	1·2	4·0	7	0·433	32	57	149	37	82	228	98	46	15	0·25	258
April	0·251	2·8	544	2·7	3·1	3	0·119	50	222	268	36	19	49	39	11	26	0·13	230
May.....	0·322	3·6	535	2·0	5·7	9	0·530	121	157	103	20	79	145	43	58	18	0·19	240
June	0·361	4·0	529	2·1	4·8	8	0·822	58	158	193	47	81	113	51	13	6	0·21	229
July.....	0·415	4·6	526	1·9	6·5	18	3·330	84	69	100	34	112	182	80	61	22	0·28	233
August ...	0·430	4·7	526	2·0	4·8	11	1·246	68	34	58	38	117	261	77	62	29	0·27	238
September.	0·348	3·9	532	1·5	5·8	14	1·289	49	80	50	15	77	305	79	48	17	0·25	258
October ...	0·307	3·5	538	2·0	5·6	15	4·164	60	25	19	23	118	372	80	39	8	0·24	266
November.	0·225	2·6	550	2·4	8·0	16	1·828	184	122	51	18	36	166	75	64	4	0·64	352
December..	0·221	2·6	552	3·1	5·9	16	2·193	57	17	18	34	251	288	44	16	19	0·42	307
Sums	...	...	...	...	...	154	20·118	915	1054	1119	416	1226	2488	841	508	193	...	...
Means	0·293	3·3	541	2·1	5·7	...	...	...	...	...	...	...	...	...	...	...	0·31	270

The greatest recorded pressure of the wind on the square foot in the year was 37·0 lbs. on December 12.
The greatest recorded daily horizontal movement of the air in the year was 793 miles on February 10.
The least recorded daily horizontal movement of the air in the year was 40 miles on July 15.

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

Hour, Greenwich Civil Time.	1893. 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	29·890	29·565	29·981	29·994	29·902	29·850	29·745	29·875	29·712	29·718	29·827	29·841	29·825
1h.	29·887	29·557	29·979	29·992	29·899	29·848	29·740	29·871	29·707	29·717	29·817	29·840	29·821
2	29·887	29·553	29·972	29·987	29·895	29·842	29·734	29·867	29·701	29·713	29·815	29·842	29·817
3	29·886	29·543	29·967	29·985	29·893	29·837	29·729	29·863	29·698	29·709	29·811	29·839	29·813
4	29·882	29·537	29·963	29·984	29·889	29·835	29·727	29·859	29·694	29·710	29·805	29·832	29·810
5	29·878	29·537	29·961	29·987	29·893	29·837	29·729	29·861	29·694	29·714	29·805	29·831	29·811
6	29·879	29·535	29·963	29·995	29·898	29·841	29·733	29·863	29·699	29·721	29·803	29·830	29·813
7	29·884	29·535	29·967	30·002	29·901	29·845	29·737	29·867	29·706	29·731	29·807	29·833	29·818
8	29·890	29·540	29·968	30·006	29·906	29·847	29·738	29·871	29·711	29·743	29·814	29·836	29·823
9	29·896	29·538	29·972	30·007	29·903	29·847	29·738	29·872	29·717	29·750	29·818	29·843	29·825
10	29·896	29·535	29·970	30·005	29·901	29·846	29·737	29·871	29·714	29·752	29·820	29·847	29·825
11	29·895	29·535	29·967	30·002	29·895	29·844	29·737	29·866	29·710	29·754	29·816	29·840	29·822
Noon	29·886	29·535	29·964	29·995	29·890	29·841	29·733	29·862	29·706	29·750	29·808	29·830	29·817
13h.	29·876	29·531	29·956	29·989	29·884	29·836	29·729	29·858	29·699	29·745	29·802	29·821	29·811
14	29·871	29·531	29·948	29·980	29·877	29·830	29·727	29·855	29·692	29·741	29·792	29·813	29·805
15	29·872	29·538	29·941	29·973	29·869	29·827	29·724	29·850	29·686	29·739	29·792	29·809	29·802
16	29·874	29·544	29·936	29·970	29·867	29·824	29·723	29·847	29·682	29·736	29·794	29·808	29·800
17	29·876	29·551	29·938	29·970	29·865	29·821	29·720	29·844	29·682	29·738	29·797	29·809	29·801
18	29·881	29·560	29·946	29·971	29·867	29·824	29·721	29·845	29·684	29·744	29·803	29·819	29·805
19	29·884	29·566	29·953	29·978	29·875	29·831	29·726	29·852	29·690	29·748	29·810	29·830	29·812
20	29·887	29·568	29·960	29·989	29·885	29·838	29·730	29·865	29·696	29·749	29·814	29·839	29·818
21	29·888	29·571	29·965	29·996	29·894	29·850	29·741	29·872	29·700	29·749	29·817	29·847	29·824
22	29·890	29·574	29·970	29·999	29·899	29·854	29·743	29·875	29·701	29·748	29·815	29·853	29·827
23	29·891	29·572	29·973	30·003	29·900	29·856	29·741	29·876	29·700	29·742	29·815	29·860	29·827
24	29·890	29·570	29·975	30·001	29·900	29·855	29·738	29·875	29·697	29·739	29·813	29·861	29·826
Means 0h.–23h.	29·884	29·548	29·962	29·990	29·889	29·840	29·733	29·863	29·699	29·736	29·809	29·833	29·816
Means 1h.–24h.	29·884	29·548	29·962	29·990	29·889	29·840	29·732	29·863	29·699	29·737	29·808	29·834	29·816
Number of Days employed.	31	28	30	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.	1893. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	34·6	39·6	41·9	44·5	50·9	54·6	57·8	60·2	52·8	49·5	40·9	39·5	47·2
1h.	34·5	39·4	41·3	43·8	50·2	53·5	57·4	59·5	52·4	49·4	40·6	39·1	46·8
2	34·1	39·3	40·7	43·2	49·5	53·0	56·9	59·0	52·0	49·1	40·2	39·0	46·3
3	34·1	39·3	40·3	42·9	49·0	52·7	56·6	58·7	51·6	49·0	40·2	38·9	46·1
4	33·9	39·4	39·6	42·7	48·6	52·6	56·4	58·6	51·4	48·7	40·3	38·9	45·9
5	33·8	39·5	39·0	42·5	48·7	53·0	56·7	58·5	51·4	48·6	40·3	39·4	45·9
6	34·2	39·3	38·8	43·0	50·4	54·6	58·1	59·3	51·2	48·2	40·3	39·5	46·4
7	34·4	39·2	39·1	44·9	53·3	56·8	60·0	61·6	52·5	48·2	40·4	39·3	47·5
8	34·4	39·6	41·4	48·2	56·7	59·9	62·4	64·6	55·1	49·4	40·7	39·2	49·3
9	34·8	40·6	44·8	52·2	60·2	63·2	64·8	68·5	58·7	52·3	41·5	39·7	51·8
10	35·5	42·1	48·5	55·8	62·9	66·1	66·5	70·9	61·1	54·6	42·8	40·7	54·0
11	36·4	43·5	51·6	58·5	64·8	68·1	67·9	72·6	62·9	56·3	43·7	42·0	55·7
Noon	37·0	44·5	53·9	60·7	65·8	70·1	69·1	73·6	63·7	57·6	44·4	43·3	57·0
13h.	37·3	45·4	54·8	62·2	66·3	71·4	70·3	74·9	64·1	57·6	44·8	44·0	57·8
14	37·7	45·6	55·4	62·4	66·8	72·1	70·3	74·9	64·7	57·6	45·1	43·9	58·0
15	37·5	45·3	54·9	61·9	67·0	71·7	70·0	74·8	64·7	56·8	44·6	43·3	57·7
16	37·0	44·7	53·8	60·5	65·6	70·9	69·2	73·5	63·5	55·5	43·7	42·6	56·7
17	36·6	43·3	52·0	58·2	63·6	69·2	67·8	72·2	61·6	54·0	43·0	42·1	55·3
18	36·4	41·9	49·3	55·2	61·5	66·5	66·2	69·8	59·7	52·6	42·5	41·8	53·6
19	36·0	41·0	47·1	51·8	59·1	64·1	64·4	67·3	57·8	51·5	42·1	41·2	51·9
20	35·7	40·4	45·8	49·5	56·6	61·5	62·2	64·9	56·2	50·7	41·8	40·4	50·5
21	35·6	40·0	44·4	47·5	54·5	58·8	60·4	63·2	54·9	50·1	41·5	40·1	49·3
22	35·4	39·6	43·5	46·4	52·9	57·3	59·2	62·2	53·8	49·7	41·4	39·8	48·4
23	35·2	39·5	42·8	45·3	51·7	56·1	58·3	61·3	53·0	49·4	41·1	39·5	47·8
24	35·1	39·2	42·2	44·4	50·8	55·0	57·8	61·5	52·5	49·0	40·9	39·0	47·3
Means 0h.–23h.	35·5	41·3	46·0	51·0	57·4	61·6	62·9	66·0	57·1	51·9	42·0	40·7	51·1
Means 1h.–24h.	35·5	41·3	46·0	51·0	57·4	61·6	62·9	66·1	57·1	51·9	42·0	40·7	51·1
Number of Days employed.	31	28	31	30	31	30	31	29	30	30	29	31	...

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

Hour, Greenwich Civil Time.	1893. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	33·5	38·3	40·1	42·1	48·7	52·1	55·7	57·4	50·9	47·9	39·2	38·4	45·4
1h.	33·4	38·2	39·8	41·7	48·3	51·5	55·4	57·0	50·5	47·8	39·0	38·1	45·1
2	33·2	38·3	39·2	41·3	47·9	51·3	55·1	56·7	50·4	47·6	38·7	37·9	44·8
3	33·2	38·3	38·9	41·1	47·6	51·2	54·9	56·5	50·0	47·5	38·8	37·9	44·7
4	33·1	38·3	38·3	40·9	47·2	50·9	54·7	56·4	49·8	47·4	38·8	38·0	44·5
5	33·1	38·5	37·8	40·8	47·3	51·3	55·0	56·3	49·7	47·1	38·9	38·3	44·5
6	33·3	38·4	37·5	41·1	48·4	52·4	55·8	56·8	49·6	46·8	39·0	38·3	44·8
7	33·4	38·3	37·8	42·4	50·3	53·7	57·0	58·3	50·4	46·8	39·0	38·2	45·5
8	33·4	38·6	39·5	44·6	52·0	55·3	58·2	60·0	52·3	47·7	39·2	38·1	46·6
9	33·8	39·4	42·1	47·1	53·7	56·7	59·1	61·8	54·4	49·6	39·8	38·5	48·0
10	34·4	40·5	44·6	49·2	54·9	57·6	59·8	62·9	55·6	50·9	40·6	39·1	49·2
11	34·9	41·4	46·0	50·2	55·6	58·2	60·4	63·4	56·1	51·7	41·2	40·1	49·9
Noon	35·5	41·8	47·1	51·3	56·0	58·8	60·6	63·6	56·1	52·1	41·7	40·9	50·5
13h.	35·6	42·3	47·6	51·8	56·1	59·3	61·3	64·0	56·4	52·0	42·0	41·3	50·8
14	36·0	42·3	47·8	51·8	56·3	59·4	61·2	63·8	56·5	52·1	42·2	41·3	50·9
15	35·8	42·1	47·4	51·4	56·4	59·6	60·9	63·7	56·4	51·7	41·9	40·9	50·7
16	35·5	41·6	46·8	50·7	55·5	59·1	60·5	63·2	55·7	51·0	41·3	40·7	50·1
17	35·3	40·7	45·7	49·0	54·9	58·7	59·9	62·7	54·9	50·3	41·0	40·5	49·5
18	35·2	40·0	44·2	47·7	53·9	57·6	59·1	61·6	54·1	49·5	40·5	40·3	48·6
19	34·8	39·2	43·0	46·3	53·0	56·5	58·3	60·6	53·1	48·8	40·2	39·8	47·8
20	34·6	38·8	42·3	44·9	51·8	55·5	57·6	59·6	52·5	48·4	39·9	39·1	47·1
21	34·5	38·5	41·6	44·1	50·8	54·3	56·9	59·1	51·9	48·0	39·7	38·8	46·5
22	34·4	38·2	41·0	43·2	49·9	53·5	56·3	58·6	51·3	47·8	39·6	38·5	46·0
23	34·3	38·2	40·7	42·6	49·2	52·9	56·0	58·0	50·9	47·7	39·5	38·3	45·7
24	34·1	37·9	40·3	42·2	48·7	52·5	55·7	57·7	50·5	47·4	39·2	38·0	45·3
Means 0h.–23h.	34·3	39·6	42·4	45·7	51·9	55·3	57·9	60·1	52·9	49·1	40·1	39·2	47·4
Means 1h.–24h.	34·4	39·6	42·4	45·7	51·9	55·3	57·9	60·1	52·9	49·1	40·1	39·2	47·4
Number of Days employed.	31	28	31	30	31	30	31	29	30	30	29	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.	1893. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	31·7	36·6	37·9	39·3	46·4	49·7	53·8	55·0	49·0	46·2	37·1	37·0	43·3
1h.	31·6	36·6	38·0	39·2	46·3	49·5	53·6	54·8	48·6	46·1	37·0	36·8	43·2
2	31·7	37·0	37·3	39·0	46·2	49·6	53·5	54·6	48·8	46·0	36·8	36·5	43·1
3	31·7	37·0	37·1	38·9	46·1	49·7	53·4	54·5	48·4	45·8	37·0	36·6	43·0
4	31·7	36·9	36·6	38·7	45·7	49·2	53·1	54·4	48·2	46·0	36·9	36·8	42·8
5	31·9	37·2	36·2	38·7	45·8	49·6	53·5	54·3	48·0	45·5	37·1	36·9	42·9
6	31·7	37·2	35·8	38·8	46·3	50·3	53·7	54·6	48·0	45·3	37·3	36·7	43·0
7	31·7	37·1	36·1	39·5	47·3	50·8	54·4	55·5	48·3	45·3	37·2	36·8	43·3
8	31·7	37·3	37·1	40·7	47·6	51·2	54·6	56·2	49·6	45·9	37·3	36·7	43·8
9	32·2	37·9	38·9	41·9	48·0	51·2	54·4	56·5	50·5	46·9	37·7	36·9	44·4
10	32·7	38·5	40·4	43·0	48·1	50·7	54·4	56·8	50·9	47·4	37·9	37·1	44·8
11	32·7	38·9	40·3	42·8	48·0	50·4	54·5	56·5	50·3	47·4	38·3	37·7	44·8
Noon	33·4	38·6	40·4	43·1	48·0	50·1	54·0	56·3	49·8	47·1	38·5	38·1	44·8
13h.	33·2	38·7	40·7	42·9	47·9	50·1	54·3	56·2	50·0	46·9	38·7	38·1	44·8
14	33·7	38·5	40·6	42·7	47·9	49·9	54·1	55·8	49·7	47·1	38·8	38·3	44·8
15	33·5	38·4	40·2	42·3	47·9	50·4	53·8	55·7	49·6	47·0	38·7	38·1	44·6
16	33·4	38·0	39·9	42·1	47·3	50·1	53·8	55·6	49·2	46·8	38·5	38·4	44·4
17	33·5	37·6	39·3	40·7	47·6	50·5	53·7	55·6	49·1	46·7	38·6	38·5	44·3
18	33·5	37·6	38·7	40·5	47·3	50·4	53·3	55·3	49·1	46·4	38·1	38·4	44·1
19	33·0	36·9	38·4	40·7	47·6	50·2	53·2	55·3	48·9	46·1	37·8	38·1	43·9
20	33·0	36·8	38·3	40·0	47·3	50·3	53·7	55·2	49·0	46·0	37·5	37·5	43·7
21	32·8	36·5	38·3	40·3	47·2	50·3	53·9	55·6	49·0	45·8	37·4	37·1	43·7
22	32·8	36·4	38·1	39·6	46·9	50·0	53·7	55·5	48·9	45·8	37·3	36·8	43·5
23	32·8	36·5	38·2	39·5	46·7	49·9	53·9	55·2	48·8	45·9	37·5	36·7	43·5
24	32·5	36·2	38·0	39·6	46·5	50·1	53·8	54·4	48·5	45·6	37·1	36·7	43·2
Means 0h.–23h.	32·6	37·4	38·4	40·6	47·1	50·2	53·8	55·5	49·2	46·3	37·7	37·4	43·9
Means 1h.–24h.	32·6	37·4	38·5	40·6	47·1	50·2	53·8	55·4	49·1	46·3	37·7	37·3	43·8

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.	1893. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
Midnight	89	90	87	82	85	83	86	83	87	89	86	91	86
1h.	89	90	88	83	87	86	87	85	87	89	87	92	88
2	90	92	88	85	89	88	89	86	89	90	88	91	89
3	90	92	89	86	90	90	89	86	89	90	89	92	89
4	92	91	90	86	90	89	89	86	89	91	88	93	89
5	93	92	90	87	90	88	89	86	88	89	89	91	89
6	90	93	90	85	86	85	85	85	89	90	90	90	88
7	89	93	90	82	80	80	82	81	86	90	89	91	86
8	89	92	86	75	72	73	76	74	82	88	88	91	82
9	90	90	80	69	64	65	69	65	75	82	87	90	77
10	90	88	74	63	58	58	65	61	70	76	83	87	73
11	87	84	65	56	55	52	62	57	64	72	81	86	68
Noon	87	80	60	53	52	49	58	55	61	68	79	81	65
13h.	86	78	59	49	51	47	57	52	60	68	79	79	64
14	85	77	58	48	51	46	57	52	58	68	79	80	63
15	85	77	57	49	50	47	57	52	58	69	80	81	64
16	87	77	59	51	51	48	57	53	60	73	82	85	65
17	89	80	62	52	56	51	60	55	64	76	84	88	68
18	90	86	67	58	60	57	64	59	68	80	85	89	72
19	89	86	72	66	66	61	67	65	72	82	86	89	75
20	90	87	75	70	71	67	74	71	77	85	86	90	79
21	90	88	79	77	76	74	79	77	80	85	86	90	82
22	90	89	81	78	80	76	83	79	83	87	86	90	83
23	91	90	84	80	83	80	85	80	85	88	87	90	85
24	90	90	86	83	85	84	86	78	86	89	86	92	86
Means 0h.–23h.	89	87	76	70	71	68	74	70	76	82	85	88	78
Means 1h.–24h.	89	87	76	70	71	68	74	70	76	82	**85**	88	78

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 1893.

Month, 1893.	Registered Duration of Sunshine in the Hour ending 5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon.	13h.	14h.	15h.	16h.	17h.	18h.	19h.	Total registered Duration of Sunshine in each Month.	Corresponding aggregate Period during which the Sun was above Horizon.	Proportion of Sunshine.	Mean Altitude of the Sun at Noon.
	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h		°
January	...	...	...	...	...	0·8	1·7	2·8	2·8	3·5	1·8	0·2	...	...	...	13·6	259·1	0·052	18
February	...	...	...	0·3	2·1	4·7	5·3	7·3	8·6	9·0	7·8	5·0	0·6	...	...	50·7	277·9	0·182	26
March	...	...	0·2	9·5	12·1	14·4	17·1	17·2	17·3	18·8	16·8	15·9	11·8	4·0	...	155·1	366·9	0·423	37
April	...	1·2	9·2	14·2	17·9	20·2	20·8	20·8	22·0	23·0	23·2	22·2	20·9	14·0	1·4	231·0	414·9	0·557	48
May	0·2	6·6	14·0	15·7	13·5	14·0	17·4	16·2	15·6	15·5	15·2	14·0	12·0	10·8	5·8	186·5	482·1	0·387	57
June	0·2	5·5	9·3	11·4	12·3	14·2	15·3	17·6	18·5	18·7	18·8	17·7	16·0	14·0	8·5	198·0	494·5	0·400	62
July	0·3	4·4	6·7	**11·6**	10·3	11·2	12·2	12·1	14·8	13·4	11·8	10·8	9·0	6·9	4·4	139·9	496·8	0·282	60
August	...	2·4	11·9	14·2	17·3	15·1	16·0	16·2	17·4	14·6	16·5	15·2	15·5	13·0	3·1	188·4	449·1	0·420	52
September	...	...	1·0	8·0	12·0	14·6	15·9	16·3	13·3	13·2	15·4	9·5	8·0	2·0	...	129·2	376·9	0·343	41
October	...	...	...	3·3	10·8	15·1	15·9	16·1	13·3	12·0	9·8	7·2	1·8	...	...	105·3	328·7	0·320	30
November	...	...	...	...	1·8	4·7	5·7	5·6	5·2	4·1	3·1	1·3	...	...	...	31·5	264·4	0·119	20
December	...	...	...	...	...	1·4	6·0	7·1	6·1	3·8	0·4	...	...	...	...	24·8	242·7	0·102	16
For the Year...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1454·0	4454·0	0·326	...

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 1893.

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

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

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	56·6	34·1	44·7	54·4	51·8	48·8	−0·6	+0·1	+0·4	−0·1	−0·1	+0·3	1	56·4	33·8	44·8	54·9	51·7	48·3	−0·8	−0·2	+0·5	+0·4	−0·2	−0·2
2	56·0	45·7	49·9	53·6	55·0	48·2	−0·9	+0·4	+0·1	−0·2	0·0	+0·4	2	55·7	45·5	49·8	54·1	55·6	49·7	−1·2	+0·2	0·0	+0·3	+0·6	+1·9
3	49·8	41·4	42·8	45·6	46·2	47·1	+0·6	−0·1	−0·1	0·0	0·0	+0·2	3	51·7	41·2	42·9	45·6	46·0	47·4	+2·5	−0·3	0·0	0·0	−0·2	+0·5
4	56·0	45·1	48·7	52·4	55·1	46·8	−0·2	+0·1	+0·1	−0·3	−0·5	+0·8	4	55·7	45·2	48·9	52·6	55·0	47·7	−0·5	0·0	+0·3	−0·1	−0·6	+1·7
5	54·6	40·0	...	...	...	...	+0·4	+0·4	...	...	...	...	5	54·4	39·2	...	...	...	...	+0·2	−0·4	...	...	...	...
6	52·5	41·1	44·9	49·6	49·7	46·5	+0·3	+0·1	−0·1	+0·1	+0·3	+0·2	6	52·9	41·0	45·6	49·4	49·5	47·2	+0·7	0·0	+0·6	−0·1	+0·1	+0·9
7	53·0	38·4	42·0	51·5	52·7	49·7	−1·0	+0·3	−0·5	−0·1	0·0	+0·8	7	53·3	38·4	42·8	51·7	52·9	49·8	−0·7	+0·3	+0·3	+0·1	+0·2	+0·9
8	60·1	40·1	42·8	57·4	60·1	47·3	−0·9	+1·0	−0·4	+0·8	+0·1	+0·2	8	61·3	39·9	43·8	56·2	60·9	49·3	+0·3	+0·8	+0·6	−0·4	+0·9	+2·2
9	59·4	38·0	42·7	53·6	57·9	48·9	−0·7	+0·2	−0·1	−0·3	−0·2	+0·2	9	59·6	38·9	42·9	53·8	57·8	49·4	−0·5	+1·1	+0·1	−0·1	−0·3	+0·7
10	51·7	38·2	43·3	50·5	50·8	44·0	−0·3	+0·1	+0·4	+0·1	−0·1	+0·2	10	51·3	38·3	42·9	49·4	50·6	44·5	−0·7	+0·2	0·0	−1·0	−0·3	+0·7
11	55·2	32·8	44·2	52·3	54·0	41·2	−1·3	+0·4	−0·1	−0·5	−0·3	+0·2	11	55·2	33·1	44·8	52·7	53·6	42·8	−1·3	+0·7	+0·5	−0·1	−0·7	+1·8
12	61·9	39·3	...	...	...	...	−0·4	+1·1	...	...	...	...	12	61·9	38·9	...	...	...	...	−0·4	+0·7	...	...	...	...
13	55·5	39·7	44·2	55·1	54·3	48·6	−0·5	+0·7	−0·4	+0·1	+0·1	0·0	13	55·5	40·2	45·8	54·5	54·7	49·0	−0·5	+1·2	+1·2	−0·5	+0·5	+0·4
14	53·5	44·4	49·4	52·1	48·8	48·0	−0·7	+0·3	−0·2	−0·1	0·0	+0·3	14	53·3	44·0	49·6	52·6	48·8	48·2	−0·9	−0·1	0·0	+0·4	0·0	+0·5
15	55·2	45·5	49·3	53·9	51·4	46·9	−1·7	+0·3	−0·2	−0·3	−0·2	+0·2	15	54·7	45·1	49·6	54·0	51·8	46·9	−2·2	−0·1	+0·1	−0·2	+0·2	+0·2
16	55·1	39·6	48·9	54·1	49·0	40·7	−1·4	+0·1	+0·2	+0·3	−0·3	+0·2	16	55·1	39·1	48·8	52·9	49·2	40·1	−1·4	−0·4	+0·1	−0·9	−0·1	−0·4
17	45·3	34·3	39·9	43·5	43·9	37·4	−0·7	0·0	+0·1	−0·3	0·0	+0·2	17	44·5	34·0	39·8	40·9	43·7	37·8	−1·5	−0·3	0·0	−2·9	−0·2	+0·6
18	44·1	32·8	38·1	43·1	42·6	33·9	−1·5	0·0	+0·1	−1·0	−0·6	+0·2	18	43·3	32·3	38·3	41·6	42·6	34·1	−2·3	−0·5	+0·3	−2·5	−0·6	+0·4
19	44·9	24·7	...	...	...	...	−0·1	+0·5	...	...	...	...	19	44·9	24·2	...	...	...	...	−0·1	0·0	...	...	...	...
20	54·6	27·5	37·9	49·6	54·4	39·4	−0·4	+0·8	+0·5	−0·6	+0·3	+0·4	20	55·0	28·1	39·6	49·5	54·3	42·2	0·0	+1·4	+2·2	−0·7	+0·2	+3·2
21	58·6	29·2	40·9	57·1	58·6	41·4	−0·7	+0·4	−0·1	+0·3	0·0	+0·6	21	59·6	29·0	40·7	56·2	59·6	41·9	+0·3	+0·2	−0·3	−0·6	+1·0	+1·1
22	55·0	34·4	39·9	47·4	54·6	41·8	−0·4	+0·4	−0·1	−0·2	−0·6	+0·2	22	56·3	34·0	40·3	48·2	56·2	41·6	+0·9	0·0	+0·3	+0·6	+1·0	0·0
23	64·0	35·1	39·9	56·8	63·7	46·7	−0·3	−0·6	−0·4	−0·6	+0·6	+0·2	23	63·1	35·0	40·7	56·7	63·0	46·7	−1·2	−0·7	+0·4	−0·7	−0·1	+0·2
24	61·6	35·1	48·3	60·3	61·0	44·9	−0·9	+0·9	+0·7	−0·4	−0·1	−0·4	24	62·7	35·0	47·8	60·8	61·7	45·7	+0·2	+0·8	+0·2	+0·1	+0·6	+0·4
25	62·0	32·0	47·7	59·8	61·3	43·0	−0·8	−0·2	+0·9	−0·5	+0·3	0·0	25	62·5	33·0	46·8	60·0	61·8	42·7	−0·3	+0·8	0·0	−0·3	+0·8	−0·3
26	57·0	29·1	...	...	...	...	−0·8	0·0	...	...	...	...	26	58·7	29·0	...	...	...	...	+0·9	−0·1	...	...	...	...
27	57·0	32·9	44·1	53·8	55·5	42·2	−0·9	+0·8	+0·3	−0·9	−0·1	+0·2	27	58·1	31·8	43·8	54·6	56·0	41·8	+0·2	−0·3	0·0	−0·1	+0·4	−0·2
28	56·2	34·9	48·5	55·6	56·0	42·9	−0·8	+0·7	−0·3	−0·6	−0·1	+0·3	28	57·4	35·0	48·6	56·5	57·0	42·6	+0·4	+0·8	−0·2	+0·3	+0·9	0·0
29	63·3	34·1	47·1	61·6	62·8	43·8	−0·7	+1·1	+0·1	0·0	+0·4	+0·6	29	64·4	32·1	46·8	61·8	63·3	44·5	+0·4	−0·9	−0·2	+0·2	+0·9	+1·3
30	66·8	34·1	49·5	64·7	66·8	50·1	−1·2	+0·9	−0·3	−0·2	−0·2	+0·8	30	67·0	33·9	51·6	64·8	66·0	52·2	−1·0	+0·7	+1·8	−0·1	−1·0	+2·9
31	67·5	39·1	...	...	...	...	−1·8	+0·5	...	...	...	...	31	67·3	42·0	...	...	...	...	−2·0	+3·4	...	...	...	...
Means	56·3	36·5	44·6	53·4	54·5	44·6	−0·7	+0·4	0·0	−0·2	0·0	+0·3	Means	56·5	36·5	44·9	53·3	54·7	45·2	−0·4	+0·3	+0·3	−0·3	+0·2	+0·8

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	69·7	38·1	61·0	68·0	69·7	50·9	−1·1	+1·0	+1·3	0·0	−0·5	+0·5	1	70·2	38·0	60·7	66·1	69·4	51·8	−0·6	+0·9	+1·0	−1·9	−0·8	+1·4
2	62·2	41·5	…	…	…	…	−0·5	−0·2	…	…	…	…	2	62·5	41·2	…	…	…	…	−0·2	−0·5	…	…	…	…
3	61·4	37·1	…	…	…	…	−1·6	+0·7	…	…	…	…	3	62·7	36·1	…	…	…	…	−0·3	−0·3	…	…	…	…
4	59·0	35·9	52·0	59·0	58·0	46·0	−0·9	+0·8	−0·3	−0·4	−0·6	+0·1	4	59·5	35·0	52·4	59·2	58·6	45·6	−0·4	−0·1	+0·1	−0·2	0·0	−0·3
5	52·5	42·5	49·4	48·3	51·7	44·9	−0·5	+0·4	−0·3	−0·5	−0·2	+0·1	5	53·5	41·2	49·4	49·1	52·0	44·7	+0·5	−0·9	−0·3	+0·3	+0·1	−0·1
6	53·7	42·7	45·5	49·7	53·1	43·1	−2·1	0·0	−0·4	−0·5	−0·5	+0·3	6	54·8	42·3	46·0	51·5	53·3	42·4	−1·0	−0·4	+0·1	+1·3	−0·3	−0·4
7	66·0	36·2	46·3	59·7	65·9	45·9	−0·6	−0·5	−0·5	−0·2	+0·2	+0·1	7	67·3	36·0	46·4	59·5	65·8	46·2	+0·7	−0·7	−0·4	−0·4	+0·1	+0·4
8	58·1	39·1	40·7	48·7	57·8	41·8	−1·4	−0·1	−0·3	−0·5	+0·1	+0·4	8	59·1	38·9	40·8	48·4	58·7	41·1	−0·4	−0·3	−0·2	−0·8	+1·0	−0·3
9	55·2	38·3	…	…	…	…	−1·1	−0·2	…	…	…	…	9	56·5	38·2	…	…	…	…	+0·2	−0·3	…	…	…	…
10	65·4	36·1	51·7	64·2	63·3	47·9	−1·2	+0·6	−0·1	−0·8	0·0	−0·3	10	66·6	36·1	50·2	64·5	63·5	47·8	0·0	+0·6	−1·6	−0·5	+0·2	−0·4
11	48·2	38·1	43·7	44·8	47·4	39·9	−0·1	+0·5	0·0	0·0	−0·6	−0·1	11	48·4	37·1	43·7	45·0	48·2	39·9	+0·1	−0·5	0·0	+0·2	+0·2	−0·1
12	47·6	37·8	41·8	44·9	46·6	37·8	−1·6	+0·1	−0·4	−0·8	−0·4	+0·2	12	48·7	37·1	41·9	46·6	46·7	38·2	−0·5	−0·6	−0·3	+0·9	−0·3	+0·6
13	51·0	30·8	44·7	48·9	48·9	39·8	−1·4	+0·6	−0·1	−0·1	−0·4	0·0	13	49·5	31·0	43·9	48·2	48·8	39·6	−2·9	+0·8	−0·9	−0·8	−0·5	−0·2
14	56·2	36·9	45·9	53·3	54·9	42·8	−2·4	+0·7	+0·1	−0·9	−0·4	+0·1	14	55·7	36·1	45·8	52·7	54·8	43·8	−2·9	−0·1	0·0	−1·5	−0·5	+1·1
15	64·0	34·5	51·9	60·8	63·6	47·8	−2·3	+0·3	−0·4	0·0	−0·1	+0·2	15	63·7	35·0	50·8	59·6	62·6	48·1	−2·6	+0·8	−1·5	−1·2	−1·1	+0·5
16	61·3	38·1	…	…	…	…	−1·9	+0·7	…	…	…	…	16	61·5	37·4	…	…	…	…	−1·7	0·0	…	…	…	…
17	56·0	43·5	44·9	45·6	46·7	43·6	+0·1	+0·1	−0·3	−0·6	−0·4	−0·1	17	55·5	43·0	45·0	46·4	47·2	43·5	−0·4	−0·4	−0·2	+0·2	+0·1	−0·2
18	69·0	41·2	58·0	67·4	65·7	53·6	−1·6	+0·9	+0·3	−0·9	−0·6	+0·1	18	68·7	40·1	57·8	66·1	65·8	53·1	−1·9	−0·2	+0·1	−2·2	−0·5	−0·4
19	70·6	45·3	64·7	69·7	69·9	52·3	−1·8	+1·1	+0·1	−0·8	−0·5	0·0	19	71·5	44·1	63·9	70·5	70·0	51·8	−0·9	−0·1	−0·7	0·0	−0·4	−0·5
20	78·9	43·7	57·7	77·2	78·6	56·3	−1·1	+0·7	+0·1	−0·2	−0·2	+0·6	20	79·5	43·1	59·3	75·8	78·7	55·7	−0·5	+0·1	+1·7	−1·6	−0·1	0·0
21	75·5	45·4	66·4	74·8	72·1	53·0	−1·6	+1·1	+0·4	−1·1	−0·6	+0·1	21	76·5	45·1	65·9	75·2	72·6	53·0	−0·6	+0·8	−0·1	−0·7	−0·1	+0·1
22	64·5	45·4	58·6	63·3	64·5	49·0	−2·0	+1·1	−1·4	−1·6	+0·1	+0·1	22	65·3	44·2	58·6	63·8	64·1	48·9	−1·2	−0·1	−1·4	−1·1	−0·3	0·0
23	73·4	42·6	…	…	…	…	−1·6	+0·6	…	…	…	…	23	75·1	41·7	…	…	…	…	+0·1	−0·3	…	…	…	…
24	76·1	43·3	61·1	73·5	73·9	54·9	−1·2	+1·1	−0·9	−0·1	+0·1	+0·1	24	76·9	42·3	58·5	72·4	73·5	55·2	−0·4	+0·1	−3·5	−1·2	−0·3	+0·4
25	74·9	44·2	61·1	74·1	74·9	53·8	−1·7	+1·7	−0·3	−0·5	−0·9	+0·2	25	75·3	43·6	59·5	74·2	74·6	53·7	−1·3	+1·1	−1·9	−0·4	−1·2	+0·1
26	69·8	42·7	61·9	69·7	68·3	46·0	−1·5	+1·5	+0·3	+0·6	−0·2	−0·2	26	69·3	42·1	60·1	68·7	67·8	45·9	−2·0	+0·9	−1·5	−0·4	−0·7	−0·3
27	60·7	43·5	47·3	58·2	59·4	45·4	−1·9	+0·1	−0·5	0·0	+0·1	−0·1	27	60·5	43·1	47·8	57·6	58·6	45·3	−2·1	−0·3	0·0	−0·6	−0·7	−0·2
28	64·3	42·3	51·2	62·6	64·3	49·9	−1·7	+0·9	+0·3	0·0	+0·1	+0·1	28	65·4	41·3	49·5	62·0	63·8	49·8	−0·6	−0·1	−1·4	−0·6	−0·4	0·0
29	63·2	45·6	54·7	62·1	61·7	51·8	−2·5	+0·5	0·0	−1·2	−1·4	+0·2	29	63·1	44·4	54·2	60·6	61·4	51·8	−2·6	−0·7	−0·5	−2·7	−1·7	+0·2
30	59·4	41·3	…	…	…	…	−0·6	+0·3	…	…	…	…	30	58·3	40·3	…	…	…	…	−1·7	−0·7	…	…	…	…
Means	62·9	40·5	52·6	60·4	61·7	47·4	−1·4	+0·6	−0·1	−0·5	−0·3	+0·1	Means	63·4	39·8	52·2	60·2	61·7	47·4	−0·9	−0·1	−0·6	−0·7	−0·3	+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	62·4	41·1	53·0	56·3	62·0	51·6	−2·7	+0·5	−0·4	−0·3	−0·8	+0·1	1	62·5	40·7	53·2	56·1	62·0	51·5	−2·6	+0·1	−0·2	−0·5	−0·8	0·0
2	66·2	44·5	56·7	63·1	66·0	53·7	−1·8	+0·4	−0·2	−0·6	−0·8	+0·1	2	65·4	44·8	56·8	61·6	65·4	53·6	−2·6	+0·7	−0·1	−2·1	−1·4	0·0
3	66·1	51·2	58·3	61·4	65·2	54·9	−2·5	+0·9	−0·4	−0·7	−1·4	+0·6	3	66·7	50·2	58·7	62·0	65·8	54·7	−1·9	−0·1	0·0	−0·1	−0·8	+0·4
4	74·1	45·1	55·5	71·9	73·7	57·4	−2·9	+1·1	−1·1	−0·4	+0·9	+0·6	4	74·6	44·1	55·3	70·6	71·7	58·8	−2·4	+0·1	−1·3	−1·7	−1·1	+2·0
5	72·1	47·1	63·8	64·9	60·3	47·1	−1·1	+0·5	+0·2	−0·9	0·0	+0·2	5	70·5	45·9	64·3	62·9	59·8	45·9	−2·7	−0·7	+0·7	−2·9	−0·5	−1·0
6	65·6	41·2	61·7	65·3	62·2	46·6	−1·7	+0·8	+0·1	−0·8	−0·6	+0·4	6	65·5	40·2	59·8	63·4	61·2	45·5	−1·8	−0·2	−1·8	−2·7	−1·6	−0·7
7	60·9	39·0	...	...	...	...	−2·1	+0·8	...	...	...	...	7	60·6	38·1	...	...	...	...	−2·4	−0·1	...	...	...	...
8	64·9	40·1	57·3	60·6	63·8	53·8	−2·9	+0·7	+0·4	−0·6	−0·2	+0·1	8	65·3	39·1	54·4	60·3	61·6	54·0	−2·5	−0·3	−2·5	−0·9	−2·4	+0·3
9	71·6	46·6	61·3	68·5	68·8	55·7	−2·3	+0·4	−0·9	−1·3	−1·0	+0·1	9	69·5	46·4	59·8	67·0	67·4	55·8	−4·4	+0·2	−2·4	−2·8	−2·4	+0·2
10	72·0	45·3	62·5	71·0	70·7	52·7	−1·9	+0·7	−0·3	−0·4	−1·1	+0·3	10	70·3	44·7	59·8	68·1	69·0	52·9	−3·6	+0·1	−3·0	−3·3	−2·8	+0·5
11	72·9	41·5	64·0	71·0	72·9	50·6	−1·6	+0·3	+0·7	+1·1	−0·7	+0·1	11	71·4	41·3	60·8	68·1	69·6	50·4	−3·1	+0·1	−2·5	−1·8	−4·0	−0·1
12	77·8	43·3	62·9	75·1	76·5	63·5	−2·6	+1·0	+1·7	−0·2	−0·6	+0·4	12	77·8	42·9	62·7	74·1	77·1	63·8	−2·6	+0·6	+1·5	−1·2	0·0	+0·7
13	75·7	50·5	65·9	70·9	75·7	54·3	−0·5	+1·1	+0·3	+0·4	+0·1	+0·2	13	74·1	50·2	64·2	68·5	73·5	54·1	−2·1	+0·8	−1·4	−2·0	−2·1	0·0
14	72·7	48·3	...	...	...	...	−1·3	+0·4	...	...	...	...	14	72·1	47·4	...	...	...	...	−1·9	−0·5	...	...	...	...
15	77·0	48·9	66·3	73·2	69·7	56·7	−2·0	+1·4	+0·6	−0·1	+0·1	0·0	15	76·2	47·7	65·6	71·6	69·7	56·6	−2·8	+0·2	−0·1	−1·7	+0·1	−0·1
16	72·3	52·3	62·4	72·3	68·7	58·7	−2·7	+0·7	+0·1	−0·6	−0·2	+0·9	16	72·2	51·5	62·0	71·6	68·5	59·6	−2·8	−0·1	−0·3	−1·3	−0·4	+1·8
17	66·5	50·4	57·4	65·4	66·5	55·3	−2·5	+1·2	−0·4	−0·7	−0·3	−0·3	17	67·9	49·2	58·0	66·0	66·2	55·6	−1·1	0·0	+0·2	−0·1	−0·6	0·0
18	68·0	48·3	63·6	63·0	64·5	54·3	−1·6	+1·0	−1·0	−0·1	−0·4	+0·4	18	66·8	47·3	63·1	63·1	64·9	54·8	−2·8	0·0	−1·5	0·0	0·0	+0·9
19	66·8	50·7	57·4	64·9	62·7	55·9	−2·1	+0·5	0·0	−0·2	−0·7	+0·1	19	65·5	50·2	57·6	64·6	62·4	55·8	−3·4	0·0	+0·2	−0·5	−1·0	0·0
20	67·6	53·4	...	...	...	...	−1·4	+0·4	...	...	...	...	20	66·6	53·0	...	...	...	...	−2·4	0·0	...	...	...	...
21	64·6	49·5	...	...	...	...	−2·4	+0·8	...	...	...	...	21	65·5	49·0	...	...	...	...	−1·5	+0·3	...	...	...	...
22	73·0	50·7	...	...	...	...	−2·9	+0·7	...	...	...	...	22	73·3	50·2	...	...	...	...	−2·6	+0·2	...	...	...	...
23	69·7	49·1	65·5	62·9	67·7	55·9	−1·4	+0·8	−0·3	+0·3	−1·1	−0·1	23	68·9	48·4	65·1	62·6	67·0	55·8	−2·2	+0·1	−0·7	0·0	−1·8	−0·2
24	64·0	47·1	63·4	62·6	63·0	58·4	−2·1	+0·7	−0·4	−0·5	−0·9	+0·5	24	64·9	46·0	62·2	62·8	63·7	59·0	−1·2	−0·4	−1·6	−0·3	−0·2	+1·1
25	72·1	48·4	61·7	67·7	72·1	60·9	−2·1	+0·7	−0·4	−1·8	−1·7	+0·3	25	71·5	47·9	61·7	66·0	70·7	60·8	−2·7	+0·2	−0·4	−3·5	−3·1	+0·2
26	62·0	55·0	58·9	57·7	59·7	57·7	−1·5	−0·3	−0·4	−0·4	−0·5	+0·1	26	62·2	55·2	58·8	57·7	60·7	57·9	−1·3	−0·1	−0·5	−0·4	+0·5	+0·3
27	65·0	51·9	59·9	62·5	61·8	53·9	−3·0	+0·6	−0·7	−0·4	−0·1	+0·3	27	65·5	51·1	61·3	64·3	61·0	54·3	−2·5	−0·2	+0·7	+1·4	−0·9	+0·7
28	71·1	45·7	...	...	...	...	−3·0	+0·9	...	...	...	...	28	72·8	45·0	...	...	...	...	−1·3	+0·2	...	...	...	...
29	73·7	51·4	65·3	73·7	68·2	55·3	−1·7	+1·2	+0·1	−0·3	0·0	−0·3	29	72·2	50·4	64·9	71·9	67·4	55·8	−3·2	+0·2	−0·3	−2·1	−0·8	+0·2
30	57·8	47·2	51·6	55·9	56·3	50·0	−0·2	0·0	−0·4	0·0	−0·4	+0·1	30	56·9	46·0	51·8	56·0	56·0	49·9	−1·1	−1·2	−0·2	+0·1	−0·7	0·0
31	61·3	40·1	52·3	57·2	60·4	49·6	−0·9	+0·9	−0·5	−0·2	−0·4	+0·9	31	60·6	39·1	53·6	56·8	59·2	49·7	−1·6	−0·1	+0·8	−0·6	−1·6	+1·0
Means	68·6	47·3	60·3	65·6	66·4	54·6	−2·0	+0·7	−0·1	−0·4	−0·5	+0·2	Means	68·3	46·6	59·8	64·7	65·7	54·7	−2·4	0·0	−0·7	−1·2	−1·2	+0·3

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	63·5	38·1	57·3	60·8	62·5	54·6	−1·9	+0·8	−0·3	+0·1	−0·6	−0·1	1	63·7	36·3	56·7	61·2	62·2	54·9	−1·7	−1·0	−0·9	+0·5	−0·9	+0·2
2	66·0	48·9	59·4	64·6	63·9	48·9	−2·1	+0·6	−0·3	−2·4	0·0	+0·1	2	65·3	47·3	60·0	64·1	62·6	48·6	−2·8	−1·0	+0·3	−2·9	−1·3	−0·2
3	70·9	39·7	60·7	65·0	69·3	58·4	−2·1	+0·6	+0·3	−0·6	−0·7	+0·3	3	70·2	38·1	59·8	65·8	68·6	58·3	−2·8	−1·0	−0·6	+0·2	−1·4	+0·2
4	74·4	52·6	...	...	...	...	−2·6	+0·6	...	...	...	...	4	73·9	51·2	...	...	...	...	−3·1	−0·8	...	...	...	...
5	72·9	53·7	63·2	71·0	70·9	58·9	−3·3	+0·9	−0·3	−1·9	−0·3	+0·1	5	71·7	53·0	63·7	69·8	69·4	58·7	−4·5	+0·2	+0·2	−3·1	−1·8	−0·1
6	71·8	47·4	55·9	69·6	71·5	59·8	−1·5	+0·8	−0·7	−1·3	−0·2	+0·2	6	70·5	47·2	54·9	67·8	69·9	59·8	−2·8	+0·6	−1·7	−2·1	−1·8	+0·2
7	73·5	51·9	59·9	68·4	73·5	53·4	−0·7	−0·4	−0·3	−0·1	+0·6	+0·5	7	72·4	51·9	61·4	67·8	71·6	52·7	−1·8	−0·4	+1·2	−0·7	−1·3	−0·2
8	72·7	51·2	62·6	70·6	71·9	53·7	−2·0	+0·3	+0·3	−0·6	−0·3	+0·2	8	71·2	50·5	61·3	68·6	70·2	53·5	−3·5	−0·4	−1·0	−2·6	−2·0	0·0
9	75·2	47·3	54·9	68·7	74·4	55·4	−1·6	+0·1	−0·1	−0·4	−0·7	+0·2	9	73·3	46·4	54·6	65·4	71·8	55·3	−3·5	−0·8	−0·4	−3·7	−3·3	+0·1
10	67·3	51·4	55·4	65·3	67·3	56·8	−1·9	+0·2	−0·6	−0·3	−1·2	+0·1	10	66·9	50·9	55·7	64·6	66·8	56·6	−2·3	−0·3	−0·3	−1·0	−1·7	−0·1
11	68·8	50·0	...	...	...	...	−1·5	+0·8	...	...	...	...	11	67·1	49·2	...	...	...	...	−3·2	0·0	...	...	...	...
12	67·1	52·1	53·2	58·8	66·9	53·7	−1·4	+0·4	+0·2	+0·1	−0·2	+0·2	12	65·7	51·3	52·8	58·6	64·6	53·6	−2·8	−0·4	−0·2	−0·1	−2·5	+0·1
13	77·2	52·3	71·1	76·3	75·7	61·1	−2·6	+0·9	+0·6	−0·3	−0·2	+0·3	13	76·3	51·3	69·0	74·8	73·6	61·0	−3·5	−0·1	−1·5	−1·8	−2·3	+0·2
14	81·2	53·4	74·9	79·7	78·9	65·4	−2·0	+0·8	+0·3	−0·1	−0·3	0·0	14	79·6	53·1	73·4	78·6	78·2	65·5	−3·6	+0·5	−1·2	−1·2	−1·0	+0·1
15	82·9	58·4	73·9	79·9	79·8	62·8	−1·8	+1·2	+0·7	−0·7	−0·8	0·0	15	81·5	57·8	70·9	77·7	78·6	63·1	−3·2	+0·6	−2·3	−2·9	−2·0	+0·3
16	86·8	53·8	73·5	82·7	86·2	66·1	−2·0	+0·8	+1·1	−0·5	−0·6	−0·2	16	85·1	53·2	71·8	79·8	83·0	66·6	−3·7	+0·2	−0·6	−3·4	−3·8	+0·3
17	87·2	55·5	79·9	85·2	87·2	65·3	−1·6	+1·3	+1·1	−0·8	−0·2	+0·1	17	86·6	54·5	79·3	84·0	86·6	66·6	−2·2	+0·3	+0·5	−2·0	−0·8	+1·4
18	82·5	55·5	...	...	...	...	−2·6	+1·4	...	...	...	...	18	81·5	55·3	...	...	...	...	−3·6	+1·2	...	...	...	...
19	88·9	51·9	75·3	84·7	87·6	69·5	−2·1	+1·3	+0·5	−0·7	+0·6	+0·4	19	88·5	51·2	73·5	83·5	87·7	70·2	−2·5	+0·6	−1·3	−1·9	+0·7	+1·1
20	70·0	55·3	57·1	63·4	64·5	55·3	+0·9	+0·3	−0·3	0·0	+0·1	+0·2	20	70·2	54·4	56·2	62·3	64·3	55·1	+1·1	−0·6	−1·2	−1·1	−0·1	0·0
21	67·4	49·0	56·9	62·7	65·7	59·9	−1·0	+0·8	0·0	−0·5	−0·8	+0·1	21	68·3	48·2	57·2	63·0	66·3	59·8	−0·1	0·0	+0·3	−0·2	−0·2	0·0
22	75·8	49·8	67·9	67·5	68·0	61·9	−2·4	+0·6	−2·2	−0·5	−1·0	+0·1	22	74·4	50·2	67·2	68·1	67·6	61·8	−3·8	+1·0	−2·9	+0·1	−1·4	0·0
23	65·9	53·3	56·6	61·6	63·9	54·8	−2·5	+0·1	−0·4	−0·1	−0·9	+0·4	23	66·3	53·3	57·8	61·5	64·2	55·3	−2·1	+0·1	+0·8	−0·2	−0·6	+0·9
24	62·1	49·2	54·9	61·4	58·4	55·1	−1·0	+0·1	−0·3	−0·4	−0·1	−0·1	24	61·7	48·5	55·6	60·8	58·3	54·8	−1·4	−0·6	+0·4	−1·0	−0·2	−0·4
25	69·0	48·1	...	...	...	...	−2·0	+0·3	...	...	...	...	25	68·7	47·4	...	...	...	...	−2·3	−0·4	...	...	...	...
26	66·8	49·2	55·0	60·7	66·2	59·5	−1·2	+1·0	−0·2	+0·2	−0·5	−0·1	26	67·5	49·2	55·7	61·1	66·4	59·3	−0·5	+1·0	+0·5	+0·6	−0·3	−0·3
27	72·3	57·8	65·8	68·6	68·2	58·7	−2·4	+0·6	−0·4	−0·1	−0·2	−0·4	27	72·3	57·3	66·8	68·6	68·0	59·1	−2·4	+0·1	+0·6	−0·1	−0·4	0·0
28	74·0	55·8	66·1	72·3	72·4	59·7	−1·8	+0·3	−0·7	−0·4	−0·7	+0·1	28	72·7	55·6	65·9	70·5	71·6	59·6	−3·1	+0·1	−0·9	−2·2	−1·5	0·0
29	73·3	55·0	61·3	70·9	67·5	61·7	−2·6	+0·5	−0·5	+0·2	−0·9	−0·3	29	72·8	53·9	61·4	70·1	67·8	62·5	−3·1	−0·6	−0·4	−0·6	−0·6	+0·5
30	79·0	49·3	68·4	74·9	77·9	62·1	−2·8	+0·7	+0·9	−0·7	−0·2	+0·1	30	78·6	48·7	68·1	73·5	77·6	61·8	−3·2	+0·1	+0·6	−2·1	−0·5	−0·2
Means	73·5	51·2	63·1	69·8	71·5	58·9	−1·9	+0·6	−0·1	−0·5	−0·4	+0·1	Means	72·8	50·5	62·7	68·9	70·7	59·0	−2·6	−0·1	−0·5	−1·4	−1·3	+0·2

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	77·7	52·6	70·7	75·9	75·6	61·9	−1·5	+0·6	0·0	−0·5	−0·4	+0·1	1	76·8	52·2	69·9	75·6	75·3	61·7	−2·4	+0·2	−0·8	−0·8	−0·7	−0·1
2	83·3	58·9	...	...	...	...	−1·7	+0·6	...	...	...	...	2	81·7	58·3	...	...	...	...	−3·3	0·0	...	...	...	...
3	78·2	58·1	69·9	77·2	74·9	59·1	−2·4	+0·6	−0·7	0·0	−0·2	+0·2	3	77·3	57·0	69·5	75·1	75·2	58·5	−3·3	−0·5	−1·1	−2·1	+0·1	−0·4
4	73·8	55·5	66·7	71·0	70·1	61·5	−2·6	+0·4	+0·1	+0·5	−0·7	0·0	4	75·2	54·5	64·8	68·1	69·7	61·3	−1·2	−0·6	−1·8	−2·4	−1·1	−0·2
5	76·3	53·4	63·8	68·1	74·5	64·0	−1·7	−0·5	−0·2	−0·5	+0·3	0·0	5	75·7	52·3	64·1	68·6	74·2	63·8	−2·3	−1·6	+0·1	0·0	0·0	−0·2
6	84·2	54·4	...	...	...	...	−0·9	+0·3	...	...	...	...	6	82·5	53·4	...	...	...	...	−2·6	−0·7	...	..	...	...
7	87·7	53·9	75·9	84·1	85·8	70·3	−2·2	+1·2	0·0	−0·9	+0·3	+0·1	7	88·4	52·3	74·6	84·0	84·6	70·2	−1·5	−0·4	−1·3	−1·0	−0·9	0·0
8	88·0	61·0	82·9	85·4	81·0	61·9	−1·9	+0·8	−0·3	+0·1	−1·5	−0·6	8	88·3	60·7	82·8	83·6	81·3	61·8	−1·6	+0·5	−0·4	−1·7	−1·2	−0·7
9	71·2	55·4	...	...	...	...	−1·2	+0·3	...	...	...	...	9	71·4	55·1	...	...	...	...	−1·0	0·0	...	...	...	...
10	73·9	56·1	67·2	70·1	73·8	61·3	−2·3	+0·7	+0·5	−0·8	−0·8	+0·3	10	74·2	55·2	68·3	69·8	73·0	61·2	−2·0	−0·2	+1·6	−1·1	−1·6	+0·2
11	74·7	57·5	68·1	70·5	71·5	57·9	−1·9	0·0	−1·7	−0·4	−1·2	−1·4	11	73·4	57·3	69·6	71·4	71·8	58·8	−3·2	−0·2	−0·2	+0·5	−0·9	−0·5
12	65·3	55·9	61·2	63·6	58·9	59·4	−3·1	+0·1	−2·4	−1·0	−1·7	0·0	12	68·3	54·9	62·5	65·0	60·2	59·5	−0·1	−0·9	−1·1	+0·4	−0·4	+0·1
13	65·2	57·5	61·2	63·5	62·7	57·9	−1·6	+0·1	0·0	+0·4	−0·7	+0·1	13	65·8	56·6	61·3	62·7	63·3	57·6	−1·0	−0·8	+0·1	−0·4	−0·1	−0·2
14	60·0	54·4	55·5	57·7	58·7	54·4	−1·4	+0·4	+0·2	0·0	−0·4	0·0	14	60·3	54·0	55·4	58·2	59·2	54·0	−1·1	0·0	+0·1	+0·5	+0·1	−0·4
15	63·6	47·7	55·6	57·5	63·6	56·6	−1·4	+0·6	−0·2	+0·1	−0·1	0·0	15	64·5	46·4	55·6	57·2	64·2	57·0	−0·5	−0·7	−0·2	−0·2	+0·5	+0·4
16	62·2	55·4	...	...	...	...	−1·5	+1·0	...	...	...	...	16	62·8	54·3	...	...	...	...	−0·9	−0·1	...	...	...	...
17	69·0	53·5	60·8	63·3	69·0	60·1	−1·3	+0·9	+0·1	−0·1	−0·5	+0·3	17	69·1	53·1	61·6	64·8	68·6	60·2	−1·2	+0·5	+0·9	+1·4	−0·9	+0·4
18	71·3	51·9	61·8	67·7	70·7	61·5	−2·2	+0·4	−0·1	−1·4	0·0	0·0	18	72·0	50·8	61·7	67·7	70·2	61·4	−1·5	−0·7	−0·2	−1·4	−0·5	−0·1
19	70·6	59·4	61·2	65·8	66·4	61·6	−2·0	−0·3	−0·4	−0·4	−0·4	−0·2	19	71·3	59·7	61·9	66·8	66·6	61·9	−1·3	0·0	+0·3	+0·6	−0·2	+0·1
20	68·0	60·6	63·3	63·9	64·8	61·9	−2·2	0·0	−0·3	−0·5	−1·0	−0·4	20	69·7	60·7	63·8	64·2	65·8	62·4	−0·5	+0·1	+0·2	−0·2	0·0	+0·1
21	73·3	54·6	65·9	72·5	69·2	62·4	−3·1	+0·1	−0·3	−1·0	−0·6	+0·1	21	75·0	53·9	66·3	72·8	70·5	62·3	−1·4	−0·6	+0·1	−0·7	+0·7	0·0
22	72·0	56·6	61·9	70·2	71·6	62·2	−2·0	+0·4	−0·1	−0·8	0·0	+0·7	22	72·0	55·7	62·4	69·5	71·1	62·5	−2·0	−0·5	+0·4	−1·5	−0·5	+1·0
23	73·0	50·4	...	...	...	...	−2·5	+0·7	...	...	...	...	23	72·7	48·6	...	...	...	...	−2·8	−1·1	...	...	...	...
24	75·4	57·7	65·9	71·7	72·4	62·7	−2·5	+0·2	−0·2	−0·5	−0·7	+0·2	24	76·4	56·0	66·5	72·7	73·5	62·6	−1·5	−1·5	+0·4	+0·5	+0·4	+0·1
25	71·0	58·0	64·6	68·2	70·2	61·6	−2·0	+0·3	−0·1	+0·5	−0·6	+0·1	25	71·7	57·3	65·2	67·8	71·2	61·8	−1·3	−0·4	+0·5	+0·1	+0·4	+0·3
26	68·9	55·0	62·5	60·8	68·9	56·3	−1·7	+0·7	+0·5	−0·9	−0·9	+0·1	26	69·1	53·8	62·9	61·1	69·1	56·2	−1·5	−0·5	+0·9	−0·6	−0·7	0·0
27	68·7	54·3	60·2	66·2	67·0	58·1	−2·3	+0·4	−0·1	−0·3	−0·9	+0·3	27	68·8	53·7	59·6	64·8	66·8	58·5	−2·2	−0·2	−0·7	−1·7	−1·1	+0·7
28	71·4	48·0	63·0	69·6	70·5	61·6	−0·6	+0·5	+0·2	−0·2	0·0	+0·1	28	72·1	46·6	60·5	69·5	70·4	61·6	+0·1	−0·9	−2·3	−0·3	−0·1	+0·1
29	70·3	58·7	66·0	68·6	61·7	60·8	−1·8	+0·4	+0·6	−0·2	−1·9	0·0	29	70·9	58·0	66·4	69·5	62·4	61·0	−1·2	−0·3	+1·0	+0·7	−1·2	+0·2
30	68·4	54·7	...	...	...	...	−1·6	+0·2	...	...	...	...	30	68·5	54·2	...	...	...	...	−1·5	−0·3	...	...	...	...
31	67·5	51·4	58·7	63·8	58·1	55·0	−1·8	+0·6	+0·1	+0·1	+0·2	0·0	31	67·5	50·2	59·1	64·6	57·2	55·8	−1·8	−0·6	+0·5	+0·9	−0·7	+0·8
Means	72·4	55·2	64·6	68·7	69·3	60·5	−1·9	+0·4	−0·2	−0·3	−0·6	0·0	Means	72·7	54·4	64·7	68·6	69·4	60·5	−1·6	−0·4	−0·1	−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.*

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	68·0	48·9	59·9	63·3	66·3	61·1	−1·6	+0·3	−0·1	0·0	−0·6	+0·3	1	68·9	47·7	59·9	64·5	67·0	61·4	−0·7	−0·9	−0·1	+1·2	+0·1	+0·6
2	70·8	57·5	64·9	65·9	69·5	60·3	−1·9	+0·6	−0·9	−0·2	+0·5	+0·5	2	71·5	56·8	65·3	66·8	70·3	60·5	−1·2	−0·1	−0·5	+0·7	+1·3	+0·7
3	67·1	54·0	64·6	65·8	65·2	62·9	−1·7	−0·6	0·0	0·0	−0·4	+0·1	3	67·3	53·9	65·3	65·8	65·4	63·0	−1·5	−0·7	+0·7	0·0	−0·2	+0·2
4	70·2	54·9	64·2	65·4	58·7	57·1	−2·2	−1·3	−0·6	−0·5	−1·1	0·0	4	69·5	54·2	65·4	65·2	59·3	57·6	−2·9	−2·0	+0·6	−0·7	−0·5	+0·5
5	69·6	53·9	64·3	64·6	69·6	57·4	−1·1	+0·6	−0·2	+0·6	−0·2	+0·7	5	69·8	53·2	63·9	64·8	69·8	57·4	−0·9	−0·1	−0·6	+0·8	0·0	+0·7
6	71·0	49·3	...	...	...	...	−1·0	+0·8	...	...	...	...	6	71·5	47·7	...	...	...	...	−0·5	−0·8	...	...	...	...
7	77·7	56·0	...	...	...	...	−1·6	+0·7	...	...	...	...	7	78·2	55·2	...	...	...	...	−1·1	−0·1	...	...	...	...
8	82·4	55·8	78·5	82·1	79·7	64·8	−0·9	+1·1	+1·1	+0·1	−0·1	+0·4	8	81·7	55·5	79·3	81·7	79·4	64·8	−1·6	+0·8	+1·9	−0·3	−0·4	+0·4
9	82·1	60·6	75·3	82·1	80·0	67·1	−0·9	+1·1	−0·3	0·0	+0·1	−0·4	9	80·8	59·5	75·7	80·7	79·5	67·5	−2·2	0·0	+0·1	−1·4	−0·4	0·0
10	81·6	63·1	74·7	77·8	81·6	64·7	−2·1	+0·9	+0·9	+0·1	+0·1	+0·1	10	82·8	62·7	74·8	77·4	81·9	64·8	−0·9	+0·5	+1·0	−0·3	+0·4	+0·2
11	81·0	60·5	71·7	75·5	79·8	67·8	−2·3	+1·3	+0·1	+0·5	+0·1	+0·1	11	82·1	59·3	72·1	75·0	80·6	67·9	−1·2	+0·1	+0·5	0·0	+0·9	+0·2
12	78·6	62·6	68·0	73·7	75·5	68·5	−2·4	+0·5	−0·5	−0·8	+0·2	−0·1	12	79·3	61·9	69·3	73·8	75·8	69·7	−1·7	−0·2	+0·8	−0·7	+0·5	+1·1
13	81·3	60·5	...	...	...	...	−1·7	+0·9	...	...	...	...	13	81·5	59·5	...	...	...	...	−1·5	−0·1	...	...	...	...
14	83·7	58·5	74·6	81·4	82·6	67·1	−1·4	+1·1	+0·2	+0·6	+0·3	−0·1	14	83·9	58·3	74·9	80·6	81·5	67·1	−1·2	+0·9	+0·5	−0·2	−0·8	−0·1
15	86·7	58·8	75·9	84·7	86·6	70·0	−1·8	+1·1	+1·1	+0·2	+0·2	+0·2	15	87·5	57·9	77·1	83·5	86·1	71·5	−1·0	+0·2	+2·3	−1·0	−0·3	+1·7
16	90·8	58·5	78·7	88·4	88·7	71·8	−2·2	+1·3	+0·6	+0·5	−0·3	0·0	16	90·5	58·1	78·1	87·6	89·0	72·8	−2·5	+0·9	0·0	−0·3	0·0	+1·0
17	91·4	61·5	79·4	88·6	90·8	72·8	−2·8	+1·5	+0·3	+0·1	−0·8	−0·2	17	92·0	60·4	79·8	88·1	89·8	74·0	−2·2	+0·4	+0·7	−0·4	−1·8	+1·0
18	93·5	67·7	85·7	92·6	88·3	68·4	−1·6	+0·4	+0·1	−0·7	−1·4	−0·2	18	93·7	67·4	85·2	92·8	87·7	68·2	−1·4	+0·1	−0·4	−0·5	−2·0	−0·4
19	79·6	63·2	69·6	75·3	77·6	63·2	−3·1	+0·2	+0·3	−1·3	−2·0	+0·1	19	80·0	62·5	70·2	74·6	77·8	63·3	−2·7	−0·5	+0·9	−2·0	−1·8	+0·2
20	77·8	59·4	...	...	...	...	−2·2	+1·1	...	...	...	...	20	77·5	58·5	...	...	...	...	−2·5	+0·2	...	...	...	...
21	79·6	63·3	67·3	71·9	77·3	63·3	−2·4	+0·1	−0·4	−0·9	−1·7	+0·1	21	79·3	62·7	67·5	72·6	76·5	62·8	−2·7	−0·5	−0·2	−0·2	−2·5	−0·4
22	73·4	55·5	67·2	70·9	71·0	62·0	−1·6	+0·4	−0·6	+0·2	−1·4	+0·2	22	72·0	54·6	67·6	69·8	71·6	62·0	−3·0	−0·5	−0·2	−0·9	−0·8	+0·2
23	65·3	56·6	64·8	58·0	58·4	59·1	−0·9	+0·6	−0·2	−1·4	−1·2	+0·3	23	66·0	56·2	65·0	58·8	59·3	59·3	−0·2	+0·2	0·0	−0·6	−0·3	+0·5
24	71·0	52·7	63·9	68·1	69·5	60·1	−2·4	+0·4	−1·6	−1·2	−0·3	+0·3	24	71·3	52·1	64·2	68·3	69·4	60·2	−2·1	−0·2	−1·3	−1·0	−0·4	+0·4
25	71·0	51·1	63·2	67·1	69·1	59·9	−2·6	+0·7	0·0	+0·1	−0·7	+1·1	25	70·4	50·2	62·5	66·5	68·8	60·2	−3·2	−0·2	−0·7	−0·5	−1·0	+1·4
26	64·4	48·5	62·9	63·6	63·0	58·9	−1·6	+1·0	−0·7	−1·2	−0·1	+0·3	26	64·7	47·2	63·2	64·2	62·8	58·7	−1·3	−0·3	−0·4	−0·6	−0·3	+0·1
27	62·2	47·8	...	...	...	...	−0·9	+0·7	...	...	...	...	27	61·7	46·4	...	...	...	...	−1·4	−0·7	...	...	...	...
28	66·8	48·2	59·4	66·3	65·1	54·9	−1·4	+0·9	+0·1	−0·3	−0·5	+0·1	28	65·9	47·2	59·5	65·9	65·3	55·8	−2·3	−0·1	+0·2	−0·7	−0·3	+1·0
29	69·7	44·3	61·9	68·4	66·2	58·6	−1·6	+1·1	+0·7	+0·8	+0·3	+0·1	29	67·9	43·2	60·2	65·4	65·1	58·8	−3·4	0·0	−1·0	−2·2	−0·8	+0·3
30	74·8	57·5	60·0	70·5	71·7	61·4	−1·2	+0·7	+0·2	+0·8	0·0	+0·2	30	73·9	56·5	60·0	69·6	72·3	62·8	−2·1	−0·3	+0·2	−0·1	+0·6	+1·6
31	70·6	55·6	59·6	67·7	70·3	59·5	−1·9	+0·9	+0·3	−1·0	−0·7	−0·2	31	71·3	54·7	59·4	68·3	70·9	59·7	−1·2	0·0	+0·1	−0·4	−0·1	0·0
Means	75·9	56·3	68·5	73·1	73·9	63·2	−1·8	+0·7	0·0	−0·2	−0·4	+0·2	Means	75·9	55·5	68·7	72·8	74·0	63·5	−1·8	−0·1	+0·2	−0·5	−0·4	+0·5

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.					
	Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	63·8	54·6	57·9	63·6	61·5	60·4	−2·2	+0·1	−0·9	−0·3	−0·3	−0·1
2	70·1	57·8	62·3	65·9	67·8	57·8	−1·2	+0·4	−0·1	−0·2	−0·2	+0·2
3	68·0	53·3	...	...	...	...	−0·9	+1·0	...	...	...	...
4	70·0	49·7	64·7	68·3	68·9	55·1	−1·1	+1·4	−0·3	+0·6	+0·2	+0·2
5	77·3	46·6	61·7	73·5	77·3	61·2	−1·7	+0·9	0·0	+0·7	+0·6	+0·1
6	81·8	52·8	68·8	77·7	81·7	65·4	−1·0	+0·5	+0·3	−0·5	+1·0	−0·2
7	76·0	60·1	68·6	74·5	73·7	60·1	−1·2	+0·9	−0·2	−0·9	−0·3	+0·3
8	71·5	52·3	61·7	62·3	61·5	54·9	−2·4	−1·6	+0·1	−0·7	−0·6	+0·1
9	63·0	49·7	58·3	59·8	62·8	51·9	−1·1	−0·5	+0·5	+0·2	0·0	+0·5
10	64·8	45·3	...	...	...	...	−0·4	+0·9	...	...	...	...
11	65·9	47·0	62·5	65·6	64·4	52·3	−0·5	+0·7	+0·8	+0·2	−0·2	+0·3
12	68·3	46·8	58·2	63·5	65·3	51·3	−0·1	+0·6	+0·1	+0·3	−0·3	+0·4
13	68·6	40·2	58·8	65·4	67·5	60·6	−1·4	+0·8	+1·5	−0·1	0·0	+0·3
14	76·8	55·8	66·4	68·3	76·8	59·6	−1·1	+0·8	0·0	+0·3	+0·8	+0·3
15	75·4	49·1	62·1	71·3	75·4	60·3	−1·1	+0·5	−0·9	+0·3	+0·3	+0·5
16	65·3	48·3	58·4	64·6	64·9	59·4	−0·6	+1·1	−0·5	+0·3	0·0	−0·3
17	63·0	51·8	...	...	...	...	−1·2	−0·8	...	...	...	...
18	66·0	51·9	59·5	64·9	63·7	59·7	−1·3	+0·7	0·0	−0·1	−0·1	−0·1
19	66·7	57·5	63·4	66·1	66·0	60·3	−1·2	+0·5	−0·1	0·0	−0·3	+0·2
20	65·2	48·4	56·1	62·9	63·6	48·7	−1·5	+0·4	+0·1	+0·2	−0·1	0·0
21	53·8	41·6	47·4	53·4	53·0	47·1	−1·6	+0·6	−0·2	+0·1	0·0	+0·2
22	62·2	41·6	51·8	59·7	60·9	46·3	−1·2	+0·1	+0·2	−0·3	−0·6	−0·1
23	52·6	41·0	49·9	44·0	48·5	41·3	−0·3	+0·7	−0·1	−0·4	−0·4	+0·2
24	58·5	37·6	...	...	...	...	−1·8	+0·1	...	...	...	...
25	59·1	41·4	54·2	57·5	57·1	51·1	−1·7	0·0	0·0	−0·1	−0·6	+0·1
26	63·8	45·8	52·8	63·3	62·9	54·9	−2·0	+0·6	0·0	+0·6	−0·4	+0·1
27	66·1	51·7	58·9	63·0	63·5	56·1	−2·0	−1·1	−0·5	+0·1	−0·3	+0·1
28	62·0	49·1	58·0	60·1	60·3	59·2	−1·1	+0·7	+0·2	−0·2	−0·2	−0·1
29	65·0	53·0	59·2	62·6	56·8	53·7	−1·0	+0·8	+0·1	+0·1	−0·2	+0·1
30	63·0	51·0	54·5	59·9	61·7	52·1	−1·0	+0·3	−0·1	−0·4	−0·6	0·0
Means	66·5	49·1	59·1	63·9	64·9	55·4	−1·2	+0·4	0·0	0·0	−0·1	+0·1

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 feet above the ground.						Excess above readings of Thermometers on ordinary stand, 4 feet above the ground.					
	Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	66·2	53·9	58·8	65·7	62·3	60·8	+0·2	−0·6	0·0	+1·8	+0·5	+0·3
2	69·7	57·4	62·7	67·3	68·5	58·0	−1·6	0·0	+0·3	+1·2	+0·5	+0·4
3	66·6	52·2	...	...	...	...	−2·3	−0·1	...	...	...	...
4	69·6	48·7	64·8	68·1	68·9	54·8	−1·5	+0·4	−0·2	+0·4	+0·2	−0·1
5	78·6	45·4	60·0	71·4	77·1	63·1	−0·4	−0·3	−1·7	−1·4	+0·4	+2·0
6	81·9	52·2	68·5	76·7	81·6	65·9	−0·9	−0·1	0·0	−1·5	+0·9	+0·3
7	75·7	59·3	69·2	72·9	72·8	60·4	−1·5	+0·1	+0·4	−2·5	−1·2	+0·6
8	70·2	51·2	61·8	61·3	62·4	55·0	−3·7	−2·7	+0·2	−1·7	+0·3	+0·2
9	62·1	48·8	56·7	60·0	62·1	51·9	−2·0	−1·4	−1·1	+0·4	−0·7	+0·5
10	63·3	44·3	...	...	...	...	−1·9	−0·1	...	...	...	...
11	64·8	46·5	60·4	63·4	63·5	52·8	−1·6	+0·2	−1·3	−2·0	−1·1	+0·8
12	66·9	46·8	58·1	62·7	65·0	52·0	−1·5	+0·6	0·0	−0·5	−0·6	+1·1
13	69·3	39·7	57·9	65·3	68·1	61·1	−0·7	+0·3	+0·6	−0·2	+0·6	+0·8
14	77·7	55·0	66·3	68·8	76·2	60·6	−0·2	0·0	−0·1	+0·8	+0·2	+1·3
15	76·5	49·0	61·8	70·2	76·5	61·0	0·0	+0·4	−1·2	−0·8	+1·4	+1·2
16	65·3	47·6	58·8	64·8	65·3	59·5	−0·6	+0·4	−0·1	+0·5	+0·4	−0·2
17	62·7	53·3	...	...	...	...	−1·5	+0·7	...	...	...	...
18	66·5	50·9	59·8	65·6	64·2	59·8	−0·8	−0·3	+0·3	+0·6	+0·4	0·0
19	67·2	56·9	63·9	66·5	66·6	60·2	−0·7	−0·1	+0·4	+0·4	+0·3	+0·1
20	64·7	48·0	56·6	61·6	64·6	48·0	−2·0	0·0	+0·6	−1·1	+0·9	−0·7
21	53·6	40·3	47·8	53·2	52·9	47·6	−1·8	−0·7	+0·2	−0·1	−0·1	+0·7
22	62·1	40·2	50·9	58·3	61·2	46·6	−1·3	−1·3	−0·7	−1·7	−0·3	+0·2
23	51·7	40·3	49·9	43·1	48·9	41·1	−1·2	0·0	−0·1	−1·3	0·0	0·0
24	59·5	36·7	...	...	...	...	−0·8	−0·8	...	...	...	...
25	58·7	40·3	53·5	57·8	57·8	51·6	−2·1	−1·1	−0·7	+0·2	+0·1	+0·6
26	64·3	45·3	53·2	62·5	63·7	54·8	−1·5	+0·1	+0·4	−0·2	+0·4	0·0
27	67·3	53·0	59·1	63·0	63·8	55·9	−0·8	+0·2	−0·3	+0·1	0·0	−0·1
28	62·2	48·2	58·8	60·8	60·8	59·8	−0·9	−0·2	+1·0	+0·5	+0·3	+0·5
29	64·5	52·7	58·8	62·4	57·0	53·5	−1·5	+0·5	−0·3	−0·1	0·0	−0·1
30	63·3	50·9	55·1	59·3	62·9	52·3	−0·7	+0·2	+0·5	−1·0	+0·6	+0·2
Means	66·4	48·5	59·0	63·6	65·2	55·7	−1·3	−0·2	−0·1	−0·4	+0·2	+0·4

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	65·7	45·2	...	...	...	...	−0·1	+1·1	...	...	...	...	1	64·6	45·0	...	...	...	...	−1·2	+0·9	...	...	...	...
2	62·2	47·2	57·0	61·5	59·3	48·7	−1·5	+0·3	+0·7	0·0	+0·1	+0·3	2	62·3	46·7	56·6	60·4	59·4	49·3	−1·4	−0·2	+0·3	−1·1	+0·2	+0·9
3	59·1	43·2	50·5	57·3	55·5	47·0	−0·8	−0·6	0·0	+0·6	+0·1	+0·2	3	59·0	43·1	49·5	56·3	56·4	46·9	−0·9	−0·7	−1·0	−0·4	+1·0	+0·1
4	61·0	44·2	54·6	60·2	51·9	48·3	−1·0	+0·4	+0·1	+0·4	−0·1	+0·1	4	60·4	43·1	53·8	60·0	51·8	48·3	−1·6	−0·7	−0·7	+0·2	−0·2	+0·1
5	59·2	45·7	56·0	57·6	57·1	51·0	−1·4	+0·5	+0·2	+0·3	−0·2	+0·1	5	60·1	46·2	55·8	58·4	57·5	52·0	−0·5	+1·0	0·0	+1·1	+0·2	+1·1
6	61·8	46·7	53·1	60·3	60·2	49·9	−0·2	−0·3	+0·1	+0·7	−0·6	+0·1	6	62·1	47·1	53·6	59·6	60·9	50·6	+0·1	+0·1	+0·6	0·0	+0·1	+0·8
7	63·0	45·2	53·5	61·8	57·7	53·9	0·0	+0·8	−0·1	+1·0	−0·2	+0·1	7	62·5	45·2	54·8	60·8	57·2	54·0	−0·5	+0·8	+1·2	0·0	−0·7	+0·2
8	61·1	46·4	...	...	...	...	−1·7	+0·2	...	...	...	...	8	63·5	46·2	...	...	...	...	+0·7	0·0	...	...	...	...
9	63·8	42·2	51·7	61·5	60·7	55·0	−1·5	+0·5	−0·3	0·0	−0·2	−0·2	9	63·5	41·2	51·8	61·4	61·1	54·8	−1·8	−0·5	−0·2	−0·1	+0·2	−0·4
10	58·6	49·7	51·0	57·4	56·1	51·5	−1·2	−0·2	−0·4	+0·6	−0·5	+0·5	10	59·5	49·8	51·8	57·0	56·9	51·8	−0·3	−0·1	+0·4	+0·2	+0·3	+0·8
11	61·8	49·5	59·9	59·4	55·4	49·9	−1·1	−0·1	+0·2	−0·1	−0·1	−0·8	11	62·1	49·8	60·1	59·9	55·8	49·8	−0·8	+0·2	+0·4	+0·4	+0·3	−0·9
12	55·0	43·3	49·3	53·2	54·1	43·3	−0·8	+0·1	+0·5	+0·2	+0·1	+0·1	12	55·6	43·1	49·4	53·3	54·8	43·9	−0·2	−0·1	+0·6	+0·3	+0·8	+0·7
13	57·5	38·7	47·0	54·7	54·1	50·4	−1·4	+0·2	+0·7	+0·1	−0·1	−0·1	13	58·3	37·5	46·6	54·8	55·1	51·5	−0·6	−1·0	+0·3	+0·2	+0·9	+1·0
14	64·0	50·4	59·9	63·0	62·9	60·1	−1·0	+0·8	−0·2	−0·3	0·0	−0·2	14	64·5	51·1	60·4	63·9	63·4	60·8	−0·5	+1·5	+0·3	+0·6	+0·5	+0·5
15	64·2	58·8	...	...	...	...	−1·0	+0·2	...	...	...	...	15	64·4	58·6	...	...	...	...	−0·8	0·0	...	...	...	...
16	66·3	56·0	61·5	62·4	65·3	57·0	−0·4	+0·8	+0·2	0·0	−0·6	+0·1	16	66·7	55·4	62·5	62·8	65·6	57·1	0·0	+0·2	+1·2	+0·4	−0·3	+0·2
17	59·3	53·4	57·5	58·2	55·8	53·7	−0·9	+0·2	−0·1	+0·3	+0·1	−0·1	17	59·8	53·2	57·8	57·9	55·8	53·7	−0·4	0·0	+0·2	0·0	+0·1	−0·1
18	59·1	46·2	52·2	59·1	55·2	46·2	+0·2	+0·7	+0·4	+1·3	+0·1	+0·1	18	57·8	45·4	50·9	56·3	55·2	46·3	−1·1	−0·1	−0·9	−1·5	+0·1	+0·2
19	57·0	39·1	45·9	55·9	56·7	45·0	−0·8	+0·2	−0·6	+0·1	0·0	+0·2	19	57·7	38·7	47·1	56·1	57·6	45·2	−0·1	−0·2	+0·6	+0·3	+0·9	+0·4
20	59·1	44·9	51·6	57·7	58·6	52·6	−0·8	+0·2	−0·3	+0·3	−0·2	+0·2	20	59·7	44·2	52·8	58·0	59·2	52·8	−0·2	−0·5	+0·9	+0·6	+0·4	+0·4
21	65·4	51·3	55·4	64·0	62·9	57·3	−0·5	+0·1	−0·2	−0·3	+0·1	−0·1	21	65·5	51·3	56·6	65·0	63·5	57·8	−0·4	+0·1	+1·0	+0·7	+0·7	+0·4
22	57·7	49·6	...	...	...	...	+0·4	+0·3	...	...	...	...	22	57·8	49·1	...	...	...	...	+0·5	−0·2	...	...	...	...
23	56·5	38·9	42·7	56·5	53·5	48·6	+0·5	+0·5	−0·1	+1·4	0·0	+0·3	23	55·2	37·5	43·0	54·8	53·4	48·8	−0·8	−0·9	+0·2	−0·3	−0·1	+0·5
24	55·0	44·3	49·1	55·0	53·3	47·2	−1·3	+0·3	+0·1	−0·7	+0·1	+0·2	24	55·0	44·1	49·7	55·0	53·6	48·0	−1·3	+0·1	+0·7	−0·7	+0·4	+1·0
25	55·1	46·3	52·1	54·7	54·5	55·0	−0·2	+0·1	+0·1	+0·1	0·0	0·0	25	55·3	46·4	52·7	54·9	54·9	55·3	0·0	+0·2	+0·7	+0·3	+0·4	+0·3
26	55·3	45·8	48·9	53·9	52·1	46·1	+0·1	+0·6	+0·1	0·0	0·0	+0·1	26	55·3	45·1	49·9	53·8	52·2	45·2	+0·1	−0·1	+1·1	−0·1	+0·1	−0·8
27	53·0	39·8	43·1	51·0	52·4	44·0	−0·7	+0·4	0·0	+0·8	+0·1	+0·3	27	53·4	39·1	43·4	50·0	52·8	44·3	−0·3	−0·3	+0·3	−0·2	+0·5	+0·6
28	57·2	41·7	53·1	55·1	57·1	54·0	−0·7	+0·3	0·0	−0·1	−0·4	+0·1	28	57·5	41·0	53·5	55·4	57·5	54·3	−0·4	−0·4	+0·4	+0·2	0·0	+0·4
29	55·9	48·5	...	...	...	...	+0·2	+0·4	...	...	...	...	29	55·7	48·4	...	...	...	...	0·0	+0·3	...	...	...	...
30	49·9	38·3	41·6	49·3	46·2	38·7	+1·3	+0·9	+0·6	+1·8	+0·3	+0·5	30	49·3	37·2	41·8	46·8	45·9	39·2	+0·7	−0·2	+0·8	−0·7	0·0	+1·0
31	44·2	31·0	34·9	43·3	43·5	35·7	−0·3	+0·8	+0·1	+1·1	−0·2	+0·4	31	43·6	30·2	35·4	41·8	43·5	36·3	−0·9	0·0	+0·6	−0·4	−0·2	+1·0
Means	58·8	45·5	51·3	57·1	55·8	49·6	−0·6	+0·3	+0·1	+0·4	−0·1	+0·1	Means	59·0	45·2	51·6	56·7	56·2	49·9	−0·5	0·0	+0·4	0·0	+0·3	+0·4

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

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	46·1	30·3	36·1	35·7	35·8	30·5	+0·1	0·0	−0·3	−0·3	0·0	0·0	1	46·7	29·5	35·7	35·1	35·2	30·6	+0·7	−0·8	−0·7	−0·9	−0·6	+0·1
2	35·1	25·0	25·9	33·2	33·2	26·9	−0·1	+0·5	0·0	+0·1	+0·4	+0·1	2	34·7	24·0	26·5	32·8	32·8	28·0	−0·5	−0·5	+0·6	−0·3	0·0	+1·2
3	36·9	20·2	...	...	...	...	+0·9	0·0	...	...	...	...	3	36·5	19·9	...	...	...	...	+0·5	−0·3	...	...	...	...
4	45·2	35·0	39·7	41·7	43·8	43·5	+0·1	+0·3	−0·1	−0·4	+0·1	+0·3	4	45·6	34·9	40·2	42·8	44·5	43·8	+0·5	+0·2	+0·4	+0·7	+0·8	+0·6
5	44·0	37·3	39·7	42·4	41·5	38·4	+0·5	+0·2	+0·1	0·0	0·0	−0·1	5	43·7	37·1	39·8	42·1	41·5	38·8	+0·2	0·0	+0·2	−0·3	0·0	+0·3
6	49·9	37·9	43·9	48·8	48·8	47·2	−0·2	+0·5	0·0	−0·1	0·0	0·0	6	50·3	37·8	45·3	48·8	48·9	47·9	+0·2	+0·4	+1·4	−0·1	+0·1	+0·7
7	48·2	38·3	46·5	46·9	45·3	39·0	+0·2	+0·3	0·0	+0·2	+0·3	+0·2	7	48·3	38·1	46·8	46·7	45·7	39·0	+0·3	+0·1	+0·3	0·0	+0·7	+0·2
8	49·0	37·1	45·4	47·3	47·8	47·0	0·0	+0·7	−0·2	−0·1	+0·1	+0·2	8	49·0	37·1	45·9	47·8	48·2	47·7	0·0	+0·7	+0·3	+0·4	+0·5	+0·9
9	49·7	36·1	40·9	43·0	42·5	37·1	+0·4	+0·9	−0·1	+0·2	+0·7	−0·1	9	49·6	36·1	41·3	42·8	42·1	37·8	+0·3	+0·9	+0·3	0·0	+0·3	+0·6
10	47·2	33·4	...	...	...	...	+0·2	+0·2	...	...	...	...	10	47·7	33·9	...	...	...	...	+0·7	+0·7	...	...	...	...
11	47·0	35·6	46·9	42·7	40·8	35·8	0·0	+0·4	+0·1	+0·1	+0·2	+0·2	11	47·6	35·1	47·6	42·7	41·1	36·2	+0·6	−0·1	+0·8	+0·1	+0·5	+0·6
12	48·0	33·0	46·6	47·9	44·3	45·0	−0·2	+0·8	+0·2	−0·1	+0·3	+0·2	12	48·5	33·5	47·3	48·5	43·9	45·6	+0·3	+1·3	+0·9	+0·5	−0·1	+0·8
13	56·2	40·7	53·7	55·6	55·1	49·4	−0·1	+0·5	0·0	0·0	+0·1	+0·3	13	56·5	41·1	54·2	55·8	55·5	49·8	+0·2	+0·9	+0·5	+0·2	+0·5	+0·7
14	50·0	35·2	39·7	40·9	42·0	35·8	+0·1	+0·1	0·0	+0·4	+0·4	+0·4	14	50·3	35·2	39·7	40·5	42·7	36·2	+0·4	+0·1	0·0	0·0	+1·1	+0·8
15	50·1	32·3	39·9	48·5	49·8	47·4	+0·1	+0·2	+0·1	−0·1	+0·1	+0·1	15	50·2	32·5	40·2	48·4	49·6	47·8	+0·2	+0·4	+0·4	−0·2	−0·1	+0·5
16	50·8	43·1	47·9	50·2	49·2	43·1	−0·2	+0·9	+0·2	0·0	+0·2	+0·2	16	51·5	42·1	48·7	50·8	49·1	43·8	+0·5	−0·1	+1·0	+0·6	+0·1	+0·9
17	44·0	34·7	...	...	...	...	+0·3	+0·4	...	...	...	...	17	45·7	34·7	...	...	...	...	+2·0	+0·4	...	...	...	...
18	45·4	35·5	39·8	42·6	44·9	41·8	−0·3	−0·2	+0·1	−0·2	+0·1	0·0	18	46·5	35·0	41·4	44·8	46·4	43·8	+0·8	−0·7	+1·7	+2·0	+1·6	+2·0
19	48·0	40·5	44·8	47·7	45·2	46·5	0·0	+0·3	0·0	−0·1	−0·1	0·0	19	48·2	40·4	44·9	48·0	45·4	47·3	+0·2	+0·2	+0·1	+0·2	+0·1	+0·8
20	49·2	36·6	42·0	48·6	44·8	37·2	−0·2	0·0	+0·1	0·0	+0·1	−0·4	20	49·9	36·0	42·6	48·5	45·5	36·4	+0·5	−0·6	+0·7	−0·1	+0·8	−1·2
21	43·0	35·1	36·0	41·3	41·2	36·9	+0·2	0·0	0·0	+0·3	+0·4	+0·1	21	42·7	34·1	36·8	41·6	41·5	37·4	−0·1	−1·0	+0·8	+0·6	+0·7	+0·6
22	50·1	35·6	42·7	46·1	46·9	46·7	0·0	+0·4	−0·1	−0·1	+0·1	+0·6	22	50·6	35·1	43·8	46·8	46·6	46·9	+0·5	−0·1	+1·0	+0·6	−0·2	+0·8
23	47·3	37·8	40·5	45·5	46·1	40·5	+0·6	+0·3	0·0	+0·1	0·0	+0·1	23	47·9	37·2	41·1	46·0	46·7	41·5	+1·2	−0·3	+0·6	+0·6	+0·6	+1·1
24	46·6	38·9	...	...	...	...	−0·4	+0·6	...	...	...	...	24	47·5	40·1	...	...	...	...	+0·5	+1·8	...	...	...	...
25	47·9	40·5	...	...	...	...	+0·1	+0·3	...	...	...	...	25	47·8	39·9	...	...	...	...	0·0	−0·3	...	...	...	...
26	47·0	36·1	...	...	...	...	0·0	+0·5	...	...	...	...	26	48·3	36·0	...	...	...	...	+1·3	+0·4	...	...	...	...
27	45·3	36·0	36·6	41·2	44·7	42·3	−0·1	+0·5	+0·1	−0·5	+0·4	0·0	27	46·5	35·3	36·2	42·1	46·5	43·6	+1·1	−0·2	−0·3	+0·4	+2·2	+1·3
28	45·1	37·9	39·2	43·9	44·7	42·1	−0·1	+0·5	+0·1	−0·5	0·0	0·0	28	45·7	37·3	39·6	44·8	44·9	42·6	+0·5	−0·1	+0·5	+0·4	+0·2	+0·5
29	43·1	33·3	39·4	40·9	41·0	33·7	+0·8	+0·5	−0·1	−0·6	+0·1	−0·2	29	42·6	32·6	39·7	41·5	40·9	34·3	+0·3	−0·2	+0·2	0·0	0·0	+0·4
30	38·1	28·6	30·9	36·3	37·7	29·7	+0·2	+0·6	+0·6	+0·3	+0·9	−0·3	30	38·9	28·2	30·3	36·3	37·3	29·8	+1·0	+0·2	0·0	+0·3	+0·5	−0·2
31	32·5	24·0	...	...	...	...	−0·3	−0·6	...	...	...	...	31	32·5	23·5	...	...	...	...	−0·3	−1·1	...	...	...	...
Means	46·0	34·9	41·0	44·1	44·0	40·1	+0·1	+0·3	0·0	−0·1	+0·2	+0·1	Means	46·4	34·6	41·5	44·4	44·3	40·7	+0·5	+0·1	+0·5	+0·2	+0·4	+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 1893.

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

JANUARY.

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

FEBRUARY.

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	41·9	41·1	41·4	39·8	− 0·1	− 0·2	− 0·2	0·0
2	46·0	48·6	44·2	44·1	+ 0·1	− 0·2	− 0·4	+ 0·2
3	42·5	43·3	44·5	41·9	− 0·2	+ 0·1	0·0	+ 0·1
4	35·1	38·7	38·1	32·0	0·0	− 0·1	− 0·5	+ 0·2
6	25·3	36·9	38·7	33·2	− 0·6	+ 0·2	+ 0·3	+ 0·3
7	46·2	46·2	47·1	41·4	− 0·1	− 0·3	0·0	+ 0·2
8	41·3	40·7	42·1	36·1	− 0·2	− 0·1	+ 0·3	+ 0·3
9	39·1	43·1	44·4	44·1	− 0·1	− 0·1	0·0	− 0·1
10	41·1	45·3	44·9	41·9	− 0·2	− 0·3	0·0	0·0
11	48·1	44·0	43·8	39·1	− 0·1	− 0·3	− 0·2	− 0·1
13	36·5	42·2	43·2	43·1	− 0·3	− 0·6	− 0·5	− 0·3
14	47·2	49·2	49·1	42·6	− 0·2	− 0·3	− 0·2	+ 0·1
15	41·1	45·5	47·2	46·0	− 0·1	0·0	− 0·4	+ 0·2
16	45·2	46·0	45·1	40·2	+ 0·1	− 0·1	− 0·7	− 0·2
17	36·7	40·3	40·2	39·1	0·0	− 0·2	− 0·6	− 0·5
18	49·0	49·9	49·0	46·4	+ 0·1	+ 0·1	− 0·2	− 0·4
20	41·1	44·0	44·1	39·6	− 0·1	0·0	− 0·7	− 0·1
21	45·9	45·3	44·9	40·7	+ 0·1	− 0·1	0·0	− 0·1
22	35·8	35·5	36·7	34·6	0·0	− 0·2	− 0·1	0·0
23	32·1	32·2	32·1	31·2	0·0	− 0·5	− 0·1	0·0
24	31·5	32·6	33·1	30·1	+ 0·2	− 0·3	− 0·1	− 0·2
25	31·1	36·1	36·3	32·1	+ 0·2	+ 0·3	− 0·2	0·0
27	35·1	38·2	38·1	36·2	− 0·5	− 0·3	+ 0·1	− 0·4
28	34·2	39·5	40·4	34·0	0·0	0·0	− 0·2	− 0·1
Means	39·5	41·8	42·0	38·7	− 0·1	− 0·1	− 0·2	0·0

MARCH.

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

APRIL.

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	50·3	53·1	53·9	44·8	+ 0·3	+ 0·1	− 0·2	+ 0·4
4	45·1	49·0	48·3	43·1	− 0·6	− 0·8	− 0·5	+ 0·2
5	47·7	46·4	48·6	44·2	− 0·2	− 0·8	− 0·2	0·0
6	44·9	47·1	49·2	42·8	0·0	− 0·6	− 0·6	+ 0·2
7	43·3	52·4	55·3	44·1	− 0·6	− 0·6	+ 0·5	− 0·1
8	39·9	45·6	51·0	41·0	− 0·2	− 0·3	+ 0·3	+ 0·2
10	46·1	52·1	52·8	42·1	− 0·7	− 0·3	− 0·1	− 0·4
11	41·0	40·8	42·0	36·2	− 0·1	− 0·3	− 0·7	− 0·4
12	36·1	38·1	39·9	35·6	− 0·7	− 0·3	− 0·4	+ 0·1
13	41·8	41·9	42·1	36·1	− 0·3	+ 0·1	− 0·2	+ 0·3
14	39·9	45·5	46·6	39·9	− 0·1	− 0·4	− 0·2	+ 0·1
15	46·2	50·1	50·9	43·9	− 0·3	− 0·1	− 0·2	+ 0·1
17	44·2	44·1	43·9	42·1	− 0·4	− 0·4	− 0·4	+ 0·1
18	51·1	56·8	56·1	50·1	+ 0·3	− 0·4	− 0·5	+ 0·3
19	55·1	56·8	55·5	47·4	+ 0·1	− 0·8	− 0·2	+ 0·1
20	53·7	61·9	62·4	49·0	+ 0·1	+ 0·3	+ 0·1	+ 0·5
21	56·1	58·9	56·1	47·8	− 0·1	− 0·2	− 0·4	+ 0·2
22	52·1	54·2	48·1	46·4	− 1·0	− 1·1	+ 0·3	− 0·2
24	53·7	59·5	61·0	49·1	− 1·1	− 0·1	− 0·4	− 0·2
25	53·1	57·1	55·5	48·0	0·0	− 0·2	+ 0·3	+ 0·8
26	50·9	54·9	54·1	45·1	+ 0·7	− 0·2	− 0·2	− 0·1
27	45·1	51·3	52·0	43·5	− 0·4	+ 0·1	0·0	− 0·1
28	46·9	53·5	54·5	47·0	+ 0·2	− 0·5	− 0·3	− 0·2
29	49·1	51·1	49·8	46·9	+ 0·5	− 0·2	− 0·6	+ 0·3
Means	47·2	50·9	51·2	44·0	− 0·2	− 0·3	− 0·2	+ 0·1

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

MAY.

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

JUNE.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon.	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	49·3	52·0	52·5	50·2	+ 0·5	+ 0·8	+ 0·5	− 0·2
2	54·2	55·8	54·3	45·9	− 0·2	− 0·9	0·0	+ 0·1
3	53·3	53·4	55·9	52·5	− 0·3	− 0·8	− 0·7	− 0·2
5	57·1	59·9	60·1	54·9	− 0·6	− 0·8	− 0·1	+ 0·1
6	51·9	58·8	59·5	56·1	− 0·5	− 0·4	− 0·3	+ 0·3
7	56·1	59·1	59·9	51·9	− 0·1	+ 0·6	+ 0·8	+ 0·2
8	56·1	59·4	61·1	51·5	+ 0·2	− 0·4	− 0·3	0·0
9	51·1	57·5	61·3	52·2	+ 0·1	+ 0·3	− 0·1	+ 0·2
10	51·9	57·3	59·0	53·3	0·0	+ 0·6	+ 0·3	+ 0·4
12	49·7	53·0	57·9	51·4	+ 0·4	+ 0·8	+ 0·3	+ 0·3
13	62·5	61·3	59·5	55·1	+ 0·6	+ 0·1	− 0·4	+ 0·1
14	64·2	61·0	62·1	59·2	0·0	− 0·2	− 0·1	+ 0·6
15	64·0	65·1	64·9	59·1	+ 0·4	− 0·1	+ 0·1	0·0
16	62·9	65·7	67·2	60·1	+ 0·5	+ 0·3	+ 0·6	− 0·2
17	64·9	64·3	66·2	57·3	+ 1·1	− 0·5	+ 0·2	− 0·3
19	64·9	67·5	68·2	62·5	+ 0·2	− 0·3	+ 0·4	− 0·2
20	55·3	57·3	56·1	51·7	− 0·1	− 0·1	+ 0·1	+ 0·2
21	52·1	53·8	56·8	52·0	− 0·3	− 0·4	− 0·4	− 0·5
22	58·6	59·1	54·9	54·3	− 1·0	− 0·5	− 0·9	− 0·5
23	55·9	54·5	55·0	49·3	+ 0·3	− 0·3	− 0·4	− 0·3
24	51·1	53·8	54·3	50·3	− 0·1	− 1·0	0·0	− 0·3
26	52·5	56·3	58·2	57·1	0·0	+ 0·2	− 0·5	+ 0·3
27	64·1	64·3	64·8	57·4	− 0·1	− 0·2	0·0	− 0·2
28	60·1	61·7	60·8	55·3	− 0·1	+ 0·1	− 0·5	+ 0·3
29	56·7	61·5	59·5	56·2	− 0·2	+ 0·4	− 0·4	+ 0·1
30	58·1	60·9	64·1	57·1	+ 0·3	− 0·6	0·0	− 0·1
Means	56·9	59·0	59·8	54·4	0·0	− 0·1	− 0·1	0·0

JULY.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon.	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	63·1	64·4	63·7	59·1	+ 0·3	− 0·7	− 0·7	0·0
3	61·3	62·1	60·5	56·2	− 0·1	+ 0·6	− 0·8	+ 0·1
4	58·7	61·0	59·6	55·6	− 0·1	+ 0·5	− 0·4	− 0·2
5	61·1	64·1	66·0	61·5	− 0·3	− 0·1	+ 0·3	− 0·2
7	63·3	65·7	68·0	62·9	− 0·3	− 0·3	+ 0·5	+ 0·3
8	69·1	69·4	66·4	58·8	− 0·4	0·0	− 1·1	− 0·3
10	59·2	60·4	61·9	56·9	+ 0·3	− 0·2	− 0·1	+ 0·2
11	60·7	61·3	60·1	57·9	− 0·5	− 0·1	0·0	− 0·2
12	59·6	60·1	58·6	58·4	− 1·2	− 0·4	− 0·9	+ 0·1
13	57·5	58·4	57·9	55·6	+ 0·1	0·0	− 0·4	+ 0·3
14	54·0	54·9	55·1	52·8	+ 0·2	+ 0·1	− 0·1	0·0
15	54·1	55·0	56·1	54·0	− 0·1	+ 0·4	− 0·5	0·0
17	56·3	56·2	59·1	53·1	+ 0·1	− 0·1	− 0·6	+ 0·3
18	53·8	56·6	58·3	58·1	− 0·5	− 0·6	+ 0·6	0·0
19	60·1	62·1	62·8	60·2	− 0·2	0·0	− 0·3	− 0·1
20	61·9	63·1	63·6	60·3	0·0	− 0·5	− 0·7	0·0
21	60·9	62·9	62·0	60·1	− 0·1	− 1·0	− 0·8	0·0
22	56·2	58·1	58·1	53·8	0·0	− 0·7	0·0	+ 0·4
24	63·3	64·3	64·3	58·1	0·0	− 0·3	− 0·4	+ 0·2
25	57·3	57·7	59·5	56·1	− 0·1	0·0	− 0·3	+ 0·1
26	58·3	55·1	58·5	54·6	+ 0·5	+ 0·2	− 0·5	− 0·2
27	54·8	56·7	57·8	53·6	0·0	0·0	− 0·8	+ 0·2
28	55·8	59·1	60·1	59·1	0·0	− 0·1	+ 0·6	+ 0·2
29	61·1	62·0	61·0	57·5	+ 0·6	− 0·1	− 0·6	− 0·1
31	53·6	56·0	55·1	52·8	− 0·2	− 0·5	− 0·3	− 0·1
Means	59·0	60·3	60·6	57·1	− 0·1	− 0·2	− 0·3	0·0

AUGUST.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 feet above the ground. 9h	Noon.	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 feet above the ground. 9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	54·1	54·1	57·3	56·1	− 0·9	− 0·1	− 0·3	+ 0·1
2	59·6	57·4	57·6	54·9	− 0·5	− 0·3	+ 0·3	+ 0·1
3	59·7	60·7	61·2	59·9	− 0·1	− 0·2	+ 0·4	+ 0·1
4	60·6	61·6	58·3	54·6	− 0·5	− 0·6	− 0·7	0·0
5	58·2	57·1	58·9	50·9	− 0·1	+ 0·5	− 0·2	− 0·3
8	66·1	67·1	66·1	61·1	+ 0·2	− 0·5	− 0·7	− 0·3
9	67·2	68·7	66·5	63·3	− 0·6	− 0·5	0·0	− 0·5
10	66·7	69·7	69·5	61·0	+ 0·3	− 0·2	− 0·1	− 0·1
11	65·1	66·3	67·2	63·8	− 0·1	+ 0·1	− 0·5	+ 0·1
12	66·6	69·1	70·0	66·5	+ 0·1	− 0·5	− 0·3	0·0
14	64·6	68·4	69·6	62·7	− 0·2	− 0·5	− 0·3	− 0·3
15	67·1	70·4	70·1	63·2	− 0·3	+ 0·4	0·0	+ 0·1
16	65·1	70·3	69·3	64·8	+ 0·2	+ 0·4	− 0·5	0·0
17	68·0	71·3	70·1	63·1	− 0·2	+ 0·1	− 0·2	− 0·1
18	67·9	70·1	69·8	65·1	− 0·5	− 0·5	− 0·7	+ 0·3
19	62·6	63·2	63·4	59·2	0·0	− 0·8	− 1·4	0·0
21	64·2	66·3	62·8	58·6	− 0·4	− 0·5	− 1·1	+ 0·1
22	60·1	61·1	61·7	59·0	− 0·7	+ 0·3	− 0·9	+ 0·2
23	58·1	57·6	57·6	57·4	− 0·7	− 0·9	− 0·9	+ 0·1
24	57·3	59·6	58·8	55·1	− 0·3	− 0·6	− 0·6	+ 0·3
25	56·6	56·1	56·1	53·9	− 0·3	− 0·5	− 0·7	+ 0·7
26	56·3	55·5	55·1	53·1	− 0·5	− 0·7	− 0·1	0·0
28	54·9	56·4	56·1	50·7	+ 0·1	− 0·6	− 0·5	+ 0·1
29	53·9	56·2	56·2	55·0	+ 0·1	− 0·2	+ 0·1	+ 0·2
30	56·4	61·0	61·1	56·4	0·0	+ 0·4	+ 0·3	− 0·2
31	56·9	61·0	61·9	59·1	+ 0·2	− 0·6	− 0·5	− 0·2
Means	61·3	62·9	62·8	58·8	− 0·2	− 0·3	− 0·4	0·0

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

SEPTEMBER.

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

OCTOBER.

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

NOVEMBER.

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

DECEMBER.

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

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	51·68	50·93	49·93	49·08	48·65	48·76	49·38	50·30	51·38	52·33	52·94	53·04
2	51·70	50·93	49·89	49·05	48·64	48·78	49·41	50·35	51·42	52·35	52·96	53·03
3	51·68	50·89	49·86	49·06	48·64	48·78	49·43	50·40	51·45	52·37	52·98	53·05
4	51·67	50·84	49·82	49·04	48·63	48·80	49·45	50·41	51·48	52·39	52·97	53·07
5	51·62	50·80	49·78	49·00	48·64	48·83	49·48	50·45	51·52	52·43	52·96	53·04
6	51·62	50·76	49·75	48·98	48·63	48·84	49·51	50·49	51·55	52·46	52·98	53·04
7	51·60	50·76	49·72	48·96	48·64	48·85	49·54	50·53	51·59	52·49	53·00	53·02
8	51·55	50·69	49·67	48·96	48·62	48·87	49·57	50·58	51·61	52·52	53·01	53·03
9	51·56	50·66	49·64	48·94	48·62	48·88	49·58	50·62	51·64	52·55	53·03	53·00
10	51·51	50·62	49·61	48·90	48·63	48·91	49·60	50·65	51·67	52·56	53·08	52·99
11	51·49	50·59	49·58	48·88	48·63	48·94	49·65	50·68	51·70	52·60	53·05	52·98
12	51·46	50·59	49·55	48·88	48·63	48·94	49·66	50·72	51·74	52·60	53·04	52·97
13	51·46	50·51	49·54	48·86	48·63	48·95	49·69	50·75	51·75	52·62	53·05	52·98
14	51·44	50·47	49·51	48·85	48·63	48·98	49·73	50·81	51·81	52·67	53·03	52·95
15	51·42	50·43	49·47	48·84	48·63	49·01	49·74	50·83	51·84	52·69	53·05	52·94
16	51·37	50·41	49·46	48·78	48·63	49·03	49·77	50·87	51·86	52·73	53·07	52·94
17	51·29	50·37	49·42	48·79	48·64	49·06	49·81	50·91	51·89	52·74	53·10	52·90
18	51·31	50·35	49·39	48·77	48·64	49·08	49·85	50·95	51·93	52·75	53·06	52·89
19	51·31	50·31	49·38	48·79	48·65	49·11	49·89	50·96	51·98	52·77	53·04	52·87
20	51·27	50·28	49·35	48·77	48·65	49·11	49·91	51·00	51·98	52·78	53·06	52·85
21	51·25	50·20	49·34	48·75	48·66	49·12	49·95	51·06	52·01	52·82	53·09	52·85
22	51·25	50·18	49·30	48·74	48·67	49·16	49·98	51·07	52·04	52·81	53·06	52·82
23	51·22	50·13	49·27	48·73	48·68	49·17	50·03	51·06	52·05	52·83	53·05	52·80
24	51·18	50·10	49·26	48·71	48·68	49·18	50·06	51·11	52·10	52·84	53·06	52·79
25	51·17	50·07	49·24	48·74	48·69	49·21	50·09	51·16	52·14	52·86	53·09	52·76
26	51·11	50·03	49·20	48·70	48·72	49·24	50·11	51·18	52·18	52·87	53·07	52·73
27	51·06	49·97	49·18	48·64	48·71	49·27	50·15	51·21	52·22	52·88	53·05	52·71
28	51·06	49·95	49·16	48·66	48·73	49·30	50·18	51·25	52·23	52·92	53·10	52·70
29	51·03		49·13	48·62	48·73	49·34	50·23	51·28	52·27	52·93	53·09	52·68
30	51·03		49·11	48·66	48·74	49·35	50·27	51·32	52·29	52·91	53·09	52·64
31	50·98		49·10		48·74		50·29	51·34		52·91		52·60
Means	51·37	50·46	49·47	48·84	48·66	49·03	49·81	50·85	51·84	52·68	53·04	52·89

The mean of the twelve monthly values is 50°·74.

(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.

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	49·74	46·65	45·93	46·12	47·44	50·36	53·21	55·49	57·17	57·48	56·11	53·43
2	49·77	46·64	45·96	46·10	47·52	50·46	53·31	55·57	57·23	57·44	56·04	53·30
3	49·70	46·57	45·98	46·19	47·62	50·58	53·37	55·62	57·27	57·39	56·04	53·24
4	49·53	46·51	45·94	46·20	47·71	50·67	53·45	55·68	57·31	57·35	55·98	53·16
5	49·48	46·47	45·94	46·19	47·82	50·77	53·52	55·70	57·36	57·31	55·84	53·08
6	49·37	46·38	45·91	46·19	47·89	50·82	53·63	55·76	57·42	57·30	55·79	53·00
7	49·28	46·39	45·90	46·21	47·98	50·90	53·76	55·84	57·49	57·27	55·73	52·90
8	49·10	46·34	45·90	46·28	48·06	50·97	53·85	55·93	57·44	57·22	55·68	52·80
9	49·07	46·31	45·87	46·29	48·19	51·04	53·83	55·94	57·42	57·19	55·60	52·69
10	48·90	46·28	45·88	46·32	48·26	51·13	53·93	55·97	57·46	57·11	55·52	52·60

(II.)—Reading of a Thermometer whose bulb is sunk to the depth of 12·8 feet (12 French feet) below the surface of the soil, at Noon on every Day of the Year—*concluded.*

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
11	48·80	46·24	45·87	46·35	48·34	51·20	54·01	56·03	57·50	57·10	55·49	52·50
12	48·68	46·23	45·87	46·38	48·45	51·27	54·10	56·02	57·50	57·00	55·38	52·42
13	48·59	46·22	45·89	46·44	48·53	51·40	54·17	56·12	57·50	56·98	55·28	52·38
14	48·51	46·18	45·90	46·50	48·61	51·51	54·24	56·14	57·58	57·00	55·17	52·20
15	48·38	46·13	45·88	46·57	48·70	51·59	54·35	56·14	57·59	56·97	55·09	52·10
16	48·21	46·17	45·90	46·60	48·82	51·66	54·45	56·22	57·55	56·90	55·01	52·02
17	48·10	46·15	45·91	46·64	48·86	51·78	54·56	56·29	57·55	56·82	54·99	51·90
18	47·94	46·13	45·93	46·70	48·97	51·85	54·66	56·37	57·60	56·76	54·80	51·81
19	47·85	46·11	45·97	46·79	49·07	51·94	54·78	56·33	57·59	56·71	54·65	51·73
20	47·76	46·07	45·95	46·82	49·17	51·98	54·84	56·40	57·57	56·68	54·60	51·67
21	47·63	46·01	46·02	46·88	49·27	52·05	54·94	56·43	57·51	56·69	54·52	51·56
22	47·54	46·03	46·00	46·91	49·38	52·17	54·99	56·50	57·53	56·57	54·40	51·50
23	47·46	46·01	46·01	46·96	49·48	52·28	55·07	56·50	57·47	56·51	54·28	51·40
24	47·32	46·00	46·04	47·01	49·59	52·37	55·16	56·60	57·50	56·48	54·20	51·36
25	47·29	46·01	46·06	47·12	49·68	52·47	55·19	56·68	57·53	56·47	54·12	51·25
26	47·11	46·00	46·07	47·14	49·79	52·60	55·19	56·71	57·56	56·40	54·00	51·16
27	47·01	45·93	46·09	47·18	49·88	52·77	55·27	56·80	57·57	56·32	53·84	51·08
28	46·98	45·92	46·07	47·22	50·00	52·89	55·31	56·91	57·52	56·31	53·83	51·01
29	46·87		46·09	47·32	50·12	52·98	55·41	56·98	57·51	56·28	53·70	50·94
30	46·84		46·08	47·38	50·16	53·09	55·43	57·06	57·48	56·20	53·62	50·82
31	46·74		46·10		50·27		55·47	57·12		56·11		50·73
Means	48·24	46·22	45·96	46·63	48·83	51·65	54·43	56·25	57·48	56·85	54·98	52·06

The mean of the twelve monthly values is 51°·63.

(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.

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	46·38	43·55*	44·50	46·22	50·67	55·09	58·93	60·51	62·17	59·40	56·17	50·61
2	46·19	43·69	44·41	46·30	50·87	55·14	59·00	60·52	62·08	59·30	56·00	50·55
3	45·93	43·81	44·40	46·50	51·00	55·18	59·03	60·51	62·02	59·19	55·80	50·55
4	45·69	43·94	44·41	46·63	51·15	55·20	59·12	60·50	61·94	59·10	55·53	50·49
5	45·50	44·10	44·52	46·77	51·28	55·23	59·28	60·50	61·88	59·00	55·30	50·33
6	45·29	44·19	44·60	46·91	51·38	55·27	59·51	60·50	61·89	58·89	55·10	50·18
7	45·07	44·27	44·72	47·10	51·49	55·39	59·76	60·51	61·82	58·78	54·99	49·99
8	44·80	44·24	44·82	47·28	51·64	55·50	59·93	60·58	61·70	58·62	54·80	49·81
9	44·67	44·20	44·92	47·40	51·81	55·63	59·94	60·52	61·62	58·50	54·58	49·69
10	44·12	44·17	45·04	47·53	51·96	55·80	60·18	60·58	61·62	58·30	54·35	49·58
11	44·15	44·18	45·17	47·69	52·10	55·98	60·36	60·66	61·62	58·22	54·11	49·50
12	43·97	44·16	45·23	47·82	52·30	56·18	60·43	60·71	61·56	58·03	53·84	49·43
13	43·90	44·21	45·39	47·98	52·44	56·45	60·68	60·92	61·42	58·00	53·66	49·30
14	43·79	44·22	45·44	48·06	52·60	56·64	60·66	61·10	61·39	58·00	53·41	49·01
15	43·64	44·24	45·49	48·14	52·80	56·86	60·70	61·26	61·30	57·89	53·22	49·00

(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.*

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
16	43·49*	44·29	45·59	48·14	53·04	57·01	60·70	61·48	61·12	57·79	53·00	49·00
17	...	44·31	45·68	48·19	53·20	57·24	60·63	61·66	61·03	57·69	52·82	48·97
18	...	44·40	45·78	48·27	53·41	57·48	60·58	61·89	61·00	57·59	52·59	48·88
19	...	44·48	45·88	48·38	53·62	57·74	60·49	61·93	60·99	57·60	52·37	48·98
20	...	44·52	45·88	48·47	53·81	57·89	60·39	62·14	60·88	57·60	52·28	48·90
21	...	44·55	45·87	48·53	53·93	58·12	60·39	62·31	60·71	57·62	52·15	48·76
22	...	44·70	45·78	48·70	54·12	58·44	60·31	62·50	60·71	57·46	51·99	48·70
23	...	44·80	45·70	48·91	54·20	58·59	60·36	...	60·55	57·36	51·80	48·62
24	...	44·88	45·67	49·13	54·30	58·66	60·38	...	60·50	57·32	51·68	48·58
25	...	44·91	45·68	49·41	54·47	58·76	60·39	...	60·38	57·21	51·53	48·48
26	...	44·87	45·70	49·59	54·54	58·82	60·38	...	60·22	57·09	51·30	48·39
27	...	44·74	45·80	49·80	54·63	58·90	60·45	...	60·01	56·94	51·05	48·32
28	...	44·60	45·87	50·02	54·79	58·89	60·50	...	59·80	56·83	51·00	48·29
29	...		45·96	50·38	54·91	58·83	60·58	...	59·62	56·70	50·82	48·21
30	...		46·01	50·48	54·89	58·85	60·54	...	59·49	56·49	50·73	48·17
31	...		46·08		54·99		60·51	62·29		56·27		48·07
Means	...	44·33	45·35	48·16	52·98	56·99	60·16	...	61·10	57·90	53·27	49·20

At temperatures below 43°·60 the spirit of this thermometer passes beyond range of the scale, and descends into the capillary tube. The readings were out of range on this account, from January 16 to February 1 inclusive. Estimated readings slightly below 43°·60 are indicated by the symbol *. And at temperatures exceeding 62°·50 the spirit enters the upper bulb. No observations could be made from this cause, from August 23 to August 30.

(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.

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	39·83	41·22	41·11	45·73	52·99	57·09	62·09	62·43	63·40	58·50	52·91	47·00
2	39·68	41·71	41·33	46·08	52·82	56·81	62·50	62·31	63·40	58·30	52·21	47·00
3	39·34	41·94	41·91	46·66	52·83	56·92	63·06	62·32	63·30	58·11	52·00	46·30
4	38·93	42·20	42·31	46·91	53·10	57·13	63·61	62·38	63·18	57·92	51·98	45·49
5	38·76	42·07	42·86	47·04	53·40	57·61	63·99	62·41	63·01	57·58	52·02	45·10
6	38·45	41·60	43·08	47·30	53·79	57·90	64·22	62·30	62·98	57·28	51·72	45·01
7	38·18	41·17	43·33	47·61	53·92	58·22	64·52	62·11	63·10	57·07	51·12	45·09
8	37·91	40·86	43·40	47·91	54·00	58·67	64·89	62·48	63·30	56·98	50·50	45·30
9	37·79	41·14	43·64	48·11	54·16	59·15	65·01	62·91	63·18	56·90	50·06	45·32
10	37·22	41·13	43·82	48·23	54·40	59·60	65·10	63·42	62·78	56·60	49·74	45·42
11	37·45	41·32	43·98	48·35	54·76	59·92	65·00	63·97	62·33	56·71	49·44	45·19
12	37·44	41·58	43·92	48·38	55·14	60·11	64·91	64·32	62·08	56·61	49·31	45·11
13	37·51	41·56	44·00	48·19	55·45	60·46	64·78	64·83	61·80	56·50	49·20	44·99
14	37·65	41·33	44·20	47·91	55·88	60·68	64·19	65·14	61·61	56·20	48·71	45·10
15	37·63	41·59	44·38	47·89	56·41	61·30	63·68	65·42	61·61	56·22	48·21	45·39
16	37·59	41·90	44·68	47·92	56·78	61·98	63·00	65·89	61·53	56·60	48·10	45·28
17	37·22	42·10	44·81	48·06	56·96	62·51	62·51	66·24	61·51	56·80	48·17	45·32
18	37·24	42·17	44·53	48·35	57·06	63·09	62·33	66·72	61·49	56·97	48·33	45·27
19	37·36	42·44	44·18	48·60	57·01	63·52	62·31	66·98	61·33	56·80	48·20	45·12
20	37·49	42·92	43·61	49·12	56·93	63·60	62·42	67·19	61·30	56·39	47·78	45·10

(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.*

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
21	37·62	43·12	43·35	49·78	57·02	63·13	62·60	67·14	61·13	56·20	47·50	45·02
22	37·88	43·20	43·12	50·40	57·06	63·27	62·61	67·02	60·78	56·04	47·31	44·78
23	38·21	43·01	43·36	50·91	57·15	62·90	62·88	66·64	60·04	55·99	47·14	44·51
24	38·64	42·54	43·81	51·32	57·39	62·66	62·99	66·30	59·58	55·62	46·70	44·47
25	39·37	42·20	44·21	51·82	57·41	62·16	63·18	65·69	58·87	55·30	46·35	44·47
26	39·72	41·68	44·52	52·14	57·31	61·66	63·18	65·21	58·42	55·04	46·30	44·49
27	39·93	41·24	44·60	52·41	57·45	61·49	63·16	64·74	58·29	54·78	46·50	44·40
28	40·06	41·11	44·79	52·70	57·59	61·58	63·00	64·28	58·40	54·37	46·31	44·32
29	39·96		44·94	52·97	57·52	61·70	62·89	63·80	58·49	54·01	46·38	44·30
30	40·36		45·07	53·11	57·41	61·91	62·83	63·44	58·50	53·91	46·80	44·22
31	40·69		45·32		57·38		62·70	63·41		53·59		43·83
Means	38·49	41·86	43·75	49·06	55·76	60·62	63·42	64·50	61·36	56·32	48·90	45·09

The mean of the twelve monthly values is 52°·43.

(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.

1893.

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

(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.*

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
26	41·0	39·0	43·4	55·8	60·0	60·4	63·0	61·8	54·1	50·9	45·3	39·5
27	37·0	38·0	44·0	54·8	60·1	64·2	62·7	60·6	57·0	48·2	39·0	41·0
28	37·8	37·2	44·5	54·8	58·1	63·8	61·6	60·8	56·5	50·4	45·2	41·3
29	42·0		44·3	55·2	60·6	64·0	64·2	59·1	57·8	51·7	46·6	41·8
30	42·1		46·0	53·0	57·0	63·0	63·0	62·2	56·3	47·9	46·8	37·1
31	45·0		47·8		55·1		61·3	62·4		44·0		33·2
Means	35·0	40·8	43·6	50·8	58·3	62·9	64·5	65·5	58·7	53·0	43·6	41·2

The mean of the twelve monthly values is 51°·49.

(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.

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	28·9	44·8	51·9	64·0	56·5	59·2	75·0	63·0	65·1	61·0	45·8	36·1
2	26·8	50·8	52·2	55·2	61·1	64·6	77·2	65·2	66·7	60·0	49·0	30·5
3	28·3	45·1	45·0	60·9	61·8	67·1	74·4	67·0	65·7	57·0	53·0	33·0
4	21·8	41·3	51·2	58·9	67·7	68·4	71·1	66·8	66·4	59·1	50·2	41·3
5	22·4	35·6	51·2	51·9	67·1	69·1	68·0	64·2	68·6	57·9	41·2	41·3
6	30·8	36·5	47·2	51·4	64·0	66·6	75·0	67·0	73·0	60·2	42·0	47·9
7	30·2	48·6	48·0	55·0	56·8	67·0	84·0	71·1	73·5	59·9	43·5	46·5
8	33·2	44·0	52·4	48·9	61·5	69·0	85·0	78·6	67·1	59·1	41·3	47·3
9	36·9	44·1	51·0	51·9	68·0	66·6	63·9	78·2	60·8	61·7	43·9	42·6
10	38·1	49·0	48·0	60·2	68·5	65·9	69·0	76·0	60·6	57·0	44·0	43·1
11	34·0	45·8	49·2	46·0	68·0	61·9	71·0	75·2	64·2	59·0	47·2	43·0
12	34·8	40·3	55·6	47·5	72·6	58·9	66·2	73·2	64·8	52·3	45·1	46·9
13	36·1	44·2	52·0	49·0	70·0	73·9	63·0	76·8	61·2	52·2	42·7	55·2
14	35·7	51·0	51·9	51·3	67·6	78·0	57·9	76·8	67·9	62·8	39·0	39·2
15	31·3	45·8	53·0	57·5	73·8	77·9	57·9	77·2	68·2	63·5	42·5	46·0
16	33·6	47·9	52·1	56·0	71·8	79·0	61·1	83·0	63·1	62·9	45·2	49·0
17	30·0	44·0	43·2	49·0	65·5	82·5	63·3	84·0	61·1	58·0	55·9	40·2
18	37·8	52·4	43·0	64·2	63·0	79·1	66·3	88·2	64·4	55·5	43·3	42·4
19	40·0	52·0	36·0	67·5	64·0	79·9	67·0	74·0	66·3	53·9	33·0	46·1
20	40·3	45·6	45·9	68·9	64·0	64·0	64·0	75·0	62·0	56·2	41·8	47·5
21	40·3	47·0	51·2	70·4	63·1	63·0	70·9	73·2	52·5	62·4	43·8	40·3
22	40·8	36·9	47·8	63·6	66·4	69·6	67·2	71·3	57·9	55·2	41·0	45·0
23	46·4	35·0	51·3	66·0	65·3	63·0	71·0	64·0	48·5	50·5	35·0	43·1
24	45·8	35·1	55·7	68·8	63·2	60·5	70·8	67·0	53·0	53·0	39·9	45·1
25	41·1	36·0	55·6	70·0	68·4	61·2	68·0	66·0	57·9	53·9	48·1	43·0
26	44·1	42·1	50·9	67·8	60·0	63·3	62·1	62·5	62·0	52·2	44·0	39·0
27	34·0	40·0	52·1	57·6	63·9	69·8	65·4	61·7	62·9	50·0	35·3	39·9
28	42·1	40·0	54·0	60·0	67·0	71·1	67·0	65·0	60·1	55·2	50·8	42·6
29	46·3		56·8	59·8	69·8	69·9	69·0	65·1	62·3	54·0	48·0	40·1
30	48·2		58·2	54·1	55·8	71·4	64·4	67·4	59·1	48·0	48·7	36·1
31	50·9		60·8		57·4		63·5	67·0		42·4		28·4
Means	36·5	43·6	50·8	58·4	65·0	68·7	68·4	71·3	62·9	56·3	44·1	42·2

The mean of the twelve monthly values is 55°·68.

ABSTRACT of the CHANGES of the DIRECTION of the WIND, as derived from the Records of OSLER'S ANEMOMETER in the Year 1893.

(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. 5¼	1. 5½	E.	N.E.		45
1. 8¼	1. 8½	N.E.	S.E.	90	
1. 10½	1. 12	S.E.	N.	225	
1. 13½	1. 14	N.	N.N.E.	22½	
1. 15¾	1. 16	N.N.E.	N.		22½
1. 19½	1. 20	N.	N.N.E.	22½	
1. 22	1. 22½	N.N.E.	N.N.W.		45
2. 5	2. 8	N.N.W.	N.	22½	
2. 11	2. 12	N.	N.N.E.	22½	
2. 16	2. 17	N.N.E.	N.		22½
2. 20½	2. 21¾	N.	W.S.W.		112½
3. 8	3. 10	W.S.W.	S.W.		22½
3. 17	3. 19	S.W.	W.S.W.	22½	
4. 1	4. 2	W.S.W.	S.W.		22½
4. 11	4. 14½	S.W.	N.	135	
4. 16½	4. 17	N.	N.N.W.		22½
4. 19¼	4. 19½	N.N.W.	W.S.W.		90
4. 22½	4. 23½	W.S.W.	N.N.W.	90	
5. 2	5. 2½	N.N.W.	W.S.W.		90
5. 6	5. 6½	W.S.W.	S.W.		22½
5. 14½	5. 15½	S.W.	E.	225	
5. 19	5. 20½	E.	S.		270
5. 23½	6. 0½	S.	N.E.		135
6. 2¾	6. 3	N.E.	E.	45	
6. 19	6. 21	E.	E.S.E.	22½	
7. 0	7. 4	E.S.E.	E.		22½
7. 11	7. 15	E.	E.N.E.		22½
8. 11½	8. 12	E.N.E.	E.	22½	
8. 23	9. 2	E.	E.N.E.		22½
9. 6	9. 8	E.N.E.	N.E.		22½
10. 23	11. 1	N.E.	N.N.E.		22½
11. 3	11. 5	N.N.E.	N.E.	22½	
11. 9	11. 11	N.E.	N.N.E.		22½
11. 14	11. 15	N.N.E.	N.		22½
12. 7	12. 8	N.	N.N.E.	22½	
12. 16	12. 18½	N.N.E.	S.W.	202½	
12. 21	12. 23	S.W.	N.W.	90	
13. 2½	13. 4.	N.W.	W.S.W.		67½
13. 4¾	13. 5¼	W.S.W.	W.N.W.	45	
13. 15	13. 16	W.N.W.	W.		22½
13. 19½	13. 21	W.	N.W.	45	
14. 1	14. 2	N.W.	W.		45
14. 6½	14. 7	W.	N.W.	45	
14. 11½	14. 14	N.W.	N.	45	
14. 21	14. 22	N.	N.N.E.	22½	
15. 16	15. 19	N.N.E.	N.N.W.		45
15. 21	15. 21½	N.N.W.	S.S.W.		135
15. 23	16. 3	S.S.W.	S.W.	22½	
16. 7	16. 8	S.W.	S.S.W.		22½
16. 16½	16. 19	S.S.W.	N.N.W.	135	
17. 1	17. 3	N.N.W.	S.E.	157½	
17. 9	17. 12	S.E.	S.S.E.	22½	
17. 19¼	17. 19½	S.S.E.	N.W.		202½
17. 21½	17. 21¾	N.W.	W.S.W.		67½
18. 10	18. 14	W.S.W.	N.N.W.	90	
18. 21	18. 22	N.N.W.	W.S.W.		90
19. 14	19. 16	W.S.W.	S.S.W.		45
19. 21	19. 23	S.S.W.	S.W.	22½	
20. 5	20. 7	S.W.	W.S.W.	22½	
20. 9	20. 10	W.S.W.	N.W.	67½	
20. 13	20. 16	N.W.	W.S.W.		67½
20. 20	20. 21½	W.S.W.	W.N.W.	45	
21. 0	21. 2	W.N.W.	W.S.W.		45
21. 9	21. 10	W.S.W.	W.N.W.	45	
21. 11	21. 14	W.N.W.	N.W.	22½	
21. 20½	21. 21	N.W.	N.	45	
22. 0¼	22. 0½	N.	S.E.		225
22. 1½	22. 4	S.E.	W.N.W.	157½	
22. 17	22. 20	W.N.W.	W.S.W.		45
23. 0	23. 1	W.S.W.	S.W.		22½
23. 3	23. 5	S.W.	W.	45	
23. 11	23. 12	W.	W.N.W.	22½	
23. 17	23. 19	W.N.W.	W.S.W.		45
23. 23½	24. 0	W.S.W.	S.W.		22½
25. 0	25. 1	S.W.	W.S.W.	22½	
25. 11	25. 12	W.S.W.	S.W.		22½
25. 16	25. 20	S.W.	S.		45
26. 3	26. 4	S.	S.S.W.	22½	
26. 12	26. 17	S.S.W.	S.		22½
26. 21	26. 23	S.	N.	180	
27. 1	27. 5½	N.	N.W.		45
27. 8½	27. 9½	N.W.	S.W.		90
27. 11½	27. 15	S.W.	E.S.E.		112½
28. 2	28. 6	E.S.E.	S.S.E.	45	
29. 1	29. 4	S.S.E.	S.	22½	
29. 12	29. 16	S.	W.S.W.	67½	
30. 0	30. 4	W.S.W.	S.W.		22½
30. 6¾	30. 7	S.W.	S.S.W.		22½
31. 6	31. 9	S.S.W.	S.W.	22½	
31. 16	31. 18	S.W.	S.S.W.		22½
			Sums	2812½	2700
Jan.—*cont.*					
February.					
d h	d h				
1. 4	1. 6	S.S.W.	S.W.	22½	
1. 9	1. 13	S.W.	W.N.W.	67½	
1. 15	1. 21	W.N.W.	S.W.		67½
2. 10	2. 11	S.W.	W.S.W.	22½	
2. 13¼	2. 13½	W.S.W.	N.W.	67½	
2. 17¼	2. 17½	N.W.	W.		45
2. 21	2. 23¼	W.	S.S.W.	292½	
3. 4½	3. 5	S.S.W.	S.E.		67½
3. 11	3. 13	S.E.	S.S.E.	22½	
3. 17½	3. 19	S.S.E.	E.S.E.		45
4. 10	4. 11	E.S.E.	S.E.	22½	
4. 16	4. 19	S.E.	E.S.E.		22½
4. 23	5. 1	E.S.E.	E.		22½
5. 8	5. 12	E.	S.	90	
5. 22	5. 23	S.	S.E.		45
6. 1	6. 2	S.E.	S.S.E.	22½	
6. 7	6. 11	S.S.E.	S.S.W.	405	
6. 19	6. 20	S.S.W.	S.S.E.		45
6. 22	7. 8	S.S.E.	S.W.	67½	
7. 11	7. 12	S.W.	W.S.W.	22½	
7. 16	7. 17	W.S.W.	S.W.		22½
8. 9	8. 11	S.W.	W.S.W.	22½	
8. 22	8. 23	W.S.W.	S.W.		22½
9. 23	10. 0	S.W.	W.S.W.	22½	
10. 11	10. 13	W.S.W.	W.	22½	
10. 21	10. 23	W.	S.W.		45
12. 8	12. 11	S.W.	W.S.W.	22½	
12. 13½	12. 14	W.S.W.	W.N.W.	45	
12. 17½	12. 23	W.N.W.	S.W.		67½
13. 7	13. 8	S.W.	S.S.W.		22½
14. 17	14. 17½	S.S.W.	S.W.	22½	
14. 22	14. 23	S.W.	S.S.W.		22½
15. 3	15. 8	S.S.W.	S.S.E.		45
16. 9	16. 10½	S.S.E.	S.	22½	
17. 3	17. 5	S.	S.W.	45	
17. 16	17. 18	S.W.	S.		45
18. 1	18. 2	S.	S.S.W.	22½	
19. 12	19. 16	S.S.W.	S.S.E.		45
19. 20	19. 22	S.S.E.	S.S.W.	45	
20. 4	20. 8	S.S.W.	S.		22½
20. 11	20. 14	S.	S.W.	45	
20. 17½	20. 23	S.W.	S.E.		90
21. 7	21. 11	S.E.	S.W.	90	
21. 13	21. 16	S.W.	N.W.	90	
22. 3	22. 4	N.W.	W.N.W.		22½
22. 11	22. 15	W.N.W.	N.N.W.	45	
22. 18	22. 20	N.N.W.	N.	22½	
23. 4	23. 6	N.	N.N.E.	22½	
24. 2	24. 7	N.N.E.	E.	67½	
24. 20	25. 0	E.	N.N.E.		67½

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

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Feb. *cont.*					
d h	d h				
25. 5	25. 6	N.N.E.	N.		22½
25. 14	25. 15	N.	W.S.W.		112½
25. 17	25. 19	W.S.W.	S.S.E.		90
25. 22	26. 1	S.S.E.	S.E.		22½
26. 11	26. 13½	S.E.	S.W.	90	
27. 7	27. 12	S.W.	S.E.		90
27. 14	27. 15	S.E.	N.E.		90
27. 21	27. 22	N.E.	N.N.E.		22½
28. 2	28. 3	N.N.E.	N.		22½
28. 11½	28. 12	N.	N.E.	45	
28. 14	28. 15	N.E.	S.S.E.	112½	
28. 17	28. 18	S.S.E.	S.	22½	
28. 20	28. 20½	S.	S.E.		45
			Sums	2070	1417½
March.					
1. 2	1. 12	S.E.	S.W.	90	
1. 17	1. 18	S.W.	W.S.W.	22½	
2. 20	3. 2	W.S.W.	E.S.E.	225	
3. 11	3. 12	E.S.E.	S.E.	22½	
3. 19	3. 19½	S.E.	S.S.E.	22½	
4. 1	4. 3	S.S.E.	S.S.W.	45	
4. 11	4. 13	S.S.W.	W.S.W.	45	
4. 16½	4. 17	W.S.W.	W.N.W.	45	
4. 21	5. 3	W.N.W.	S.W.		67½
5. 8	5. 11½	S.W.	W.N.W.	67½	
6. 2	6. 4	W.N.W.	W.S.W.		45
6. 9	6. 12	W.S.W.	N.W.	67½	
6. 16	6. 18	N.W.	N.N.W.	22½	
7. 2	7. 4	N.N.W.	S.W.		112½
7. 6	7. 8½	S.W.	W.S.W.	22½	
7. 15	7. 15½	W.S.W.	W.N.W.	45	
7. 16¾	7. 17½	W.N.W.	W.S.W.		45
8. 2½	8. 4½	W.S.W.	W.N.W.	45	
8. 7½	8. 7¾	W.N.W.	S.W.		67½
8. 10½	8. 12½	S.W.	N.E.	180	
8. 15	8. 15½	N.E.	S.	135	
8. 20	8. 21½	S.	S.W.	45	
9. 13	9. 14	S.W.	W.S.W.	22½	
9. 21	10. 1½	W.S.W.	N.N.W.	90	
10. 4	10. 5	N.N.W.	W.N.W.		45
10. 8	10. 9	W.N.W.	N.W.	22½	
11. 0	11. 1	N.W.	S.W.		90
11. 3	11. 5	S.W.	S.S.W.		22½
11. 11	11. 12	S.S.W.	S.W.	22½	
11. 16	11. 18	S.W.	S.S.W.		22½
12. 17	12. 18½	S.S.W.	S.		22½
12. 21	12. 21½	S.	S.S.W.	22½	
13. 2½	13. 3	S.S.W.	S.W.	22½	
13. 9½	13. 10	S.W.	N.	135	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
March—*cont.*					
d h	d h				
13. 11	13. 12	N.	E.	90	
13. 15	13. 17	E.	S.	90	
13. 20	14. 1	S.	S.W.	45	
14. 8	14. 12	S.W.	W.S.W.	22½	
14. 15	14. 20	W.S.W.	S.W.		22½
15. 12	15. 12½	S.W.	W.S.W.	22½	
15. 14	15. 15	W.S.W.	S.W.		22½
16. 11	16. 12	S.W.	W.S.W.	22½	
17. 7	17. 9	W.S.W.	W.	22½	
17. 11½	17. 12	W.	W.N.W.	22½	
17. 22	17. 23	W.N.W.	W.		22½
18. 2	18. 2½	W.	W.S.W.		22½
18. 5½	18. 9	W.S.W.	N.N.W.	90	
18. 12	18. 14	N.N.W.	N.	22½	
18. 17	18. 18	N.	N.N.E.	22½	
18. 19½	18. 21	N.N.E.	N.		22½
19. 0	19. 2	N.	W.		90
19. 5	19. 5½	W.	S.S.W.		67½
19. 8	19. 8¼	S.S.W.	S.S.E.		45
19. 9½	19. 9¾	S.S.E.	S.W.	67½	
19. 11	19. 11¼	S.W.	N.	135	
19. 13½	19. 14	N.	S.		180
19. 22	19. 23	S.	S.W.	45	
20. 15	20. 16	S.W.	S.S.W.		22½
20. 22¾	20. 23	S.S.W.	W.S.W.	45	
21. 1½	21. 1¾	W.S.W.	E.N.E.	180	
21. 3¾	21. 4	E.N.E.	E.S.E.	45	
21. 9	21. 10	E.S.E.	S.E.	22½	
21. 12	21. 14	S.E.	E.		45
23. 9	23. 9½	E.	N.E.		45
23. 12	23. 13	N.E.	S.E.	90	
23. 22½	23. 22¾	S.E.	N.N.W.		157½
24. 4	24. 5	N.N.W.	N.E.		292½
24. 11	24. 11½	N.E.	E.	45	
25. 1	25. 1¼	E.	N.E.		45
25. 8	25. 9	N.E.	E.N.E.	22½	
25. 14	25. 15	E.N.E.	E.	22½	
26. 0	26. 1	E.	N.N.E.		67½
26. 6½	26. 8	N.N.E.	E.N.E.	45	
26. 14	26. 15	E.N.E.	E.	22½	
27. 1½	27. 2½	E.	N.E.		45
27. 11	27. 12	N.E.	E.	45	
27. 18	27. 19	E.	E.N.E.		22½
28. 5½	28. 6	E.N.E.	E.	22½	
29. 0	29. 1	E.	E.N.E.		22½
29. 11	29. 12	E.N.E.	E.	22½	
29. 17½	29. 18½	E.	E.S.E.	22½	
29. 23	29. 23¼	E.S.E.	E.N.E.		45
30. 6½	30. 7½	E.N.E.	S.W.	157½	
30. 16	30. 18	S.W.	S.S.W.		22½
30. 20	30. 20½	S.S.W.	S.W.	22½	
31. 14½	31. 19	S.W.	S.		45
			Sums	3037½	1912½
April.					
d h	d h				
1. 1½	1. 2	S.	N.	180	
1. 3	1. 5½	N.	N.		360
1. 8¼	1. 8½	N.	S.	180	
1. 15½	1. 16	S.	S.S.E.		22½
1. 21	1. 22½	S.S.E.	N.N.E.		135
1. 23¾	2. 0½	N.N.E.	N.N.W.	315	
2. 6	2. 7	N.N.W.	N.	22½	
2. 12	2. 18	N.	E.	90	
2. 20	2. 21	E.	N.E.		45
3. 2	3. 2½	N.E.	N.N.E.		22½
3. 7	3. 9	N.N.E.	N.E.	22½	
3. 12	3. 14	N.E.	E.	45	
3. 23	3. 23½	E.	N.E.		45
4. 7	4. 10	N.E.	E.	45	
4. 21	4. 23	E.	E.N.E.		22½
5. 3	5. 6	E.N.E.	E.	22½	
6. 2	6. 3	E.	E.N.E.		22½
6. 13½	6. 14½	E.N.E.	E.	22½	
7. 1¾	7. 2	E.	N.N.E.		67½
7. 5	7. 5¼	N.N.E.	E.N.E.	45	
7. 8½	7. 9	E.N.E.	N.E.		22½
7. 13	7. 14	N.E.	E.	45	
7. 21	7. 22	E.	N.N.E.		67½
8. 14	8. 16	N.N.E.	E.	67½	
8. 19	8. 23	E.	N.E.		45
9. 12	9. 15	N.E.	E.S.E.	67½	
9. 22	10. 1	E.S.E.	N.N.E.		90
10. 5	10. 6	N.N.E.	N.E.	22½	
10. 10	10. 14	N.E.	E.	45	
10. 21	10. 22	E.	N.E.		45
11. 6	11. 11	N.E.	E.N.E.	22½	
11. 21	12. 3	E.N.E.	N.E.		22½
12. 20	12. 23	N.E.	W.	225	
13. 5¾	13. 10	W.	N.N.E.	112½	
13. 12	13. 14	N.N.E.	N.E.	22½	
13. 23	14. 1	N.E.	E.N.E.	22½	
14. 6½	14. 7½	E.N.E.	S.	112½	
14. 8½	14. 9½	S.	S.E.		45
14. 13¼	14. 14	S.E.	N.N.W.		157½
14. 16	14. 20½	N.N.W.	S.S.W.	225	
15. 0½	15. 2	S.S.W.	S.W.	22½	
16. 10½	16. 11½	S.W.	W.S.W.	22½	
17. 4½	17. 6	W.S.W.	E.N.E.	180	
17. 10	17. 13	E.N.E.	E.	22½	
18. 6	18. 7½	E.	E.S.E.	22½	
18. 10	18. 11	E.S.E.	S.S.W.	90	
18. 13	18. 13½	S.S.W.	S.E.		67½
18. 18	18. 20	S.E.	E.		45
18. 23	19. 2	E.	E.N.E.		22½
19. 12	19. 13	E.N.E.	E.	22½	
20. 3	20. 6	E.	S.E.	45	
20. 7	20. 8	S.E.	E.S.E.		22½
20. 9	20. 10½	E.S.E.	S.E.	22½	
20. 15	20. 16	S.E.	N.E.	270	
20. 20	20. 21	N.E.	E.N.E.	22½	
21. 4	21. 6	E.N.E.	E.S.E.	45	
21. 9	21. 12	E.S.E.	E.N.E.		45
21. 14	21. 17	E.N.E.	E.S.E.	45	
21. 19	21. 21	E.S.E.	E.		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.
				°	°
April—*cont.*					
d h	d h				
22. 19½	22. 23	E.	E.N.E.		22½
23. 2½	23. 3	E.N.E.	N.N.E.	315	
23. 11½	23. 14	N.N.E.	E.	67½	
24. 1¼	24. 2½	E.	N.E.	315	
24. 3¼	24. 3½	N.E.	N.N.W.		67½
24. 6½	24. 9	N.N.W.	N.E.	67½	
24. 12	24. 12½	N.E.	E.S.E.	67½	
24. 16	24. 16½	E.S.E.	E.		22½
24. 21	24. 22	E.	E.N.E.		22½
25. 4¾	25. 5	E.N.E.	N.E.		22½
25. 11½	25. 12	N.E.	E.	45	
26. 0	26. 3	E.	N.N.E.		67½
26. 7½	26. 8½	N.N.E.	N.E.	22½	
26. 11½	26. 12½	N.E.	E.	45	
26. 21	26. 22	E.	E.N.E.		22½
27. 0½	27. 1½	E.N.E.	N.E.		22½
27. 6½	27. 7	N.E.	E.N.E.	22½	
28. 11½	28. 13	E.N.E.	E.	22½	
28. 17¾	28. 18	E.	E.S.E.	22½	
28. 19½	28. 20	E.S.E.	E.N.E.	45	
29. 3¼	29. 3½	E.N.E.	N.W.	247½	
29. 11½	29. 12	N.W.	W.N.W.		22½
29. 14	29. 16	W.N.W.	W.S.W.		45
30. 7	30. 8	W.S.W.	W.N.W.	45	
30. 19	30. 24	W.N.W.	S.W.		67½
			Sums	4117½	1912½
May.					
1. 4	1. 6	S.W.	W.S.W.	22½	
1. 16¾	1. 17	W.S.W.	S.W.		22½
2. 1	2. 2½	S.W.	S.S.W.		22½
2. 5	2. 6	S.S.W.	S.W.	22½	
3. 5	3. 8	S.W.	N.W.	90	
3. 9¾	3. 10½	N.W.	N.	45	
3. 11½	3. 12	N.	N.W.		45
3. 14	3. 16½	N.W.	N.	45	
3. 18½	3. 19	N.	N.N.E.	22½	
3. 22	3. 22½	N.N.E.	E.N.E.	45	
4. 5	4. 5½	E.N.E.	N.E.		22½
4. 8	4. 10	N.E.	S.S.E.	112½	
4. 14½	4. 15	S.S.E.	S.	22½	
4. 22½	4. 23½	S.	S.W.	45	
5. 2	5. 2½	S.W.	W.S.W.	22½	
5. 4½	5. 5	W.S.W.	S.W.		22½
5. 7¼	5. 7½	S.W.	N.		225
5. 10¼	5. 11½	N.	E.N.E.	67½	
5. 13	5. 14	E.N.E.	E.	22½	
5. 19	5. 21	E.	E.N.E.		22½
6. 7	6. 8	E.N.E.	E.	22½	
6. 19½	6. 20½	E.	E.N.E.		22½
7. 0	7. 1	E.N.E.	N.E.		22½
7. 5	7. 8	N.E.	E.N.E.	22½	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
May—*cont.*					
d h	d h				
7. 14½	7. 17	E.N.E.	N.E.		22½
8. 14	8. 14½	N.E.	E.N.E.	22½	
8. 18	8. 20	E.N.E.	N.N.E.		45
9. 5	9. 8	N.N.E.	N.E.	22½	
9. 12	9. 13	N.E.	E.N.E.	22½	
9. 17	9. 21	E.N.E.	N.N.E.		45
10. 1	10. 2	N.N.E.	N.		22½
10. 8¼	10. 10½	N.	N.E.	45	
10. 19	10. 23	N.E.	N.N.E.		22½
11. 13	11. 14	N.N.E.	E.	67½	
11. 17	11. 19	E.	E.S.E.	22½	
11. 23¼	12. 0	E.S.E.	S.W.	112½	
12. 10	12. 10½	S.W.	W.S.W.	22½	
12. 17	12. 20½	W.S.W.	N.	112½	
13. 7½	13. 8	N.	N.E.	45	
13. 16	13. 17	N.E.	E.	45	
13. 21½	13. 23	E.	E.N.E.		22½
14. 11	14. 12	E.N.E.	E.	22½	
14. 21	14. 22	E.	E.N.E.		22½
15. 3	15. 4	E.N.E.	N.E.		22½
15. 10	15. 12	N.E.	E.	45	
15. 23	16. 0½	E.	E.N.E.		22½
16. 12	16. 15¼	E.N.E.	E.S.E.	405	
16. 16	16. 17	E.S.E.	S.E.	22½	
16. 18½	16. 18¾	S.E.	S.S.W.	67½	
16. 20	16. 22	S.S.W.	S.E.		67½
17. 1	17. 1½	S.E.	E.N.E.		67½
17. 15½	17. 17	E.N.E.	S.W.	157½	
17. 23	18. 0	S.W.	S.S.W.		22½
18. 6½	18. 7	S.S.W.	S.		22½
18. 12	18. 13	S.	S.S.W.	22½	
18. 21	19. 0	S.S.W.	S.S.E.		45
19. 4½	19. 7	S.S.E.	S.S.W.	45	
21. 12	21. 12¼	S.S.W.	S.W.	22½	
21. 16	21. 18	S.W.	E.		135
22. 3¼	22. 4¾	E.	N.W.		135
22. 8	22. 9	N.W.	N.N.W.	22½	
22. 11	22. 11¼	N.N.W.	W.		67½
22. 16	22. 18	W.	S.W.		45
23. 3	23. 5	S.W.	S.S.W.		22½
23. 21	23. 22	S.S.W.	S.W.	22½	
24. 6	24. 7	S.W.	W.S.W.	22½	
24. 11½	24. 12	W.S.W.	W.	22½	
24. 17	24. 18	W.	W.N.W.	22½	
24. 20	24. 22	W.N.W.	N.N.W.	45	
24. 23	25. 1½	N.N.W.	N.W.		22½
25. 3¾	25. 5	N.W.	S.W.		90
25. 7	25. 8	S.W.	W.S.W.	22½	
25. 11	25. 12	W.S.W.	W.	22½	
25. 15½	25. 19	W.	N.N.W.	67½	
26. 2	26. 3	N.N.W.	N.W.		22½
26. 11	26. 14	N.W.	N.N.W.	22½	
26. 21	26. 22½	N.N.W.	S.E.	157½	
27. 0¼	27. 0½	S.E.	N.N.W.		157½
27. 14	27. 14¼	N.N.W.	N.	22½	
27. 19	27. 20	N.	N.N.E.	22½	
27. 23¾	28. 2	N.N.E.	N.		22½
28. 14	28. 15	N.	N.N.W.		22½
28. 18¾	28. 19	N.N.W.	N.N.E.	45	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
May—*cont.*					
d h	d h				
28. 20	28. 20½	N.N.E.	N.E.	22½	
28. 21½	28. 22	N.E.	S.E.	90	
28. 23½	28. 23¾	S.E.	S.W.	90	
29. 1	29. 2	S.W.	N.	135	
29. 14	29. 17	N.	E.S.E.	112½	
29. 19	29. 21	E.S.E.	E.N.E.		45
30. 0	30. 3	E.N.E.	N.N.E.		45
30. 13	30. 15	N.N.E.	N.		22½
30. 18	30. 18½	N.	N.N.E.	22½	
30. 23	31. 1	N.N.E.	N.		22½
31. 4½	31. 6	N.	N.N.W.		22½
31. 11	31. 12	N.N.W.	N.	22½	
31. 16	31. 20	N.	N.E.	45	
31. 23	31. 24	N.E.	S.	135	
			Sums	3195	1800
June					
1. 0¾	1. 2	S.	S.W.	45	
1. 7	1. 11	S.W.	N.N.W.	112½	
1. 14¾	1. 15	N.N.W.	N.	22½	
1. 17	1. 18	N.	N.E.	45	
1. 20½	1. 22½	N.E.	E.N.E.	22½	
2. 5	2. 8	E.N.E.	E.S.E.	45	
3. 1¼	3. 1½	E.S.E.	E.N.E.		45
3. 5¼	3. 5½	E.N.E.	N.E.		22½
3. 7¾	3. 8	N.E.	E.	45	
3. 11	3. 12	E.	N.E.		45
3. 16	3. 17	N.E.	E.S.E.	67½	
3. 18	3. 22	E.S.E.	S.W.	112½	
4. 3	4. 4	S.W.	W.S.W.	22½	
4. 7	4. 8	W.S.W.	W.	22½	
4. 18	4. 20	W.	W.S.W.		22½
5. 7	5. 9	W.S.W.	W.N.W.	45	
5. 13	5. 13¼	W.N.W.	N.	67½	
5. 16¼	5. 16¾	N.	N.E.	45	
5. 20	5. 21½	N.E.	E.N.E.	22½	
6. 0½	6. 0¾	E.N.E.	S.E.	67½	
6. 1¾	6. 2	S.E.	N.E.	270	
6. 15	6. 16	N.E.	E.	45	
6. 19	6. 20	E.	S.	90	
7. 0	7. 3	S.	S.E.		45
7. 10	7. 11	S.E.	N.E.		90
7. 13	7. 13½	N.E.	E.	45	
7. 16½	7. 17½	E.	E.S.E.	22½	
7. 21	7. 23½	E.S.E.	E.N.E.		45
8. 4	8. 5½	E.N.E.	N.E.		22½
8. 13½	8. 14	N.E.	E.	45	
8. 22	8. 23	E.	E.N.E.		22½
9. 2¾	9. 3	E.N.E.	N.N.E.		45
9. 9½	9. 10	N.N.E.	N.E.	22½	
9. 14	9. 15	N.E.	E.N.E.	22½	
9. 20	9. 21	E.N.E.	N.N.E.		45
10. 7	10. 9	N.N.E.	N.E.	22½	

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

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
June—*cont.*					
d h	d h				
10. 10½	10. 12	N.E.	E.	45	
10. 21½	10. 22	E.	E.S.E.	22½	
11. 0	11. 1½	E.S.E.	N.E.		67½
12. 7	12. 8	N.E.	E.N.E.	22½	
12. 13	12. 15	E.N.E.	E.	22½	
12. 20	13. 3½	E.	N.E.		45
13. 7	13. 8	N.E.	E.N.E.	22½	
13. 11½	13. 12	E.N.E.	E.	22½	
13. 20	14. 0	E.	E.N.E.		22½
14. 9½	14. 10	E.N.E.	E.	22½	
14. 18	14. 20	E.	E.N.E.		22½
15. 2	15. 3	E.N.E.	N.N.E.		45
15. 5	15. 7	N.N.E.	E.N.E.	45	
15. 11	15. 12	E.N.E.	E.	22½	
15. 15	15. 16	E.	E.S.E.	22½	
16. 0	16. 2	E.S.E.	N.		112½
16. 16	16. 18	N.	E.	90	
17. 2½	17. 3½	E.	E.N.E.		22½
17. 6½	17. 7	E.N.E.	N.E.		22½
17. 8¾	17. 9	N.E.	E.	45	
17. 23	18. 2	E.	E.N.E.		22½
18. 5¾	18. 6	E.N.E.	N.E.		22½
18. 11½	18. 12	N.E.	E.N.E.	22½	
18. 23	19. 0	E.N.E.	N.E.		22½
19. 6½	19. 8	N.E.	N.		45
19. 14	19. 15	N.	W.		90
19. 16½	19. 19½	W.	N.N.E.	112½	
20. 3	20. 4	N.N.E.	N.E.	22½	
20. 7	20. 9	N.E.	E.N.E.	22½	
20. 15¾	20. 16	E.N.E.	N.E.		22½
20. 19½	20. 20	N.E.	S.E.	90	
21. 1¾	21. 2	S.E.	S.S.W.	67½	
21. 3	21. 3½	S.S.W.	S.W.	22½	
21. 5	21. 6	S.W.	S.		45
21. 8	21. 11	S.	E.S.E.		67½
21. 13½	21. 14	E.S.E.	S.S.W.	90	
21. 22	22. 1	S.S.W.	S.		22½
22. 4½	22. 5½	S.	S.S.E.		22½
22. 7	22. 8½	S.S.E.	S.S.W.	45	
22. 11	22. 11½	S.S.W.	S.W.	22½	
22. 14	22. 15	S.W.	W.S.W.	22½	
22. 19½	22. 20	W.S.W.	S.W.		22½
23. 0½	23. 3	S.W.	S.S.W.		22½
23. 8	23. 11	S.S.W.	W.S.W.	45	
23. 20	23. 22	W.S.W.	S.W.		22½
24. 6	24. 8	S.W.	W.	45	
24. 14½	24. 16	W.	S.W.		45
25. 5	25. 8	S.W.	W.	45	
25. 13½	25. 14	W.	W.S.W.		22½
25. 19	25. 21	W.S.W.	S.W.		22½
26. 0	26. 2	S.W.	S.		45
26. 8	26. 10	S.	E.		90
26. 12	26. 14	E.	E.S.E.	22½	
26. 21½	26. 22	E.S.E.	S.S.E.	45	
27. 1	27. 4	S.S.E.	S.S.W.	45	
27. 21½	28. 0	S.S.W.	S.		22½
28. 4	28. 8	S.	S.S.W.	22½	
28. 15	28. 17	S.S.W.	S.W.	22½	
28. 19	28. 21	S.W.	S.S.W.		22½
June—*cont.*					
29. 4	29. 6	S.S.W.	S.W.	22½	
29. 13½	29. 14½	S.W.	W.S.W.	22½	
29. 16½	29. 17	W.S.W.	S.W.		22½
29. 20½	29. 21	S.W.	N.W.	90	
30. 0	30. 1	N.W.	N.N.W.	22½	
30. 5	30. 6½	N.N.W.	N.N.E.	45	
30. 11	30. 11½	N.N.E.	E.S.E.		270
30. 19½	30. 20	E.S.E.	E.		22½
			Sums	2835	1845
July.					
1. 1	1. 2	E.	N.E.		45
1. 5½	1. 7	N.E.	E.	45	
2. 7	2. 8	E.	N.E.		45
2. 17	2. 18	N.E.	E.	45	
3. 6½	3. 7	E.	E.N.E.		22½
3. 10	3. 10¼	E.N.E.	E.	22½	
3. 14½	3. 15	E.	E.S.E.	22½	
3. 18½	3. 21½	E.S.E.	E.		22½
4. 1	4. 2	E.	E.N.E.		22½
4. 12	4. 13	E.N.E.	E.	22½	
4. 18½	4. 19½	E.	N.E.		45
5. 0½	5. 1	N.E.	N.N.E.		22½
5. 2½	5. 3½	N.N.E.	N.		22½
5. 8	5. 9½	N.	N.E.	45	
5. 11	5. 12	N.E.	E.N.E.	22½	
5. 19	5. 19½	E.N.E.	E.S.E.	45	
5. 22½	5. 23½	E.S.E.	N.		112½
6. 5	6. 6	N.	N.E.	45	
6. 10½	6. 11	N.E.	E.N.E.	22½	
6. 12¾	6. 13	E.N.E.	E.	22½	
6. 19½	6. 21	E.	E.S.E.	22½	
7. 3½	7. 4	E.S.E.	E.N.E.		45
7. 10	7. 12	E.N.E.	S.	112½	
7. 19	7. 19½	S.	E.S.E.		67½
7. 22	7. 22½	E.S.E.	N.E.		67½
7. 23½	7. 23¾	N.E.	E.N.E.	22½	
8. 1¾	8. 2	E.N.E.	E.	22½	
8. 5½	8. 8	E.	S.	90	
8. 10	8. 12½	S.	S.W.	45	
8. 21½	8. 23½	S.W.	S.S.W.		22½
9. 2	9. 3	S.S.W.	S.		22½
9. 7	9. 8	S.	S.S.W.	22½	
9. 23	10. 0	S.S.W.	S.		22½
10. 6	10. 9	S.	S.S.W.	22½	
10. 19	10. 21	S.S.W.	S.		22½
10. 23	10. 23½	S.	S.E.		45
11. 8	11. 8¼	S.E.	S.	45	
11. 21	11. 23	S.	E.S.E.		67½
12. 4	12. 4½	E.S.E.	E.N.E.		45
12. 6	12. 7½	E.N.E.	E.	22½	
12. 9½	12. 12½	E.	N.E.		45
July—*cont.*					
12. 14¼	12. 14¾	N.E.	S.	135	
12. 17¾	12. 18	S.	N.N.W.		157½
13. 1½	13. 3½	N.N.W.	W.		67½
13. 6	13. 8	W.	N.N.W.		67½
13. 17	13. 18	N.N.W.	N.		22½
14. 9	14. 9¼	N.	S.		180
14. 13	14. 13¼	S.	S.E.		45
14. 16¼	14. 17	S.E.	N.N.E.		112½
14. 23	15. 1¼	N.N.E.	S.W.		202½
15. 8	15. 9	S.W.	S.E.		90
15. 12¾	15. 13	S.E.	S.S.W.		67½
15. 15	15. 16	S.S.W.	N.N.E.		180
15. 19	15. 22	N.N.E.	S.		157½
15. 23	15. 23½	S.	S.S.W.		22½
16. 6½	16. 8	S.S.W.	S.W.		22½
16. 9½	16. 11	S.W.	E.		135
16. 12½	16. 15	E.	N.		90
16. 20	16. 21½	N.	S.W.		135
17. 3	17. 6	S.W.	W.S.W.	22½	
17. 16	17. 18	W.S.W.	W.N.W.		45
17. 22	18. 0	W.N.W.	W.		22½
18. 6	18. 8	W.	N.W.		45
18. 12	18. 13	N.W.	W.		45
18. 15	18. 16	W.	W.S.W.		22½
18. 19	18. 20	W.S.W.	S.W.		22½
19. 14	19. 16	S.W.	S.S.W.		22½
20. 12	20. 13	S.S.W.	S.W.	22½	
20. 15	20. 16	S.W.	S.S.W.		22½
20. 22½	21. 1	S.S.W.	S.W.	22½	
21. 18	21. 21	S.W.	S.S.W.		22½
22. 1	22. 5	S.S.W.	W.		67½
22. 12	22. 13	W.	N.W.		45
22. 20	22. 22¼	N.W.	W.S.W.		67½
23. 3	23. 6	W.S.W.	S.S.W.		45
24. 1	24. 2	S.S.W.	S.W.	22½	
24. 9	24. 12	S.W.	W.S.W.	22½	
24. 20	24. 21	W.S.W.	S.W.		22½
25. 5	25. 7	S.W.	W.S.W.	22½	
25. 20	25. 22	W.S.W.	S.W.		22½
26. 9	26. 10	S.W.	N.N.W.	112½	
26. 16	26. 16½	N.N.W.	N.W.		22½
26. 19	26. 20	N.W.	N.	45	
27. 16	27. 17	N.	N.N.E.	22½	
27. 21	27. 21½	N.N.E.	N.E.	22½	
28. 13	28. 14	N.E.	S.		225
28. 23	29. 1	S.	S.W.	45	
29. 9	29. 10	S.W.	W.S.W.	22½	
29. 12½	29. 14	W.S.W.	N.W.	67½	
29. 16½	29. 17	N.W.	W.		45
29. 22¾	29. 23	W.	N.N.W.	67½	
30. 2	30. 3	N.N.W.	W.N.W.		45
30. 10½	30. 11	W.N.W.	N.N.W.	45	
30. 21	31. 0	N.N.W.	W.S.W.		90
31. 5	31. 9	W.S.W.	N.W.	67½	
31. 19	31. 19½	N.W.	N.N.W.	22½	
31. 21½	31. 22½	N.N.W.	W.N.W.		45
			Sums	2700	2497½

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.
				°	°
August.					
d h	d h				
1. 1½	1. 3	W.N.W.	W.S.W.		45
1. 7	1. 9	W.S.W.	W.N.W.	45	
1. 11½	1. 12	W.N.W.	W.		22½
1. 14	1. 14½	W.	W.S.W.		22½
1. 21	1. 22	W.S.W.	S.W.		22½
2. 6	2. 8	S.W.	N.W.	90	
2. 13	2. 14	N.W.	W.N.W.		22½
2. 19	2. 23	W.N.W.	S.W.		67½
3. 2	3. 3	S.W.	S.S.W.		22½
3. 5½	3. 6	S.S.W.	S.W.	22½	
3. 12	3. 13	S.W.	S.S.W.		22½
4. 4	4. 7	S.S.W.	S.W.	22½	
5. 3	5. 8½	S.W.	W.	45	
5. 13	5. 13½	W.	N.W.	45	
5. 14½	5. 16	N.W.	W.S.W.		67½
5. 17¼	5. 19	W.S.W.	N.N.W.	90	
5. 22½	5. 23	N.N.W.	N.W.		22½
6. 2	6. 3	N.W.	N.N.W.	22½	
6. 6	6. 7	N.N.W.	S.W.		112½
6. 8	6. 9	S.W.	N.E.		180
6. 10½	6. 11	N.E.	S.E.		270
6. 15	6. 17	S.E.	S.W.	90	
6. 21	6. 22	S.W.	S.S.W.		22½
7. 8	7. 9	S.S.W.	S.W.	22½	
7. 19	7. 21	S.W.	S.		45
8. 3	8. 3¼	S.	N.		180
8. 4	8. 5	N.	N.E.	45	
8. 7	8. 8	N.E.	S.	135	
8. 10	8. 11	S.	S.E.		45
8. 14½	8. 15	S.E.	E.		45
9. 7	9. 8	E.	E.N.E.		22½
10. 3	10. 5	E.N.E.	N.E.	337½	
10. 8	10. 9	N.E.	S.W.	180	
10. 10	10. 10¼	S.W.	W.		315
10. 11	10. 11¼	W.	E.		180
10. 13	10. 13¼	E.	S.W.		225
11. 1	11. 3	S.W.	W.S.W.	22½	
11. 12	11. 15	W.S.W.	S.W.		22½
12. 10½	12. 12	S.W.	W.S.W.	22½	
12. 17½	12. 18	W.S.W.	N.N.W.	90	
12. 21	12. 21¼	N.N.W.	N.N.E.	45	
12. 23	13. 0	N.N.E.	S.W.	202½	
13. 5½	13. 7	S.W.	E.	225	
13. 11	13. 12	E.	E.N.E.		22½
13. 16½	13. 17	E.N.E.	E.	22½	
13. 18½	13. 19	E.	E.S.E.	22½	
14. 6¾	14. 7½	E.S.E.	S.E.	22½	
14. 13	14. 14	S.E.	E.		45
14. 19	14. 22	E.	S.E.	45	
15. 3	15. 3½	S.E.	S.S.E.	22½	
15. 4¾	15. 5	S.S.E.	W.S.W.	90	
15. 8	15. 9	W.S.W.	S.W.		22½
15. 12	15. 12½	S.W.	S.		45
15. 16	15. 16½	S.	S.S.E.		22½
15. 23½	16. 1	S.S.E.	S.W.	67½	
16. 4	16. 5	S.W.	S.S.W.		22½
16. 7	16. 9	S.S.W.	S.W.	22½	
16. 17	16. 18	S.W.	S.S.W.		22½
17. 18½	17. 20	S.S.W.	S.E.		67½

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Aug.—*cont.*					
d h	d h				
17. 22	17. 23	S.E.	E.		45
18. 0	18. 2	E.	S.	90	
18. 4¼	18. 5	S.	S.S.E.		22½
18. 6	18. 7	S.S.E.	S.	22½	
18. 12	18. 13	S.	S.S.W.	22½	
18. 16½	18. 17½	S.S.W.	S.W.	22½	
19. 18	19. 20	S.W.	S.S.W.		22½
21. 12½	21. 13½	S.S.W.	S.W.	22½	
21. 22	22. 1	S.W.	S.S.W.		22½
22. 12	22. 13	S.S.W.	S.W.	22½	
23. 2	23. 5	S.W.	S.		45
23. 9½	23. 11	S.	N.W.	135	
23. 12½	23. 14	N.W.	W.N.W.		22½
23. 14½	23. 16	W.N.W.	S.W.		67½
23. 20	23. 22	S.W.	W.S.W.	22½	
25. 0	25. 2	W.S.W.	S.W.		22½
25. 6	25. 9	S.W.	W.	45	
25. 10¾	25. 11	W.	N.W.	45	
25. 18	25. 19	N.W.	N.N.W.	22½	
26. 1	26. 4	N.N.W.	W.S.W.		90
26. 7	26. 9	W.S.W.	N.N.W.	90	
26. 22	26. 23	N.N.W.	N.W.		22½
27. 2½	27. 3	N.W.	S.W.		90
27. 7½	27. 9	S.W.	N.N.W.	112½	
27. 13	27. 15	N.N.W.	N.	22½	
27. 23	27. 23½	N.	N.N.W.		22½
28. 9	28. 11	N.N.W.	N.N.E.	45	
28. 20	28. 21	N.N.E.	N.E.	22½	
29. 1½	29. 3	N.E.	N.N.W.		67½
29. 4¾	29. 5¼	N.N.W.	N.N.E.	45	
29. 17	29. 17½	N.N.E.	E.	67½	
29. 21	29. 22½	E.	N.		90
30. 5	30. 6	N.	N.W.		45
30. 7	30. 8	N.W.	N.E.	90	
30. 11½	30. 12	N.E.	N.		45
30. 15½	30. 16	N.	N.E.	45	
30. 17¾	30. 20½	N.E.	N.N.W.	292½	
31. 0	31. 1	N.N.W.	N.W.		22½
31. 5	31. 5½	N.W.	W.S.W.		67½
31. 9½	31. 10	W.S.W.	N.W.	67½	
31. 16⅝	31. 17	N.W.	N.	45	
31. 22¼	31. 22½	N.	S.	180	
			Sums	3712½	3105

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
September.					
d h	d h				
1. 0¾	1. 1	S.	E.N.E.		112½
1. 4	1. 4½	E.N.E.	N.E.		22½
1. 7	1. 8	N.E.	E.N.E.	22½	
1. 10½	1. 11	E.N.E.	E.	22½	
1. 13½	1. 13¾	E.	N.		90

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Sept.—*cont.*					
d h	d h				
1. 16¼	1. 17½	N.	W.S.W.		112½
1. 22	2. 0	W.S.W.	W.N.W.	45	
2. 3	2 3½	W.N.W.	W.		22½
2. 4¾	2. 5	W.	N.W.	45	
2. 12½	2. 13½	N.W.	N.N.W.	22½	
2. 17	2. 18	N.N.W.	N.N.E.	45	
2. 22	2. 22½	N.N.E.	N.		22½
3. 7¼	3. 8	N.	N.N.E.	22½	
3. 10	3. 11	N.N.E.	N.		22½
3. 13¼	3. 13½	N.	N.N.E.	22½	
3. 16	3. 16¼	N.N.E.	N.E.	22½	
3. 18	3. 20	N.E.	S.E.	90	
3. 21	3. 22	S.E.	S.S.E.	22½	
4. 1	4. 1¼	S.S.E.	E.		67½
4. 5¼	4. 5½	E.	S.E.	45	
4. 7½	4. 8	S.E.	E.		45
4. 18¾	4. 20	E.	E.S.E.	22½	
5. 4	5. 5½	E.S.E.	E.N.E.		45
5. 9	5. 9¼	E.N.E.	E.S.E.	45	
5. 15	5. 17	E.S.E.	S.	67½	
5. 19½	5. 20¾	S.	S.W.	45	
6. 8	6. 10	S.W.	W.S.W.	22½	
6. 17	6. 18	W.S.W.	S.W.		22½
7. 7	7. 10	S.W.	W.	45	
7. 12	7. 12½	W.	W.S.W.		22½
7. 17	7. 18	W.S.W.	S.W.		22½
9. 0	9. 2	S.W.	N.W.	90	
9. 8	9. 9½	N.W.	N.N.W.	22½	
9. 12½	9. 13	N.N.W.	W.N.W.		45
9. 15	9. 17	W.N.W.	N.N.W.	45	
9. 22	10. 2	N.N.W.	N.E.	67½	
10. 16	10. 18	N.E.	E.N.E.	22½	
10. 21	10. 22	E.N.E.	N.E.		22½
11. 10½	11. 12	N.E.	E.	45	
11. 14	11. 15	E.	E.N.E.		22½
11. 20	11. 22	E.N.E.	N.E.		22½
12. 12	12. 13	N.E.	E.N.E.	22½	
12. 17	12. 18	E.N.E.	E.	22½	
12. 21	12. 23	E.	N.E.		45
13. 0	13. 1½	N.E.	N.N.W.		67½
13. 4½	13. 4¾	N.N.W.	S.W.		112½
13. 9	13. 11	S.W.	W.S.W.	22½	
13. 23½	14. 1	W.S.W.	S.W.		22½
14. 7½	14. 10½	S.W.	N.W.	90	
14. 12½	14. 13	N.W.	W.		45
14. 14½	14. 15	W.	N.W.	45	
14. 16	14. 17	N.W.	E.S.E.		202½
14. 19½	14. 22	E.S.E.	S.W.	112½	
15. 7	15. 9	S.W.	W.S.W.	22½	
15. 17½	15. 19½	W.S.W.	S.S.W.		45
15. 22	15. 22½	S.S.W.	S.W.	22½	
16. 2¾	16. 3	S.W.	N.W.	90	
16. 4	16. 5¼	N.W.	N.N.E.		292½
16. 23	17. 4	N.N.E.	N.N.W.		45
17. 12	17. 13	N.N.W.	N.W.		22½
17. 17½	17. 19	N.W.	S.W.		90
20. 5½	20. 6	S.W.	W.S.W.	22½	
20. 16	20. 18	W.S.W.	S.		67½
20. 21½	20. 23½	S.	W.	90	

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.
				°	°
Sept.—*cont.*					
d h	d h				
21. 1	21. 2	W.	S.W.		45
21. 9½	21. 11	S.W.	E.N.E.	202½	
21. 15½	21. 18	E.N.E.	N.N.W.		90
21. 20	21. 22	N.N.W.	S.W.		112½
22. 9½	22. 10½	S.W.	W.S.W.	22½	
22. 19	22. 20	W.S.W.	S.W.		22½
23. 16½	23. 16¾	S.W.	N.W.	90	
23. 17½	23. 20½	N.W.	S.W.		90
24. 8	24. 10	S.W.	N.W.	90	
24. 11	24. 11½	N.W.	W.		45
24. 18	24. 18½	W.	S.W.		45
25. 7	25. 8	S.W.	W.S.W.	22½	
25. 11	25. 12½	W.S.W.	N.W.	67½	
25. 14	25. 15	N.W.	W.S.W.		67½
25. 16¼	25. 16½	W.S.W.	N.W.	67½	
25. 18	25. 20	N.W.	S.S.W.		112½
26. 11	26. 12	S.S.W.	S.W.	22½	
26. 19	26. 21	S.W.	S.S.W.		22½
27. 5	27. 9	S.S.W.	W.S.W.	45	
27. 12	27. 13	W.S.W.	S.W.		22½
27. 16	27. 17½	S.W.	W.S.W.	22½	
27. 23½	28. 0	W.S.W.	S.W.		22½
28. 10	28. 11	S.W.	S.S.W.		22½
29. 7	29. 9	S.S.W.	S.W.	22½	
29. 15	29. 16	S.W.	S.S.W.		22½
30. 3	30. 3½	S.S.W.	S.		22½
30. 7½	30. 12	S.	W.S.W.	67½	
30. 15	30. 16	W.S.W.	S.W.		22½
30. 18	30. 19	S.W.	S.S.W.		22½
			Sums	2272½	2610
October.					
1. 3¾	1. 4	S.S.W.	S.		22½
1. 6¾	1. 7	S.	S.S.W.	22½	
1. 22	2. 1	S.S.W.	S.W.	22½	
2. 11½	2. 12½	S.W.	S.S.W.		22½
2. 19½	2. 20	S.S.W.	S.E.		67½
2. 22	3. 2	S.E.	W.S.W.	112½	
3. 15	3. 16	W.S.W.	S.W.		22½
5. 5	5. 6	S.W.	S.S.W.		22½
5. 18	5. 20	S.S.W.	S.		22½
5. 23½	5. 23¾	S.	S.S.E.		22½
6. 1¾	6. 2	S.S.E.	S.W.	67½	
6. 3	6. 5	S.W.	S.S.W.		22½
6. 6	6. 8	S.S.W.	S.W.	22½	
6. 14	6. 18	S.W.	S.		45
6. 21	6. 21½	S.	S.E.		45
7. 3	7. 4½	S.E.	E.	315	
7. 5½	7. 6½	E.	S.E.	45	
7. 8¾	7. 9	S.E.	S.	45	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Oct.—*cont.*					
d h	d h				
7. 15	7. 16	S.	S.E.		45
7. 23	8. 1	S.E.	S.	45	
8. 7	8. 8	S.	S.W.	45	
8. 15½	8. 16	S.W.	S.S.E.		67½
8. 20¾	8. 21	S.S.E.	N.E.		112½
9. 3	9. 3¼	N.E.	N.		45
9. 9	9. 11	N.	E.N.E.	67½	
9. 18½	9. 20½	E.N.E.	W.		157½
9. 23	10. 0½	W.	S.W.		45
10. 2	10. 4	S.W.	W.S.W.	22½	
10. 12	10. 12½	W.S.W.	S.W.		22½
10. 16	10. 18	S.W.	S.S.W.		22½
10. 20	10. 21	S.S.W.	S.S.E.		45
10. 23	11. 4	S.S.E.	S.S.W.	45	
11. 9	11. 11	S.S.W.	S.W.	22½	
11. 14	11. 16½	S.W.	N.N.W.	112½	
12. 2	12. 2¼	N.N.W.	S.		157½
12. 3½	12. 5	S.	W.N.W.	112½	
12. 8½	12. 9	W.N.W.	N.W.	22½	
12. 14½	12. 14¾	N.W.	W.		45
12. 18	12. 18¼	W.	S.W.		45
13. 9	13. 10	S.W.	W.S.W.	22½	
13. 13	13. 15	W.S.W.	S.W.		22½
13. 17	13. 19	S.W.	S.S.W.		22½
14. 6	14. 8	S.S.W.	S.W.	22½	
16. 14	16. 16	S.W.	W.S.W.	22½	
16. 19	16. 21	W.S.W.	S.W.		22½
17. 15½	17. 17	S.W.	E.S.E.	247½	
17. 20	17. 21	E.S.E.	E.N.E.		45
17. 23	18. 1	E.N.E.	N.E.		22½
18. 4	18. 6	N.E.	N.N.E.		22½
18. 17	18. 17½	N.N.E.	N.		22½
18. 22	18. 23½	N.	S.W.	225	
19. 12	19. 12½	S.W.	W.S.W.	22½	
19. 17	19. 20	W.S.W.	S.W.		22½
20. 6½	20. 7	S.W.	S.		45
20. 9	20. 11½	S.	S.W.	45	
20. 15	20. 16	S.W.	S.S.W.		22½
20. 18	20. 19	S.S.W.	S.W.	22½	
20. 21	20. 22	S.W.	S.S.W.		22½
21. 2	21. 4	S.S.W.	S.W.	22½	
21. 15	21. 17	S.W.	S.S.W.		22½
21. 18½	21. 21½	S.S.W.	S.W.	22½	
22. 8	22. 10	S.W.	W.S.W.	22½	
22. 13¾	22. 14¼	W.S.W.	N.	112½	
22. 18	22. 20	N.	N.N.W.		22½
23. 1½	23. 1¾	N.N.W.	S.W.		112½
23. 10½	23. 11	S.W.	N.	135	
23. 14½	23. 15	N.	N.N.E.	22½	
23. 20½	23. 21	N.N.E.	S.E.	112½	
23. 22½	23. 22¾	S.E.	S.W.	90	
25. 2	25. 5	S.W.	S.S.W.		22½
25. 10	25. 12	S.S.W.	S.W.	22½	
26. 11	26. 12	S.W.	W.	45	
26. 15½	26. 16½	W.	W.S.W.		22½
27. 0	27. 1¾	W.S.W.	W.N.W.	45	
27. 3	27. 4	W.N.W.	W.S.W.		45
27. 10½	27. 11½	W.S.W.	W.	22½	
27. 14	27. 15	W.	S.W.		45

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Oct.—*cont.*					
d h	d h				
29. 0	29. 2	S.W.	W.S.W.	22½	
29. 8	29. 10	W.S.W.	W.	22½	
29. 16½	29. 17	W.	W.N.W.	22½	
30. 2	30. 3	W.N.W.	N.N.W.	45	
31. 22	31. 22½	N.N.W.	S.S.W.		135
			Sums	2565	1845
November.					
1. 5	1. 6	S.S.W.	S.		22½
1. 10	1. 12	S.	S.W.	45	
1. 17	1. 19	S.W.	W.S.W.	22½	
2. 1	2. 4	W.S.W.	S.W.		22½
2. 6	2. 7½	S.W.	S.S.W.		22½
2. 9	2. 10	S.S.W.	W.S.W.	45	
2. 23½	3. 0	W.S.W.	S.W.		22½
3. 6	3. 7	S.W.	S.S.W.		22½
3. 11	3. 12	S.S.W.	S.W.	22½	
4. 9½	4. 10½	S.W.	N.	135	
4. 13	4. 14	N.	N.N.E.	22½	
5. 13¾	5. 14	N.N.E.	S.E.		247½
5. 15½	5. 17	S.E.	S.W.	90	
5. 19	5. 21½	S.W.	N.W.	90	
6. 0	6. 2	N.W.	N.N.W.	22½	
6. 11	6. 12	N.N.W.	N.	22½	
6. 13½	6. 14½	N.	N.N.E.	22½	
6. 17½	6. 18	N.N.E.	N.		22½
7. 11	7. 12	N.	N.N.E.	22½	
8. 14	8. 15½	N.N.E.	N.E.	22½	
8. 18	8. 18½	N.E.	N.N.E		22½
8. 23¾	9. 0	N.N.E.	N.E.	22½	
9. 9	9. 12	N.E.	E.N.E.	22½	
9. 14	9. 15½	E.N.E.	N.E.		22½
10. 17	10. 18	N.E.	N.N.E.		22½
10. 21	10. 21½	N.N.E.	N.		22½
11. 7	11. 8	N.	N.N.E.	22½	
11. 10	11. 13	N.N.E.	E.N.E.	45	
12. 18	12. 20	E.N.E.	E.	22½	
13. 4¾	13. 5	E.	E.N.E.		22½
13. 8	13. 9	E.N.E.	E.	22½	
13. 16	13. 18	E.	E.S.E.	22½	
13. 20½	13. 20¾	E.S.E.	S.S.E.	45	
13. 21½	13. 21¾	S.S.E.	N.	202½	
13. 23	13. 23½	N.	N.E.	45	
14. 2½	14. 2¾	N.E.	N.N.E.		22½
14. 4½	14. 5½	N.N.E.	E.S.E.	90	
14. 8	14. 8¼	E.S.E.	N.E.		67½
14. 22	14. 23	N.E.	N.N.E.		22½
15. 0½	15. 1	N.N.E.	N.		22½
15. 6	15. 8	N.	N.N.W.		22½
15. 12	15. 14	N.N.W.	N.N.E.	45	
15. 20	15. 21	N.N.E.	N.E.	22½	
15. 22½	15. 23	N.E.	E.N.E.	22½	

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.
				°	°
Nov.—*cont.*					
d h	h				
16. 4	16. 5	E.N.E.	E.S.E.	45	
16. 8	16. 9	E.S.E.	S.E.	22½	
16. 18	16. 20	S.E.	S.S.E.	22½	
17. 0	17. 2	S.S.E.	S.	22½	
17. 5	17. 7	S.	S.S.W.	22½	
17. 17¾	17. 18	S.S.W.	W.	67½	
17. 19	17. 20½	W.	S.W.		45
18. 1	18. 2	S.W.	S.S.W.		22½
18. 6	18. 9	S.S.W.	N.	157½	
18. 15	18. 16	N.	N.N.W.		22½
19. 18	19. 19½	N.N.W.	N.	22½	
20. 8	20. 10	N.	N.N.E.	22½	
21. 8	21. 9	N.N.E.	N.		22½
21. 18	21. 19½	N.	N.N.W.		22½
21. 23½	22. 0½	N.N.W.	W.		67½
22. 3½	22. 4	W.	W.S.W.		22½
22. 7	22. 8	W.S.W.	S.W.		22½
22. 10	22. 12	S.W.	W.S.W.	22½	
22. 14	22. 14¾	W.S.W.	N.W.	67½	
22. 16	22. 17	N.W.	N.N.W.	22½	
23. 22	24. 0½	N.N.W.	S.W.		112½
24. 14	24. 15	S.W.	W.S.W.	22½	
24. 21½	24. 22½	W.S.W.	S.W.		22½
25. 17	25. 20	S.W.	S.S.W.		22½
26. 1	26. 3½	S.S.W.	W.	67½	
26. 7	26. 8	W.	W.S.W.		22½
26. 9	26. 11	W.S.W.	N.N.W.	90	
27. 4	27. 4½	N.N.W.	N.W.		22½
27. 5¾	27. 6¼	N.W.	S.W.		90
30. 2	30. 4	S.W.	S.S.W.		22½
			Sums	1935	1215
December.					
1. 6	1. 6¼	S.S.W.	N.N.W.	135	
2. 2	2. 3¼	N.N.W.	N.	22½	
2. 7	2. 8	N.	N.N.E.	22½	
2. 15	2. 16½	N.N.E.	N.		22½
2. 21	2. 23	N.	N.N.W.		22½
3. 1	3. 1½	N.N.W.	S.W.		112½
4. 5½	4. 6	S.W.	W.S.W.	22½	
4. 15	4. 18½	W.S.W.	N.	112½	
5. 4	5. 4½	N.	N.N.E.	22½	
5. 7	5. 8	N.N.E.	N.		22½
5. 17¾	5. 18	N.	S.S.W.		157½
5. 23	6. 1	S.S.W.	S.W.	22½	
7. 8	7. 9	S.W.	W.S.W.	22½	
7. 15	7. 16	W.S.W.	S.W.		22½
7. 23	8. 0½	S.W.	S.		45
8. 4½	8. 5½	S.	S.S.W.	22½	
9. 4	9. 6	S.S.W.	W.	67½	
9. 8	9. 8½	W.	W.S.W.		22½
9. 14	9. 15	W.S.W.	S.W.		22½
9. 23	10. 7	S.W.	S.E.		90
10. 9½	10. 10½	S.E.	S.S.E.	22½	
10. 12	10. 12½	S.S.E.	S.	22½	
11. 0	11. 1	S.	S.S.E.		22½
11. 5	11. 6	S.S.E.	S.	22½	
11. 8	11. 11	S.	W.S.W.	67½	
11. 12½	11. 13	W.S.W.	W.N.W.	45	
11. 14	11. 15	W.N.W.	W.S.W.		45
11. 17	11. 18	W.S.W.	S.W.		22½
11. 20½	11. 22	S.W.	S.		45
12. 16	12. 18	S.	S.S.W.	22½	
13. 0½	13. 2	S.S.W.	S.S.E.		45
13. 3½	13. 6	S.S.E.	S.S.W.	45	
14. 0	14. 0¼	S.S.W.	N.W.	112½	
14. 5½	14. 8	N.W.	N.	45	
14. 12	14. 15	N.	N.W.		45
14. 17½	14. 18	N.W.	W.S.W.		67½
14. 22	14. 23	W.S.W.	S.W.		22½
15. 1	15. 2	S.W.	S.S.W.		22½
15. 10	15. 12	S.S.W.	S.W.	22½	
16. 15	16. 19	S.W.	S.S.W.		22½
17. 7	17. 7¼	S.S.W.	S.		22½
17. 18	17. 19	S.	S.S.E.		22½
18. 3	18. 6	S.S.E.	S.S.W.	45	
Dec.—*cont.*					
d h	d h				
18. 13¾	18. 14	S.S.W.	S.		22½
18. 16	18. 16½	S.	S.S.E.		22½
19. 1½	19. 2	S.S.E.	S.	22½	
19. 18	19. 21	S.	S.W.	45	
20. 0	20. 6	S.W.	S.		45
20. 11	20. 11½	S.	S.S.W.	22½	
20. 17	20. 19	S.S.W.	N.W.	112½	
20. 20	20. 23	N.W.	W.S.W.		67½
21. 2	21. 2½	W.S.W.	S.W.		22½
22. 5	22. 6	S.W.	S.S.W.		22½
22. 18	22. 19½	S.S.W.	W.	67½	
22. 21½	23. 0	W.	S.W.		45
23. 18	23. 18½	S.W.	S.		45
23. 22	24. 0½	S.	S.W.	45	
24. 3½	24. 5	S.W.	S.S.W.		22½
24. 10	24. 11	S.S.W.	S.		22½
25. 0	25. 3	S.	S.W.	45	
25. 21	25. 22	S.W.	W.S.W.	22½	
26. 4	26. 5	W.S.W.	S.W.		22½
27. 8½	27. 9	S.W.	S.S.E.		67½
27. 20	27. 20¼	S.S.E.	S.W.	67½	
27. 21½	27. 23½	S.W.	S.S.W.		22½
28. 3¼	28. 3½	S.S.W.	S.S.E.		45
28. 7	28. 7½	S.S.E.	S.E.		22½
28. 12	28. 12¼	S.E.	S.S.E.	22½	
28. 15¼	28. 15½	S.S.E.	N.N.E.		135
28. 17½	28. 17¾	N.N.E.	S.E.	112½	
28. 19¾	28. 20¾	S.E.	S.	45	
29. 6	29. 7	S.	S.S.E.		22½
29. 9	29. 10	S.S.E.	S.E.		22½
29. 12	29. 14	S.E.	E.S.E.		22½
29. 21½	29. 22	E.S.E.	N.E.		67½
30. 1½	30. 2	N.E.	E.	45	
30. 8¼	30. 9	E.	E.N.E.		22½
30. 11½	30. 12	E.N.E.	E.	22½	
30. 16	30. 16¼	E.	N.E.		45
30. 18	30. 18¼	N.E.	E.N.E.	22½	
30. 23	30. 23½	E.N.E.	S.W.	157½	
31. 16	31. 18	S.W.	W.S.W.	22½	
31. 20½	31. 21½	W.S.W.	S.W.		22½
			Sums	1845	1822½

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

EXCESS of MOTION in each MONTH.

1893.	Direct. °	Retrograde. °	1893.	Direct. °	Retrograde. °
January	112½		July	202½	
February	652½		August	607½	
March	1125		September		337½
April	2205		October	720	
May	1395		November	720	
June	990		December	22½	

The whole excess of direct motion for the year was 8415°.

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	1893.												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	11·1	14·2	8·4	7·1	7·6	7·0	8·4	7·2	10·1	9·9	13·4	9·7	9·5
2	10·9	13·8	9·0	6·7	7·1	6·5	7·6	7·6	10·0	9·2	13·0	10·5	9·3
3	10·5	14·0	8·8	6·5	7·1	7·1	7·6	7·2	9·3	10·0	13·4	10·4	9·3
4	10·3	14·4	8·7	6·6	7·0	7·9	7·6	7·1	9·5	9·5	13·3	10·5	9·4
5	10·3	14·1	8·5	6·9	6·8	7·5	7·7	7·4	9·2	10·6	12·7	11·3	9·4
6	11·2	14·4	8·5	7·4	7·5	8·0	7·7	7·0	8·4	10·5	13·7	11·5	9·6
7	10·6	14·3	9·0	7·6	8·3	8·4	7·8	7·2	9·5	10·2	12·9	11·7	9·8
8	11·5	15·0	9·8	7·9	9·4	9·2	9·4	8·3	9·2	11·1	13·0	12·5	10·5
9	10·9	14·3	9·7	9·4	9·4	9·5	9·4	9·1	10·2	11·1	13·2	12·8	10·8
10	11·2	15·5	10·2	10·2	10·8	10·5	10·8	10·3	11·1	12·5	14·1	13·8	11·7
11	11·7	16·2	12·6	11·5	12·0	10·8	11·3	11·3	12·0	13·1	15·3	15·0	12·7
Noon.	12·9	18·8	14·5	12·4	13·2	11·5	12·0	12·7	13·1	14·3	16·6	16·5	14·0
h													
13	13·4	20·0	14·5	13·1	12·8	11·6	11·9	12·5	12·7	14·2	17·1	15·2	14·1
14	13·0	19·5	14·8	13·1	13·1	13·3	12·1	13·4	12·8	13·8	16·9	15·1	14·2
15	13·1	16·7	13·5	12·9	12·7	12·8	12·5	13·3	12·9	13·1	16·5	14·6	13·7
16	12·2	16·0	12·8	12·8	12·4	12·4	12·0	13·7	12·8	11·6	16·2	13·8	13·2
17	11·1	14·5	12·6	13·1	12·7	11·8	12·2	13·2	12·8	11·0	15·0	14·2	12·8
18	10·9	13·8	12·2	11·7	12·7	11·2	11·9	12·8	11·4	10·1	15·3	14·8	12·4
19	10·7	12·9	11·8	10·6	11·3	11·2	11·2	11·6	11·2	10·6	15·7	13·5	11·9
20	10·8	14·0	10·9	9·8	11·0	9·7	9·9	10·0	10·4	10·1	15·7	13·2	11·3
21	10·6	13·9	10·2	8·9	10·0	8·0	8·5	9·8	10·2	10·2	14·7	12·3	10·6
22	10·7	13·6	9·8	8·4	9·1	7·8	7·9	9·0	9·5	9·7	15·4	12·1	10·3
23	10·5	13·3	9·0	7·9	8·4	7·7	7·4	8·5	10·0	9·6	14·4	11·6	9·9
Midnight.	10·4	14·1	8·5	7·3	7·3	7·3	8·4	7·9	9·8	9·8	14·1	10·6	9·6
Means	11·3	15·1	10·8	9·6	10·0	9·5	9·7	9·9	10·8	11·1	14·7	12·8	11·3
Greatest Hourly Measures	33	49	41	25	26	33	29	30	31	28	35	46	...
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.)

1893.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d												
1	+ 950	+ 249	+ 558	+ 786	+ 228	+ 590	+ 432	+ 513	+ 208	...	+ 782	+ 454
2	...	+ 165	+ 634	+ 452	+ 534	+ 447	+ 392	+ 486	+ 510	...	+ 612	+1506
3	...	+ 211	+ 525	+ 417	+ 578	+ 500	+ 383	+ 362	+ 455	+ 795	+ 757	+1350
4	...	+ 605	+ 666	+ 607	+ 452	+ 100	+ 301	+ 338	+ 440	+ 652	+ 677	+ 996
5	...	+ 841	+ 829	+ 750	+ 495	+ 252	+ 502	+ 424	+ 508	+ 593	+ 948	+ 837
6	+ 720	+ 749	+ 765	+ 639	+ 584	+ 271	+ 449	+ 476	+ 341	+ 493	+1077	...
7	+ 792	+ 421	+ 965	+ 883	+ 407	+ 368	+ 562	+ 378	+ 280	+ 333	+1135	+ 867
8	+ 255	+ 363	+ 784	+ 617	+ 507	+ 490	+ 110	+ 587	+ 378	+ 690	+ 955	+ 506
9	...	+ 249	+ 790	+ 704	+ 292	+ 497	− 59	+ 566	+ 512	+ 362	+ 689	+ 728
10	+ 600	+ 258	+ 907	+ 766	+ 545	+ 333	+ 318	+ 277	+ 504	+ 272	+ 846	+ 669
11	+ 726	...	+1050	+ 508	+ 626	+ 439	+ 377	+ 376	+ 529	+ 150	+ 770	+ 907
12	+ 290	...	+ 960	+ 884	+ 237	+ 474	− 86	+ 361	+ 554	+ 770	+ 783	+ 382
13	+ 665	...	+ 652	+ 973	+ 598	+ 85	+ 518	+ 270	+ 546	+ 910	+1192	+ 393
14	+ 876	+ 358	+ 642	+ 591	+ 407	+ 278	+ 300	+ 235	+ 530	+ 267	+ 974	+ 887
15	+ 831	+ 828	+ 501	+ 569	+ 397	+ 377	+ 514	+ 255	+ 703	+ 235	+ 678	+1201
16	+ 372	+ 395	+ 500	+ 904	+ 496	+ 490	+ 464	+ 316	+ 392	+ 288	+ 744	+ 847
17	+ 385	+ 562	+ 850	+ 557	+ 387	+ 461	+ 584	+ 445	+ 616	+ 253	+ 377	+1013
18	+ 520	+ 368	+ 879	+ 636	+ 431	+ 231	+ 694	+ 253	+ 440	+ 466	+ 193	+ 405
19	+ 571	+ 535	+ 773	+ 735	+ 360	+ 253	+ 377	+ 423	+ 387	+ 717	+ 860	...
20	+ 601	+ 612	+ 834	+ 373	+ 398	+ 275	...	+ 98	+ 521	+ 612	+ 607	+ 32
21	+ 600	− 173	+1006	+ 569	+ 352	+ 95	...	+ 236	+ 776	+ 597	+ 953	+1015
22	+ 401	− 997	+1132	+ 540	+ 32	+ 85	+ 440	+ 416	+ 725	+ 293	+ 804	+ 714
23	+ 520	+ 738	+ 960	+ 430	+ 489	+ 236	+ 420	+ 486	+ 493	+ 640	+ 953	+1238
24	+ 350	+1040	+ 825	+ 550	+ 467	+ 221	+ 421	+ 477	+ 921	+ 636	+ 800	+ 789
25	+ 505	+1179	+ 940	+ 671	+ 437	+ 491	+ 360	+ 591	+ 538	+ 482	+ 493	+ 665
26	+ 144	+ 62	+ 982	+ 702	+ 398	+ 450	+ 221	+ 595	+ 645	+ 540	+ 158	+1247
27	+ 482	+ 267	+ 733	+ 427	+ 513	+ 388	+ 472	+ 496	+ 426	+ 704	+ 930	+1222
28	+ 403	+1138	+ 867	+ 509	+ 464	+ 198	+ 285	+ 676	+ 439	+ 507	+ 373	+1292
29	+ 270		+ 851	+ 170	+ 292	+ 430	+ 261	+ 621	+ 227	+ 757	+ 490	+ 859
30	+ 391		+ 922	+ 552	+ 395	+ 584	+ 484	+ 524	+ 440	+1108	+ 681	+1152
31	+ 290		+ 767		+ 487		+ 422	+ 376		+1100		+1400
Means ...	+ 520	+ 441	+ 808	+ 616	+ 429	+ 346	+ 376	+ 417	+ 499	+ 559	+ 743	+ 882

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.	1893.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 512	+ 325	+ 899	+ 670	+ 558	+ 421	+ 551	+ 535	+ 571	+ 497	+ 714	+ 926	+ 598
1h.	+ 494	+ 332	+ 848	+ 672	+ 555	+ 402	+ 518	+ 508	+ 515	+ 398	+ 698	+ 878	+ 568
2	+ 466	+ 344	+ 807	+ 686	+ 558	+ 390	+ 467	+ 523	+ 443	+ 329	+ 680	+ 653	+ 529
3	+ 473	+ 339	+ 781	+ 688	+ 555	+ 480	+ 445	+ 399	+ 456	+ 426	+ 659	+ 775	+ 540
4	+ 488	+ 335	+ 789	+ 693	+ 528	+ 454	+ 432	+ 391	+ 439	+ 423	+ 598	+ 832	+ 533
5	+ 491	+ 290	+ 824	+ 644	+ 501	+ 356	+ 442	+ 427	+ 468	+ 488	+ 529	+ 780	+ 520
6	+ 488	+ 256	+ 820	+ 736	+ 508	+ 416	+ 403	+ 478	+ 457	+ 488	+ 577	+ 731	+ 530
7	+ 444	+ 281	+ 859	+ 690	+ 564	+ 389	+ 294	+ 515	+ 439	+ 491	+ 729	+ 809	+ 542
8	+ 372	+ 265	+ 795	+ 621	+ 545	+ 453	+ 321	+ 479	+ 500	+ 493	+ 744	+ 872	+ 538
9	+ 379	+ 377	+ 728	+ 629	+ 458	+ 378	+ 282	+ 384	+ 511	+ 492	+ 718	+ 856	+ 516
10	+ 500	+ 513	+ 763	+ 581	+ 362	+ 320	+ 330	+ 316	+ 553	+ 552	+ 742	+ 860	+ 533
11	+ 542	+ 488	+ 770	+ 438	+ 222	+ 244	+ 322	+ 294	+ 394	+ 583	+ 678	+ 921	+ 491
Noon.	+ 592	+ 362	+ 751	+ 451	+ 277	+ 275	+ 222	+ 266	+ 382	+ 581	+ 712	+ 1043	+ 493
13h	+ 559	+ 410	+ 736	+ 465	+ 256	+ 242	+ 270	+ 248	+ 402	+ 572	+ 801	+ 967	+ 494
14	+ 518	+ 496	+ 641	+ 478	+ 253	+ 185	+ 297	+ 238	+ 429	+ 543	+ 837	+ 947	+ 488
15	+ 546	+ 576	+ 687	+ 471	+ 260	+ 140	+ 338	+ 317	+ 404	+ 523	+ 709	+ 787	+ 480
16	+ 600	+ 462	+ 604	+ 455	+ 219	+ 172	+ 400	+ 224	+ 374	+ 588	+ 762	+ 826	+ 474
17	+ 619	+ 506	+ 713	+ 531	+ 324	+ 178	+ 258	+ 386	+ 387	+ 672	+ 909	+ 933	+ 535
18	+ 595	+ 559	+ 812	+ 520	+ 323	+ 271	+ 297	+ 370	+ 540	+ 730	+ 911	+ 970	+ 575
19	+ 579	+ 750	+ 901	+ 588	+ 335	+ 263	+ 388	+ 421	+ 636	+ 706	+ 853	+ 884	+ 609
20	+ 581	+ 652	+ 960	+ 771	+ 376	+ 368	+ 396	+ 498	+ 676	+ 790	+ 874	+ 914	+ 655
21	+ 550	+ 557	+ 975	+ 818	+ 519	+ 478	+ 483	+ 581	+ 727	+ 688	+ 835	+ 960	+ 681
22	+ 541	+ 636	+ 980	+ 754	+ 614	+ 527	+ 451	+ 617	+ 677	+ 743	+ 765	+ 1002	+ 692
23	+ 542	+ 471	+ 949	+ 727	+ 614	+ 509	+ 428	+ 600	+ 608	+ 631	+ 798	+ 1037	+ 660
24	+ 522	+ 368	+ 887	+ 664	+ 566	+ 418	+ 528	+ 528	+ 600	+ 518	+ 699	+ 944	+ 603
Means 0h.–23h.	+ 520	+ 441	+ 808	+ 616	+ 429	+ 346	+ 376	+ 417	+ 499	+ 559	+ 743	+ 882	+ 553
Means 1h.–24h.	+ 520	+ 443	+ 807	+ 615	+ 429	+ 346	+ 376	+ 417	+ 501	+ 560	+ 742	+ 883	+ 553
Number of Days employed.	26	25	31	30	31	30	29	31	30	29	30	29	...

MONTHLY MEAN ELECTRICAL POTENTIAL of the ATMOSPHERE, from THOMSON'S ELECTROMETER, on RAINY DAYS, at every HOUR of the DAY.

(The results depend on the Photographic Register, using all days on which the rainfall amounted to or exceeded 0$^{in.}$·020. The scale employed is arbitrary: the sign + indicates positive potential.)

Hour, Greenwich Civil Time.	1893.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 498	+ 135	+ 746	+ 640	+ 415	+ 166	+ 537	+ 430	+ 499	+ 404	+ 645	+ 747	+ 488
1$^{h.}$	+ 459	+ 126	+ 636	+ 683	+ 448	0	+ 498	+ 404	+ 374	+ 179	+ 603	+ 592	+ 417
2	+ 409	+ 191	+ 504	+ 653	+ 500	− 66	+ 422	+ 539	+ 185	+ 57	+ 574	+ 66	+ 336
3	+ 395	+ 185	+ 320	+ 567	+ 530	+ 572	+ 424	+ 67	+ 244	+ 265	+ 641	+ 338	+ 379
4	+ 414	+ 171	+ 304	+ 520	+ 437	+ 564	+ 438	+ 81	+ 205	+ 269	+ 609	+ 485	+ 375
5	+ 428	+ 127	+ 424	− 157	+ 315	+ 54	+ 476	+ 230	+ 306	+ 399	+ 311	+ 435	+ 279
6	+ 415	+ 71	+ 310	+ 663	+ 247	+ 232	+ 402	+ 347	+ 329	+ 398	+ 294	+ 346	+ 338
7	+ 350	+ 103	+ 520	+ 97	+ 372	+ 16	+ 146	+ 424	+ 272	+ 392	+ 594	+ 509	+ 316
8	+ 283	+ 71	+ 640	− 103	+ 443	+ 550	+ 259	+ 387	+ 422	+ 401	+ 671	+ 643	+ 389
9	+ 266	+ 233	+ 564	+ 480	+ 352	+ 424	+ 160	+ 279	+ 467	+ 396	+ 658	+ 617	+ 408
10	+ 324	+ 408	+ 434	+ 430	+ 247	+ 416	+ 160	+ 151	+ 547	+ 442	+ 632	+ 537	+ 394
11	+ 422	+ 326	+ 492	+ 303	+ 228	+ 196	+ 265	+ 136	+ 295	+ 508	+ 443	+ 596	+ 351
Noon.	+ 463	+ 110	+ 568	+ 307	+ 293	+ 454	+ 58	+ 44	+ 205	+ 499	+ 434	+ 800	+ 353
13$^{h.}$	+ 399	+ 201	+ 580	+ 397	+ 268	+ 376	+ 180	+ 63	+ 332	+ 479	+ 619	+ 574	+ 372
14	+ 331	+ 356	+ 294	+ 363	+ 285	+ 336	+ 254	+ 103	+ 420	+ 451	+ 735	+ 622	+ 379
15	+ 384	+ 483	+ 730	+ 273	+ 323	+ 220	+ 308	+ 541	+ 353	+ 418	+ 373	+ 362	+ 397
16	+ 484	+ 299	+ 660	+ 307	+ 187	+ 128	+ 433	+ 146	+ 312	+ 488	+ 452	+ 489	+ 365
17	+ 545	+ 333	+ 774	+ 767	+ 542	− 68	+ 90	+ 596	+ 261	+ 539	+ 772	+ 704	+ 488
18	+ 486	+ 358	+ 780	− 67	+ 300	+ 384	+ 145	+ 346	+ 568	+ 601	+ 695	+ 736	+ 444
19	+ 434	+ 655	+ 888	− 347	+ 352	+ 382	+ 303	+ 414	+ 655	+ 526	+ 730	+ 577	+ 464
20	+ 452	+ 518	+ 966	+ 527	+ 447	+ 674	+ 286	+ 539	+ 578	+ 697	+ 702	+ 718	+ 592
21	+ 470	+ 337	+ 960	+ 623	+ 573	+ 692	+ 395	+ 666	+ 677	+ 468	+ 636	+ 842	+ 612
22	+ 534	+ 462	+ 914	+ 443	+ 622	+ 668	+ 206	+ 727	+ 645	+ 618	+ 442	+ 865	+ 595
23	+ 543	+ 280	+ 864	+ 433	+ 555	+ 614	+ 158	+ 650	+ 501	+ 514	+ 663	+ 972	+ 562
24	+ 582	+ 114	+ 812	+ 640	+ 467	+ 536	+ 470	+ 479	+ 555	+ 384	+ 649	+ 917	+ 550
Means 0$^{h.}$–23$^{h.}$	+ 424	+ 272	+ 620	+ 367	+ 387	+ 333	+ 292	+ 346	+ 402	+ 434	+ 580	+ 590	+ 421
Means 1$^{h.}$–24$^{h.}$	+ 428	+ 272	+ 622	+ 367	+ 389	+ 348	+ 289	+ 348	+ 404	+ 433	+ 580	+ 598	+ 423
Number of Days employed.	11	15	5	3	6	5	13	7	11	14	10	12	...

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.	1893. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
Midnight.	+ 577	+ 755	+ 969	+ 674	+ 595	+ 490	+ 556	+ 597	+ 650	+ 488	+ 804	+ 994	+ 679
1h.	+ 574	+ 767	+ 923	+ 671	+ 586	+ 500	+ 529	+ 575	+ 636	+ 568	+ 765	+ 1089	+ 682
2	+ 551	+ 695	+ 895	+ 690	+ 585	+ 498	+ 498	+ 556	+ 644	+ 556	+ 747	+ 1109	+ 669
3	+ 548	+ 665	+ 901	+ 701	+ 580	+ 477	+ 467	+ 528	+ 629	+ 524	+ 727	+ 1142	+ 657
4	+ 553	+ 678	+ 915	+ 713	+ 568	+ 450	+ 442	+ 506	+ 637	+ 512	+ 743	+ 1157	+ 656
5	+ 553	+ 670	+ 934	+ 733	+ 549	+ 444	+ 410	+ 507	+ 614	+ 535	+ 729	+ 1093	+ 648
6	+ 562	+ 697	+ 956	+ 744	+ 570	+ 488	+ 431	+ 536	+ 575	+ 541	+ 740	+ 1049	+ 657
7	+ 508	+ 668	+ 963	+ 756	+ 620	+ 500	+ 437	+ 556	+ 581	+ 551	+ 815	+ 1068	+ 669
8	+ 401	+ 670	+ 857	+ 702	+ 589	+ 469	+ 400	+ 519	+ 599	+ 560	+ 878	+ 1117	+ 647
9	+ 442	+ 702	+ 798	+ 646	+ 496	+ 400	+ 443	+ 430	+ 580	+ 571	+ 899	+ 1100	+ 626
10	+ 636	+ 720	+ 853	+ 597	+ 396	+ 325	+ 543	+ 366	+ 573	+ 652	+ 934	+ 1155	+ 646
11	+ 659	+ 805	+ 860	+ 453	+ 260	+ 262	+ 449	+ 327	+ 460	+ 691	+ 894	+ 1183	+ 609
Noon.	+ 673	+ 855	+ 796	+ 467	+ 268	+ 247	+ 369	+ 329	+ 506	+ 675	+ 922	+ 1265	+ 614
13h.	+ 654	+ 843	+ 765	+ 473	+ 261	+ 238	+ 328	+ 304	+ 464	+ 677	+ 968	+ 1294	+ 606
14	+ 649	+ 817	+ 739	+ 491	+ 266	+ 192	+ 325	+ 279	+ 467	+ 665	+ 959	+ 1269	+ 593
15	+ 687	+ 793	+ 702	+ 493	+ 261	+ 194	+ 332	+ 267	+ 467	+ 663	+ 945	+ 1255	+ 588
16	+ 691	+ 852	+ 668	+ 471	+ 236	+ 223	+ 327	+ 268	+ 430	+ 698	+ 1007	+ 1216	+ 591
17	+ 652	+ 970	+ 719	+ 505	+ 255	+ 259	+ 346	+ 314	+ 474	+ 807	+ 1056	+ 1207	+ 630
18	+ 639	+ 1000	+ 836	+ 585	+ 320	+ 267	+ 367	+ 368	+ 549	+ 870	+ 1087	+ 1254	+ 678
19	+ 660	+ 1015	+ 940	+ 692	+ 346	+ 235	+ 375	+ 418	+ 654	+ 888	+ 1096	+ 1236	+ 713
20	+ 669	+ 1005	+ 989	+ 799	+ 401	+ 302	+ 402	+ 483	+ 757	+ 892	+ 1099	+ 1175	+ 748
21	+ 606	+ 975	+ 1004	+ 840	+ 505	+ 439	+ 500	+ 550	+ 794	+ 905	+ 1057	+ 1140	+ 776
22	+ 496	+ 925	+ 1051	+ 788	+ 582	+ 504	+ 597	+ 582	+ 749	+ 862	+ 1044	+ 1155	+ 778
23	+ 464	+ 870	+ 1050	+ 759	+ 605	+ 492	+ 558	+ 584	+ 727	+ 721	+ 995	+ 1091	+ 743
24	+ 469	+ 885	+ 988	+ 667	+ 590	+ 393	+ 486	+ 544	+ 680	+ 634	+ 816	+ 958	+ 676
Means 0h.–23h.	+ 588	+ 809	+ 878	+ 643	+ 446	+ 371	+ 435	+ 448	+ 592	+ 670	+ 913	+ 1159	+ 663
Means 1h.–24h.	+ 583	+ 814	+ 879	+ 643	+ 446	+ 367	+ 432	+ 446	+ 594	+ 676	+ 913	+ 1157	+ 662
Number of Days employed.	9	4	22	27	22	22	10	20	15	11	10	10	...

AMOUNT of RAIN COLLECTED in EACH MONTH of the YEAR 1893.

MONTH, 1893.	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	15	0·776	0·841	1·080	1·287	1·439	1·446	1·459	1·528
February	22	1·440	1·395	2·009	2·429	2·729	2·718	2·760	2·783
March	7	0·201	0·173	0·211	0·438	0·467	0·433	0·426	0·447
April	3	0·073	0·084	0·099	0·131	0·136	0·119	0·119	0·123
May	9	0·332	0·377	0·456	0·532	0·543	0·530	0·520	0·536
June	8	0·602	0·523	0·693	0·792	0·822	0·822	0·810	0·822
July	18	2·494	2·402	2·841	3·187	3·300	3·330	3·354	3·363
August	11	0·876	0·822	1·081	1·220	1·223	1·246	1·229	1·256
September	14	0·762	0·658	0·967	1·221	1·287	1·289	1·281	1·295
October	15	3·484	3·341	3·770	4·055	4·139	4·164	4·159	4·217
November	16	1·018	0·966	1·390	1·616	1·796	1·828	1·823	1·858
December	16	1·234	1·032	1·508	1·838	2·125	2·193	2·199	2·206
Sums	154	13·292	12·614	16·105	18·746	20·006	20·118	20·139	20·434
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.

1893.

Month and Day, 1893.	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		°	
March 21	19. 38.	C.	> Jupiter	Bluish-white	2·0	...	10	1
April 10	21. 12¼.	C.	2	Bluish-white	1·0	...	10	2
April 27	22. 10. 10	C.	3	Bluish-white	0·5	...	5	3
August 8	22. 0. 1	C.	3	Bluish-white	0·7	...	13	4
,,	22. 12. 17	C.	2	Bluish-white	0·5	...	8	5
,,	22. 17. 17	C.	> 1	White	2·0	Brilliant	20	6
,,	22. 25. 50	C.	3	Bluish-white	0·5	..	15	7
,,	22. 30. 30	C.	> 1	White	1·3	Slight	18	8
,,	22. 35. 59	C.	> 1	White	1·5	Brilliant	25	9
,,	23. 2. 7	C.	1	Bluish-white	0·5	...	12	10
,,	23. 19. 16	C.	3	Bluish-white	0·7	...	10	11
,,	23. 27. 44	C.	2	Bluish-white	0·8	...	7	12
,,	23. 51. 5	C.	4	Bluish-white	1·0	...	12	13
,,	23. 56. 35	C.	3	Bluish-white	0·5	...	10	14
August 9	0. 0. 41	C.	2	White	1·5	...	20	15
,,	0. 1. 22	C.	1	White	1·0	...	7	16
,,	0. 14. 30	C.	1	Bluish-white	2·0	...	20	17
,,	0. 39. 5	C.	2	Bluish-white	1·5	...	20	18
,,	0. 51. 44	C.	1	White	2·0	Brilliant	25	19
,,	1. 8. 38	C.	> 1	Blue	3·0	Slight	20	20
,,	1. 26. 47	C.	2	Bluish-white	1·0	...	15	21
,,	23. 10. 5	C.	3	Bluish-white	0·7	...	8	22
,,	23. 18. 9	C.	2	Bluish-white	1·0	Slight	25	23
,,	23. 22. 31	C.	2	Bluish-white	0·7	...	25	24
,,	23. 26. 18	C.	3	Bluish-white	0·5	...	30	25
,,	23. 32. 20	C.	4	Bluish-white	0·5	...	7	26
,,	23. 36. 57	C.	3	Bluish-white	0·4	...	20	27
,,	23. 42. 36	C.	> 1	Bluish	1·0	Brilliant	15	28
,,	23. 47. 26	C.	2	Bluish-white	1·0	...	15	29
,,	23. 54. 15	C.	1	Bluish	1·0	...	20	30
,,	23. 59. 8	C.	1	Bluish-white	1·2	...	20	31
August 10	0. 1. 38	C.	> 1	Bluish-white	1·5	Slight	20	32
,,	0. 9. 35	M.	3	Bluish-white	0·7	...	8	33
,,	0. 13. 50	C.	3	Bluish-white	0·7	...	20	34
,,	0. 23. 55	B.	3	Bluish-white	0·5	...	7	35
,,	0. 34. 30	C.	3	Bluish-white	0·5	...	12	36
,,	0. 41. 35	B.	2	Bluish-white	0·8	Train	10	37
,,	0. 41. 40	M.	3	Bluish-white	0·7	...	10	38
,,	0. 50. 35	M.	1	White	1·0	Train	15	39
,,	0. 54. 22	C.	2	Bluish	1·0	...	...	40
,,	1. 0. 8	C.	> 1	White	1·0	...	15	41
,,	1. 5. 23	B.	3	Bluish-white	0·5	...	15	42
,,	1. 14. 53	C.	3	Bluish-white	0·7	...	12	43
,,	1. 20. 30	M.	4	Bluish-white	0·4	...	12	44
,,	1. 23. 7	C.	2	Bluish-white	1·0	...	15	45
,,	23. 11. 25	B.	1	Bluish-white	1	Train	15	46
,,	23. 30. 18	B.	2	Bluish-white	0·7	...	10	47
,,	23. 44. 8	B.	1	Bluish-white	0·8	...	8	48

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 a point about 15° due North of α Canis Majoris travelled slowly upwards in a curved path towards α Orionis.
2	From a point a few degrees below α Coronæ moved towards ζ Boötis.
3	From a point midway between β and γ Ursæ Minoris moved towards a point midway between ζ and η Draconis.
4	From β Delphini moved towards and disappeared near γ Cygni.
5	From β Cygni to a point 5° South of α Lyræ.
6	From a point 10° South of α Lyræ passed vertically downwards.
7	From a point midway between β Delphini and θ Aquilæ moved towards δ Aquilæ.
8	From ζ Cephei moved towards a point midway between ε and ζ Cygni.
9	From α Aquilæ pursued a downward path inclined slightly to the West.
10	From β Delphini fell vertically downwards.
11	From ζ Cassiopeiæ towards ο Andromedæ.
12	From τ Cassiopeiæ towards ο Andromedæ.
13	From a point 5° to the right of ε Arietis moved towards the Pleiades.
14	From a point 10° to the East of γ Cygni moved towards that star.
15	From the middle of the square of Pegasus pursued a slightly curved path towards ε Pegasi.
16	From ζ Aquarii pursued a curved path towards ζ Pegasi (apex towards East).
17	From a point midway between α and γ Pegasi pursued a slightly curved path towards α Aquarii.
18	From a point a little to the North of γ Cassiopeiæ to a point about 10° North of α Persei.
19	From α Camelopardali pursued a curved path towards α Ursæ Majoris (apex towards horizon).
20	From near η Piscium fell slowly downwards in a curved path.
21	From near α Aquarii fell vertically downwards.
22	From ζ Cygni towards γ Delphini.
23	From a point 10° South of ζ Aquilæ to α Ophiuchi.
24	From ι Pegasi moved towards a point a little below β Delphini.
25	From 1 Pegasi moved towards and disappeared a little below ζ Aquilæ.
26	From β Cygni to α Sagittæ.
27	From θ Aquilæ to a point midway between β Aquarii and δ Capricorni.
28	From a point midway between α Andromedæ and β Arietis moved downwards towards North at an angle of 45°.
29	From α Cassiopeiæ moved towards α Cygni.
30	From γ Cephei moved towards and disappeared a little below α Cephei.
31	From β Camelopardali fell downwards at an angle of about 30° towards right.
32	From a point a little to right of β Ursæ Minoris fell downwards at an angle of 45° to the left.
33	From α Aquilæ to η Aquilæ.
34	From a little to the right of α Aquilæ fell vertically downwards.
35	From 54 Andromedæ to a point midway between γ and 50 Andromedæ.
36	From δ Herculis moved towards α Ophiuchi.
37	From ι Draconis to θ Boötis.
38	From 23 Ursæ Majoris to α Ursæ Majoris.
39	From a point midway between α and β Arietis fell downwards and disappeared behind cloud.
40	From a point about 20° South of γ Pegasi pursued a slightly curved path downwards and disappeared in cloud.
41	From a point near the horizon bearing W.S.W. moved upwards to the left at an angle of 60° to the horizon (visible through clouds).
42	From a point midway between π Pegasi and 32 Pegasi moved towards ζ Pegasi.
43	From β Trianguli to a point midway between α and β Arietis.
44	From β Persei moved towards the Pleiades.
45	From a point between ζ and τ Ceti moved in a curved path towards δ Piscium.
46	From a point midway between ι and δ Aquarii fell downwards at an angle of 30° (to right).
47	From ο Piscium in the direction of α Trianguli.
48	From 6 Lacertæ in the direction of ζ Cygni.

Month and Day, 1893.	Greenwich Civil Time.	Observer.	Apparent Size of Meteor in Star-Magnitudes.	Colour of Meteor.	Duration of Meteor in Seconds of Time.	Appearance and Duration of Train.	Length of Meteor's Path in Degrees.	No. for Reference.
	h m s				s		°	
August 11	0. 1. 33	B.	1	Bluish-white	1·0	Slight	12	49
,,	0. 11. 20	B.	4	Bluish	0·4	...	6	50
,,	0. 17. 8	B.	2	Bluish-white	2·0	Train	10	51
,,	0. 26. 53	B.	1	Bluish	1·0	Brilliant	25	52
,,	0. 33. 22	B.	3	Bluish-white	0·7	Slight	7	53
,,	0. 40. 16	B.	1	Bluish-white	1·0	Train for 3 secs.	20	54
August 17	21. 36. 0	C.	> 1	Bluish-white	1·0	Brilliant 2 secs.	10	55
August 22	21. 0. 0	C.	> 1	Bluish	3·0	Bright 1 sec.	30	56
November 12	23. 1. 45	C.	3	Bluish-white	0·5	...	20	57
,,	23. 8. 0	C.	3	Bluish-white	0·5	...	15	58
,,	23. 11. 35	C.	2	Bluish-white	0·8	...	15	59
,,	23. 32. 5	C.	2	Bluish-white	1·0	...	20	60
,,	23. 41. 28	C.	1	Yellow	1·5	...	15	61
,,	23. 50. 41	C.	1	Bluish-white	1·0	...	5	62
,,	23. 54. 30	C.	2	Bluish-white	1·0	...	10	63
November 13	0. 14. 25	C.	3	Bluish-white	0·8	...	15	64
,,	0. 18. 10	C.	3	Bluish-white	0·8	...	15	65
,,	0. 20. 30	C.	2	Bluish-white	1·0	...	20	66
,,	0. 23. 46	C.	1	Blue	0·8	...	15	67
,,	0. 30. 57	C.	3	Bluish-white	1·0	...	12	68
,,	0. 32. 27	C.	3	Bluish-white	0·5	...	10	69
,,	0. 40. 6	C.	3	Bluish-white	2	...	20	70
,,	0. 49. 36	C.	4	Bluish-white	0·5	...	10	71
,,	0. 54. 13	C.	4	Bluish-white	0·7	...	10	72
,,	1. 6. 41	C.	3	Bluish	1·5	...	12	73
,,	1. 9. 33	C.	3	Bluish-white	0·8	...	8	74
,,	1. 26. 27	C.	3	Bluish white	0·5	...	10	75
,,	1. 47. 32	C.	2	Bluish-white	0·5	...	15	76
,,	1. 59. 13	C.	3	Bluish-white	0·4	...	12	77
,,	23. 20. 31	C.	3	Bluish-white	0·5	...	20	78
,,	23. 28. 35	C.	3	Yellow	0·7	...	25	79
,,	23. 34. 7	C.	2	Yellow	1·0	...	20	80
,,	23. 40. 8	C.	3	Yellowish	0·5	...	10	81
,,	23. 44. 51	C.	2	Yellow	1·0	Red.	15	82
,,	23. 47. 57	C.	3	Yellowish	0·2	...	20	83
November 14	0. 3. 1	C.	3	Yellow	0·5	...	12	84
,,	0. 21. 46	M.	2	Bluish-white	0·7	...	10	85
,,	0. 41. 2	C.	2	Bluish	1·0	...	12	86

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.
49	From τ Arietis fell vertically downwards.
50	From midway between η Tauri and τ Arietis fell nearly vertically downwards.
51	From midway between κ Draconis and Piazzi XII. 10 moved in a curved path in the direction of Piazzi X. 126.
52	From δ Draconis in the direction of γ Draconis.
53	From a point midway between η and A Tauri in the direction of 5 Tauri.
54	From Piazzi XXI. 285 moved towards and disappeared a little beyond σ Cygni.
55	Burst with a brilliant flash from 6 Lacertæ and moved towards 32 Pegasi.
56	From midway between ζ Cygni and ϵ Pegasi moved slowly to a point a little below η Aquilæ.
57	From ι Ursæ Majoris fell vertically downwards.
58	From a point a little below α Orionis moved towards and disappeared a little below ξ Geminorum.
59	From κ Geminorum fell downwards inclined slightly to the left.
60	From a point about midway between Polaris and Capella moved towards α Ursæ Majoris.
61	From a little below β Geminorum moved towards ϵ Leonis.
62	From a point near β Cassiopeiæ pursued a short path at right angles to a line joining γ and β Cassiopeiæ.
63	From a point about midway between δ Geminorum and κ Ursæ Majoris moved towards γ Cancri.
64	From near κ Ursæ Majoris fell vertically downwards.
65	From γ Ursæ Minoris moved towards δ Draconis.
66	From 23 Ursæ Majoris moved towards γ Ursæ Majoris.
67	From a point midway between 23 and α Ursæ Majoris fell vertically downwards.
68	From μ Orionis fell vertically downwards.
69	From β Orionis to 54 Eridani.
70	From α Lyncis moved slowly towards γ Cancri.
71	From a point a little to the right of ϵ Leonis moved in direction of Regulus.
72	From α Cancri moved towards Regulus.
73	From β Geminorum to ι Cancri.
74	From α Canis Minoris to β Cancri.
75	From ϵ Hydræ moved towards and disappeared a little beyond θ Hydræ.
76	From a little to the left of κ Orionis moved towards and disappeared a little beyond β Orionis.
77	From γ Ursæ Majoris to β Ursæ Majoris.
78	From Capella moved towards α Geminorum.
79	From a point midway between Jupiter $\left\{\begin{matrix}\text{R.A. } 3^{\text{h.}}\ 40^{\text{m.}} \\ \text{N.P.D. } 71^{\circ}.\ 34'\end{matrix}\right\}$ and Aldebaran passed close to Aldebaran and disappeared beyond that star.
80	From near α Orionis fell vertically downwards.
81	From a little to the left of Capella moved towards θ Aurigæ.
82	From a point about midway between α Geminorum and β Aurigæ moved towards ζ Tauri.
83	From a point midway between Polaris and Capella moved very rapidly towards β Aurigæ.
84	From a point midway between β Persei and α Arietis fell vertically downwards.
85	From midway between θ and κ Ursæ Majoris moved towards α Lyncis.
86	From a point about midway between α Geminorum and β Aurigæ moved towards κ Ursæ Majoris.