RESULTS

OF THE

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS

MADE AT

THE ROYAL OBSERVATORY, GREENWICH,

IN THE YEAR

1899:

UNDER THE DIRECTION OF

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ASTRONOMER ROYAL.

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ROYAL OBSERVATORY, GREENWICH.

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1899.

GREENWICH MAGNETICAL AND METEOROLOGICAL OBSERVATIONS, 1899.

INTRODUCTION.

§ 1. *Personal Establishment and Arrangements.*

During the year 1899 the personal establishment in the Magnetical and Meteorological Department of the Royal Observatory consisted of William Carpenter Nash, Superintendent, aided by one Established Computer, David J. R. Edney, and four Computers. The Computers employed at different times during the year were:—Percival D. Beadle, Thomas Percy Marchant, Cedric A. F. Davies, Charles William Jeffries, Thomas Henry Clarke, Charles William Ralph, and Albert Edward Showell.

Mr. Nash controls and superintends the whole of the work of the Department. 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. [The carpenter's workshop was taken down in 1899 February]. 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, were placed when in use 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. In December 1894 the eastern stove was removed to Magnetic Office, No. 5. 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. A rain gauge is 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.

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. On 1899 May 16 and 17 this shed was shifted about 15 feet westwards, and is now on the west side of the earth thermometers. About 20 feet south of the southern arm of the Magnet House are placed the earth thermometers, the upper portions of which, projecting above the ground, are protected by a small wooden hut, and at about the same distance south-east of the southern arm of the Magnet House is situated a Stevenson screen containing dry-bulb, wet-bulb, and maximum and minimum thermometers, and a few feet further east there are two rain gauges.

Until 1894 November 5 the Magnet Ground was bounded on its south side by a range of seven rooms, known as the Magnetic Offices. On the above-mentioned date the Offices were shifted to the western side of the Magnet Ground, the original site being required for the North Wing of the New Observatory.

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 wooden building on the roof of the Octagon Room. Since 1896 February 6 the sunshine instrument has also been mounted on the same building which carries the Robinson Anemometer.

In the year 1891 the Central Octagon of the new Observatory Building 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. On 1894 November 8 work for the erection of the North Wing was commenced, and the erection of the new Altazimuth building on the north side of the Magnetical Observatory was also commenced about the same time. Both buildings were in progress during the year 1895, further considerable masses of iron being introduced, viz., 12 tons on January 16, $2\frac{1}{2}$ tons on April 2, $1\frac{1}{3}$ tons on December 16, for the New Observatory; and 4 tons on March 29, 5 tons on May 2, 2 tons on June 7, $1\frac{1}{3}$ tons on June 21, for the new Altazimuth building. The principal masses of iron were placed in position in the North Wing of the New Observatory in July 1895, and this seems to have produced the increase of declination shown from August 1895, the permanent effect being an increase of about 4′. On 1896 February 19 the iron base and other parts of the new Altazimuth instrument were received, and were subsequently mounted in the new Altazimuth Pavilion, the total weight of iron being about 8 cwts. On 1896 October 27 and following days the iron castings of the new

Thomson Photographic Equatorial were received, and were subsequently mounted in the central dome of the New Observatory at a distance of about 115 feet from the declination magnet. Their total weight is about 10 tons. In the year 1898 the East and West Wings of the New Observatory were erected, thus completing the building. The additional weight of iron and mild steel introduced in those wings (including the heating apparatus) amounted to 25 tons. The increase of magnetic declination in 1898, after the completion of these wings, was very marked.

The new Magnetic Pavilion, in an enclosure in Greenwich Park, at a distance of about 350 yards from the Observatory, on the East side, was completed at the end of 1898 September, and the instruments for absolute determinations of magnetic declination, dip and horizontal force are now installed there. The greatest care was taken to exclude all iron in building the Magnetic Pavilion, and the site was selected so that there should be no suspicion of magnetic disturbance from iron in the neighbourhood. The revolving stand carrying the thermometers used for ordinary eye observations, the thermometers for solar and terrestrial radiation, and the standard rain gauge, were moved to a more open position in the Magnetic Pavilion enclosure at the beginning of 1899.

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* 1899.

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, 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.*

DECLINATION MAGNETS FOR ABSOLUTE DETERMINATIONS. — For determination of magnetic declination in the Magnetic Pavilion, the hollow cylindrical magnet, Elliot No. 75, has been mounted in conjunction with the theodolite used for the upper declination magnet in the Observatory, the aperture of the viewing telescope being reduced to that of the magnet collimator (0·3 inch) and a low-power eye-piece being provided. Some trouble was experienced at first through a defect in one of the piers, and the new declinometer was not finally mounted and adjusted till the end of 1898 December. From 1899 January 1 regular observations of declination have been made in the Magnetic Pavilion, alternating with determinations with the upper declination magnet in the Magnet House, to give the correction required to the results found at the latter site, representing the effect of the iron in the Observatory Buildings. The upper declination magnet, employed solely until the end of the year 1898 for the determination of absolute declination, is by Meyerstein of Göttingen. It is a bar of hard steel, 2 feet long, $1\frac{1}{2}$ inches 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 eyepiece has one fixed horizontal wire and one vertical wire moved by a micrometer-screw, the field of view in the observation of stars being illuminated through the pivot of the transit-axis on that side of the telescope which carries the micrometer-head. The value of one division of the level is 1″·15. 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 determined on 1898 November 25 and 1898 December 5, and the correction was found to be $-6^{div}\cdot0$, which is equivalent to $-6''\cdot9$.

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 was found from seven separate determinations during the year to be $100^{r}\cdot277$.

The effect of the plane glass in front of the outer box of the declination magnet was determined on 1898 December 1 and 1899 October 20. The mean correction $21''\cdot3$ determined from these observations, has been added to all readings throughout the year 1899.

The error of collimation of the magnet collimator is found by observing the position of the magnet, first with the 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. This value was found on 1898 December 2 to be, $25'.45''\cdot0$, and on 1899 October 20, $25'.54''\cdot3$.

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 $\frac{1}{142}$ on 1897 December 1, and $\frac{1}{148}$ on 1898 November 25.

The time of vibration of the upper declination magnet under the influence of terrestrial magnetism was found on 1898 December 2, and on 1899 October 23 to be $30^{s}\cdot69$.

The reading of the azimuthal circle of the theodolite corresponding to the astronomical meridian is determined about twice in each month by observation of the stars Polaris or δ Ursæ Minoris. The fixed mark is usually observed weekly.

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 $9^h. 10^m$, $13^h. 10^m$, $15^h. 10^m$, and $21^h. 10^m$ of Greenwich civil time, reckoning from midnight.

The results of the determinations of magnetic declination in the Magnet House are, to a certain extent, affected by the iron in the new Observatory building and in the new Altazimuth Pavilion. To eliminate this effect as far as circumstances would allow, observations were made in 1898 after the completion of the new Observatory building on or near the site selected for the new Magnetic Pavilion in Greenwich Park, which is presumably free from any disturbing effect of iron. The results of these observations are given in the following table:—

RESULTS OF OBSERVATIONS OF MAGNETIC DECLINATION MADE IN GREENWICH PARK AND AT THE ROYAL OBSERVATORY.

1898, Time of Observation.		Declination West. In Greenwich Park.	Declination West. At the Royal Observatory.	Correction to the Dec. as determined at the Royal Observatory.
	d h m	° ′	° ′	′
September	2. 11.47	16. 44·6	16. 57·0	−12·4
,,	20. 11.50	16. 40·9	16. 53·5	−12·6
,,	20. 12.55	16. 44·3	16. 54·0	− 9·7
,,	20. 14.52	16. 42·6	16. 52·6	−10·0
,,	23. 16.31	16. 39·6	16. 51·0	−11·4
,,	26. 11.24	16. 43·9	16. 52·6	− 8·7
,,	28. 15.46	16. 46·7	16. 56·0	− 9·3
,,	29. 12.47	16. 45·8	16. 55·9	−10·1
October	1. 12.20	16. 40·8	16. 53·0	−12·2
			Mean correction.........	−10·7

This result was subsequently confirmed in 1899 by observations with the new declinometer in the Magnetic Pavilion, given in the following table :—

RESULTS OF OBSERVATIONS FOR DETERMINATION OF THE EFFECT OF THE IRON IN THE NEW OBSERVATORY AND NEW ALTAZIMUTH BUILDINGS UPON THE UPPER DECLINATION MAGNET.

1899, Periods.	Mean Magnetic Declination West.	Mean of Observations in Magnetic Pavilion.	Deduced correction to observations in the Magnet House.
	° ′	° ′	′
January 27–February 2	In Magnetic Pavilion............16. 35·0		
February 3–February 10	In Magnet House.................16. 45·7	16. 34·6	−11·1
February 10–February 16	In Magnetic Pavilion............16. 34·2		
April 5–April 12	In Magnetic Pavilion............16. 35·4		
April 13–April 22	In Magnet House.................16. 45·1	16. 35·0	−10·1
April 23–April 30	In Magnetic Pavilion............16. 34·6		
April 27–May 11	In Magnetic Pavilion............16. 34·2		
May 12–May 26	In Magnet House.................16. 44·2	16. 34·5	− 9·7
May 27–June 10	In Magnetic Pavilion............16. 34·9		
August 11–August 26	In Magnetic Pavilion............16. 34·0		
August 27–September 11	In Magnet House.................16. 43·9	16. 34·0	− 9·9
September 12–September 27	In Magnetic Pavilion............16. 34·0		
October 1–October 11	In Magnetic Pavilion............16. 32·8		
October 12–October 22	In Magnet House.................16. 44·6	16. 32·7	−11·9
October 24–November 3	In Magnetic Pavilion............16. 32·6		
November 20–November 30	In Magnetic Pavilion............16. 32·8		
December 1–December 11	In Magnet House.................16. 44·6	16. 32·6	−12·0
December 12–December 22	In Magnetic Pavilion............16. 32·3		
		Mean Correction..................	−10·8

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, $1\frac{1}{2}$ inches 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 $0^{\text{in}}\cdot 3$

long and $0^{in.}01$ 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, 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 two 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.

From March 7 to 21 the driving clock of the declination and horizontal force registering cylinder was away for repair.

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

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

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

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

Suppose that the magnet is suspended in its carrier with its marked end in a magnetic westerly direction, not exactly west, but in any westerly direction, and suppose that, by means of the fixed telescope, the reading of the scale is taken. The position of the axis of the magnet is thereby defined. Now let the magnet be taken out of its carrier, and replaced with its marked end easterly. The terrestrial magnetic force will now act, as regards torsion, in the direction opposite to that in which it acted before, and the magnet will take up a different position. But by turning the torsion-circle so as to reverse the direction of the torsion produced by the oblique tension of the two branches of the suspending skein, the magnet may be made to take the same position as before, but with poles reversed, which will be proved by the reading of the scale, as seen in the fixed telescope, being the same. We thus obtain two readings of the torsion-circle corresponding to the same direction of the magnet axis, but with the marked end opposite ways, without, however, possessing any information as to whether the magnet axis is accurately transverse to the magnetic meridian, inasmuch as the same operation can be performed whether the magnet axis be tranverse 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 1899 January 5 the following observations were made for determination of the angle of torsion :—

1899, 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. 5	146	55·89		21·24	232	57·61		20·90
			8·24				8·51	
	147	64·13		21·02	233	66·12		21·06
			8·45				7·78	
	148	72·58		20·90	234	73·90		21·26

From these observations it appeared that the times of vibration and scale-readings were sensibly the same when the torsion-circle read $146^{\circ}.59'$, marked end west, and $232^{\circ}.45'$, marked end east, the difference being $85^{\circ}.46'$. Half this difference, or $42^{\circ}.53'$, is therefore the angle of torsion when the magnet is transverse to the meridian. Another determination, made on 1900 January 1, gave $43^{\circ}.9'$, the suspension thread apparently growing weaker throughout the year.

The value adopted in the reduction of the observations during the year 1899 was $43^{\circ}.0'$.

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

The variation of horizontal force, in terms of the whole horizontal force, producing angular motion of the magnet corresponding to change of one division of scale-reading = cotan angle of torsion × value of one division in terms of radius. Using the numbers above given, the change of horizontal force corresponding to change of one division of scale-reading was found to be 0·002296, which value has been used throughout the year 1899 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 $9^h\ 5^m$, $13^h\ 5^m$, $15^h\ 5^m$, and $21^h\ 5^m$ 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 $-0^\circ\cdot 3$ 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 43°.0′, the movement of the spot of light on the cylinder for a change of 0·01 of horizontal force is thus found to be 2·551 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 $(t-32) \times {\cdot}0000936 + (t-32)^2 \times {\cdot}000002074$, 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, 8 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 4 inches in the northern part of the iron frame, in which the concave mirror used for the photographic register is planted. Two steel 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 64 observations made during the course of the year this was found to be $17^{s}\cdot858$.

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 1897 December 30 gave for the time of vibration of the magnet in the horizontal plane $16^{s}\cdot509$. This value has been used throughout for the year 1899.

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

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

The variation of vertical force, in terms of the whole vertical force, producing angular motion of the magnet corresponding to a change of one division of scale-reading = cotan dip $\times \left(\frac{T'}{T}\right)^2 \times$ value of one division in terms of radius, in which T' is the time of vibration of the magnet in the horizontal plane, and T that in the vertical plane. Assuming $T' = 16^{s}\cdot509$, $T = 17^{s}\cdot858$, and dip $= 67^{\circ}.10'.15''$, the change of vertical force corresponding to change of one division of scale-reading was found to be 0·0004725, and this value has been used throughout the year 1899 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 $-0^\circ\cdot3$ has been applied to all readings.

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

The scale for measure of ordinates of the photographic curve is determined as follows :—The distance from the concave mirror 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 $= 200\cdot4 \times \tan \text{dip} \times \left(\frac{T}{T'}\right)^2 \times 0\cdot01$. 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 5·570 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 Magnetic Pavilion 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.

Artificial light has not been employed for some years 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 in 1899 are of the ordinary construction; they are the 3-inch needles, D_1 and D_2.

DEFLEXION INSTRUMENT.—The observations of deflexion of a magnet in combination with observations of vibration of the deflecting magnet, for determination of the absolute measure of horizontal magnetic force, are made with a *Unifilar Instrument*, 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 Magnetic Pavilion 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 reduction of all observations made with the instrument at Greenwich.

The instrumental constants as thus furnished are as follows:—

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

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

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

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

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

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

u_1, u_2 the observed angles of deflexion,

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

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

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

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

$\frac{H}{F}$ = ratio of the couple due to torsion of the suspending thread to the couple due to the Earth's magnetic force. [This is obtained from the formula $\frac{H}{F} = \frac{\theta}{90^\circ - \theta}$, 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 15·432349 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.

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 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 no days in the year 1899 which are classed as days of great disturbance. Other days of lesser disturbance are January 28–29; February 11–12, 12–13, 14–15, 23–24; March 21–22, 23–24; April 18–19; May 1–2, 3–4, 15–16; June 28–29, 29–30; July 3–4; September 26; October 23–24. When two days are mentioned, it is to be understood that the reference is usually to one set of photographic sheets extending from noon to noon, and including the last half and the first half respectively of two consecutive civil days.

Through each photographic trace, including those on days of lesser disturbance, 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. No omissions have been made on account of disturbed days, in the formation of these Tables; but from other causes there are omitted in Tables I. and II. for declination, and Tables III. to VI. for horizontal force, March 7–21; in Tables VII. to X. for vertical force, the omissions are June 2, 18–23, 28; September 23, 24; November 17, 18; December 29–31.

Table XI. gives the collected monthly values for declination, horizontal force, and vertical force, and Table XII. the mean diurnal inequalities for the year.

The temperature of the horizontal and vertical force magnets was maintained so nearly uniform through each day, that the determination of the diurnal inequalities of horizontal and vertical force should possess great exactitude. By means of the additional stove placed in the western arm of the Basement, 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 $(t-32) \times \cdot 0000936 + (t-32)^2 \times \cdot 000002074$ (page *xxi*), where t is the temperature in degrees Fahrenheit; and to those of vertical force, Tables VII. and IX., the correction $-(t-32) \times \cdot 000212$ (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, u in Table III. on April 12, which should be taken as 1130 for comparison with the preceding value, 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

$$\text{H.F. in metrical measure} \times \sin 1' = 1{\cdot}8416 \times \sin 1' = 0{\cdot}0005357.$$

For variation of horizontal force, the factor is

$$\text{H.F. in metrical measure} = 1{\cdot}8416,$$

and for variation of vertical force

$$\text{V.F. in metrical measure} = \text{H.F. in metrical measure} \times \tan \text{dip},$$
$$= 1{\cdot}8416 \times \tan 67^\circ.10'.15'' = 4{\cdot}3748.$$

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

Table XIII. exhibits the diurnal range of declination and horizontal force on each separate day, as determined from the 24 hourly ordinates of each element measured from the photographic register (as explained on page *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, as given in Tables II., V., and IX., 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.

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

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

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

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

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

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

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

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

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

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

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

Similarly for c_2, β, &c.

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

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

a mean value of h for the month being employed.

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

1899.	a_5.	b_5.
Declination	−0′·07	−0′·02
Horizontal Force	+0·3	−1·6
Vertical Force	+0·5	−0·5

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 1899.	Declination.	Horizontal Force.	Vertical Force.
Sums of Squares of Observed Values (Table XII.)	189'.80	235217·5	12302·6
Sums of Squares of Residuals after the introduction of m	90·86	38542·9	2774·4
,, ,, a_1 and b_1	31·07	8999·6	1550·6
,, ,, a_2 and b_2	5·75	2275·5	238·2
,, ,, a_3 and b_3	0·96	627·3	63·6
,, ,, a_4 and b_4	0·07	68·3	14·3
,, ,, a_5 and b_5	0·01	27·4	7·9

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 needles in ordinary use, is given in Table XVII.; and in Table XVIII., the concluded monthly and yearly values for each needle.

The results of the observations for Absolute Measure of Horizontal Force contained in Table XIX. require no special remark, the method of reduction and all necessary explanation having been given with the description of the instrument 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 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 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 1899, 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 (xxxii).

An additional plate (VII.) 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 $4\frac{1}{2}^{\circ}$ 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	2·551	64·80	5·570	141·48
On the Plates -	2·580	65·53	1·403	35·64	3·063	77·81

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 *xxxix*.)

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 [adopted dip = 67°.10.′15″]
= Horizontal Force × 2·3755;

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	2·55	64·8	2·34	59·6
On the Plates -	1·47	37·4	1·40	35·6	1·29	32·8

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

Foot-grain-second, or British unit, in terms of which Mean H.F. for 1899 = 3·9941
Millimètre-milligramme-second, or Metric unit, „ „ „ = 1·8416
Centimètre-gramme-second, or C.G.S. unit, „ „ „ = 0·18416

Dividing, therefore, the scale values last given by 3·9941, 1·8416, and 0·18416 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 - -	0·67	17·0	0·37	9·4	0·64	16·2	0·35	8·9	0·59	14·9	0·32	8·2
Metric - -	1·46	37·0	0·80	20·4	1·39	35·2	0·76	19·4	1·27	32·3	0·70	17·8
C.G.S. - -	14·6	370	8·0	204	13·9	352	7·6	194	12·7	323	7·0	178

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.

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 $0^{in}\cdot565$ in diameter, and the depression of the mercury due to capillary action is $0^{in}\cdot002$, but no correction is applied on this account. The cistern is of glass, and the graduated scale and attached rod are of brass; at its lower end the rod terminates in a point of ivory, which in observation is made just to meet the reflected image of the point as seen in the mercury. The scale is divided to $0^{in}\cdot05$, sub-divided by vernier to $0^{in}\cdot002$.

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

An elaborate comparison of the standard barometers of the Greenwich and Kew Observatories, made 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. xxvii. 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 Bradley's Transit room adjoining the present Transit-circle 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, 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.

On 1899 January 4 the thermometer stand was moved to the Magnetic Pavilion enclosure, where the thermometers are set up in an open position, about 40 feet south-west of the building.

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 observations at 32° in pounded ice and 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 $-0^{\circ}\cdot3$ has been applied to the 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 Negretti and Zambra, No. 83760, for maximum temperature of the air, and to those of Negretti and Zambra, No. 38338, for minimum temperature of the air, no corrections are required. The readings of Negretti and Zambra, No. 79224, for maximum temperature of evaporation, required no correction, and to those of Negretti and Zambra, No. 2048, for minimum temperature of evaporation, a correction of $+0^{\circ}\cdot5$ has been applied 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 in the Magnet ground 20 feet east-north-east of the photographic 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 $-0^{\circ}\cdot2$ has been applied. The wet-bulb is Hicks No. 268525, to the readings of which a correction of $+0^{\circ}\cdot1$ has been applied. The maximum thermometer is Negretti and Zambra, No. 85059, to the readings of which a correction of $+0^{\circ}\cdot1$ has been applied. To the readings of the minimum thermometer, Negretti and Zambra, No. 68873, a correction of $+0^{\circ}\cdot1$ has been applied. 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 a correction of $-0°\cdot3$ has been applied to its readings throughout. No. 37467, also by Negretti and Zambra, is a self-registering maximum thermometer, to the readings of which a correction of $-0°\cdot5$ has been applied. No. 342663, by Hicks, is a self-registering minimum thermometer, to the readings of which corrections have been applied as follow: 20° to 33° $-$ 0°·1, 33° to 40° 0°·0, 40° to 46° + 0°·1, 46° to 53° + 0°·2, 53° to 58° + 0°·3, 58° to 62° + 0°·4, and above 62° + 0°·5. 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. On 1899, May 16 and 17 the shed was shifted 15 feet westwards. This shed is open to the north, and is generally similar to that provided for the old apparatus, excepting that the roof inclines somewhat towards the south, and that the protecting boards (fixed as far as necessary on the eastern, southern, and western sides) are double, with spaces between to ensure a free circulation of air while screening the thermometers from the direct rays of the sun. The thermometers are further protected from sky and ground radiation by boards on the thermometer stand as described below. The photographic register is received on paper placed on a vertical ebonite cylinder 11½ inches high and 14¼ inches in circumference, and I have arranged that the dry and wet bulb traces shall fall on the same part of the cylinder, as regards time scale, a long air-bubble in the wet-bulb thermometer column giving the means of registering the indications of the wet bulb (as well as of such degrees and decades of its scale as fall within the bubble), just below the trace of the dry-bulb thermometer, without any interference of the two records, an arrangement which admits of the time scale being made equal to that of all the other registers. The stems of the thermometers are placed close together, each being covered by a vertical metal plate having a fine vertical slit, so that light passes through only at such parts of the bore of the tube as do not contain mercury. Two gas lamps, each at a distance of 21 inches, are placed at such an angle that the light from each, after passing through its corresponding slit and thermometer tube, falls on the photographic paper in one and the same vertical line. Degree lines etched upon the thermometer stems, and painted, interrupt the light sufficiently to produce a clear and sharp indication on the photographic sheet, the line at each tenth degree being thicker than the others, as well as those at 32°, 52°, 72°, &c. The length of scale is from 0° to 120° for each thermometer, the length of 1° being about 0·1 inch, and the air-bubble in the wet-bulb thermometer is about 12° in length, so that it will always include one of the ten-degree lines. The bulbs, which are 2 inches long and of about ½ an inch in internal bore, are separated horizontally by 5 inches, the tubes of the thermometers having a double bend above the bulbs, which are placed about 4 feet above the ground. The thermometers are carried by a vertical frame with independent vertical adjustment for each thermometer, so that the register in summer or winter can be brought to a convenient part of the photographic sheet. The revolving cylinder is driven by a pendulum clock contained within the brass case covering the whole apparatus, excepting the thermometer bulbs which project below. It makes one revolution in 26 hours, and the time scale is the same as that for all the other registers. As the cylinder revolves, the light passing through the portion of the thermometer tubes not occupied by mercury imprints on the paper a broad band of photographic trace, corresponding to the dry-bulb register, whose breadth in the vertical direction varies with the height of the mercury in the tube, and a narrower band below, corresponding to the wet bulb. When these are developed, the traces are seen to be crossed by thin white lines, the horizontal lines corresponding to degrees, and the vertical lines to hours, the lower boundary of each trace indicating the thermometric record corresponding to the upper surface of the thermometric column.

The driving clock 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 were moved on 1898 November 4 to the Magnetic Pavilion enclosure, where they are placed in an open position about 50 feet south-west of the building. 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. 72540. 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, and freely exposed to the sky; 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 about 20 feet south of the Magnet House.

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, 36°·9 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 1 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—few pressures greater than 30 lbs. have been recorded.

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

A new sheet of paper is applied to the instrument every day at noon. The scale of time is ordinarily the same as that of the magnetic registers, but by means of a special gearing applied to the clock by Mr. Kullberg in 1894 the table carrying the ecord can either be driven at the usual rate, or 24 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 1 hour 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 1 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 1 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 1899 eight rain gauges were employed, placed at different elevations above the ground, complete information in regard to which will be found at page (c) 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 8-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.

Gauge No. 6 is an 8-inch circular gauge placed on the ground in the Magnetic

Pavilion enclosure, and gauges Nos. 7, and 8 also 8-inch circular gauges, are placed on the ground south-east of the Magnetic Observatory; No. 6 is the Standard gauge, which, on 1899 January 2, was moved to an open position in the Magnetic Pavilion enclosure, about 10 feet north-west of the thermometer stand, 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. 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 6 feet into the atmosphere, the nozzle (about 10 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.

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. Until 1896 February 5 the instrument was placed on a table upon the platform above the Magnetic Observatory, about 21 feet above the ground, and 176 feet above mean sea level. On account of the extension of the buildings in the south ground, it was found necessary on 1896 February 6 to remove the sunshine recorder from the roof of the Magnetic Observatory to a commanding position on the stage carrying the Robinson anemometer, on the roof of the Octagon Room, about 50 feet above the ground. A clear view of the sun is obtained in this position from sunrise to sunset, but some inconvenience is caused by the smoke from neighbouring chimneys. Very little record is obtained near to sunrise at any part of the year.

It was pointed out by Mr. Marriott, Secretary of the Royal Meteorological Society, towards the end of 1896, that the record by the Campbell-Stokes instrument exhibited a notable falling off. This, though not very marked till 1896, had certainly begun in 1894, and it was found to be due to opacity in the glass globe, which appears to have deteriorated. On 1897 January 1 a globe of clearer glass, presented to the Royal Observatory in 1881 by the late Mr. Campbell, was substituted for the defective globe.

The deterioration of the old ball is fully discussed by Mr. Curtis in the *Quarterly Journal of the Royal Meteorological Society*, vol. xxiv.

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 footnotes.

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

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

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

The mean amount of cloud given in the footnotes 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 footnotes, 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 (lvi), 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 footnotes; 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 (xciv), 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 $0^{in}\cdot020$, 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 (xcviii) and (xcix) 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 1899 were Mr. Nash, Mr. Bowyer, Mr. Furner, Mr. Clarke, Mr. Davies, Mr. Evans, Mr. Jeffries, Mr. Melotte, Mr. Ralph and Mr. P. Showell. Their observations are distinguished by the initials N, B, F, C, D, J. E., J, M, R, and S, respectively.

W. H. M. CHRISTIE.

ROYAL OBSERVATORY, GREENWICH,
1901, August 20.

ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

MAGNETICAL OBSERVATIONS,

1899.

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

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

1899.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	16°	16°	16°	16°	16°	16°	16°	16°	16°	16°	16°	16°
d	′	′	′	′	′	′	′	′	′	′	′	′
1	36·9	35·3	35·4	35·2	34·1	34·0	34·4	34·7	33·8	32·8	32·9	32·8
2	37·6	35·5	36·5	35·8	32·9	36·1	35·0	34·7	33·4	33·5	33·2	33·1
3	36·3	35·6	36·2	35·5	34·1	35·0	34·7	35·8	32·7	32·5	33·1	32·8
4	37·2	35·0	36·6	35·6	34·8	35·1	34·9	33·9	33·2	32·4	33·1	32·7
5	36·8	35·0	37·0	35·7	37·0	34·6	34·4	33·9	33·3	32·7	32·9	32·9
6	36·2	34·5	36·9	35·4	34·1	35·1	34·7	33·5	33·5	32·4	32·8	32·5
7	36·1	35·2	...	36·0	33·8	35·1	34·6	34·4	33·6	33·1	33·0	33·3
8	35·4	34·8	...	35·1	33·5	36·1	34·8	34·8	33·5	32·9	32·9	33·7
9	36·2	33·8	...	35·1	34·0	35·5	35·6	34·1	33·6	33·0	32·9	33·7
10	35·6	34·1	...	34·9	33·7	35·7	35·1	34·5	34·3	32·9	33·4	33·1
11	35·9	34·2	...	35·4	33·0	35·1	35·5	34·3	33·7	33·1	33·3	32·6
12	35·2	33·5	...	35·5	34·0	35·0	35·3	34·7	33·9	33·4	32·4	32·4
13	35·3	34·2	...	35·8	34·0	35·1	35·4	35·1	33·5	33·2	32·7	32·2
14	35·2	33·7	...	35·2	34·2	34·2	35·1	34·7	34·4	33·6	32·5	32·3
15	35·0	34·6	...	35·5	32·8	34·4	34·6	34·5	34·5	33·4	32·5	32·7
16	34·9	34·8	...	35·4	32·1	35·3	34·7	34·4	34·2	33·1	32·8	32·6
17	35·3	34·8	...	35·6	34·2	35·4	34·9	34·8	33·6	32·3	33·0	31·9
18	34·3	34·9	...	36·0	33·8	35·4	34·6	34·1	34·3	33·4	32·9	32·2
19	35·0	34·2	...	33·6	33·8	34·7	35·0	33·2	33·6	32·4	32·8	31·9
20	35·8	34·0	...	34·9	33·8	36·1	34·9	32·5	34·0	33·0	32·5	32·0
21	35·5	34·6	...	34·5	33·9	34·8	34·5	33·7	34·5	32·8	32·9	32·4
22	35·5	34·2	33·7	35·1	34·0	34·9	35·0	34·0	33·8	32·2	33·0	32·5
23	35·3	34·6	35·5	35·0	33·1	34·5	34·9	33·7	34·3	30·4	32·3	32·7
24	35·2	33·8	34·4	35·0	33·4	34·8	35·1	33·0	33·5	31·5	32·5	32·6
25	35·2	35·1	35·2	34·1	33·9	34·9	35·4	33·0	34·3	32·6	32·9	32·5
26	35·0	34·2	34·9	34·3	34·7	35·4	34·4	33·7	33·5	32·6	32·8	32·4
27	35·2	34·4	34·3	34·6	33·5	35·4	34·6	35·4	33·4	32·0	32·6	32·8
28	35·1	34·8	34·4	34·0	34·3	35·8	34·1	34·1	33·3	32·1	32·7	32·3
29	33·8		34·6	34·5	34·1	34·6	35·3	34·6	34·0	32·4	32·9	32·3
30	34·6		35·1	35·6	34·5	33·8	34·5	33·3	32·8	32·8	33·2	32·4
31	35·3		34·9		35·2		35·1	34·2		33·3		32·6

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

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

1899.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	′	′	′	′	′	′	′	′	′	′	′	′
Midn.	0·4	0·2	0·2	1·5	1·6	2·6	2·9	2·4	1·4	0·8	0·4	0·7
1h	0·6	0·6	0·3	1·7	1·5	2·4	2·8	2·2	1·7	1·1	0·8	1·2
2	0·6	0·7	0·1	2·0	1·5	2·3	2·5	2·3	1·9	1·3	1·3	1·5
3	0·6	0·8	0·0	1·8	1·5	2·5	2·4	2·0	1·6	1·2	1·5	1·8
4	0·6	1·0	0·1	1·7	1·4	1·9	1·9	1·7	1·5	1·2	1·4	1·6
5	0·7	1·2	0·5	1·7	0·9	1·1	0·8	1·1	1·5	1·2	1·3	1·4
6	0·9	1·4	0·8	1·1	0·4	0·5	0·3	0·2	1·3	1·0	1·1	1·5
7	1·2	1·6	0·6	0·4	0·0	0·0	0·0	0·0	0·5	0·6	0·9	1·6
8	1·5	1·7	0·3	0·0	0·1	0·0	0·3	0·3	0·0	0·0	0·6	1·5
9	1·9	2·1	0·6	0·3	1·2	0·9	1·3	1·4	0·8	0·2	0·6	1·6
10	2·7	3·0	1·8	2·0	3·1	2·6	3·0	3·6	2·7	1·6	1·7	2·2
11	3·5	4·1	4·0	4·7	5·9	5·3	5·2	6·1	5·4	3·7	3·3	3·0
Noon.	4·1	4·8	6·2	7·6	7·8	7·5	7·4	8·2	7·8	5·5	4·4	3·8
13h	3·8	5·2	7·5	9·0	8·5	8·7	8·3	9·0	8·4	6·1	4·6	4·0
14	2·9	4·4	6·9	8·7	8·1	9·1	8·3	8·7	7·5	5·5	3·9	3·6
15	2·1	3·3	5·4	7·3	6·7	8·4	7·5	7·4	6·0	4·3	2·9	2·9
16	1·7	2·4	3·6	5·8	5·3	7·2	6·3	5·9	4·1	2·9	2·5	2·4
17	1·7	2·0	2·8	4·5	4·4	6·0	5·2	4·5	2·9	2·5	2·3	2·0
18	1·5	1·7	2·0	3·5	3·5	5·1	4·4	3·7	2·5	2·1	1·7	1·2
19	1·0	1·1	1·4	2·8	2·8	4·6	3·7	3·5	2·2	1·2	1·3	0·7
20	0·3	0·9	1·1	2·4	2·2	4·0	3·6	3·3	1·8	0·8	0·7	0·2
21	0·2	0·2	0·6	1·9	1·7	3·6	3·6	3·0	1·7	0·3	0·1	0·0
22	0·0	0·0	0·0	1·4	1·5	3·5	3·3	2·8	1·5	0·2	0·0	0·2
23	0·1	0·0	0·0	1·3	1·6	3·0	2·9	2·4	1·3	0·4	0·1	0·3
Means	1′·44	1′·85	1′·95	3′·13	3′·05	3′·87	3′·66	3′·57	2′·83	1′·90	1′·64	1′·70

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.*)

1899.

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	691	259	643	239	738	308	933	546	227	809	314	939	780	374	747	404	784	441	722	316	883	453	002	601
2	690	265	657	237	727	333	975	574	201	783	285	922	827	399	651	303	794	449	748	354	878	506	995	567
3	669	239	670	240	727	323	936	549	247	841	274	919	840	415	725	395	792	442	758	340	893	511	976	558
4	668	269	653	228	776	358	920	540	139	721	320	943	817	380	670	353	787	454	739	359	839	467	012	625
5	690	282	682	262	753	342	940	508	154	729	320	943	802	384	756	439	778	468	753	369	887	500	068	650
6	686	285	705	287	792	364	912	513	209	781	322	957	827	423	828	529	799	515	759	327	888	477	072	673
7	772	352	770	357	...	...	909	496	220	778	321	956	778	420	863	546	804	513	716	291	834	464	031	618
8	767	380	758	376	...	...	884	464	260	825	321	934	752	394	850	512	785	486	830	453	867	463	945	520
9	764	375	793	413	...	...	847	446	269	834	390	018	757	394	836	491	734	379	888	475	903	463	018	571
10	778	382	874	451	...	...	920	512	242	848	443	071	755	392	811	443	725	353	895	467	888	499	108	697
11	685	303	915	495	...	...	986	546	284	868	526	127	789	434	864	477	743	342	914	518	835	422	178	717
12	719	272	679	230	...	...	130	717	200	796	484	131	741	411	885	522	760	380	953	557	837	433	180	713
13	633	249	665	278	...	...	163	781	252	844	443	061	736	371	905	555	783	399	905	487	878	479	123	705
14	670	262	801	345	...	...	220	804	217	864	428	008	747	358	922	564	806	436	878	458	893	482	147	691
15	670	247	786	361	...	...	204	800	276	860	456	050	733	346	908	591	784	390	807	411	872	488	188	732
16	666	270	792	364	...	...	183	777	188	775	425	062	744	362	829	527	799	400	841	454	933	522	219	789
17	631	220	770	364	...	...	172	778	224	818	475	100	768	386	850	515	827	414	807	449	967	532	200	744
18	701	281	819	384	...	...	079	671	282	881	470	102	757	387	819	486	770	357	849	457	959	529	212	770
19	692	312	829	406	...	...	092	662	313	905	478	106	733	388	862	537	754	353	914	496	938	546	180	731
20	752	324	790	389	...	...	089	697	361	936	506	143	741	413	844	516	760	332	932	507	946	545	141	721
21	758	357	783	343	...	...	128	727	332	928	505	152	797	487	802	449	748	316	874	514	944	550	150	730
22	790	346	793	368	638	218	152	739	345	934	584	216	782	483	810	430	765	347	896	500	938	546	126	698
23	687	259	764	344	601	176	156	755	316	903	678	284	823	500	816	471	755	325	844	452	969	539	130	714
24	626	189	738	318	615	192	206	826	310	909	648	264	831	461	853	536	761	324	844	479	930	536	130	748
25	645	208	721	327	681	261	192	772	306	876	675	271	795	425	828	518	789	385	904	515	967	561	175	750
26	657	225	728	288	704	315	209	801	308	878	702	330	782	424	811	494	737	326	919	532	983	567	146	740
27	686	249	770	335	738	361	241	854	266	841	748	398	766	416	830	531	714	298	897	508	005	587	146	704
28	655	242	725	302	738	383	273	857	260	849	843	461	761	386	820	513	710	278	853	469	986	606	149	707
29	548	130			837	436	297	893	257	853	778	401	782	405	924	601	692	260	842	448	999	581	168	776
30	633	222			829	440	262	837	312	894	667	263	780	437	873	550	714	306	874	490	988	560	125	702
31	632	231			884	478			373	977			785	457	836	493			878	460			137	697

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.

1899.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d 1	66°.4	67°.6	66°.5	68°.3	67°.0	68°.8	67°.5	70°.1	70°.1	67°.5	66°.5	67°.7
2	66.7	66.9	68.0	67.7	67.0	69.3	66.6	69.9	70.0	68.0	68.9	66.6
3	66.5	66.5	67.6	68.3	67.5	69.6	66.7	70.6	69.8	67.0	68.5	67.0
4	67.8	66.7	67.0	68.6	67.0	68.7	66.2	71.1	70.5	68.6	68.9	68.3
5	67.4	66.9	67.3	66.4	66.7	68.7	67.0	71.1	71.4	68.4	68.3	67.0
6	67.7	67.0	66.6	67.8	66.6	69.2	67.6	71.8	72.4	66.4	67.3	67.8
7	66.9	67.2	...	67.2	66.0	69.2	69.5	71.1	72.1	66.7	69.0	67.2
8	68.3	68.5	...	66.9	66.3	68.3	69.5	70.3	71.8	68.7	67.6	66.7
9	68.2	68.6	...	67.7	66.3	68.9	69.3	70.0	69.6	67.2	66.1	65.8
10	67.9	66.8	...	67.4	68.0	68.9	69.3	69.1	68.9	66.6	68.2	67.3
11	68.5	66.9	...	66.1	67.1	67.8	69.6	68.3	67.7	67.9	67.2	65.2
12	65.8	65.7	...	67.2	67.6	69.7	70.6	69.3	68.6	67.9	67.6	64.9
13	68.4	68.3	...	68.5	67.4	68.5	69.2	69.8	68.4	67.0	67.8	67.0
14	67.4	65.4	...	67.1	69.7	66.9	68.2	69.5	69.0	66.9	67.3	65.4
15	66.8	66.7	...	67.6	67.1	67.5	68.3	71.1	68.0	67.9	68.4	65.4
16	67.9	66.6	...	67.5	67.2	69.3	68.5	71.7	67.8	68.3	67.3	66.5
17	67.3	67.5	...	68.0	67.5	68.8	68.5	70.4	67.2	69.5	66.3	65.4
18	66.9	66.3	...	67.4	67.7	69.1	69.0	70.5	67.2	68.1	66.5	66.0
19	68.6	66.8	...	66.5	67.4	68.9	70.0	70.8	67.7	67.0	68.1	65.7
20	66.6	67.7	...	68.1	66.7	69.3	70.7	70.7	66.6	66.7	67.7	66.9
21	67.7	66.1	...	67.7	67.6	69.7	71.4	69.7	66.4	69.4	68.0	66.9
22	65.9	66.7	66.9	67.2	67.3	69.1	71.8	68.6	67.0	67.9	68.1	66.6
23	66.6	66.9	66.7	67.7	67.2	68.0	70.9	70.0	66.5	68.1	66.5	67.1
24	66.2	66.9	66.8	68.6	67.7	68.4	69.0	71.1	66.2	69.2	68.0	68.5
25	66.2	68.0	66.9	66.9	66.5	67.6	69.0	71.4	67.6	68.2	67.5	66.7
26	66.4	66.1	68.2	67.4	66.5	68.9	69.5	71.1	67.3	68.3	67.1	67.5
27	66.2	66.3	68.7	68.3	66.7	69.8	69.8	71.8	67.1	68.2	67.0	66.0
28	67.2	66.8	69.6	67.1	67.3	68.5	68.8	71.5	66.4	68.4	68.6	66.0
29	67.0		67.7	67.6	67.6	68.7	68.7	70.9	66.4	68.0	67.0	68.1
30	67.3		68.2	66.7	67.0	67.6	70.1	70.9	67.4	68.4	66.6	66.8
31	67.7		67.5		67.9		70.7	70.1		67.0		66.1
Means	67°.17	66°.94	67°.51	67°.52	67°.20	68°.72	69°.08	70°.46	68°.44	67°.85	67°.60	66°.65

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.)*

1899.

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.	18	23	62	74	90	114	132	144	168	173	147	166	133	153	145	170	164	183	91	110	48	65	13	36
1h	8	13	56	66	89	108	122	134	168	173	143	160	131	148	146	166	151	170	91	108	44	61	10	31
2	7	9	52	59	87	101	115	125	159	161	129	141	116	131	140	158	142	159	93	107	48	65	16	35
3	12	14	49	56	82	91	120	125	151	153	127	137	111	121	133	148	144	158	101	113	57	69	25	39
4	19	19	52	57	98	105	118	120	141	141	126	133	108	116	122	135	148	160	104	111	69	78	36	45
5	24	24	67	70	110	115	121	123	128	128	124	131	104	109	108	116	146	156	107	112	77	84	49	56
6	30	30	77	80	119	121	121	121	104	104	110	115	92	97	89	94	137	144	111	113	83	90	55	59
7	36	38	79	82	108	110	107	109	64	64	80	83	59	62	59	62	115	120	100	102	78	83	56	60
8	26	28	62	65	73	75	79	81	32	32	41	44	27	27	32	35	75	77	66	66	62	67	37	39
9	9	9	28	31	29	31	40	42	7	7	10	10	6	6	12	12	33	33	27	27	26	31	13	15
10	0	0	10	10	0	0	9	11	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
11	5	5	0	0	3	5	0	0	17	17	18	21	17	20	15	15	10	10	7	7	0	0	7	6
Noon.	19	19	7	10	42	47	23	23	61	63	39	44	45	50	58	61	45	47	21	23	17	19	15	17
13h	42	44	31	34	75	80	47	47	89	91	72	79	79	87	106	114	73	78	43	48	31	36	14	18
14	42	44	50	55	99	106	89	87	120	122	112	122	104	116	134	147	99	106	70	77	44	53	10	19
15	19	21	55	60	105	114	129	127	151	153	140	152	126	141	147	162	119	131	82	92	55	67	5	21
16	2	2	44	49	105	112	159	154	179	179	164	179	139	156	144	164	141	153	86	96	60	72	0	16
17	22	22	42	45	105	112	169	162	205	205	190	205	164	184	148	168	144	158	98	110	63	77	4	27
18	38	35	54	57	105	110	175	165	224	221	210	225	181	201	168	191	155	169	104	116	63	77	16	39
19	37	32	69	72	121	128	174	164	226	221	220	235	193	213	185	210	166	180	110	122	65	77	20	43
20	29	19	67	67	120	127	171	161	216	209	218	233	183	203	177	202	167	184	114	126	65	74	18	39
21	22	10	72	70	109	116	161	154	202	195	193	208	164	186	168	193	168	185	113	125	63	72	15	34
22	23	13	69	69	108	120	155	155	183	178	178	195	158	180	161	189	169	186	110	122	61	70	14	33
23	26	23	62	69	109	130	152	159	172	174	169	188	142	164	155	183	170	189	100	117	57	71	15	36
Means corrected for Temperature.	20·7		54·5		94·9		112·2		131·8		133·6		119·6		129·0		130·7		89·6		60·8		31·8	

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

1899.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	67°·4	67°·3	68°·2	68°·0	67°·4	69°·1	69°·4	70°·9	68°·8	68°·3	67°·9	67°·1	68°·32
1h	67·4	67·2	68·0	68·0	67·4	69·0	69·3	70·7	68·8	68·2	67·9	67·0	68·24
2	67·3	67·1	67·8	67·9	67·3	68·8	69·2	70·6	68·7	68·1	67·9	66·9	68·13
3	67·3	67·1	67·6	67·7	67·3	68·7	69·0	70·5	68·6	68·0	67·7	66·7	68·02
4	67·2	67·0	67·5	67·6	67·2	68·6	68·9	70·4	68·5	67·8	67·6	66·5	67·90
5	67·2	66·9	67·4	67·6	67·2	68·6	68·8	70·2	68·4	67·7	67·5	66·4	67·82
6	67·2	66·9	67·3	67·5	67·2	68·5	68·8	70·1	68·3	67·6	67·5	66·3	67·77
7	67·3	66·9	67·3	67·6	67·2	68·4	68·7	70·0	68·2	67·6	67·4	66·3	67·74
8	67·3	66·9	67·3	67·6	67·2	68·4	68·6	70·0	68·1	67·5	67·4	66·2	67·71
9	67·2	66·9	67·3	67·6	67·2	68·3	68·6	69·9	68·0	67·5	67·4	66·2	67·68
10	67·2	66·8	67·2	67·6	67·2	68·3	68·6	69·9	68·0	67·5	67·3	66·1	67·64
11	67·2	66·8	67·3	67·5	67·2	68·4	68·7	69·9	68·0	67·5	67·2	66·1	67·65
Noon.	67·2	66·9	67·4	67·5	67·3	68·5	68·8	70·0	68·1	67·6	67·3	66·2	67·73
13h	67·3	66·9	67·4	67·5	67·3	68·6	68·9	70·2	68·2	67·7	67·4	66·3	67·81
14	67·3	67·0	67·5	67·4	67·3	68·7	69·1	70·4	68·3	67·8	67·6	66·5	67·91
15	67·3	67·0	67·6	67·4	67·3	68·8	69·2	70·5	68·5	67·9	67·7	66·8	68·00
16	67·2	67·0	67·5	67·3	67·2	68·9	69·3	70·7	68·5	67·9	67·7	66·8	68·00
17	67·2	66·9	67·5	67·2	67·2	68·9	69·4	70·7	68·6	68·0	67·8	67·1	68·04
18	67·1	66·9	67·4	67·1	67·1	68·9	69·4	70·8	68·6	68·0	67·8	67·1	68·02
19	67·0	66·9	67·5	67·1	67·0	68·9	69·4	70·9	68·6	68·0	67·7	67·1	68·01
20	66·8	66·8	67·5	67·1	66·9	68·9	69·4	70·9	68·7	68·0	67·6	67·0	67·97
21	66·7	66·7	67·5	67·2	66·9	68·9	69·5	70·9	68·7	68·0	67·6	66·9	67·96
22	66·8	66·8	67·7	67·5	67·0	69·0	69·5	71·0	68·7	68·0	67·6	66·9	68·04
23	67·1	67·1	68·1	67·8	67·3	69·1	69·5	71·0	68·8	68·2	67·8	67·0	68·23

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.)*

1899.

Day of Month.	January.		February.		March.		April.		May.		June.	
	u	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*
d												
1	431	697	454	708	338	615	358	578	323	583	324	563
2	428	701	418	689	362	614	336	590	287	545	...	...
3	413	686	394	669	358	608	354	591	328	578	357	602
4	462	709	383	641	342	596	377	584	299	553	343	597
5	465	715	404	666	345	592	335	597	304	562	358	610
6	473	723	379	633	310	572	356	587	293	555	380	623
7	457	717	386	642	309	565	363	617	286	554	388	629
8	485	711	432	665	325	562	334	590	275	556	376	621
9	513	746	439	670	325	581	351	603	283	560	381	607
10	492	752	429	689	324	571	340	596	320	567	370	603
11	510	745	428	686	323	573	313	592	317	577	333	589
12	454	731	408	679	342	575	318	576	322	565	336	552
13	504	745	504	749	376	600	353	582	332	579	332	577
14	478	734	426	720	358	603	323	579	366	571	320	582
15	471	735	441	699	358	589	321	562	323	583	315	567
16	481	735	447	718	342	594	319	554	309	571	323	558
17	485	732	435	691	346	598	339	565	336	590	341	580
18	461	715	407	682	336	598	342	583	346	587	...	...
19	506	737	416	663	322	557	308	560	345	599	...	...
20	470	741	440	685	305	586	323	549	325	583	...	...
21	496	750	395	670	284	555	330	571	342	581	...	...
22	468	734	369	635	259	515	308	570	352	604	...	...
23	482	736	377	641	307	575	306	547	345	588	...	...
24	477	745	366	628	287	537	327	549	377	608	365	600
25	449	720	395	632	303	557	286	546	355	621	350	623
26	432	703	340	629	320	555	300	558	337	591	360	591
27	406	679	320	605	347	561	319	558	320	580	404	618
28	441	699	326	588	373	576	317	571	320	557	...	...
29	448	712			331	574	329	581	338	585	318	570
30	427	685			344	583	315	579	318	582	347	611
31	438	681			345	578			306	564		

Day of Month.	July.		August.		September.		October.		November.		December.	
	u	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*
d												
1	383	654	445	641	403	599	255	496	189	455	116	361
2	360	637	443	644	404	602	270	505	226	438	104	372
3	378	642	448	631	398	601	240	496	235	468	104	349
4	328	607	457	636	417	600	267	500	244	481	124	359
5	370	626	475	650	427	592	264	499	244	477	107	352
6	386	638	489	651	453	601	232	500	233	483	119	362
7	417	646	504	679	464	620	224	484	234	456	120	370
8	442	660	471	665	467	632	250	468	217	467	108	381
9	452	672	454	650	426	635	228	484	177	450	101	367
10	465	685	427	651	392	621	194	456	195	415	095	347
11	476	688	405	634	355	609	205	429	194	429	050	339
12	503	704	405	612	346	577	210	451	192	433	023	304
13	504	726	416	614	349	580	205	467	186	431	054	301
14	464	705	423	632	355	579	188	456	163	429	027	298
15	455	694	438	609	345	590	200	437	190	431	007	292
16	459	694	473	635	330	582	201	432	177	429	003	250
17	442	675	453	641	315	575	227	439	...	...	992	260
18	442	664	440	623	320	584	208	434	...	...	001	265
19	462	658	426	605	305	555	186	436	144	396	006	260
20	490	673	447	622	293	564	175	433	155	400	041	280
21	505	676	417	618	269	537	205	419	149	386	023	270
22	527	694	378	598	264	520	189	434	145	386	021	266
23	521	704	405	597	...	...	193	432	123	375	029	285
24	471	693	437	606	...	...	212	436	145	390	047	265
25	473	697	457	615	260	497	200	443	145	378	037	295
26	465	674	458	620	259	494	201	436	154	389	025	275
27	473	678	453	603	257	500	205	440	141	384	000	256
28	426	650	451	611	255	515	219	454	160	397	986	231
29	407	631	424	603	238	494	226	471	137	382	...	...
30	429	623	416	593	238	464	233	480	114	374	...	...
31	450	636	399	595			209	482			...	...

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.

1899.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d												
1	66°·6	67°·2	66°·1	68°·8	66°·9	67°·9	66°·4	69°·9	69°·9	67°·8	66°·6	67°·6
2	66·3	66·4	67·3	67·2	67·0	...	66·1	69·7	69·8	68·1	69·2	66·5
3	66·3	66·2	67·4	68·0	67·4	67·6	66·7	70·5	69·6	67·1	68·2	67·6
4	67·5	67·0	67·2	69·4	67·2	67·2	66·0	70·7	70·5	68·2	68·0	68·1
5	67·4	66·8	67·5	66·8	67·0	67·3	67·1	70·9	71·4	68·1	68·2	67·6
6	67·4	67·2	66·8	68·3	66·8	67·7	67·3	71·5	72·2	66·5	67·4	67·7
7	66·9	67·1	67·1	67·2	66·5	67·8	68·4	70·9	71·8	66·9	68·7	67·4
8	68·5	68·2	68·0	67·1	65·9	67·6	68·9	70·0	71·4	68·9	67·4	66·3
9	68·2	68·3	67·1	67·3	66·1	68·5	68·8	69·9	69·3	67·1	66·3	66·6
10	66·9	66·9	67·5	67·1	67·5	68·2	68·8	68·6	68·4	66·8	68·8	67·3
11	68·1	67·0	67·4	66·0	66·9	67·1	69·2	68·4	67·2	68·6	68·1	65·5
12	66·1	66·4	68·2	67·0	67·7	69·0	69·7	69·4	68·3	67·8	67·8	65·9
13	67·8	67·6	68·6	68·4	67·5	67·6	68·7	69·8	68·3	66·8	67·6	67·5
14	67·1	65·3	67·6	67·1	69·5	66·8	67·8	69·3	68·6	66·5	66·6	66·4
15	66·7	67·0	68·3	67·8	66·9	67·3	67·9	71·1	67·6	68·0	67·8	65·7
16	67·2	66·4	67·3	68·1	66·8	68·1	68·1	71·5	67·3	68·3	67·3	67·5
17	67·5	67·1	67·3	68·5	67·2	67·9	68·2	70·3	66·9	69·2	...	66·5
18	67·2	66·2	66·8	67·8	67·8	...	68·7	70·5	66·7	68·5	...	66·7
19	68·3	67·5	68·1	67·3	67·2	...	69·9	70·7	67·4	67·4	67·3	67·2
20	66·4	67·6	65·9	68·5	67·0	...	70·5	70·9	66·4	67·0	67·6	67·9
21	67·2	66·2	66·4	67·8	67·9	...	71·1	69·7	66·5	69·1	68·0	67·5
22	66·6	66·6	67·1	66·8	67·3	...	71·3	68·8	67·1	67·6	67·8	67·6
23	67·2	66·7	66·5	67·8	67·7	...	70·5	70·1	...	67·9	67·3	67·1
24	66·5	66·8	67·4	68·7	68·3	68·1	68·7	71·2	...	68·6	67·6	68·9
25	66·4	68·0	67·2	66·9	66·6	66·3	68·6	71·7	68·0	67·7	68·2	67·0
26	66·4	65·5	68·1	67·0	67·2	68·3	69·3	71·5	68·1	68·1	68·1	67·4
27	66·3	65·7	69·1	67·9	66·9	69·1	69·5	72·1	67·7	68·1	67·7	67·1
28	67·0	66·8	69·6	67·2	68·0	...	68·6	71·6	66·9	68·1	68·0	67·6
29	66·7		67·7	67·3	67·5	67·3	68·6	70·7	67·1	67·6	67·6	...
30	67·0		67·9	66·7	66·7	66·7	70·0	70·8	68·5	67·5	66·9	...
31	67·7		68·2		67·0		70·4	69·9		66·3		...
Means	67°·08	66°·85	67°·51	67°·59	67°·22	67°·70	68°·70	70°·41	68°·53	67°·75	67°·72	67°·13

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.*)

1899.

Hour, Greenwich Civil Time.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	u	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*	*u*	*c*
Midnight.	15	12	13	8	37	20	49	35	35	30	30	18	32	18	35	16	26	8	26	12	17	3	23	2
1h	11	8	8	5	37	22	46	32	30	25	22	12	26	16	29	14	19	3	21	7	14	2	20	1
2	5	4	2	1	31	18	42	32	29	27	22	16	22	14	26	15	16	2	17	5	12	0	14	0
3	2	1	1	0	29	20	39	33	28	28	22	18	24	18	25	17	13	3	15	7	9	1	11	1
4	0	1	2	3	27	20	40	36	29	29	26	24	26	22	27	23	13	5	13	7	6	0	9	3
5	0	1	0	3	23	21	37	35	30	32	28	28	29	28	30	28	12	9	13	11	4	2	6	4
6	1	2	0	3	22	22	41	39	32	34	29	29	28	29	34	34	17	16	13	11	4	5	6	6
7	5	4	2	5	26	26	44	44	33	35	33	36	29	32	34	38	20	21	19	20	8	9	8	8
8	4	5	3	6	28	28	40	40	28	30	29	34	28	33	29	36	18	21	19	22	9	10	8	10
9	3	4	5	10	21	23	29	29	19	21	21	28	21	26	17	24	11	18	14	17	9	12	5	7
10	2	5	4	11	9	11	17	20	6	8	10	15	11	14	8	15	2	7	4	7	2	5	2	7
11	0	3	1	6	0	0	6	9	0	2	0	3	0	1	1	5	0	3	0	1	0	5	0	2
Noon.	1	0	2	3	1	1	0	0	0	0	2	0	4	0	0	0	1	0	4	0	4	5	3	1
13h	10	7	11	10	13	11	10	10	16	14	18	12	14	6	9	5	14	9	14	6	14	8	13	5
14	18	17	19	18	29	24	29	32	33	31	29	23	31	21	26	20	29	19	25	15	25	17	22	10
15	24	25	27	28	42	37	43	46	44	44	37	31	43	31	40	29	37	27	32	24	27	19	28	12
16	26	27	29	32	51	46	52	55	51	53	49	43	53	39	48	33	40	28	33	23	25	15	30	9
17	31	32	31	36	55	53	59	64	57	61	57	51	61	45	55	38	41	29	32	22	30	18	36	13
18	31	34	30	33	54	52	63	68	61	65	63	57	63	47	55	36	37	23	35	25	28	16	38	13
19	25	30	27	32	51	46	61	66	60	66	64	58	61	45	52	33	36	22	34	22	26	16	34	11
20	22	29	21	28	50	45	57	62	55	63	60	54	54	38	48	27	36	20	32	22	23	13	30	9
21	16	27	16	23	45	43	54	54	48	56	53	45	49	33	49	28	33	17	30	20	21	13	26	10
22	14	23	11	16	38	31	52	48	43	47	48	38	44	28	46	25	31	15	28	18	20	12	25	11
23	16	17	12	11	38	23	51	41	38	36	42	30	39	23	41	20	26	10	28	14	15	3	23	4
Means corrected for Temperature.	13·2		13·8		26·8		38·7		34·9		29·3		25·3		23·3		14·0		14·1		8·7		6·6	

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

1899.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	67°·3	67°·2	68°·1	68°·2	67°·5	68°·1	69°·0	70°·9	69°·0	68°·1	68°·1	67°·6	68°·26
1h	67·3	67·1	68·0	68·2	67·5	68·0	68·8	70·7	68·9	68·1	68·0	67·5	68·18
2	67·2	67·0	67·9	68·0	67·4	67·8	68·7	70·5	68·8	68·0	68·0	67·3	68·05
3	67·2	67·0	67·7	67·8	67·3	67·7	68·6	70·4	68·6	67·8	67·8	67·1	67·92
4	67·1	66·9	67·6	67·7	67·3	67·6	68·5	70·2	68·5	67·7	67·7	66·9	67·81
5	67·1	66·8	67·4	67·6	67·2	67·5	68·4	70·1	68·3	67·5	67·5	66·7	67·67
6	67·1	66·8	67·3	67·6	67·2	67·5	68·3	70·0	68·2	67·5	67·4	66·6	67·63
7	67·2	66·8	67·3	67·5	67·2	67·4	68·2	69·8	68·1	67·4	67·4	66·6	67·57
8	67·1	66·8	67·3	67·5	67·2	67·3	68·1	69·7	68·0	67·3	67·4	66·5	67·52
9	67·1	66·7	67·2	67·5	67·2	67·2	68·1	69·7	67·8	67·3	67·3	66·5	67·47
10	67·0	66·6	67·2	67·4	67·2	67·3	68·2	69·7	67·9	67·3	67·3	66·4	67·46
11	67·0	66·7	67·3	67·4	67·2	67·4	68·3	69·8	68·0	67·4	67·2	66·5	67·52
Noon.	67·2	66·9	67·3	67·5	67·3	67·6	68·5	70·0	68·2	67·6	67·4	66·7	67·68
13h	67·3	67·0	67·4	67·5	67·4	67·8	68·7	70·2	68·4	67·8	67·7	67·0	67·85
14	67·2	67·0	67·5	67·4	67·4	67·8	68·8	70·3	68·6	67·9	67·8	67·2	67·91
15	67·1	66·9	67·5	67·4	67·3	67·8	68·9	70·5	68·6	67·8	67·8	67·4	67·92
16	67·1	66·8	67·5	67·4	67·2	67·8	69·0	70·7	68·7	67·9	67·9	67·6	67·97
17	67·1	66·7	67·4	67·3	67·1	67·8	69·1	70·8	68·7	67·9	68·0	67·7	67·97
18	67·0	66·8	67·4	67·3	67·1	67·8	69·1	70·9	68·8	67·9	68·0	67·8	67·99
19	66·9	66·7	67·5	67·3	67·0	67·8	69·1	70·9	68·8	68·0	67·9	67·7	67·97
20	66·8	66·6	67·5	67·3	66·9	67·8	69·1	71·0	68·9	67·9	67·9	67·6	67·94
21	66·6	66·6	67·4	67·5	66·9	67·9	69·1	71·0	68·9	67·9	67·8	67·4	67·92
22	66·7	66·7	67·6	67·7	67·1	68·0	69·1	71·0	68·9	67·9	67·8	67·3	67·98
23	67·1	67·0	68·0	68·0	67·4	68·1	69·1	71·0	68·9	68·1	68·0	67·5	68·18

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, 1899.	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 16° and expressed as Westerly Force (in terms of Gauss's Metrical Unit)	Horizontal Force (diminished by a Constant) (in terms of Gauss's Metrical Unit)	Vertical Force (diminished by a Constant) (in terms of Gauss's Metrical Unit)
January	16° 35'·5	274	721	1902	505	3154
February	16. 34·5	333	667	1848	613	2918
March	16. 35·4	331	578	1896	610	2529
April	16. 35·1	681	576	1880	1254	2520
May	16. 33·9	850	577	1816	1565	2524
June	16. 35·1	1118	594	1880	2059	2599
July	16. 34·9	1410	668	1870	2597	2922
August	16. 34·2	1493	625	1832	2750	2734
September	16. 33·7	1382	569	1805	2545	2489
October	16. 32·7	1449	459	1752	2668	2008
November	16. 32·8	1514	422	1757	2788	1846
December	16. 32·6	1689	308	1746	3110	1347
Means	16° 34'·2	......	......	1832	......	......
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 the whole Horizontal Force (applicable to columns 4 and 5) are 1·8416 and 0·18416 respectively for the year, and of whole Vertical Force (applicable to column 6) are 4·3748 and 0·43748 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 1899.

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

Hour, Greenwich Civil Time.	Inequality of			Inequality of		
	DECLINATION WEST in Arc.	HORIZONTAL FORCE in terms of the whole Horizontal Force.	VERTICAL FORCE in terms of the whole Vertical Force.	DECLINATION expressed as WESTERLY FORCE	HORIZONTAL FORCE	VERTICAL FORCE
				in terms of GAUSS'S METRICAL UNIT.		
Midnight.	0′·74	115·7	14·4	39·6	213·1	63·0
1h	0·89	109·6	11·4	47·7	201·8	49·9
2	0·98	102·3	10·4	52·5	188·4	45·5
3	0·95	100·1	11·5	50·9	184·3	50·3
4	0·81	99·8	13·6	43·4	183·8	59·5
5	0·60	100·1	16·0	32·1	184·3	70·0
6	0·36	95·4	18·4	19·3	175·7	80·5
7	0·10	79·4	22·4	5·4	146·2	98·0
8	0·00	51·1	22·1	0·0	94·1	96·7
9	0·55	19·3	17·4	29·5	35·5	76·1
10	1·98	0·0	9·6	106·1	0·0	42·0
11	4·00	6·9	2·5	214·3	12·7	10·9
Noon.	5·74	33·4	0·0	307·5	61·5	0·0
13h	6·40	61·1	7·8	342·8	112·5	34·1
14	5·95	85·9	19·8	318·7	158·2	86·6
15	4·83	101·5	28·6	258·7	186·9	125·1
16	3·66	109·1	32·8	196·1	200·9	143·5
17	2·88	121·0	37·7	154·3	222·8	164·9
18	2·22	131·9	38·3	118·9	242·9	167·6
19	1·67	139·5	36·5	89·5	256·9	159·7
20	1·25	135·1	33·4	67·0	248·8	146·1
21	0·89	127·1	29·9	47·7	234·1	130·8
22	0·68	123·9	25·2	36·4	228·2	110·2
23	0·60	123·4	18·5	32·1	227·3	80·9
Means . . .	2′·03	90·5	19·9	108·8	166·7	87·2
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 1·8416 and 0·18416 respectively, and of whole Vertical Force (applicable to column 6) are 4·3748 and 0·43748 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.)

1899.

Day of Month.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.
d	′		′		′		′		′		′		′		′		′		′		′		′	
1	3·6	117	6·2	98	7·2	134	10·3	243	13·9	227	10·0	298	5·2	215	9·9	200	8·7	348	6·7	210	6·3	182	6·9	120
2	4·3	136	5·8	118	5·9	166	12·0	235	13·2	311	9·9	337	4·5	524	10·2	175	8·5	200	7·2	154	5·8	180	7·9	262
3	9·5	158	5·3	83	7·1	188	8·4	111	16·1	263	7·2	285	13·6	205	12·9	226	7·9	278	5·4	126	8·3	107	7·0	105
4	7·7	131	3·4	106	6·7	68	10·5	287	14·1	400	7·4	294	11·8	463	9·1	231	7·0	246	7·7	179	11·6	190	3·5	100
5	5·8	190	3·5	71	5·7	83	9·7	213	15·7	361	10·5	226	8·6	315	8·1	478	9·6	217	7·0	163	6·6	217	5·2	51
6	5·1	97	4·3	139	9·9	114	10·6	210	5·4	198	10·8	170	9·0	207	9·5	253	8·0	231	12·4	314	6·5	189	3·5	76
7	3·7	70	3·8	108	...	...	10·6	245	11·9	235	11·0	137	12·4	220	9·2	220	9·6	173	8·0	219	4·6	133	6·9	165
8	2·8	51	4·1	113	...	...	6·7	142	10·5	375	10·6	286	10·6	327	11·0	238	9·8	213	8·4	230	4·1	157	9·0	205
9	5·2	123	4·1	73	...	...	10·6	314	11·7	262	12·4	247	11·1	312	9·6	185	9·1	257	8·0	189	2·9	140	4·4	178
10	2·5	125	3·1	101	...	...	10·7	310	10·5	249	10·7	240	11·4	317	9·4	263	12·3	294	6·6	231	3·9	65	2·4	80
11	3·9	144	2·9	117	...	...	8·5	308	12·2	357	12·7	196	10·2	357	8·4	330	6·6	284	8·9	222	8·4	133	1·8	109
12	5·2	154	22·2	551	...	...	10·6	220	10·4	277	10·5	262	10·0	230	8·0	167	9·8	239	7·6	194	8·0	147	3·9	91
13	3·0	90	3·2	224	...	...	9·1	167	12·3	332	8·9	257	9·0	282	11·3	188	8·5	227	7·5	159	5·8	118	2·8	68
14	3·9	160	11·0	233	...	...	10·8	212	11·7	256	9·9	267	10·3	222	9·7	190	8·2	205	8·3	257	4·3	94	2·0	24
15	11·0	141	9·3	191	...	..	12·2	196	22·3	344	6·4	234	10·4	244	8·5	169	9·0	262	12·8	255	5·4	112	2·3	83
16	8·0	159	5·9	192	...	...	10·3	240	13·9	284	9·1	252	10·1	216	7·3	183	7·2	259	5·5	201	4·2	114	3·8	93
17	6·6	148	5·9	155	...	...	10·2	171	7·7	298	8·1	147	10·1	217	9·4	182	10·3	191	7·5	192	5·0	37	4·7	56
18	8·7	277	4·0	51	...	...	20·0	320	11·0	190	7·8	262	8·4	162	9·5	227	12·3	227	9·1	166	4·2	172	9·0	265
19	7·1	162	7·2	115	...	...	12·8	283	8·6	189	9·7	300	6·7	133	9·9	263	12·2	258	5·8	99	7·5	136	9·7	256
20	7·9	126	10·6	71	...	...	8·8	280	9·3	242	9·7	172	7·4	278	13·8	235	9·2	239	6·1	130	2·5	142	7·5	116
21	5·7	76	9·1	111	...	...	8·8	207	6·5	170	8·1	252	8·4	176	12·1	268	10·5	253	6·4	126	2·9	72	4·5	163
22	6·2	64	8·0	100	22·9	396	10·9	183	10·8	223	9·1	374	5·7	140	8·4	358	10·7	286	11·0	208	11·4	211	3·9	87
23	9·8	194	7·7	163	15·8	299	8·9	207	12·3	215	12·4	237	9·0	140	8·4	240	9·7	302	19·5	154	8·5	120	4·9	25
24	5·3	70	12·4	139	11·7	199	10·9	217	9·2	180	8·5	180	8·6	164	10·8	263	7·4	202	9·9	196	5·2	174	3·5	48
25	3·1	97	9·4	242	7·7	115	13·0	154	8·1	180	11·3	340	12·0	259	11·1	273	8·0	302	5·7	182	4·9	82	4·7	128
26	4·0	56	9·8	223	9·7	159	7·2	195	12·0	278	9·3	197	8·9	245	11·6	279	14·1	297	5·4	204	3·3	120	7·5	134
27	4·2	39	7·1	132	7·5	184	9·0	216	11·4	255	12·6	372	8·6	322	12·1	269	9·9	269	6·4	172	3·5	137	5·7	224
28	8·7	325	7·1	389	12·3	226	9·8	135	7·0	163	8·0	467	9·4	215	10·3	306	7·3	204	3·0	137	3·5	94	8·8	111
29	10·6	221			9·6	162	11·9	190	6·5	210	15·4	440	8·9	204	10·0	303	10·4	244	3·1	75	4·5	105	6·9	194
30	5·3	128			11·0	234	6·0	269	6·4	248	23·3	455	8·0	217	9·3	220	7·3	214	5·2	105	6·9	171	3·9	100
31	5·0	102			11·3	258			12·3	380			9·5	190	8·0	322			5·4	159			4·9	99
Means	5·9	133	7·0	157	10·1	187	10·3	223	11·1	263	10·4	273	9·3	249	9·9	249	9·3	247	7·7	181	5·7	135	5·3	123

The mean of the twelve monthly values is, for Declination 8′·50, and for Horizontal Force 201·7.

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, 1899.	Difference between the Greatest and Least of the 24 Hourly Values.			Sums of the 24 Hourly Deviations from the Mean Value.		
	Declination.	Horizontal Force.	Vertical Force.	Declination.	Horizontal Force.	Vertical Force.
	′			′		
January	4·1	44	34	23·0	232	256
February	5·2	82	36	29·0	409	245
March	7·5	130	53	46·0	670	281
April	9·0	165	68	51·9	997	324
May	8·5	221	66	51·4	1380	355
June	9·1	235	58	54·6	1374	309
July	8·3	213	47	46·9	1251	251
August	9·0	210	38	50·1	1303	213
September	8·4	189	29	44·2	1146	189
October	6·1	126	25	34·7	754	162
November	4·6	90	19	24·8	446	131
December	4·0	60	13	20·7	295	87
Means	6′·98	147·1	40·5	39′·77	854·7	233·6

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, 1899.	m	a_1	b_1	a_2	b_2	a_3	b_3	a_4	b_4
				DECLINATION WEST.					
January	1′·44	− 1′·51	− 0′·07	+ 0′·51	+ 0′·19	− 0′·25	+ 0′·15	+ 0′·27	+ 0′·06
February	1·85	− 1·95	− 0·17	+ 0·53	+ 0·45	− 0·38	− 0·08	+ 0·21	+ 0·18
March	1·95	− 2·49	− 1·26	+ 0·92	+ 1·10	− 0·53	− 0·64	+ 0·35	+ 0·39
April	3·13	− 2·21	− 1·84	+ 1·08	+ 1·79	− 0·74	− 0·65	+ 0·29	+ 0·28
May	3·05	− 2·38	− 1·80	+ 1·35	+ 1·33	− 0·71	− 0·28	+ 0·28	+ 0·04
June	3·87	− 1·78	− 2·73	+ 1·11	+ 1·50	− 0·60	− 0·44	+ 0·05	+ 0·04
July	3·66	− 1·62	− 2·31	+ 1·36	+ 1·27	− 0·54	− 0·31	0·00	+ 0·06
August	3·57	− 2·12	− 2·08	+ 1·58	+ 1·24	− 0·78	− 0·36	+ 0·07	+ 0·09
September	2·83	− 2·13	− 1·22	+ 1·41	+ 1·29	− 0·91	− 0·55	+ 0·36	+ 0·22
October	1·90	− 1·69	− 0·77	+ 0·84	+ 1·22	− 0·59	− 0·32	+ 0·42	+ 0·21
November	1·64	− 1·37	− 0·35	+ 0·45	+ 0·89	− 0·51	− 0·03	+ 0·31	+ 0·11
December	1·70	− 1·28	+ 0·11	+ 0·43	+ 0·74	− 0·16	− 0·03	+ 0·12	+ 0·09
For the Year	2·03	− 1·88	− 1·21	+ 0·97	+ 1·09	− 0·56	− 0·30	+ 0·23	+ 0·15
				HORIZONTAL FORCE.					
January	20·7	− 2·4	− 1·4	− 4·2	+ 2·5	− 0·5	− 7·4	+ 7·2	+ 8·6
February	54·5	+ 20·8	− 0·6	− 13·5	+ 1·6	+ 7·5	− 13·3	+ 0·6	+ 9·4
March	94·9	+ 32·2	− 18·2	− 19·9	+ 13·9	+ 6·0	− 22·5	+ 5·1	+ 9·8
April	112·2	+ 51·8	− 32·1	− 31·4	+ 11·7	+ 13·3	− 10·6	+ 0·6	+ 1·7
May	131·8	+ 62·7	− 62·6	− 23·3	+ 27·0	− 4·1	− 3·5	+ 6·5	+ 3·7
June	133·6	+ 64·0	− 66·1	− 31·2	+ 15·3	− 2·5	− 9·8	+ 5·9	+ 3·2
July	119·6	+ 55·9	− 62·9	− 21·8	+ 16·6	− 4·6	− 8·4	+ 6·3	+ 4·2
August	129·0	+ 58·9	− 59·7	− 11·9	+ 25·5	− 4·9	− 13·3	+ 0·2	+ 8·9
September	130·7	+ 66·9	− 29·1	− 24·1	+ 18·0	+ 3·8	− 17·8	+ 4·5	+ 4·5
October	89·6	+ 42·5	− 14·4	− 23·9	+ 11·2	+ 2·7	− 13·8	+ 1·3	+ 5·8
November	60·8	+ 20·4	− 3·6	− 22·2	+ 7·8	+ 5·8	− 11·5	+ 1·3	+ 4·5
December	31·8	+ 12·2	+ 6·3	− 12·8	+ 0·7	− 1·2	− 6·8	+ 5·6	+ 4·7
For the Year	90·5	+ 40·5	− 28·7	− 20·0	+ 12·7	+ 1·8	− 11·6	+ 3·8	+ 5·8
				VERTICAL FORCE.					
January	13·2	+ 2·3	− 15·2	− 4·8	− 1·6	+ 2·4	− 0·1	− 1·1	− 0·4
February	13·8	− 1·8	− 14·6	− 6·2	− 0·9	+ 2·2	+ 1·2	− 1·5	− 0·9
March	26·8	+ 4·9	− 13·3	− 13·2	− 0·8	+ 4·9	+ 0·5	− 3·2	+ 1·1
April	38·7	+ 10·0	− 13·1	− 17·0	− 2·2	+ 5·5	+ 0·3	− 2·7	+ 0·7
May	34·9	+ 10·2	− 16·8	− 16·8	− 1·3	+ 3·2	− 1·8	− 2·4	+ 1·7
June	29·3	+ 5·1	− 12·4	− 16·7	− 5·5	+ 2·8	− 0·9	− 2·2	+ 0·9
July	25·3	+ 3·7	− 7·8	− 14·6	− 2·3	+ 5·0	− 0·4	− 1·7	+ 0·4
August	23·3	+ 2·0	− 2·3	− 13·0	− 1·8	+ 5·7	− 2·1	− 1·5	+ 0·1
September	14·0	− 2·8	− 6·5	− 7·9	− 1·3	+ 5·3	− 2·4	− 2·0	+ 0·8
October	14·1	+ 0·5	− 5·7	− 6·6	− 2·3	+ 4·5	− 1·7	− 2·3	+ 1·2
November	8·7	− 3·2	− 6·2	− 3·2	− 1·1	+ 1·9	− 1·1	− 1·7	+ 1·1
December	6·6	− 1·4	− 3·4	− 3·2	− 1·5	+ 1·4	− 1·1	− 1·1	+ 0·1
For the Year	19·9	+ 2·5	− 9·8	− 10·3	− 1·9	+ 3·7	− 0·8	− 1·9	+ 0·6

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

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

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

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

Month, 1899.	m	c_1	α	α'	c_2	β	β'	c_3	γ	γ'	c_4	δ	δ'
						DECLINATION WEST.							
	′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′	′	° ′	° ′
January	1·44	1·51	267. 11	269. 34	0·54	69. 53	74. 39	0·29	302. 0	309. 9	0·28	76. 30	86. 2
February	1·85	1·95	265. 5	268. 35	0·70	49. 50	56. 50	0·39	257. 53	268. 23	0·28	49. 36	63. 36
March	1·95	2·79	243. 13	245. 23	1·44	39. 54	44. 14	0·83	219. 30	226. 0	0·52	41. 54	50. 34
April	3·13	2·88	230. 6	230. 8	2·09	31. 1	31. 5	0·99	228. 50	228. 56	0·40	45. 35	45. 43
May	3·05	2·99	232. 56	232. 4	1·90	45. 32	43. 48	0·77	248. 29	245. 53	0·29	81. 18	77. 50
June	3·87	3·26	213. 1	213. 6	1·87	36. 31	36. 41	0·75	233. 44	233. 59	0·06	51. 59	52. 19
July	3·66	2·82	215. 9	216. 31	1·86	46. 55	49. 39	0·62	239. 39	243. 45	0·07	3. 40	9. 8
August	3·57	2·97	225. 33	226. 30	2·01	51. 58	53. 52	0·86	245. 8	247. 59	0·11	37. 34	41. 22
September	2·83	2·45	240. 11	238. 56	1·91	47. 35	45. 5	1·07	239. 0	235. 15	0·43	58. 22	53. 22
October	1·90	1·86	245. 37	242. 7	1·48	34. 26	27. 26	0·67	241. 33	231. 3	0·47	63. 34	49. 34
November	1·64	1·42	255. 34	251. 54	1·00	27. 2	19. 42	0·52	266. 34	255. 34	0·33	70. 53	56. 13
December	1·70	1·28	274. 49	273. 48	0·86	29. 50	27. 48	0·16	260. 15	257. 12	0·15	53. 24	49. 20
For the Year	2·03	2·23	237. 14	237. 14	1·45	41. 39	41. 39	0·63	241. 59	241. 59	0·27	57. 27	57. 27
						HORIZONTAL FORCE.							
			° ′	° ′		° ′	° ′		° ′	° ′		° ′	° ′
January	20·7	2·8	239. 14	241. 37	4·9	301. 4	305. 50	7·4	183. 55	191. 4	11·2	40. 0	49. 32
February	54·5	20·8	91. 16	94. 46	13·6	276. 37	283. 37	15·3	150. 30	161. 0	9·5	3. 47	17. 47
March	94·9	37·0	119. 31	121. 41	24·3	305. 0	309. 20	23·3	165. 11	171. 41	11·1	27. 23	36. 3
April	112·2	60·9	121. 50	121. 52	33·5	290. 27	290. 31	17·0	128. 29	128. 35	1·8	18. 36	18. 44
May	131·8	88·6	134. 58	134. 6	35·7	319. 8	317. 24	5·4	229. 21	226. 45	7·5	60. 37	57. 9
June	133·6	92·0	135. 54	135. 59	34·7	296. 14	296. 24	10·1	194. 24	194. 39	6·7	61. 3	61. 23
July	119·6	84·1	138. 23	139. 45	27·4	307. 15	309. 59	9·6	208. 27	212. 33	7·6	56. 33	62. 1
August	129·0	83·9	135. 24	136. 21	28·1	335. 2	336. 56	14·2	200. 26	203. 17	9·0	1. 36	5. 24
September	130·7	73·0	113. 28	112. 13	30·1	306. 45	304. 15	18·2	167. 52	164. 7	6·3	45. 10	40. 10
October	89·6	44·9	108. 43	105. 13	26·4	295. 12	288. 12	14·1	168. 56	158. 26	6·0	12. 28	358. 28
November	60·8	20·7	99. 54	96. 14	23·5	289. 29	282. 9	12·9	153. 13	142. 13	4·7	16. 35	1. 55
December	31·8	13·8	62. 39	61. 38	12·8	272. 59	270. 57	7·0	189. 48	186. 45	7·3	50. 10	46. 6
For the Year	90·5	49·6	125. 18	125. 18	23·7	302. 19	302. 19	11·7	171. 17	171. 17	6·9	33. 15	33. 15
						VERTICAL FORCE.							
			° ′	° ′		° ′	° ′		° ′	° ′		° ′	° ′
January	13·2	15·4	171. 20	173. 43	5·1	251. 39	256. 25	2·4	92. 11	99. 20	1·2	252. 20	261. 52
February	13·8	14·7	186. 53	190. 23	6·3	261. 32	268. 32	2·5	61. 45	72. 15	1·7	237. 9	251. 9
March	26·8	14·2	159. 55	162. 5	13·2	266. 43	271. 3	4·9	84. 2	90. 32	3·4	288. 39	297. 19
April	38·7	16·5	142. 45	142. 47	17·1	262. 35	262. 39	5·6	87. 20	87. 26	2·8	285. 13	285. 21
May	34·9	19·7	148. 50	147. 58	16·8	265. 38	263. 54	3·7	119. 57	117. 21	2·9	304. 55	301. 27
June	29·3	13·4	157. 40	157. 45	17·6	251. 40	251. 50	3·0	107. 10	107. 25	2·4	293. 6	293. 26
July	25·3	8·7	154. 31	155. 53	14·8	261. 2	263. 46	5·0	94. 13	98. 19	1·7	281. 51	287. 19
August	23·3	3·1	139. 2	139. 59	13·2	262. 2	263. 56	6·1	110. 8	112. 59	1·5	272. 47	276. 35
September	14·0	7·1	203. 1	201. 46	8·0	260. 33	258. 3	5·8	114. 9	110. 24	2·1	292. 1	287. 1
October	14·1	5·7	174. 48	171. 18	7·0	250. 32	243. 32	4·8	110. 38	100. 8	2·6	296. 24	282. 24
November	8·7	7·0	207. 31	203. 51	3·4	250. 46	243. 26	2·2	119. 48	108. 48	2·0	302. 23	287. 43
December	6·6	3·7	202. 12	201. 11	3·5	244. 50	242. 48	1·7	127. 35	124. 32	1·1	273. 49	269. 45
For the Year	19·9	10·1	165. 54	165. 54	10·5	259. 39	259. 39	3·8	101. 57	101. 57	2·0	287. 20	287. 20

TABLE XVII.—RESULTS of OBSERVATIONS of MAGNETIC DIP made in the MAGNETIC PAVILION in the YEAR 1899.

Greenwich Civil Time, 1899.	Needle.	Magnetic Dip.	Observer.
d h		° ′ ″	
Jan. 3. 14	D_1	67. 11. 2	N
6. 16	D_2	67. 10. 43	N
9. 16	D_1	67. 11. 4	N
10. 14	D_1	67. 11. 26	N
12. 13	D_2	67. 10. 21	N
17. 16	D_1	67. 11. 29	N
19. 16	D_2	67. 9. 58	N
27. 14	D_2	67. 9. 27	N
30. 16	D_1	67. 10. 33	N
Feb. 3. 13	D_2	67. 9. 40	N
7. 16	D_1	67. 11. 18	N
10. 16	D_2	67. 10. 2	N
14. 11	D_1	67. 10. 38	E
16. 16	D_2	67. 9. 4	E
21. 15	D_1	67. 11. 26	E
28. 15	D_2	67. 8. 51	E
Mar. 3. 15	D_1	67. 10. 42	E
7. 15	D_2	67. 9. 14	E
10. 14	D_1	67. 10. 26	E
14. 11	D_2	67. 9. 50	E
16. 16	D_1	67. 10. 10	N
17. 13	D_2	67. 10. 8	N
22. 16	D_1	67. 11. 0	N
24. 12	D_2	67. 9. 55	E
29. 15	D_1	67. 10. 50	E
Apr. 5. 12	D_2	67. 10. 5	E
6. 15	D_1	67. 10. 51	E
12. 15	D_2	67. 9. 28	E
18. 15	D_1	67. 11. 3	E
25. 15	D_2	67. 9. 33	N
25. 16	D_1	67. 9. 14	N
27. 16	D_1	67. 9. 10	N
27. 16	D_2	67. 8. 46	N
28. 11	D_2	67. 9. 38	N
May 4. 13	D_1	67. 10. 51	N
4. 15	D_2	67. 10. 36	N
8. 15	D_2	67. 9. 3	N
11. 11	D_1	67. 11. 13	N
11. 13	D_2	67. 10. 17	N
15. 16	D_1	67. 10. 10	N

Greenwich Civil Time, 1899.	Needle.	Magnetic Dip.	Observer.
d h		° ′ ″	
May 19. 12	D_2	67. 9. 25	E
25. 15	D_1	67. 9. 51	E
26. 11	D_2	67. 9. 17	E
29. 15	D_1	67. 9. 32	E
30. 11	D_2	67. 9. 39	E
31. 15	D_1	67. 10. 12	E
June 2. 16	D_1	67. 9. 4	N
7. 16	D_2	67. 8. 38	N
10. 13	D_2	67. 9. 26	N
12. 12	D_1	67. 8. 49	N
15. 14	D_2	67. 10. 1	N
15. 15	D_1	67. 10. 31	N
19. 15	D_2	67. 8. 41	E
20. 12	D_1	67. 10. 15	E
23. 15	D_2	67. 9. 40	E
26. 15	D_1	67. 9. 20	E
28. 12	D_2	67. 9. 49	E
30. 12	D_1	67. 10. 35	E
July 4. 16	D_1	67. 10. 7	N
7. 13	D_2	67. 9. 19	N
7. 16	D_1	67. 9. 9	N
11. 13	D_2	67. 9. 24	N
13. 15	D_1	67. 9. 4	E
14. 11	D_2	67. 9. 51	E
18. 11	D_1	67. 8. 59	E
19. 11	D_2	67. 9. 54	E
21. 12	D_1	67. 9. 58	E
25. 12	D_2	67. 9. 53	E
28. 12	D_1	67. 9. 10	E
31. 15	D_2	67. 9. 37	E
Aug. 3. 15	D_1	67. 9. 57	N
4. 13	D_2	67. 9. 1	N
4. 14	D_1	67. 10. 3	N
14. 16	D_1	67. 9. 8	N
15. 16	D_2	67. 10. 28	N
18. 14	D_1	67. 9. 42	N
18. 15	D_2	67. 10. 38	N
21. 16	D_2	67. 9. 35	N
24. 16	D_1	67. 10. 37	N
25. 13	D_2	67. 10. 32	N
25. 15	D_1	67. 10. 18	N
31. 16	D_2	67. 9. 53	N

Greenwich Civil Time, 1899.	Needle.	Magnetic Dip.	Observer.
d h		° ′ ″	
Sept. 5. 12	D_1	67. 10. 51	E
6. 12	D_2	67. 11. 20	E
8. 11	D_1	67. 11. 11	E
11. 15	D_2	67. 11. 2	E
14. 12	D_1	67. 10. 56	E
15. 11	D_2	67. 9. 55	E
18. 15	D_1	67. 11. 4	E
19. 16	D_2	67. 10. 20	N
21. 10	D_1	67. 12. 6	N
21. 12	D_2	67. 11. 54	N
29. 15	D_1	67. 11. 57	N
Oct. 3. 16	D_2	67. 10. 35	N
6. 13	D_2	67. 10. 50	N
6. 15	D_1	67. 11. 11	N
11. 15	D_1	67. 11. 36	N
16. 16	D_2	67. 11. 8	N
18. 12	D_1	67. 12. 7	E
19. 15	D_2	67. 11. 33	E
24. 11	D_1	67. 11. 59	E
26. 16	D_1	67. 10. 54	N
27. 15	D_2	67. 11. 49	E
31. 12	D_1	67. 11. 16	E
31. 13	D_2	67. 10. 40	E
Nov. 7. 16	D_1	67. 11. 40	N
8. 13	D_2	67. 10. 26	N
8. 15	D_1	67. 10. 29	N
15. 15	D_2	67. 9. 25	N
17. 14	D_1	67. 10. 40	N
20. 15	D_2	67. 9. 24	E
22. 10	D_1	67. 10. 36	E
23. 12	D_2	67. 10. 19	E
24. 14	D_1	67. 11. 14	E
27. 14	D_2	67. 9. 29	N
Dec. 1. 14	D_1	67. 10. 29	N
1. 15	D_2	67. 11. 2	N
8. 15	D_1	67. 11. 6	E
13. 14	D_2	67. 9. 45	N
13. 15	D_1	67. 11. 1	N
14. 14	D_2	67. 9. 31	N
19. 14	D_1	67. 10. 58	E
22. 12	D_2	67. 10. 6	E
28. 15	D_1	67. 10. 58	E
29. 12	D_2	67. 9. 51	E
29. 12	D_1	67. 10. 59	E
29. 13	D_2	67. 9. 43	E

The needles D_1 and D_2 are 3 inches in length.
The initials N and E are those of Mr Nash and Mr Edney.

TABLE XVIII.—MONTHLY and YEARLY MEANS of MAGNETIC DIP in the YEAR 1899.

Monthly Means of Magnetic Dip.

Month, 1899.	D1, 3-inch Needle.	Number of Observations.	D2, 3-inch Needle.	Number of Observations.
	° ′ ″		° ′ ″	
January	67. 11. 7	5	67. 10. 7	4
February	67. 11. 7	3	67. 9. 24	4
March	67. 10. 38	5	67. 9. 47	4
April	67. 10. 4	4	67. 9. 30	5
May	67. 10. 18	6	67. 9. 43	6
June	67. 9. 46	6	67. 9. 23	6
July	67. 9. 25	6	67. 9. 40	6
August	67. 9. 57	6	67. 10. 1	6
September	67. 11. 21	6	67. 10. 54	5
October	67. 11. 30	6	67. 10. 6	6
November	67. 10. 56	5	67. 9. 49	5
December	67. 10. 55	6	67. 10. 0	6
Means	67. 10. 34	Sum 64	67. 9. 52	Sum 63

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 1899.

Lengths of the Needles.	Needles.	Number of Observations with each Needle.	Mean Yearly Dip from Observations with each Needle.	Mean Yearly Dip from both Needles.
			° ′ ″	° ′ ″
3-inch Needles	D_1	64	67. 10. 34	67. 10. 13
	D_2	63	67. 9. 52	

TABLE XIX.—DETERMINATIONS of the ABSOLUTE VALUE of HORIZONTAL MAGNETIC FORCE in the YEAR 1899.

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

Greenwich Civil Time, 1899.		Distances of Centres of Magnets.	Temperature Fahrenheit.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature Fahrenheit.	Observer.
	d h	ft.	°	° ′ ″	s		°	
January	11. 15	1·0 1·3	47·3	9. 48. 47 4. 27. 24	5·789 5·788	100 100	47·1 48·1	N
March	14. 15	1·0 1·3	49·4	9. 48. 35 4. 27. 4	5·791 5·791	100 100	49·4 52·1	N
April	11. 15	1·0 1·3	51·9	9. 47. 46 4. 26. 52	5·794 5·787	100 100	52·6 52·5	N
April	26. 15	1·0 1·3	54·4	9. 47. 51 4. 26. 53	5·790 5·795	100 100	54·9 56·4	N
May	19. 16	1·0 1·3	62·0	9. 46. 28 4. 26. 19	5·794 5·795	100 100	62·7 62·8	N
May	30. 16	1·0 1·3	66·4	9. 45. 26 4. 25. 53	5·787 5·788	100 100	67·5 70·3	N
June	8. 15	1·0 1·3	63·2	9. 47. 0 4. 26. 34	5·788 5·793	100 100	62·9 65·0	N
June	20. 16	1·0 1·3	68·2	9. 45. 44 4. 25. 56	5·798 5·799	100 100	68·9 71·2	N
July	11. 16	1·0 1·3	81·0	9. 44. 16 4. 25. 16	5·809 5·808	100 100	81·3 82·7	N
July	26. 15	1·0 1·3	76·9	9. 44. 35 4. 25. 24	5·803 5·802	100 100	75·7 78·6	N
August	16. 16	1·0 1·3	76·8	9. 44. 55 4. 25. 31	5·798 5·790	100 100	75·1 77·4	N
August	22. 15	1·0 1·3	74·4	9. 44. 57 4. 25. 31	5·795 5·801	100 100	73·5 76·1	N
September	13. 14	1·0 1·3	62·9	9. 46. 41 4. 26. 20	5·801 5·799	100 100	61·6 65·9	N
September	20. 16	1·0 1·3	59·3	9. 46. 41 4. 26. 16	5·784 5·787	100 100	59·2 60·0	N
October	13. 15	1·0 1·3	54·6	9. 46. 49 4. 26. 27	5·792 5·790	100 100	53·6 55·4	N
October	24. 15	1·0 1·3	56·0	9. 47. 34 4. 26. 35	5·798 5·796	100 100	55·9 56·4	N
November	16. 14	1·0 1·3	53·2	9. 46. 29 4. 26. 5	5·790 5·793	100 100	52·7 53·9	N
December	20. 15	1·0 1·3	41·0	9. 48. 56 4. 27. 21	5·784 5·784	100 100	40·9 41·9	N

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.

TABLE XIX.—*continued*—COMPUTATION of the VALUES of HORIZONTAL FORCE in ABSOLUTE MEASURE.

From Observations made with the Gibson Instrument in the Magnetic Pavilion.

Greenwich Civil Time, 1899.	In English 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.	In Metric Measure. Value of Horizontal Force as observed.	reduced to Mean of Month.
d h						s					
Jan. 11. 15	0·08538	0·08552	− 0·00389		8·93268	5·7939	0·13489	0·3418	3·9912	1·8403	1·8400
Mar. 14. 15	0·08538	0·08544	− 0·00169		8·93249	5·7947	0·13479	0·3417	3·9916	1·8405	1·8405
Apr. 11. 15	0·08530	0·08541	− 0·00321		8·93220	5·7946	0·13482	0·3416	3·9931	1·8412	1·8433
Apr. 26. 15	0·08535	0·08545	− 0·00305		8·93243	5·7947	0·13481	0·3417	3·9920	1·8406	1·8383
May 19. 16	0·08526	0·08538	− 0·00350		8·93204	5·7940	0·13497	0·3416	3·9945	1·8418	1·8397
May 30. 16	0·08518	0·08531	− 0·00378		8·93163	5·7847	0·13640	0·3420	4·0030	1·8457	1·8425
June 8. 15	0·08536	0·08549	− 0·00367		8·93253	5·7903	0·13553	0·3420	3·9948	1·8420	1·8462
June 20. 16	0·08525	0·08536	− 0·00310		8·93192	5·7955	0·13478	0·3415	3·9942	1·8417	1·8409
July 11. 16	0·08524	0·08534	− 0·00299	− 0·00281	8·93185	5·7999	0·13420	0·3412	3·9919	1·8406	1·8389
July 26. 15	0·08522	0·08532	− 0·00293		8·93176	5·7954	0·13485	0·3414	3·9953	1·8422	1·8412
Aug. 16. 16	0·08526	0·08536	− 0·00259		8·93197	5·7919	0·13535	0·3417	3·9966	1·8428	1·8422
Aug. 22. 15	0·08523	0·08532	− 0·00243		8·93178	5·7930	0·13520	0·3416	3·9968	1·8428	1·8427
Sept. 13. 14	0·08531	0·08541	− 0·00282		8·93221	5·7984	0·13430	0·3414	3·9907	1·8401	1·8399
Sept. 20. 16	0·08526	0·08533	− 0·00214		8·93188	5·7876	0·13590	0·3419	3·9995	1·8441	1·8456
Oct. 13. 15	0·08521	0·08532	− 0·00321		8·93172	5·7946	0·13483	0·3414	3·9954	1·8422	1·8421
Oct. 24. 15	0·08533	0·08538	− 0·00141		8·93220	5·7984	0·13426	0·3414	3·9905	1·8400	1·8398
Nov. 16. 14	0·08514	0·08518	− 0·00130		8·93120	5·7943	0·13487	0·3412	3·9979	1·8434	1·8431
Dec. 20. 15	0·08531	0·08541	− 0·00282		8·93224	5·7908	0·13531	0·3418	3·9951	1·8421	1·8419
Means ...	...	...	...	...	...	...	...	...	3·9947	1·8419	1·8416

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.

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 1, 7, 10, 13, 27, February 4, 5, 7, 8, 18, March 4, 5, 26, 27, 30, April 13, 15, 16, 21, 22, May 13, 14, 24, 25, 29, June 6, 7, 17, 25, 26, July 15, 17, 22, 28, 29, August 12, 16, 18, 19, 23, September 5, 6, 7, 14, 20, October 2, 3, 10, 20, 29, November 2, 10, 16, 20, 27, December 6, 11, 14, 15, 24.

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 1·8416 and 4·3748 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.*)

1899.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	0′·1	0′·6	1′·4	2′·8	3′·8	3′·7	3′·1	2′·5	2′·4	1′·5	0′·2	0′·3	1′·65
1h	0·5	0·8	1·1	3·3	3·8	3·8	2·7	2·5	2·4	1·7	0·6	0·2	1·73
2	0·5	1·0	1·1	3·4	3·6	3·8	2·4	2·6	2·6	1·8	0·9	0·3	1·78
3	0·6	1·1	1·2	3·5	3·6	3·6	2·2	2·4	2·3	1·7	1·0	0·7	1·77
4	0·4	1·0	1·2	3·1	3·1	2·9	1·8	2·1	2·1	1·7	0·9	0·7	1·53
5	0·2	1·0	1·3	2·9	1·8	1·5	0·7	1·1	1·7	1·6	0·8	0·4	1·03
6	0·3	0·9	1·2	2·2	0·8	0·5	0·3	0·4	0·9	1·3	0·5	0·4	0·59
7	0·3	0·9	1·0	1·0	0·0	0·0	0·2	0·0	0·1	0·8	0·3	0·3	0·19
8	0·5	1·3	0·4	0·0	0·1	0·0	0·0	0·0	0·0	0·0	0·0	0·3	0·00
9	0·5	1·8	0·0	0·6	1·6	0·6	0·8	1·5	1·1	0·3	0·1	0·3	0·55
10	1·3	2·6	1·2	2·5	3·9	2·6	2·4	4·1	3·0	1·7	1·2	0·8	2·06
11	2·1	3·3	3·8	5·5	7·0	5·6	4·7	6·7	5·8	3·3	2·5	1·6	4·10
Noon.	2·6	3·8	6·4	8·3	9·0	8·3	7·3	7·9	8·0	4·6	3·4	2·1	5·76
13h	2·3	4·0	7·6	10·2	9·3	9·4	8·0	8·4	8·8	5·4	3·4	2·2	6·36
14	1·3	3·3	7·0	10·1	8·7	9·9	8·1	7·4	8·0	5·1	2·6	1·7	5·88
15	1·1	2·4	5·2	8·6	7·3	9·2	6·9	5·8	6·3	4·1	1·6	1·2	4·75
16	1·3	1·6	3·6	6·9	5·9	7·8	5·7	4·1	4·2	3·2	1·3	0·8	3·65
17	1·2	1·9	2·8	5·4	5·1	6·6	4·8	2·8	3·1	2·7	1·1	0·6	2·96
18	0·9	1·9	2·2	4·2	4·7	5·8	4·2	2·3	2·9	2·5	1·0	0·4	2·53
19	0·7	1·5	1·9	3·4	4·7	5·3	3·9	2·6	2·6	2·2	0·8	0·4	2·28
20	0·5	1·2	1·6	3·5	4·6	5·0	3·8	2·8	2·7	1·9	0·7	0·1	2·15
21	0·2	1·0	1·4	3·7	4·6	4·9	3·7	2·7	2·6	1·8	0·5	0·0	2·04
22	0·2	0·8	1·1	3·6	4·5	4·6	3·7	2·4	2·3	1·6	0·4	0·1	1·89
23	0·0	0·6	1·1	3·4	4·3	4·6	3·4	2·1	2·3	1·3	0·3	0·1	1·74
24	0·1	0·0	1·5	3·6	4·3	4·2	3·2	2·0	2·5	1·5	0·4	0·1	1·73
Means 0^h–23^h	0′·82	1′·68	2′·37	4′·25	4′·41	4′·58	3′·53	3′·22	3′·26	2′·24	1′·09	0′·67	2′·46
Means 1^h–24^h	0′·82	1′·65	2′·37	4′·29	4′·43	4′·60	3′·54	3′·20	3′·26	2′·24	1′·10	0′·66	2′·46

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.)

1899.

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.	17	31	30	55	92	169	154	284	188	346	131	241	106	195	146	269	168	309	109	201	47	87	11	20	96·3	177·3
1^h	17	31	18	33	92	169	153	282	184	339	121	223	106	195	140	258	176	324	104	192	51	94	0	0	93·2	171·7
2	22	41	11	20	75	138	142	262	166	306	106	195	93	171	134	247	169	311	104	192	57	105	10	18	87·1	160·6
3	25	46	11	20	75	138	144	265	162	298	97	179	92	169	119	219	163	300	98	180	67	123	17	31	85·6	157·4
4	31	57	12	22	82	151	144	265	158	291	93	171	92	169	113	208	158	291	100	184	78	144	24	44	86·8	159·8
5	37	68	22	41	90	166	141	260	146	269	95	175	77	142	98	180	148	273	103	190	76	140	29	53	84·9	156·5
6	39	72	30	55	104	192	136	250	124	228	79	145	53	98	80	147	131	241	103	190	82	151	28	52	78·8	145·1
7	38	70	34	63	106	195	131	241	74	136	46	85	37	68	54	99	97	179	86	158	72	133	32	59	63·7	117·2
8	28	52	30	55	76	140	103	190	38	70	28	52	26	48	20	37	59	109	58	107	50	92	22	41	41·2	76·2
9	0	0	12	22	30	55	65	120	2	4	7	13	8	15	6	11	18	33	32	59	21	39	16	29	14·5	26·7
10	0	0	0	0	4	7	30	55	0	0	0	0	0	0	0	0	0	0	2	4	0	0	7	13	0·0	0·0
11	7	13	7	13	0	0	0	0	22	41	22	41	6	11	14	26	18	33	0	0	0	0	1	2	4·5	8·4
Noon.	34	63	23	42	27	50	13	24	80	147	25	46	37	68	58	107	56	103	6	11	31	57	11	20	29·8	54·9
13^h	48	88	51	94	65	120	59	109	138	254	41	76	69	127	81	149	101	186	34	63	57	105	12	22	59·4	109·5
14	47	87	57	105	89	164	104	192	163	300	88	162	114	210	126	232	138	254	72	133	84	155	17	31	88·0	162·1
15	33	61	42	77	99	182	143	263	177	326	105	193	132	243	139	256	158	291	80	147	100	184	25	46	99·1	182·5
16	13	24	32	59	103	190	155	285	169	311	133	245	130	239	148	273	171	315	82	151	106	195	27	50	102·2	188·2
17	27	50	40	74	106	195	168	309	177	326	141	260	146	269	150	276	173	319	99	182	119	219	35	64	111·5	205·3
18	45	83	52	96	110	203	178	328	200	368	159	293	163	300	174	320	181	333	117	215	123	227	42	77	125·1	230·3
19	47	87	56	103	123	227	164	302	204	376	173	319	177	326	194	357	177	326	124	228	114	210	42	77	129·3	238·2
20	35	64	65	120	113	208	169	311	208	383	176	324	178	328	196	361	173	319	120	221	108	199	38	70	128·0	235·7
21	19	35	63	116	111	204	174	320	195	359	172	317	170	313	191	352	163	300	118	217	96	177	20	37	120·7	222·3
22	16	29	68	125	116	214	167	308	188	346	149	274	168	309	181	333	161	296	120	221	84	155	14	26	115·7	213·1
23	15	28	72	133	122	225	160	295	183	337	137	252	150	276	179	330	166	306	116	214	78	144	18	33	112·7	207·8
24	21	39	79	145	114	210	165	304	187	344	133	245	137	252	176	324	153	282	116	214	83	153	27	50	112·3	206·9
Means 0^h–23^h	26·7	49·2	34·9	64·3	83·7	154·2	124·9	230·0	139·4	256·7	96·8	178·4	97·1	178·7	114·2	210·3	130·1	239·6	82·8	152·5	70·9	130·6	20·8	38·1	81·6	150·3
1^h–24^h	26·8	49·5	37·0	68·0	84·7	156·0	125·3	230·8	139·4	256·6	96·9	178·5	98·4	181·1	115·5	212·6	129·5	238·5	83·1	153·0	72·4	133·4	21·4	39·4	82·3	151·5

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.*)

1899.

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.	10	44	6	26	21	92	25	109	44	192	23	101	23	101	23	101	20	87	25	109	7	31	8	35	17·9	78·0
1^h	10	44	4	17	23	101	28	122	44	192	25	109	19	83	26	114	12	52	22	96	7	31	14	61	17·8	77·5
2	4	17	4	17	22	96	26	114	46	201	33	144	20	87	24	105	12	52	20	87	3	13	15	66	17·4	75·6
3	4	17	0	0	26	114	28	122	46	201	35	153	26	114	24	105	14	61	24	105	5	22	21	92	19·4	84·5
4	4	17	4	17	24	105	28	122	48	210	40	175	30	131	24	105	14	61	24	105	1	4	17	74	19·8	86·1
5	4	17	2	9	26	114	26	114	48	210	42	184	34	149	32	140	16	70	22	96	5	22	15	66	21·0	91·5
6	0	0	4	17	26	114	36	157	54	236	42	184	36	157	36	157	29	127	26	114	7	31	18	79	24·5	106·7
7	6	26	6	26	26	114	36	157	52	227	48	210	36	157	42	184	33	144	35	153	11	48	18	79	27·4	119·4
8	0	0	6	26	28	122	34	149	42	184	40	175	37	162	38	166	31	136	35	153	13	57	20	87	25·3	110·4
9	2	9	8	35	18	79	22	96	26	114	24	105	31	136	28	122	23	101	29	127	11	48	18	79	18·3	79·9
10	4	17	6	26	10	44	16	70	10	44	12	52	25	109	16	70	11	48	17	74	5	22	20	87	11·0	47·5
11	0	0	6	26	0	0	4	17	4	17	0	0	7	31	6	26	5	22	0	0	3	13	4	17	1·6	6·4
Noon.	0	0	4	17	2	9	0	0	0	0	2	9	2	9	0	0	0	0	2	9	9	39	0	0	0·0	0·0
13^h	8	35	8	35	16	70	10	44	20	87	15	66	0	0	6	26	4	17	3	13	11	48	7	31	7·3	31·6
14	18	79	8	35	22	96	29	127	36	157	27	118	16	70	23	101	18	79	9	39	17	74	9	39	17·6	76·8
15	22	96	14	61	28	122	43	188	54	236	29	127	14	61	35	153	26	114	17	74	19	83	11	48	24·3	105·9
16	22	96	16	70	36	157	47	206	56	245	35	153	20	87	39	171	28	122	19	83	15	66	13	57	27·1	118·4
17	26	114	20	87	40	175	57	249	58	254	37	162	28	122	43	188	28	122	17	74	14	61	13	57	30·1	131·1
18	26	114	18	79	42	184	57	249	64	280	41	179	28	122	37	162	26	114	19	83	10	44	9	39	29·7	129·7
19	20	87	20	87	44	192	57	249	65	284	45	197	29	127	33	144	24	105	15	66	12	52	6	26	29·1	127·0
20	16	70	18	79	44	192	51	223	63	276	39	171	21	92	27	118	24	105	15	66	13	57	2	9	26·0	113·8
21	10	44	10	44	39	171	45	197	63	276	33	144	17	74	29	127	23	101	15	66	11	48	5	22	23·3	101·8
22	6	26	4	17	37	162	42	184	57	249	35	153	17	74	29	127	23	101	13	57	11	48	7	31	21·7	94·7
23	3	13	4	17	29	127	38	166	52	227	33	144	17	74	29	127	21	92	9	39	6	26	5	22	18·8	81·8
24	3	13	1	4	29	127	34	149	48	210	27	118	15	66	27	118	24	105	5	22	0	0	1	4	16·1	70·3
Means 0^h–23^h	9·4	40·9	8·3	36·2	26·2	114·7	32·7	143·0	43·8	191·6	30·6	134·0	22·2	97·0	27·0	118·3	19·4	84·7	18·0	78·7	9·4	41·2	11·5	50·1	19·8	86·5
1^h–24^h	9·1	39·6	8·1	35·3	26·5	116·1	33·1	144·6	44·0	192·4	30·8	134·7	21·9	95·6	27·2	119·0	19·5	85·5	17·2	75·0	9·1	39·9	11·2	48·8	19·8	86·2

ROYAL OBSERVATORY, GREENWICH.

MAGNETIC DISTURBANCES

AND

EARTH CURRENTS.

1899.

MAGNETIC DISTURBANCES in DECLINATION, HORIZONTAL FORCE, and VERTICAL FORCE, recorded at the ROYAL OBSERVATORY, GREENWICH, in the Year 1899.

The following notes give a brief description of all magnetic movements (superposed on the ordinary diurnal movement) exceeding 3′ in Declination, 0·0010 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).

1899.

January 2^d 19^h to $20\frac{1}{2}^h$ Wave in Dec. (− 6′): in H.F. small.

3^d 0^h to 1^h Wave in Dec. (+ 3′): in H.F. small. 1^h to 2^h Wave in Dec. (− 5′), followed by two smaller waves till 6^h. $18\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Loss of V.F. register. 19^h to 22^h Wave in Dec. (− 12′). $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Two successive waves in H.F. (− ·0010) and (− ·0010).

4^d $0\frac{1}{2}^h$ to 2^h Wave in Dec. (+ 4′): in H.F. (+ ·0010): decrease of V.F. (− ·0003). 12^h to 13^h Wave in H.F. (− ·0010). $15\frac{1}{2}^h$ to 17^h Wave in H.F. (− ·0020): in Dec. small. 22^h to 23^h Wave in Dec. (− 3′): in H.F. (+ ·0012).

5^d 12^h to 17^h Loss of H.F. register. $16\frac{1}{2}^h$ to 18^h Shallow wave in V.F. (+ ·0003). $22\frac{1}{2}^h$ to 23^h Wave in H.F. (+ ·0010): in Dec. small.

6^d $15\frac{1}{2}^h$ to $17\frac{1}{2}^h$ Wave in Dec. (− 7′): in H.F. small.

7^d $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Small wave in Dec.

12^d $0\frac{1}{2}^h$ to 3^h Double wave in Dec. (− 3′ to + 7′): two successive waves in H.F. (+ ·0010) and (+ ·0014). $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 6′).

14^d 20^h to $21\frac{1}{2}^h$ Wave in Dec. (− 6′). $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Wave in H.F. (− ·0010).

15^d 3^h to 4^h Wave in Dec. (+ 3′). 19^h to $20\frac{1}{2}^h$ Wave in Dec. (− 12′): in H.F. (− ·0016): in V.F. (+ ·0003). 21^h to $22\frac{1}{2}^h$ Wave in Dec. (− 7′): in H.F. (+ ·0020): small fluctuations in V.F.

16^d 0^h to 1^h Wave in Dec. (+ 5′): in H.F. (+ ·0012): in V.F. small. $11\frac{1}{2}^h$ to 13^h Wave in H.F. (− ·0014). 13^h to 15^h Wave in V.F. (− ·0004). 14^h to $16\frac{1}{2}^h$ Two successive waves in Dec. (− 7′) and (− 4′), and two successive waves in H.F. (− ·0018) and (− ·0016). $18\frac{1}{2}^h$ to 20^h Wave in Dec. (− 11′): double wave in H.F. (− ·0010 to + ·0010). 22^h to 23^h Wave in H.F. (+ ·0016): fluctuations in Dec.

17^d 14^h to 17^h Wave in H.F. (− ·0016). $15\frac{1}{2}^h$ to 18^h Double-crested wave in Dec. (− 9′): wave in V.F. (+ ·0003). $18\frac{1}{2}^h$ to 20^h Wave in Dec. (− 4′). 22^h to $23\frac{1}{2}^h$ Wave in Dec. (− 6′). 23^h to 24^h Wave in H.F. (+ ·0018): in V.F. small.

18^d $3\frac{1}{2}^h$ to $4\frac{1}{2}^h$ Wave in Dec. (− 4′), followed by small fluctuations in Dec. and H.F. till 9^h. 16^h to $17\frac{1}{2}^h$ Double-crested wave in Dec. (− 15′): wave in H.F. (− ·0036). $16\frac{1}{2}^h$ to 18^h Wave in V.F. (+ ·0004). 18^h to 24^h Fluctuations in Dec. (± 2′). 18^h to 20^h Small fluctuations in H.F. 20^h to 21^h Wave in H.F. (+ ·0018), followed till $23\frac{1}{2}^h$ by a double wave (− ·0012 to + ·0010).

19^d 0^h to 1^h Wave in Dec. (+ 4′). 19^h to $20\frac{1}{2}^h$ Wave in Dec. (− 5′): in H.F. small. $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Small double wave in H.F. (− ·0008 to + ·0008). 19^d 23^h to 20^d $0\frac{1}{2}^h$ Two successive small waves in Dec. (+ 3′) and (+ 3′).

20^d 1^h to $3\frac{1}{2}^h$ Double wave in Dec. (− 3′ to + 3′). $15\frac{1}{2}^h$ to 16^h Wave in Dec. (− 3′): in H.F. (− ·0012). $21\frac{1}{2}^h$ to 23^h Wave in Dec. (− 3′): in H.F. (+ ·0010).

1899.

January 23^d 3^h to $4\frac{1}{2}^h$ Double-crested wave in Dec. (− 4′). 6^h to 7^h Wave in H.F. (+ ·0016). $6\frac{1}{2}^h$ to $7\frac{1}{2}^h$ Wave in Dec. (− 5′): in V.F. small, followed by small fluctuations in Dec. and H.F. till 10^h. 21^h to 22^h Wave in H.F. (− ·0014). 21^h to 24^h Two successive waves in Dec. (− 9′) and (− 4′).

24^d 0^h to 3^h Small fluctuations in Dec. and H.F.

26^d $15\frac{1}{2}^h$ to 18^h Wave in Dec. (+ 3′).

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

28^d 12^h to 29^d 12^h See Plate I.

29^d 14^h to 15^h Wave in H.F. (− ·0014). 20^h to 21^h Wave in Dec. (− 3′). $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Double wave in Dec. (− 4′ to + 3′), followed by small fluctuations till 24^h. $21\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Two successive waves in H.F. (+ ·0015) and (+ ·0014).

30^d 0^h to $1\frac{1}{2}^h$ Wave in H.F. (+ ·0026). 0^h to $2\frac{1}{2}^h$ Two successive waves in Dec. (+ 5′) and (+ 5′), followed by small fluctuations in Dec. and H.F. till 9^h. 15^h to 16^h Wave in Dec. (− 3′): in H.F. (− ·0018). $19\frac{3}{4}^h$ to $20\frac{1}{2}^h$ Double wave in Dec. (− 3′ to + 2′). 20^h to $20\frac{1}{2}^h$ Sharp wave in H.F. (+ ·0016). 23^h to 24^h Wave in Dec. (+ 3′).

31^d 17^h to $17\frac{1}{2}^h$ Wave in H.F. (− ·0008). 17^h to $18\frac{1}{2}^h$ Wave in Dec. (− 5′).

February 1^d 16^h to 17^h Wave in Dec. (− 3′): in H.F. (− ·0010). 20^h to 21^h Two successive waves in Dec. (− 3′) and (− 3′).

2^d 1^h to 3^h Fluctuations in Dec. $1\frac{1}{2}^h$ to 3^h Double-crested wave in H.F. (+ ·0014).

3^d $1\frac{1}{2}^h$ to $2\frac{1}{2}^h$ Wave in Dec. (+ 3′): in H.F. (+ ·0016): slight decrease of V.F. 13^h to 16^h Loss of Dec. and H.F. registers.

6^d 19^h to 20^h Wave in Dec. (− 6′): in H.F. and V.F. small.

9^d 1^h to 7^h Fluctuations in Dec. and H.F., with wave in H.F. $5\frac{1}{2}^h$ to 7^h (− ·0010).

11^d 12^h to 13^d 12^h See Plate I.

13^d 15^h to $16\frac{1}{2}^h$ Wave in Dec. (− 4′): in H.F. (− ·0014). 16^h to 17^h Decrease of V.F. (− ·0006).

14^d $4\frac{1}{2}^h$ to 6^h Wave in Dec. (+ 4′). 5^h to 6^h Wave in H.F. (+ ·0010): decrease of V.F. (− ·0004). 8^h to $8\frac{1}{2}^h$ Decrease of H.F. (− ·0024).

14^d 12^h to 15^d 12^h See Plate II.

15^d 18^h to 19^h Wave in Dec. (− 4′): in H.F. (+ ·0014). $18\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Loss of V.F. register. 21^h to 22^h Wave in Dec. (− 6′). 21^h to $22\frac{1}{2}^h$ Wave in H.F. (+ ·0016).

16^d $0\frac{1}{2}^h$ to $0\frac{3}{4}^h$ Sudden increase of Dec. (+ 5′). 4^h to 7^h Double-crested wave in Dec. (+ 6′). 6^h to 7^h Wave in H.F. (+ ·0010). 15^h to 21^h Loss of Dec. register. 15^h to 17^h Loss of H.F. and V.F. registers. 17^h to $18\frac{1}{2}^h$ Two successive waves in H.F. (− ·0016) and (− ·0010). 21^h to 23^h Two successive waves in H.F. (− ·0012) and (− ·0016): small fluctuations in Dec.

17^d 1^h to 2^h Wave in Dec. (+ 3′). 19^h to 20^h Wave in Dec. (− 4′).

19^d 0^h to 4^h Fluctuations in Dec., with wave 3^h to 4^h (+ 3′). 21^h to 22^h Wave in H.F. (+ ·0024): decrease of Dec. (− 3′).

20^d $12\frac{1}{2}^h$ to $13\frac{1}{2}^h$ Wave in Dec. (+ 3′). 20^d $22\frac{1}{2}^h$ to 21^d $0\frac{1}{2}^h$ Two successive waves in H.F. (− ·0014) and (− ·0014). 20^d 23^h to 21^d $0\frac{1}{2}^h$ Wave in Dec. steep at commencement (− 11′).

21^d $2\frac{1}{2}^h$ to 4^h Wave in Dec. (+ 8′): in H.F. (+ ·0014): in V.F. (− ·0005). $16\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Double wave in H.F. (− ·0012 to + ·0012). $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 4′).

22^d 11^h to 15^h Loss of Dec., H.F., and V.F. registers. 21^h to 22^h Sharp wave in Dec. (− 13′): small double wave in H.F. (− ·0010 to + ·0007): small wave in V.F. (− ·0003).

23^d 4^h to 5^h Wave in Dec. (+ 4′): decrease of V.F. (− ·0003).

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

24^d $12\frac{1}{2}^h$ to $13\frac{1}{2}^h$ Wave in Dec. (+ 4′). 16^h to $19\frac{1}{2}^h$ Two successive waves in Dec. (− 4′) and (− 5′). $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in H.F. (+ ·0010).

25^d 1^h to 3^h Irregular wave in Dec. (+ 6′): wave in H.F. (+ ·0016): decrease of V.F. (− ·0005), followed by fluctuations in Dec. and H.F. till 12^h, with wave in Dec. $6\frac{1}{2}^h$ to $7\frac{1}{2}^h$ (+ 4′). 13^h to 14^h Wave in H.F. (− ·0010): decrease of Dec. (− 4′). 17^h to 18^h Wave in H.F. (− ·0012). $17\frac{1}{2}^h$ to 19^h Wave in Dec. (− 8′). $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Wave in H.F. (+ ·0010). $21\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Double wave in Dec. (+ 3′ to − 4′). $23\frac{1}{2}^h$ to 24^h Wave in Dec. (− 3′).

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February 26^d 0^h to 7^h Small fluctuations in Dec. and H.F. 14^h to 15^h Wave in H.F. (− ·0010): fluctuations in Dec.

27^d $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Wave in H.F. (+ ·0012): in Dec. and V.F. small. 16^h to 17^h Wave in Dec. (− 3′). 20^h to 21^h Wave in Dec. (− 4′): in H.F. (+ ·0010). 22^h to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0010): in Dec. small.

28^d 0^h to $1\frac{1}{2}^h$ Wave in Dec. (+ 6′), followed till 4^h by a double wave (− 7′ to + 9′). 0^h to 2^h Double-crested wave in H.F. (+ ·0023), followed till 4^h by a double wave (− ·0028 to + ·0016). 2^h to 3^h Wave in V.F. (+ ·0003). 13^h to 17^h Loss of Dec. register. 17^h to 18^h Wave in H.F. (− ·0012). 19^h to $19\frac{1}{2}^h$ Increase of Dec. (+ 3′).

March 1^d 19^h to $19\frac{1}{2}^h$ Wave in Dec. (− 3′).

2^d $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Wave in Dec. (− 4′): in H.F. (+ ·0010). $20\frac{1}{2}^h$ to 22^h Wave in V.F. (− ·0003).

3^d 0^h to $1\frac{1}{2}^h$ Wave in Dec. (− 4′): in H.F. (+ ·0012): in V.F. small. 3^h to 5^h Wave in Dec. (+ 4′). 16^h to $17\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. (− ·0012). 20^h to $22\frac{1}{2}^h$ Two successive waves in Dec. (− 3′) and (− 3′): small fluctuations in H.F.

4^d $21\frac{1}{2}^h$ to 22^h Wave in H.F. (+ ·0010).

6^d 21^h to $23\frac{1}{2}^h$ Wave in Dec. (− 9′). $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Double wave in H.F. (+ ·0010 to − ·0010).

7^d 0^h to $2\frac{1}{2}^h$ Double wave in Dec. (− 3′ to + 3′). 5^h to $8\frac{1}{2}^h$ Long wave in Dec. (+ 5′). 6^h to 7^h Wave in H.F. (+ ·0010). 23^h to 24^h Wave in V.F. (+ ·0003).

7^d 12^h to 21^d 11^h Loss of Dec. and H.F. registers.

10^d 21^h to $22\frac{1}{2}^h$ Wave in V.F. (− ·0006).

11^d 1^h to 3^h Wave in V.F. (− ·0003). 5^h to 6^h Wave in V.F. (− ·0003).

12^d 13^h to $13\frac{1}{2}^h$ Increase of V.F. (+ ·0005).

13^d $16\frac{1}{2}^h$ to 18^h Wave in V.F. (+ ·0003).

21^d 12^h to 22^d 12^h See Plate II.

22^d $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Sharp wave in Dec. (− 7′): in H.F. small.

23^d $2\frac{1}{2}^h$ to 6^h Double wave in Dec. (+ 3′ to − 3′). 4^h to $5\frac{1}{2}^h$ Wave in H.F. (− ·0010). $7\frac{1}{2}^h$ to $8\frac{1}{2}^h$ Wave in H.F. (− ·0010), followed by a decrease till 10^h (− ·0030).

23^d 12^h to 24^d 12^h See Plate III.

24^d $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in H.F. (− ·0014): decrease of Dec. (− 6′): increase of V.F. (+ ·0003).

25^d 19^h to 20^h Wave in Dec. (− 3′).

28^d 17^h to 18^h Wave in H.F. (− ·0012). $20\frac{1}{2}^h$ to 23^h Double-crested wave in Dec. (− 6′).

30^d 19^h to 20^h Wave in Dec. (− 3′).

31^d 21^h to 24^h Wave in Dec. (− 4′): in H.F. (+ ·0012).

April 1^d $7\frac{1}{2}^h$ to 8^h Sharp wave in Dec. (+ 3′): in H.F. small.

2^d 21^h to 22^h Wave in Dec. (− 5′): in H.F. small: increase of V.F. (+ ·0003).

4^d 22^h to 24^h Wave in H.F. with superposed fluctuations (+ ·0028): fluctuations in Dec: decrease of V.F. (− ·0005).

5^d $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Wave in Dec. (− 5′): in H.F. (− ·0010). $20\frac{1}{2}^h$ to 22^h Wave in H.F. (− ·0010). 5^d 23^h to 6^d 1^h Two successive waves in Dec. (− 5′) and (− 3′), and in H.F. (+ ·0020) and (+ ·0018). 5^d 23^h to 6^d 0^h Wave in V.F. (− ·0003), followed by a decrease till 1^h (− ·0003).

7^d 2^h to 3^h Small wave in Dec. (+ $2\frac{1}{2}$′). $3\frac{1}{2}^h$ to 5^h Wave in Dec. (+ 5′), followed by fluctuations in Dec. and H.F. till 12^h. 13^h to 21^h Loss of V.F. register. 20^h to $21\frac{1}{2}^h$ Two successive waves in H.F. (+ ·0010) and (+ ·0010). $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Wave in Dec. (− 4′).

8^d 1^h to 2^h Wave in Dec. (+ 3′), followed by small fluctuations in Dec. and H.F. till 6^h. $6\frac{1}{2}^h$ to 7^h Decrease of H.F. (− ·0010). $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Wave in Dec. (− 7′): double wave in H.F. (− ·0010 to + ·0014). $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Sharp wave in H.F. (+ ·0020): in V.F. small. Fluctuations in Dec. till $22\frac{1}{2}^h$, followed by an increase till 23^h (+ 5′).

9^d 15^h to 22^h Fluctuations in H.F. $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 3′). $20\frac{1}{2}^h$ to $20\frac{3}{4}^h$ Decrease of Dec. (− 4′). $22\frac{1}{2}^h$ to 24^h Wave in Dec. (− 4′): in H.F. (+ ·0016).

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10d $0\frac{1}{2}$h to 1h Wave in Dec. (− 3′). 3h to 4h Wave in Dec. (− 3′). 4h to 8h Small fluctuations in Dec. and H.F. 16h to 17h Wave in H.F. (− ·0014), followed till $19\frac{1}{2}$h by two smaller waves. $16\frac{1}{2}$h to 18h Wave in Dec. (− 5′). 21h to 23h Wave in Dec. (− 8′). 22h to 23h Wave in H.F. (+ ·0020). 10d 23h to 11d 2h Double wave in Dec. (− 5′ to + 5′): in H.F. small.

11d $1\frac{1}{2}$h to 2h Decrease of V.F. (− ·0004). Small fluctuations in Dec. and H.F. till 9h. $12\frac{1}{2}$h to 13h Wave in H.F. (− ·0016). $19\frac{1}{2}$h to $20\frac{1}{2}$h Wave in Dec. (− 5′): in H.F. (+ ·0016). 22h to 23h Double-crested wave in H.F. (+ ·0010): small fluctuations in Dec.

12d $14\frac{1}{2}$h to $15\frac{1}{2}$h Wave in H.F. (− ·0010): decrease of Dec. (− 3′). 18h to 19h Wave in Dec. (− 6′): small fluctuations in H.F. $22\frac{1}{2}$h to $23\frac{1}{2}$h Wave in H.F. (+ ·0010).

14d 22h to 23h Wave in H.F. (+ ·0012). 14d 22h to 15d $0\frac{1}{2}$h Prolonged wave in Dec. (− 4′).

17d $16\frac{1}{2}$h to $16\frac{3}{4}$h Increase of H.F. (+ ·0012). $17\frac{1}{2}$h to 19h Double wave in H.F. (+ ·0020 to − ·0016). 18h to 19h Decrease of Dec. (− 6′). 21h to 23h Wave in Dec. (− 7′): double wave in H.F. (+ ·0010 to − ·0010).

18d $6\frac{1}{2}$h to 8h Wave in H.F. (− ·0010): increase of Dec. (+ 6′).

18d 12h to 19d 12h See Plate III.

19d $12\frac{1}{2}$h to 13h Sharp wave in H.F. (− ·0024). $15\frac{1}{2}$h to 17h Wave in Dec. (− 8′): in H.F. (− ·0016). $17\frac{1}{2}$h to 18h Decrease of Dec. (− 12′), followed till $19\frac{1}{2}$h by a serrated wave (+ 4′). $17\frac{1}{2}$h to 19h Double wave in H.F. (− ·0016 to + ·0018), followed by small fluctuations in Dec. and H.F. till $20\frac{1}{2}$h. $20\frac{1}{2}$h to 23h Wave in V.F. (− ·0006). $20\frac{3}{4}$h to $21\frac{1}{2}$h Sharp wave in H.F. (+ ·0014). 21h to 23h Wave in Dec. (− 7′). 19d $23\frac{1}{2}$h to 20d $0\frac{1}{2}$h Double wave in Dec. (+ 3′ to − 3′): wave in H.F. (+ ·0018).

20d $0\frac{1}{2}$h to 2h Wave in H.F. (+ ·0010): small fluctuations in Dec. and H.F. till 4h. 4h to 6h Wave in H.F. (+ ·0016). $4\frac{1}{2}$h to 6h Wave in Dec. (+ 4′). 17h to 18h Wave in H.F. (− ·0010). $20\frac{1}{2}$h to 22h Wave in H.F. with superposed fluctuations (+ ·0010): small fluctuations in Dec.

23d 13h to 19h Fluctuations in H.F. 17h to 19h Wave in V.F. (+ ·0003). 18h to 19h Wave in Dec. (− 4′).

24d $18\frac{1}{2}$h to 22h Fluctuations in H.F. (± ·0010). 21h to $22\frac{1}{2}$h Two successive waves in Dec. (− 3′) and (− 3′), followed till 24h by a double wave (− 4′ to + 7′). 22h to 24h Two successive waves in H.F. (+ ·0024) and (+ ·0016). 22h to 23h Wave in V.F. (− ·0004).

25d 0h to 1h Wave in Dec. (+ 4′). 0h to 2h Wave in H.F. (+ ·0010). $0\frac{1}{2}$h to 6h Prolonged wave in V.F. (− ·0004). 1h to 3h Wave in Dec. (− 6′). 3h to 4h Wave in H.F. (− ·0010). 5h to 8h Small fluctuations in Dec. and H.F.

26d 22h to 23h Wave in Dec. (− 3′): in H.F. small.

28d 22h to 23h Decrease of Dec. (− 4′): small waves in H.F. and V.F.

29d 14h to 15h Wave in H.F. (− ·0012). 16h to $17\frac{1}{2}$h Two successive waves in H.F. (− ·0010) and (− ·0014). 18h to 21h Loss of V.F. register. $19\frac{1}{2}$h to 21h Wave in Dec. (− 7′): two successive waves in H.F. (− ·0014) and (− ·0010).

30d 5h to 7h Wave in H.F. (− ·0020). 6h to 8h Wave in Dec. (+ 6′). 12h to 13h Wave in H.F. (+ ·0010), followed till 17h by small fluctuations.

May

1d 12h to 2d 12h See Plate III.

3d $5\frac{1}{2}$h to $9\frac{1}{2}$h Loss of Dec. and H.F. registers.

3d 12h to 4d 12h See Plate IV.

4d 18h to 19h Wave in Dec. (− 4′). 18h to $19\frac{1}{2}$h Double wave in H.F. (− ·0010 to + ·0010).

5d 5h to 9h Prolonged wave in Dec. with superposed fluctuations (+ 15′). 6h to $8\frac{1}{2}$h Wave in H.F. with superposed fluctuations (− ·0036). 7h to 8h Small fluctuations in V.F. $9\frac{1}{2}$h to 12h Sharp wave in H.F. (− ·0040). $10\frac{1}{2}$h to $11\frac{1}{2}$h Wave in Dec. (+ 4′). 13h to 15h Two successive waves in H.F. (− ·0012) and (− ·0016). $13\frac{1}{2}$h to $14\frac{1}{2}$h Decrease of Dec. (− 5′). $16\frac{1}{2}$h to 17h Sharp wave in H.F. (+ ·0010): in Dec. small. 5d $23\frac{1}{2}$h to 6d 1h Wave in Dec. (+ 7′): small fluctuations in H.F.: decrease of V.F. (− ·0004).

7d $11\frac{1}{2}$h to 14h Wave in H.F. (− ·0016). $18\frac{1}{2}$h to 20h Fluctuations in Dec. and H.F.

8d 6h to 9h Prolonged wave in Dec. (− 4′). $20\frac{1}{2}$h to 22h Wave in Dec. (− 6′): in H.F. (+ ·0020): in V.F. (− ·0003).

11d $10\frac{3}{4}$h to 11h Sharp wave in H.F. (+ ·0010): in Dec. small. 13h to 17h Fluctuations in H.F. $17\frac{1}{2}$h to 19h Double-crested wave in Dec. (− 6′): in H.F. (+ ·0014). $19\frac{1}{2}$h to 21h Double wave in H.F. (− ·0010 to + ·0016). 20h to $21\frac{1}{2}$h Double-crested wave in Dec. (− 10′). $21\frac{1}{2}$h to $21\frac{3}{4}$h Sharp decrease of H.F. (− ·0018). 23h to 24h Wave in Dec. (− 4′): small double wave in H.F., and small wave in V.F.

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12^{d} $0\frac{1}{2}^{h}$ to $1\frac{1}{2}^{h}$ Sharp wave in Dec. (− 5′): in H.F. small. $2\frac{1}{2}^{h}$ to 4^{h} Wave in Dec. (− 3′): in H.F. (− ·0012).

15^{d} $0\frac{1}{2}^{h}$ Sharp increase of H.F. (+ ·0010): in Dec. small. 2^{h} to 5^{h} Double wave in Dec. (+ 4′ to − 5′). $2\frac{1}{2}^{h}$ to 3^{h} Decrease of V.F. (− ·0004).

15^{d} 12^{h} to 16^{d} 12^{h} See Plate IV.

16^{d} $19\frac{1}{2}^{h}$ to $20\frac{1}{2}^{h}$ Wave in Dec. (− 3′): in H.F. (+ ·0016).

17^{d} $5\frac{1}{2}^{h}$ to $6\frac{1}{2}^{h}$ Wave in Dec. (+ 3′): in H.F. (− ·0010). 7^{h} to 9^{h} Loss of Dec., H.F., and V.F. registers. $14\frac{1}{2}^{h}$ to 15^{h} Decrease of Dec. (− 4′). $17\frac{1}{2}^{h}$ to $18\frac{1}{2}^{h}$ Wave in Dec. (− 3′): in H.F. (+ ·0010). 21^{h} to 22^{h} Wave in Dec. (− 5′). $21\frac{1}{2}^{h}$ to 22^{h} Wave in H.F. (+ ·0010).

19^{d} 0^{h} to 1^{h} Wave in Dec. (+ 3′): in H.F. small: small decrease of V.F. $19\frac{1}{2}^{h}$ to 20^{h} Small wave in H.F. $19\frac{1}{2}^{h}$ to 21^{h} Wave in Dec. steep at commencement (− 5′).

20^{d} 2^{h} to 3^{h} Wave in H.F. (− ·0012). 2^{h} to 4^{h} Wave in Dec. (+ 5′). 13^{h} to 15^{h} Wave in H.F. (− ·0014). $15\frac{1}{2}^{h}$ to 16^{h} Sharp wave in H.F. (+ ·0010): in Dec. small. 18^{h} to 20^{h} Fluctuations in H.F. (± ·0010). 18^{h} to 21^{h} Prolonged wave in Dec. (− 7′). 20^{d} 23^{h} to 21^{d} 1^{h} Wave in Dec. (+ 3′): in H.F. (+ ·0010): in V.F. small.

22^{d} 1^{h} to 2^{h} Wave in Dec. (+ 3′): slight decrease of V.F. $3\frac{1}{2}^{h}$ to 5^{h} Wave in Dec. (+ 3′), followed by small fluctuations till 7^{h}. 16^{h} to $17\frac{1}{2}^{h}$ Wave in H.F. with small superposed fluctuations (− ·0010): decrease of Dec. (− 4′). $20\frac{1}{2}^{h}$ to $21\frac{1}{2}^{h}$ Decrease of Dec. (− 4′).

23^{d} $0\frac{1}{2}^{h}$ to $1\frac{1}{2}^{h}$ Wave in Dec. (− 3′). $2\frac{1}{2}^{h}$ to 3^{h} Increase of Dec. (+ 4′). 20^{h} to $20\frac{1}{2}^{h}$ Sharp wave in H.F. (− ·0016).

26^{d} 13^{h} to 16^{h} Double wave in H.F. (+ ·0028 to − ·0020), followed by fluctuations till 20^{h}. 20^{h} to 21^{h} Wave in Dec. (− 3′): decrease of H.F. (− ·0012). 26^{d} 23^{h} to 27^{d} $0\frac{1}{2}^{h}$ Wave in Dec. (− 4′).

27^{d} 1^{h} to $3\frac{1}{2}^{h}$ Long double-crested wave in Dec. (− 4′): small wave in V.F.

31^{d} 0^{h} to 4^{h} Fluctuations in H.F. $8\frac{1}{2}^{h}$ to $9\frac{1}{2}^{h}$ Wave in H.F. (− ·0014): increase of Dec. (+ 10′). 12^{h} to 19^{h} Fluctuations in H.F. (± ·0010), and small fluctuations in Dec. and V.F. 19^{h} to 20^{h} Double wave in H.F. (+ ·0010 to − ·0009). $20\frac{1}{2}^{h}$ to $21\frac{1}{2}^{h}$ Wave in Dec. (− 4′): in H.F. (− ·0016). $21\frac{1}{2}^{h}$ to 23^{h} Small fluctuations in H.F. May 31^{d} 23^{h} to June 1^{d} $0\frac{1}{2}^{h}$ Wave in H.F. (− ·0016): double wave in Dec. (− 4′ to + 4′).

June

1^{d} 0^{h} to 3^{h} Wave in V.F. (− ·0008). $0\frac{1}{2}^{h}$ to 1^{h} Wave in Dec. (+ 4′): decrease of H.F. (− ·0028). 15^{h} to 16^{h} Wave in H.F. (+ ·0010). 22^{h} to 24^{h} Loss of V.F. register. 1^{d} $23\frac{1}{2}^{h}$ to 2^{d} $1\frac{1}{2}^{h}$ Double-crested wave in Dec. (+ 3′): in H.F. small.

2^{d} 0^{h} to 9^{h} Loss of V.F. register. 8^{h} to $10\frac{1}{2}^{h}$ Wave in H.F. (− ·0020), followed till 12^{h} by a smaller wave (− ·0010). 14^{h} to 15^{h} Wave in H.F. (− ·0014), followed by fluctuations till 23^{h}: small fluctuations in Dec.

3^{d} 1^{h} to 2^{h} Wave in Dec. (+ 3′): in H.F. and V.F. small. 11^{h} to 18^{h} Loss of Dec., H.F., and V.F. registers.

4^{d} 0^{h} to 2^{h} Two successive waves in Dec. (+ 4′) and (+ 4′): in V.F. small. 11^{h} to 24^{h} Small fluctuations in Dec., H.F., and V.F.

10^{d} $14\frac{1}{2}^{h}$ to $15\frac{1}{2}^{h}$ Wave in H.F. (− ·0012): in Dec. small.

11^{d} 0^{h} to 1^{h} Wave in Dec. (+ 4′): in H.F. small: decrease of V.F. (− ·0004). 5^{h} to 8^{h} Small fluctuations in Dec., H.F., and V.F. $12\frac{1}{2}^{h}$ to 16^{h} Three successive waves in H.F. (+ ·0014), (+ ·0030), and (+ ·0026), followed till 17^{h} by small fluctuations: small fluctuations throughout in Dec. and V.F.

12^{d} 14^{h} to 21^{h} Fluctuations in Dec. and H.F., with wave in H.F. 19^{h} to 21^{h} (+ ·0016). $22\frac{1}{2}^{h}$ to $23\frac{1}{2}^{h}$ Sharp wave in H.F. (+ ·0012): small fluctuations in Dec.

13^{d} $4\frac{1}{2}^{h}$ to $7\frac{1}{2}^{h}$ Prolonged wave in Dec. (+ 5′). 5^{h} to $6\frac{1}{2}^{h}$ Wave in H.F. (+ ·0012). 14^{h} to 15^{h} Wave in H.F. (+ ·0010). 16^{h} to 18^{h} Wave in H.F. with superposed fluctuations (+ ·0010). $17\frac{1}{2}^{h}$ to 18^{h} Decrease of Dec. (− 3′). $22\frac{1}{2}^{h}$ to $23\frac{1}{2}^{h}$ Wave in H.F. (+ ·0010).

[14^{d} $0\frac{1}{2}^{h}$ to $1\frac{1}{2}^{h}$ Wave in Dec. (− 3′): in H.F. small. 6^{h} to 12^{h} Loss of V.F. register. $10\frac{1}{2}^{h}$ to 11^{h} Sharp wave in H.F. (− ·0010). 15^{h} to 16^{h} Wave in H.F. (− ·0010).

15^{d} 14^{h} to 16^{h} Loss of V.F. register.

16^{d} 17^{h} to 21^{h} Loss of V.F. register.

18^{d} 0^{h} to 11^{h} Loss of V.F. register. 14^{h} to $14\frac{1}{2}^{h}$ Increase of H.F. (+ ·0010), followed by small fluctuations till 23^{h}. 16^{h} to 17^{h} and 21^{h} to $21\frac{1}{2}^{h}$ Small waves in Dec. (− 3′) and (− $2\frac{1}{2}$′). 23^{h} to 24^{h} Wave in H.F. (+ ·0010).

19^{d} 12^{h} to 21^{d} 12^{h} Loss of V.F. register.

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22^d 11^h to 18^h Loss of Dec. and H.F. registers, and 22^d 11^h to 23^d 11^h Loss of V.F. register.

27^d 5^h to 11^h Fluctuations in Dec., H.F., and V.F. 11^h to 18^h Loss of Dec., H.F., and V.F. registers.

28^d 0^h to 12^h Loss of V.F. register. $3\frac{1}{2}^h$ to 5^h Double wave in Dec. ($-3'$ to $+3'$). 5^h to 10^h Small fluctuations in Dec. and H.F.

28^d 12^h to 30^d 12^h See Plate V.

30^d 12^h to 13^h Wave in H.F. (+ ·0012).

July

2^d $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Wave in Dec. (+ 3′), followed by small fluctuations in Dec. and H.F. till 5^h. $5\frac{1}{2}^h$ to 7^h Wave in H.F. (+ ·0010). 9^h to 10^h Wave in Dec. (+ 3′). 16^h to $17\frac{1}{2}^h$ Wave in H.F. (+ ·0016). 19^h to 20^h Double-crested wave in Dec. (− 6′): sharp wave in H.F. (+ ·0036), followed by fluctuations till 24^h.

3^d 0^h to 2^h Two successive waves in Dec. (+ 3′) and (+ 4′): fluctuations in H.F. 1^h to 3^h Wave in V.F. (− ·0003).

3^d 12^h to 4^d 12^h See Plate VI.

4^d 14^h to 15^h Wave in H.F. (+ ·0010), followed by fluctuations till 20^h. 22^h to 23^h Two successive waves in H.F. (+ ·0010) and (+ ·0010).

5^d 5^h to 7^h Small fluctuations in Dec.

6^d $3\frac{1}{2}^h$ to 5^h Wave in Dec. (+ 3′), followed by small fluctuations in Dec. and H.F. till 6^h. 16^h to 19^h Three successive waves in H.F. (the first being double-crested) (+ ·0034), (+ ·0020), and (+ ·0016). $19\frac{1}{2}^h$ to 21^h Wave in H.F. with superposed fluctuations (+ ·0012), followed by fluctuations till 23^h: fluctuations throughout in Dec.

7^d 0^h to $0\frac{1}{4}^h$ Sharp wave in H.F. (+ ·0014): in Dec. small; followed till 2^h by small fluctuations in Dec. and H.F. 12^h to 17^h Loss of Dec. register. 14^h to 15^h Wave in H.F. (+ ·0010). 19^h to 20^h Wave in Dec. (+ 3′): in H.F. (+ ·0012). 21^h to 22^h Wave in Dec. (+ 3′). 23^h to $23\frac{1}{2}^h$ Wave in H.F. (− ·0010). 7^d 23^h to 8^d $0\frac{1}{2}^h$ Wave in Dec. (− 6′).

8^d $4\frac{1}{2}^h$ to 6^h Wave in H.F. (− ·0014). 5^h to $6\frac{1}{2}^h$ Wave in Dec. (+ 7′). 11^h to 13^h Two successive waves in H.F. (− ·0010) and (− ·0010). 14^h to $15\frac{1}{2}^h$ Wave in H.F. with superposed fluctuations (− ·0014). $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0010).

10^d $12\frac{1}{2}^h$ to 13^h Wave in H.F. (− ·0010). $13\frac{1}{2}^h$ to $14\frac{1}{2}^h$ Wave in H.F. (− ·0010). $17\frac{1}{2}^h$ to 19^h Wave in H.F. with superposed fluctuations (− ·0010). 22^h to $23\frac{1}{2}^h$ Wave in Dec. (− 5′): in H.F. (+ ·0014).

11^d 1^h to 4^h Double wave in Dec. ($-3'$ to $+3'$): in H.F. and V.F. small. 14^h to $14\frac{1}{2}^h$ Sharp wave in H.F. (− ·0016), followed by fluctuations till 17^h. $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Wave in H.F. (− ·0014). 21^h to 23^h Double wave in Dec. ($+3'$ to $-5'$). Double-crested wave in H.F. (+ ·0022). $21\frac{1}{2}^h$ to 22^h Decrease of V.F. (− ·0005).

12^d $1\frac{1}{2}^h$ to $2\frac{1}{2}^h$ Wave in Dec. (+ 3′). 13^h to $13\frac{1}{2}^h$ and 15^h to 16^h Waves in H.F. (− ·0010) and (− ·0012).

13^d $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in H.F. (− ·0010): in V.F. small: decrease of Dec. (− 3′).

17^d 0^h to 1^h Wave in Dec. (+ 3′): small decrease of V.F.

25^d 0^h to 1^h Wave in Dec. (+ 4′): in H.F. small: decrease of V.F. (− ·0003). $7\frac{1}{2}^h$ to 9^h Double wave in Dec. ($-4'$ to $+3'$): wave in H.F. (− ·0010): in V.F. small. 14^h to 15^h Wave in H.F. (+ ·0018). 18^h to 19^h Wave in H.F. (+ ·0012). $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 4′).

26^d 1^h to 3^h Wave in Dec. (− 5′), followed by smaller wave till 4^h (− 3′).

27^d $15\frac{1}{2}^h$ to 16^h Wave in H.F. (− ·0010).

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3^d 3^h to 10^h Fluctuations in Dec. and H.F. 6^h to 10^h Fluctuations in V.F. $10\frac{1}{2}^h$ to 12^h Two successive waves in H.F. (+ ·0016) and (+ ·0016). $14\frac{1}{2}^h$ to 15^h Wave in H.F. (− ·0010), followed till 17^h by a double wave with superposed fluctuations (+ ·0028 to − ·0020). 18^h to 20^h Two successive waves in H.F. (+ ·0014) and (+ ·0012). $19\frac{1}{2}^h$ to 20^h Decrease of Dec. (− 4′). 22^h to 23^h Wave in Dec. (+ 4′): in H.F. (− ·0010): decrease of V.F. (− ·0005). 3^d 23^h to 4^d 1^h Wave in Dec. (− 5′): small fluctuations in H.F.

4^d 1^h to $1\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. small. 3^h to $4\frac{1}{2}^h$ Wave in Dec. (− 5′): in H.F. (− ·0012). 5^h to 9^h Small fluctuations in Dec., H.F., and V.F. $9\frac{1}{2}^h$ to 12^h Three successive sharp waves in H.F. (− ·0010), (− ·0016), and (− ·0020). $13\frac{1}{2}^h$ to $14\frac{1}{2}^h$ Two successive sharp waves in H.F. (− ·0010) and (− ·0014). 14^h to 15^h Wave in Dec. (− 3′): in V.F. small. $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Double wave in Dec. ($-8'$ to $+4'$): in H.F. (− ·0010 to + ·0020): wave in V.F. (+ ·0004).

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August 5^d 0^h to 2^h Wave in Dec. (+ 8′). $0\frac{1}{2}^h$ to 2^h Wave in H.F. (+ ·0014): in V.F. (− ·0004). 18^h to $19\frac{1}{2}^h$ Wave in H.F. (+ ·0010). $18\frac{1}{2}^h$ to 20^h Wave in Dec. (− 6′). 22^h to 23^h Wave in H.F. (+ ·0014). 5^d 23^h to 6^d 2^h Two successive waves in Dec. (+ 3′) and (+ 4′): in H.F. (+ ·0010) and (+ ·0014).

6^d 1^h to 2^h Wave in V.F. (− ·0003). 4^h to 5^h Decrease of Dec. (− 4′). $14\frac{1}{2}^h$ to 15^h Sharp wave in H.F. (+ ·0010): in Dec. small. 16^h to 17^h Wave in H.F. (− ·0010): in Dec. small. 21^h to 23^h Two successive waves in Dec. (− 3′) and (− 4′). $21\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Two successive waves in H.F. (+ ·0014) and (+ ·0010).

7^d 6^h to 8^h Wave in H.F. (− ·0012), followed till 15^h by small fluctuations in Dec., H.F., and V.F.

8^d $16\frac{1}{2}^h$ Sharp wave in H.F. (+ ·0014): in Dec. and V.F. small. $23\frac{1}{2}^h$ to 24^h Wave in Dec. (+ 5′): in V.F. small. 8^d $23\frac{1}{2}^h$ to 9^d 2^h Prolonged wave in H.F. (+ ·0010).

10^d 12^h to 16^h Loss of Dec., H.F., and V.F. registers.

11^d 10^h to 15^h Loss of Dec., H.F., and V.F. registers.

14^d $3\frac{1}{2}^h$ to $4\frac{1}{2}^h$ Wave in Dec. (+ 3′). 18^h to $19\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. small.

17^d $7\frac{1}{2}^h$ to 8^h Increase of Dec. (+ 4′). $8\frac{1}{2}^h$ to 9^h Decrease of V.F. (− ·0004).

20^d $12\frac{1}{2}^h$ to 13^h Wave in H.F. (+ ·0020): in Dec. small, followed by a double wave in H.F. till 15^h (+ ·0020 to − ·0020). $15\frac{1}{2}^h$ to 16^h Wave in H.F. (− ·0016). 17^h to 18^h Wave in H.F. (− ·0012): in Dec. small. 22^h to 24^h Prolonged wave in Dec. (− 7′).

21^d 0^h to 2^h Two successive waves in Dec. (− 3′) and (− 3′). 2^h to 4^h Wave in H.F. (+ ·0020). $2\frac{1}{2}^h$ to $3\frac{1}{2}^h$ Wave in Dec. (+ 5′). 3^h to $4\frac{1}{2}^h$ Wave in V.F. (− ·0003). 13^h to 16^h Two successive double waves in H.F. (+ ·0010 to − ·0010) and (− ·0010 to + ·0010): fluctuations in Dec. 18^h to $18\frac{1}{2}^h$ Wave in H.F. (+ ·0010), followed by a smaller wave. 18^h to $19\frac{1}{2}^h$ Double-crested wave in Dec. (− 5′). 21^d $23\frac{1}{2}^h$ to 22^d $0\frac{1}{2}^h$ Wave in Dec. (+ 7′): in H.F. (+ ·0018): decrease of V.F. (− ·0007).

22^d $3\frac{1}{2}^h$ to $4\frac{1}{2}^h$ Wave in H.F. (− ·0014). 5^h to 6^h Decrease of Dec. (− 5′). 10^h to 11^h Wave in H.F. (− ·0010). $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Wave in H.F. (+ ·0010): in Dec. (− 3′).

27^d 14^h to 18^h Loss of Dec. and H.F. registers. 22^h to $23\frac{1}{2}^h$ Double wave in H.F. (− ·0016 to + ·0016): in Dec. and V.F. small.

28^d 12^h to 24^h Fluctuations in H.F.

29^d 1^h to 17^h Small fluctuations in Dec., H.F., and V.F. 18^h to $18\frac{1}{2}^h$ Sharp wave in H.F. (− ·0014): in Dec. small. $20\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Two successive waves in Dec. (− 4′) and (− 4′): wave in H.F. (+ ·0036). 21^h to $22\frac{1}{2}^h$ Wave in V.F. (− ·0003).

30^d $1\frac{1}{2}^h$ to $2\frac{1}{2}^h$ Wave in Dec. (+ 4′), followed by fluctuations in Dec. and H.F. till 16^h. $16\frac{1}{2}^h$ to $17\frac{1}{2}^h$ Wave in H.F. (+ ·0016). 20^h to $21\frac{1}{2}^h$ Two successive waves in Dec. (− 4′) and (− 8′), followed till $23\frac{1}{2}^h$ by a double-crested wave (− 8′). 21^h to $21\frac{1}{2}^h$ Sharp wave in V.F. (+ ·0003). 21^h to 24^h Double wave in H.F. (+ ·0022 to − ·0014).

31^d 0^h to 1^h Wave in Dec. (− 4′): in H.F. (− ·0014). 2^h to $3\frac{1}{2}^h$ Double wave in Dec. (+ 3′ to − 3′). $2\frac{1}{2}^h$ to $3\frac{1}{2}^h$ Decrease of H.F. (− ·0014). $7\frac{1}{2}^h$ to 9^h Wave in H.F. (− ·0028). 17^h to 18^h Wave in H.F. (+ ·0010). $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in H.F. (+ ·0026): small fluctuations in Dec. 23^h to 24^h Wave in Dec. (− 4′): in H.F. (+ ·0020): decrease of V.F. (− ·0004).

September 1^d 1^h to 3^h Two successive waves in Dec. (+ 5′) and (+ 7′): two small waves in H.F.: decrease of V.F. (− ·0003). 3^h to 4^h Wave in H.F. (+ ·0010). 9^h to 11^h Wave in H.F. (− ·0020). 12^h to $13\frac{1}{2}^h$ Wave in H.F. (− ·0016). 15^h to 18^h Prolonged wave in Dec. (− 4′): fluctuations in H.F. $19\frac{1}{2}^h$ to 22^h Wave in H.F. (+ ·0014) with superposed fluctuations.

2^d $0\frac{1}{2}^h$ to 1^h Decrease of V.F. (− ·0003). $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Wave in Dec. (+ 5′). $0\frac{1}{2}^h$ to 2^h Wave in H.F. (+ ·0012). 15^h to $16\frac{1}{2}^h$ Wave in H.F. (+ ·0014). $17\frac{1}{2}^h$ to 19^h Two successive waves in H.F. (+ ·0010) and (+ ·0014): wave in Dec. (− 5′). 22^h to $23\frac{1}{2}^h$ Wave in Dec. (− 3′): small fluctuations in H.F.

3^d 0^h to 3^h Prolonged double wave in Dec. (− 3′ to + 3′), followed till $4\frac{1}{2}^h$ by wave (+ 4′). 3^h to 4^h Wave in H.F. (− ·0010): in V.F. small. 6^h to 9^h Small fluctuations in Dec., H.F., and V.F. 15^h to 18^h Active fluctuations in H.F. 18^h to 19^h Wave in Dec. (− 6′): double wave in H.F. (− ·0010 to + ·0010): small wave in V.F.

4^d 5^h to 6^h Wave in H.F. (− ·0010): small fluctuations in Dec. 18^h to 19^h Wave in H.F. (+ ·0010): small double-crested wave in Dec.

9^d 0^h to 2^h Wave in Dec. (+ 3′): small decrease of H.F. $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in H.F. (− ·0010). $18\frac{1}{2}^h$ to 19^h Wave in Dec. (− 3′): small wave in H.F. (+ ·0008). 9^d $22\frac{1}{2}^h$ to 10^d 1^h Two successive waves in H.F. (+ ·0014) and (+ ·0010).

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September 10^d 1^h to 2^h Wave in Dec. (+ 5′). $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in H.F. (+ ·0010).

11^d 22^h to $22\frac{1}{2}^h$ Wave in H.F. (+ ·0010).

12^d 18^h to 21^h Loss of H.F. register. $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. (+ ·0010).

13^d 4^h to 6^h Small fluctuations in Dec. and H.F.

15^d 7^h to 11^h Small fluctuations in Dec. and H.F. 15^h to 16^h Wave in H.F. (+ ·0012). Small wave in Dec. (− 3′). 19^h to 20^h Wave in Dec. (− 3′): in H.F. (− ·0010). 15^d 23^h to 16^d $0\frac{1}{2}^h$ Wave in Dec. (+ 4′): fluctuations in H.F.: decrease of V.F. (− ·0003).

17^d 14^h to 15^h Wave in H.F. (− ·0010). $20\frac{1}{2}^h$ to 22^h Sharp wave in H.F. (+ ·0026). $20\frac{1}{2}^h$ to 24^h Three successive waves in Dec. (− 3′), (− 4′), and (− 4′). 21^h to 23^h Small double wave in V.F.

18^d $4\frac{1}{2}^h$ to $7\frac{1}{2}^h$ Prolonged wave in Dec. (+ 7′). 6^h to $7\frac{1}{2}^h$ Wave in H.F. (+ ·0012): decrease of V.F. (− ·0003). $12\frac{1}{2}^h$ to $13\frac{1}{2}^h$ Wave in H.F. (− ·0016). 17^h to 18^h Wave in Dec. (− 4′): in H.F. (− ·0018). 18^d 23^h to 19^d 1^h Decrease of V.F. (− ·0005).

19^d 0^h to 2^h Wave in Dec. (− 5′): decrease of H.F. (− 0012). $3\frac{1}{2}^h$ to $5\frac{1}{2}^h$ Wave in Dec. (+ 4′). 13^h to 14^h Wave in H.F. (− ·0014). 15^h to 16^h Decrease of Dec. (− 5′). 19^h to 20^h Wave in Dec. (− 3′): fluctuations in H.F.

23^d 12^h to 24^d 12^h Loss of V.F. register.

23^d $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. small. $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in Dec. (+ 4′): in H.F. (+ ·0020).

24^d 0^h to 2^h Wave in Dec. (+ 4′). $1\frac{1}{2}^h$ to $2\frac{1}{2}^h$ Small wave in H.F. 3^h to 4^h Wave in Dec. (+ 3′).

25^d 23^h to 26^d 0^h Fluctuations in Dec. and H.F.

26^d 0^h to 27^d 0^h See Plate VI.

27^d 2^h to 5^h Prolonged wave in Dec. with superposed fluctuations (+ 8′). 2^h to 8^h Three successive waves in H.F. with superposed fluctuations (− ·0018), (− ·0014), and (− ·0010). 8^h to 16^h Small fluctuations in H.F. 16^h to $17\frac{1}{2}^h$ Double wave in H.F. (− ·0014 to + ·0012). $16\frac{1}{2}^h$ to $17\frac{1}{2}^h$ Wave in Dec. (− 9′). 20^h to 21^h Wave in Dec. (− 8′). 20^h to $22\frac{1}{2}^h$ Two successive waves in H.F. (the first being double-crested) (+ ·0020) and (+ ·0010). 21^h to 23^h Fluctuations in Dec.

28^d 14^h to $14\frac{1}{2}^h$ Wave in H.F. (− ·0012). 16^h Decrease of Dec. (− 4′). $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Double-crested wave in H.F. (+ ·0014). 22^h to 24^h Double wave in Dec. (− 3′ to + 4′): two successive waves in H.F. (+ ·0014) and (+ ·0012). 23^h to 24^h Decrease of V.F. (− ·0003).

29^d 15^h to 16^h. Wave in Dec. (− 6′): in H.F. (− ·0012). 29^d 23^h to 30^d 1^h Wave in Dec. (+ 6′): small double wave in H.F.

30^d $1\frac{1}{2}^h$ to 3^h Wave in Dec. (+ 5′): in H.F. (− ·0014). 17^h to $17\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. small. 22^h to 23^h Wave in H.F. (+ ·0010): small fluctuations in Dec.

October 1^d 0^h to 2^h Small fluctuations in Dec. and H.F. 22^h to 23^h Wave in H.F. (+ ·0010).

4^d 17^h to $20\frac{1}{2}^h$ Wave in Dec. with superposed fluctuations (− 4′): in H.F. (− ·0016). $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0010): in Dec. small.

5^d 20^h to 21^h Wave in Dec. (− 6′): fluctuations in H.F. till 22^h. $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in Dec. (+ 3′): in H.F. (+ ·0012).

6^d $1\frac{1}{2}^h$ to $3\frac{1}{2}^h$ Double wave in Dec. (+ 3′ to − 3′). 2^h to 5^h Prolonged wave in H.F. (+ ·0026). $2\frac{1}{2}^h$ to 3^h Decrease of V.F. (− ·0005). 7^h to $7\frac{1}{2}^h$ Decrease of H.F. (− ·0010). $7\frac{1}{2}^h$ to $8\frac{1}{2}^h$ Increase of Dec. (+ 5′). $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 5′). 19^h to 20^h Wave in H.F. (+ ·0012). $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 7′): in H.F. (+ ·0024): decrease of V.F. (− ·0003).

7^d 19^h to 20^h Wave in Dec. (− 4′): in H.F. (+ ·0010).

15^d $9\frac{1}{2}^h$ to 10^h Decrease of H.F. (− ·0014). 15^h to $16\frac{1}{2}^h$ Wave in H.F. (− ·0010). $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in Dec. (− 3′). 20^h to 21^h Wave in H.F. (+ ·0010). 20^h to $21\frac{1}{2}^h$ Double-crested wave in Dec. (− 7′).

16^d $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Wave in Dec. (+ 5′). $0\frac{1}{2}^h$ to $3\frac{1}{2}^h$ Prolonged wave in H.F. (+ ·0014). $1\frac{1}{2}^h$ to 2^h Decrease of V.F. (− ·0004).

17^d 1^h to 3^h Wave in H.F. (− ·0012). $1\frac{1}{2}^h$ to 3^h Wave in Dec. (+ 5′). $15\frac{1}{2}^h$ to 18^h Wave in Dec. (− 6′): fluctuations in H.F. $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0010). 17^d $23\frac{1}{2}^h$ to 18^d $0\frac{1}{2}^h$ Wave in Dec. (+ 3′): in H.F. small.

18^d 16^h to 17^h Wave in Dec. (− 3′): in H.F. small.

19^d 21^h to 22^h Wave in Dec. (− 3′).

21^d 21^h to 23^h Small fluctuations in Dec. and H.F.

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October 22^{d} $1\frac{1}{2}^{h}$ to 3^{h} Wave in Dec. (+ 3′): in H.F. small. 12^{h} to 14^{h} Fluctuations in Dec. and H.F. 22^{d} $22\frac{1}{2}^{h}$ to 23^{d} $1\frac{1}{2}^{h}$ Two successive waves in Dec. (− 4′) and (− 4′). 22^{d} 23^{h} to 23^{d} 1^{h} Wave in H.F. (+ ·0010).

23^{d} 12^{h} to 24^{d} 12^{h} See Plate VI.

24^{d} $18\frac{1}{2}^{h}$ to $20\frac{1}{2}^{h}$ Two successive waves in H.F. (+ ·0016) and (+ ·0012). $18\frac{1}{2}^{h}$ to $21\frac{1}{2}^{h}$ Three successive waves in Dec. (− 6′), (− 7′), and (− 3′).

25^{d} 18^{h} to 20^{h} Small fluctuations in Dec. and H.F. 21^{h} to $21\frac{1}{2}^{h}$ Wave in H.F. (+ ·0014): small double wave in Dec.: decrease of V.F. (− ·0003).

26^{d} 0^{h} to 1^{h} Wave in Dec. (+ 3′). 21^{h} to 22^{h} Wave in Dec. (− 3′). $21\frac{1}{2}^{h}$ to 23^{h} Wave in H.F. (+ ·0016).

27^{d} 17^{h} to 18^{h} Wave in Dec. (− 3′): in H.F. small. 20^{h} to $21\frac{1}{2}^{h}$ Wave in Dec. with superposed fluctuations (− 5′): wave in H.F. (+ ·0016).

November 3^{d} $18\frac{1}{2}^{h}$ to $19\frac{1}{2}^{h}$ Wave in Dec. (− 3′): small double wave in H.F. (+ ·0010 to − ·0008). $23\frac{1}{2}^{h}$ to 24^{h} Increase of Dec. (+ 4′).

4^{d} 0^{h} to $1\frac{1}{2}^{h}$ Wave in H.F. (+ ·0016): small decrease of V.F. 3^{h} to 4^{h} Wave in Dec. (− 3′). $20\frac{1}{2}^{h}$ to $23\frac{1}{2}^{h}$ Two successive waves in Dec. (− 10′) and (− 3′). 22^{h} to $22\frac{1}{2}^{h}$ Sharp wave in H.F. (+ ·0016): decrease of V.F. (− ·0003).

5^{d} $1\frac{1}{2}^{h}$ to 3^{h} Wave in Dec. (+ 3′): in H.F. small. $4\frac{1}{2}^{h}$ to $6\frac{1}{2}^{h}$ Shallow wave in Dec. (+ 3′). $22\frac{1}{2}^{h}$ to 23^{h} Wave in H.F. (+ ·0010).

6^{d} $22\frac{1}{2}^{h}$ to $23\frac{1}{2}^{h}$ Wave in H.F. (+ ·0014): in Dec. small.

7^{d} 12^{h} to 15^{h} Loss of Dec., H.F., and V.F. registers. $19\frac{1}{2}^{h}$ to 20^{h} Small wave in Dec.

11^{d} $21\frac{1}{2}^{h}$ to $23\frac{1}{2}^{h}$ Wave in H.F. (+ ·0024). 11^{d} 22^{h} to 12^{d} $1\frac{1}{2}^{h}$ Prolonged wave in Dec. (− 4′).

12^{d} 18^{h} to 19^{h} Wave in Dec. (− 3′). 18^{h} to 20^{h} Double-crested wave in H.F. (− ·0010). 12^{d} $22\frac{1}{2}^{h}$ to 13^{d} $0\frac{1}{2}^{h}$ Double wave in Dec. (+ 5′ to − 3′): wave in H.F. (+ ·0016): decrease of V.F. (− ·0004).

13^{d} 20^{h} to $20\frac{1}{2}^{h}$ Wave in Dec. (− 3′).

15^{d} $21\frac{1}{2}^{h}$ to 23^{h} Wave in Dec. (− 3′).

19^{d} $7\frac{1}{2}^{h}$ to 10^{h} Prolonged wave in H.F. (+ ·0012). $16\frac{1}{2}^{h}$ to 18^{h} Wave in Dec. (− 3′): in H.F. (− ·0010). $21\frac{1}{2}^{h}$ to $22\frac{1}{2}^{h}$ Wave in Dec. (− 8′): in H.F. (+ ·0020).

22^{d} 8^{h} to 13^{h} Small fluctuations in Dec. and H.F. 13^{h} to $14\frac{1}{2}^{h}$ Double-crested wave in H.F. (− ·0020): $13\frac{1}{2}^{h}$ to 14^{h} Wave in Dec. (+ 5′). 20^{h} to 21^{h} Wave in H.F. (+ ·0016). 20^{h} to 22^{h} Serrated wave in Dec. sharp at commencement (− 11′). 22^{d} 21^{h} to 23^{d} 11^{h} Loss of V.F. register.

23^{d} 2^{h} to $3\frac{1}{2}^{h}$ Wave in Dec (+ 7′). $10\frac{1}{2}^{h}$ to $11\frac{1}{2}^{h}$ Wave in Dec. (+ 4′). $18\frac{1}{2}^{h}$ to $19\frac{1}{2}^{h}$ Wave in Dec. (− 8′): in H.F. (+ ·0016). $21\frac{1}{2}^{h}$ to 23^{h} Wave in Dec. (− 9′): in H.F. (+ ·0014).

24^{d} 21^{h} to 22^{h} Wave in Dec. (− 4′): in H.F. (+ ·0014).

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

30^{d} 21^{h} to 22^{h} Wave in Dec. (− 3′): in H.F. small. 22^{h} to 23^{h} Wave in H.F. (+ ·0010).

December 1^{d} 2^{h} to 3^{h} Wave in Dec. (+ 3′): in H.F. small. 15^{h} to 16^{h} Wave in H.F. (− ·0010). 17^{h} to $17\frac{1}{2}^{h}$ Wave in H.F. (− ·0016). 17^{h} to $18\frac{1}{2}^{h}$ Wave in Dec. (− 4′). 20^{h} to 22^{h} Flat-crested wave in Dec. (− 4′). 21^{h} to 22^{h} Wave in H.F. (− ·0010).

2^{d} 12^{h} to 13^{h} Wave in H.F. (− ·0016): in Dec. small. $18\frac{1}{2}^{h}$ to 20^{h} Two successive waves in Dec. (− 4′) and (− 4′): wave in H.F. (+ ·0018).

3^{d} $0\frac{1}{2}^{h}$ to 1^{h} Increase of Dec. (+ 4′). $0\frac{1}{2}^{h}$ to $1\frac{1}{2}^{h}$ Wave in H.F. (+ ·0010). 19^{h} to 20^{h} Wave in Dec. (− 9′): double wave in H.F. (− ·0010 to + ·0010).

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

7^{d} 22^{h} to $23\frac{1}{2}^{h}$ Double wave in H.F. (− ·0010 to + ·0010). $22\frac{1}{2}^{h}$ to 23^{h} Decrease of Dec. (− 3′).

8^{d} 15^{h} to 19^{h} Small fluctuations in Dec. and H.F.

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

12^{d} 4^{h} to 5^{h} Wave in Dec. (+ 3′): increase of H.F. (+ ·0010).

17^{d} 21^{h} to 22^{h} Wave in Dec. (− 5′).

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December 18^d 13^h to 17^h Loss of Dec., H.F., and V.F. registers. 19^h to 21$\frac{1}{2}^h$ Three successive waves in Dec. (− 3′), (− 8′), and (− 7′). 19$\frac{1}{2}^h$ to 20$\frac{1}{2}^h$ Sharp wave in H.F. (+ ·0040), followed till 23^h by a long shallow wave (+ ·0012). 20^h to 21^h Wave in V.F. (− ·0003).

19^d 0^h to 1^h Wave in Dec. (+ 6′): in H.F. (+ ·0012). 2^h to 4^h Double wave in Dec. (− 5′ to + 4′): small fluctuations in H.F. 2$\frac{1}{2}^h$ to 3^h Wave in V.F. (+ ·0003). 9$\frac{1}{2}^h$ to 10$\frac{1}{4}^h$ Wave in Dec. (+ 3′). 16$\frac{1}{2}^h$ to 17$\frac{1}{2}^h$ Wave in Dec. (− 6′): in H.F. (+ ·0012). 18^h to 21^h Fluctuations in Dec. and H.F. 21^h to 22^h Flat-crested wave in Dec. (− 6′). 21$\frac{1}{2}^h$ to 22^h Wave in H.F. (+ ·0020). 22^h to 23$\frac{1}{2}^h$ Wave in Dec. (− 5′): in V.F. (− ·0003). 23^h to 24^h Wave in H.F. (− ·0010).

20^d 15$\frac{1}{2}^h$ to 16$\frac{1}{2}^h$ Wave in Dec. (− 3′). 18^h to 21^h Wave in Dec. with superposed fluctuations (− 5′): two successive shallow waves in H.F. (+ ·0012) and (+ ·0010).

21^d 16$\frac{1}{2}^h$ to 18^h Wave in Dec. (− 8′): in H.F. (− ·0024). 23$\frac{1}{2}^h$ to 24^h Wave in Dec. (− 3′): in H.F. (+ ·0010).

22^h 0$\frac{1}{2}^h$ to 1^h Small wave in Dec. 1^h to 2$\frac{1}{2}^h$ Wave in H.F. (− ·0010).

23^d 0^h to 1^h Wave in Dec. (− 3′): in H.F. (+ ·0010).

26^d 17^h to 18^h Wave in Dec. (− 3′): in H.F. (− ·0016). 20^h to 22^h Wave in Dec. (− 5′): in H.F. (− ·0010). 22$\frac{1}{2}^h$ to 24^h Wave in Dec. (− 3′): in H.F. (+ ·0016): small decrease of V.F.

27^d 16$\frac{1}{2}^h$ to 17$\frac{1}{2}^h$ Wave in Dec. (− 4′): in H.F. small. 19^h to 20^h Wave in Dec. (− 4′).

28^d 2^h to 3$\frac{1}{2}^h$ Wave in Dec. (+ 6′): shallow wave in H.F. (+ ·0010). 6^h to 7^h Wave in H.F. (+ ·0010). 14^h to 15^h Wave in Dec. (− 3′): small fluctuations in H.F. 18^h to 19$\frac{1}{2}^h$ Sharp wave in Dec. (− 11′): double wave in H.F. (− ·0014 to + ·0014): small wave in V.F.

29^d 0^h to 1^h Wave in Dec. (+ 4′): in H.F. (+ ·0026). 13$\frac{1}{2}^h$ to 15^h Shallow wave in H.F. (− ·0010): fluctuations in Dec. 17$\frac{1}{2}^h$ to 19$\frac{1}{2}^h$ Two successive waves in Dec. (− 7′) and (− 3′): wave in H.F. (+ ·0018). 21$\frac{1}{2}^h$ to 22$\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. small. 17^h to 21^h Fluctuations in V.F.

30^d 19$\frac{1}{2}^h$ to 20$\frac{1}{2}^h$ Wave in Dec. (− 3′).

31^d 2^h to 3^h Wave in Dec. (+ 3′). 18^h to 20^h Loss of Dec. and H.F. registers.

EXPLANATION OF THE PLATES.

The magnetic motions figured on the Plates are :—

(1.) Those for days of great disturbance—None in 1899.

(2.) Those for days of lesser disturbance—January 28–29, February 11–12, 12–13, 14–15, 23–24, March 21–22, 23–24, April 18–19, May 1–2, 3–4, 15–16, June 28–29, 29–30, July 3–4, September 26, October 23–24.

(3.) Those for four quiet days—January 10, April 16, July 15, October 10—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 $0^{\text{in.}}80 = 20\overset{\text{mm.}}{\cdot}3$ in the declination curve, by $0^{\text{in.}}76 = 19\overset{\text{mm.}}{\cdot}4$ in the horizontal force curve, and by $0^{\text{in.}}70 = 17\overset{\text{mm.}}{\cdot}8$ in the vertical force curve.

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

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

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

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

Plate I.

Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1899.

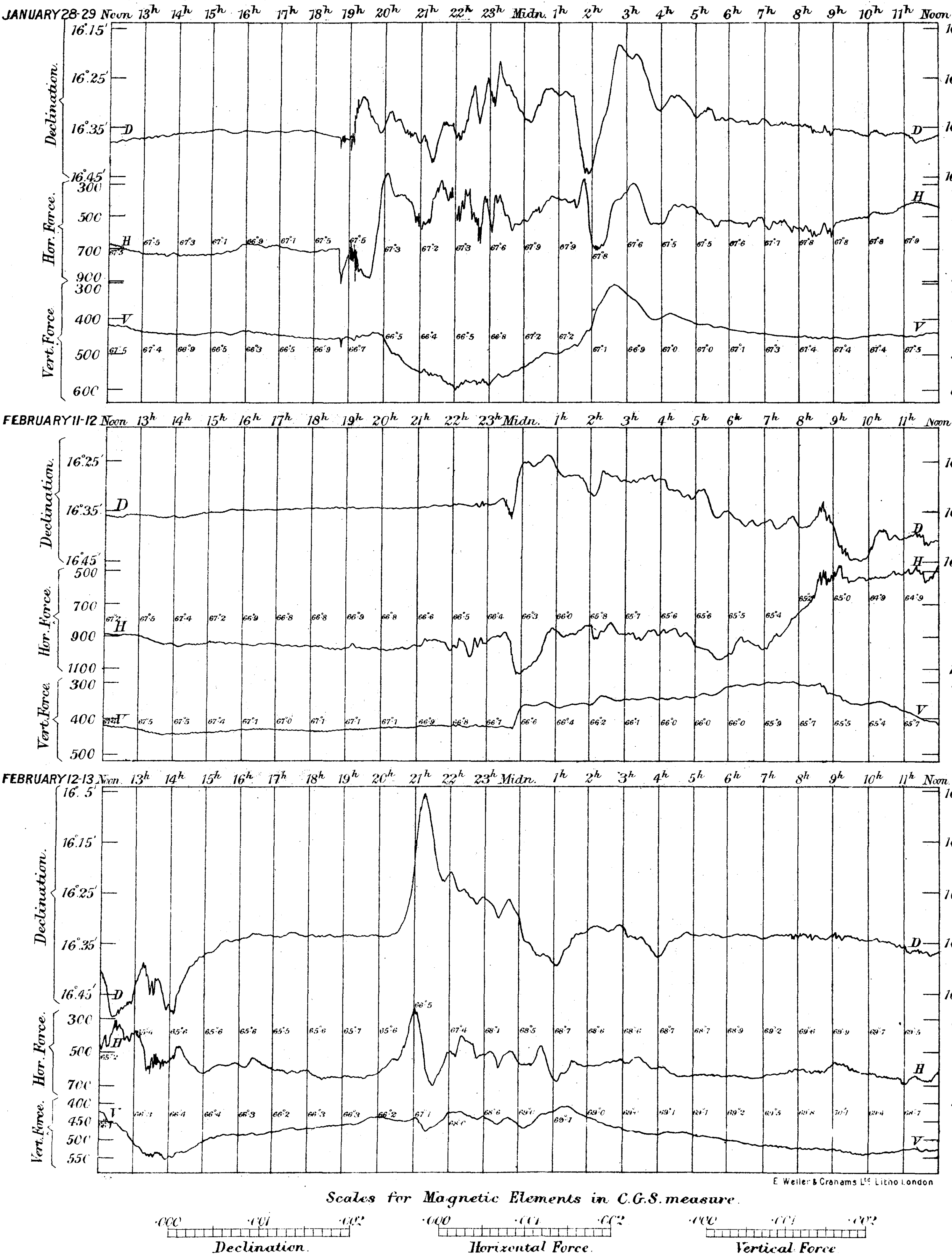
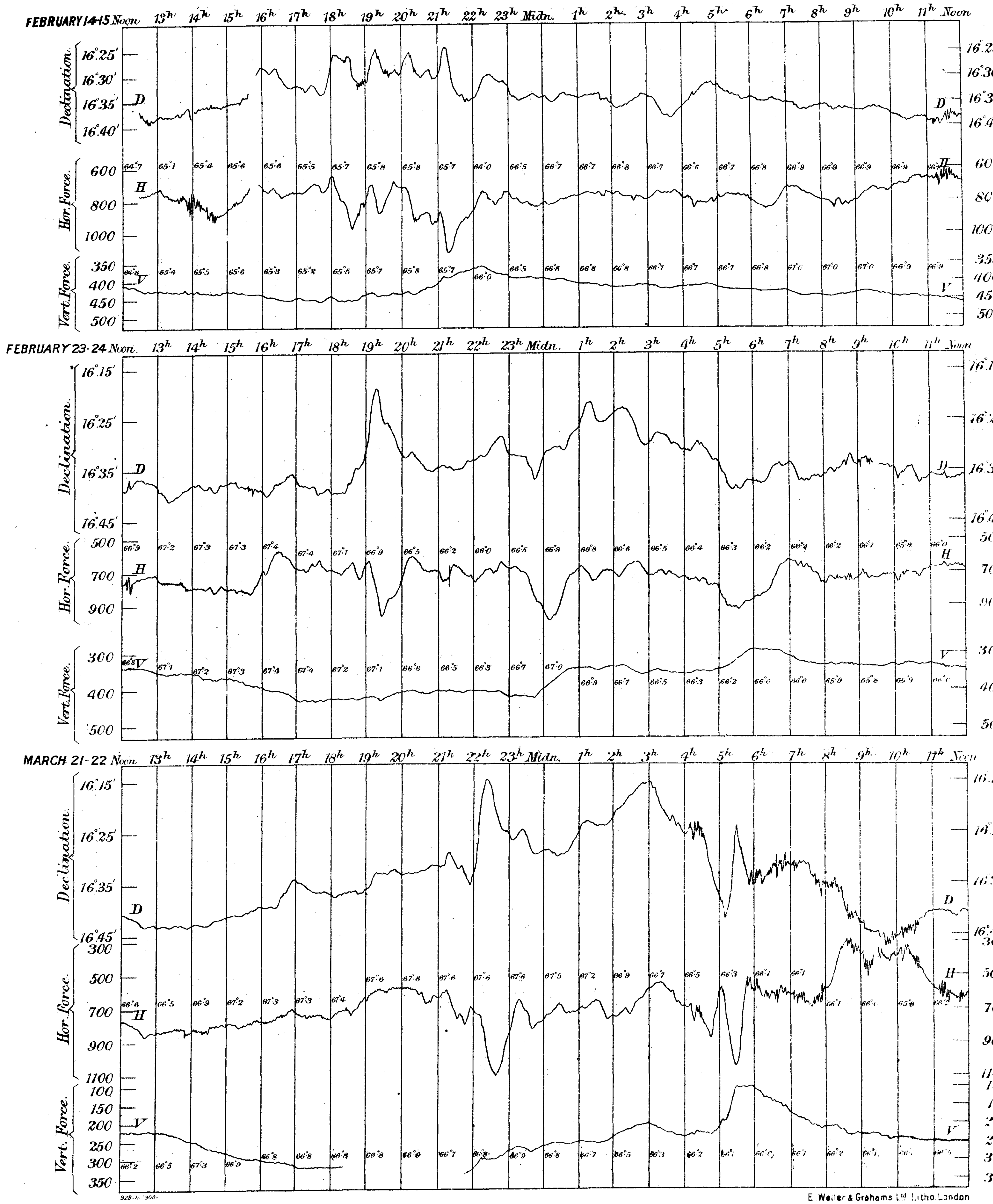
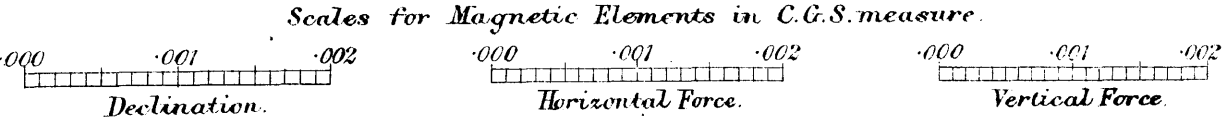


Plate II.

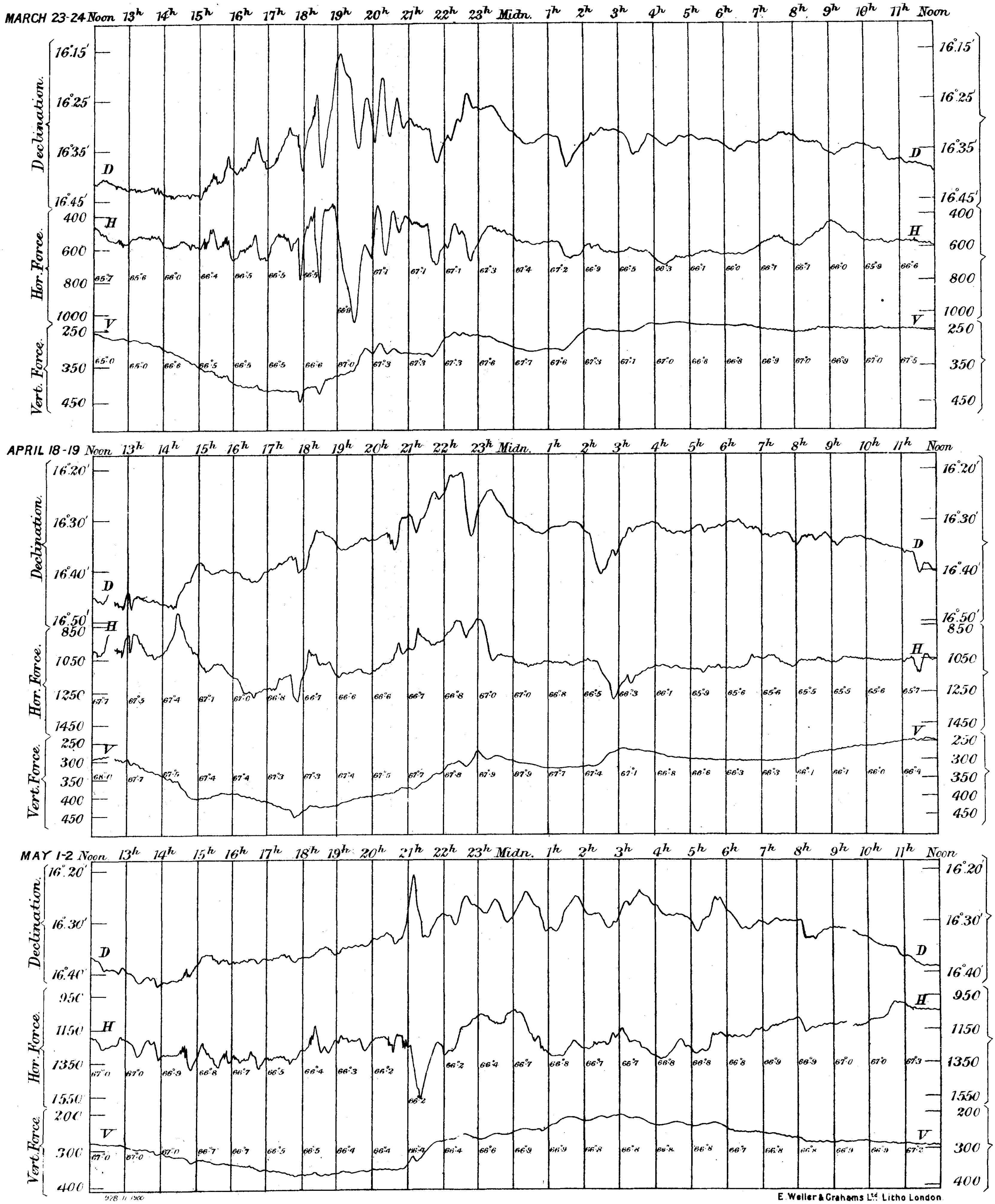
Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1899.



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



Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1899.



E. Weller & Grahams Ltd. Litho London

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

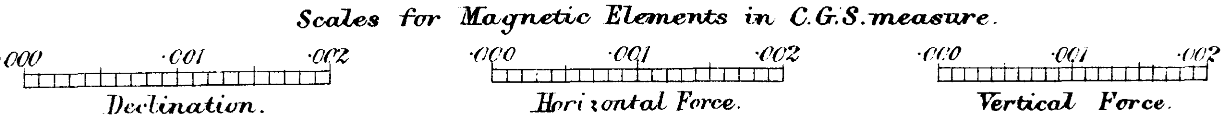
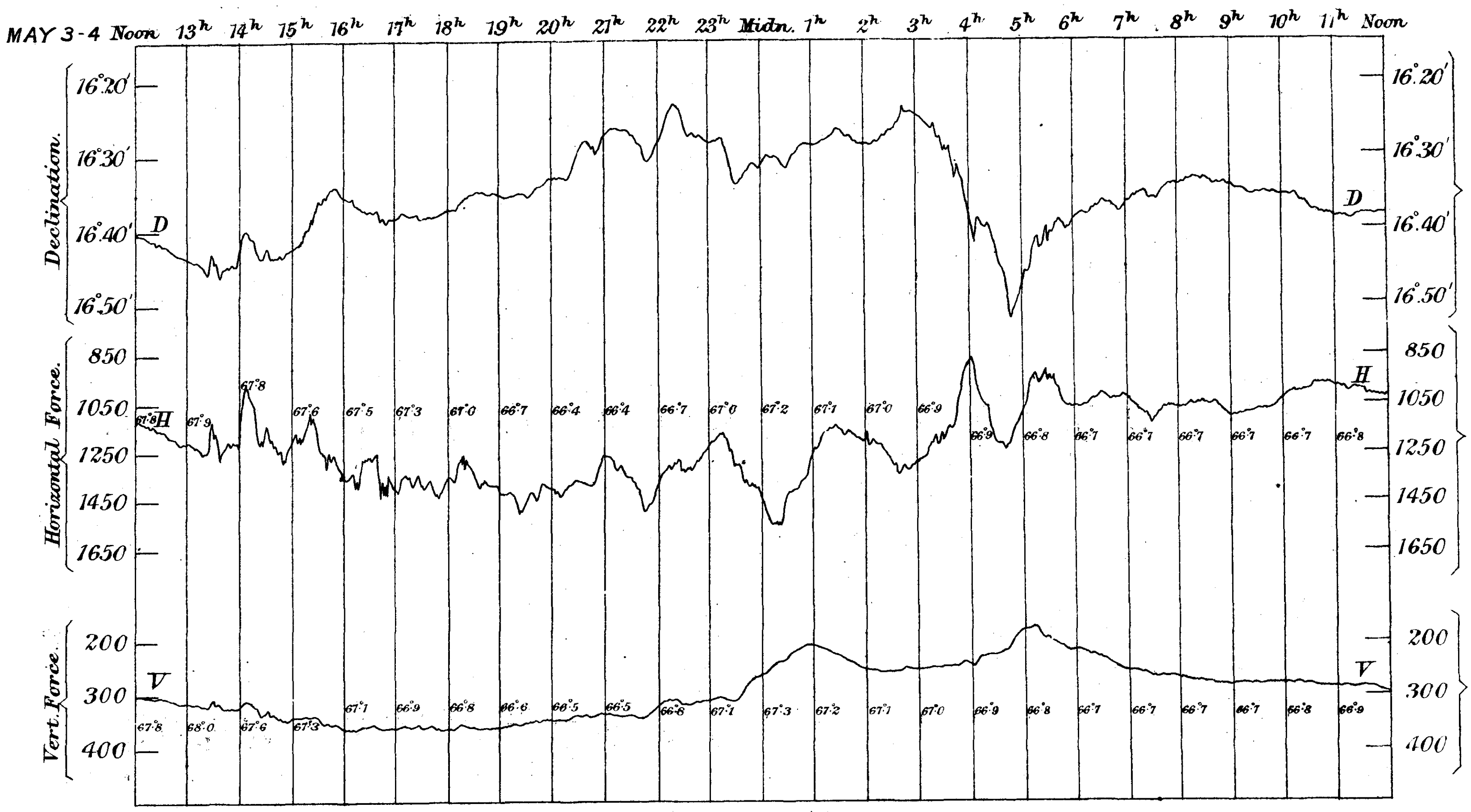
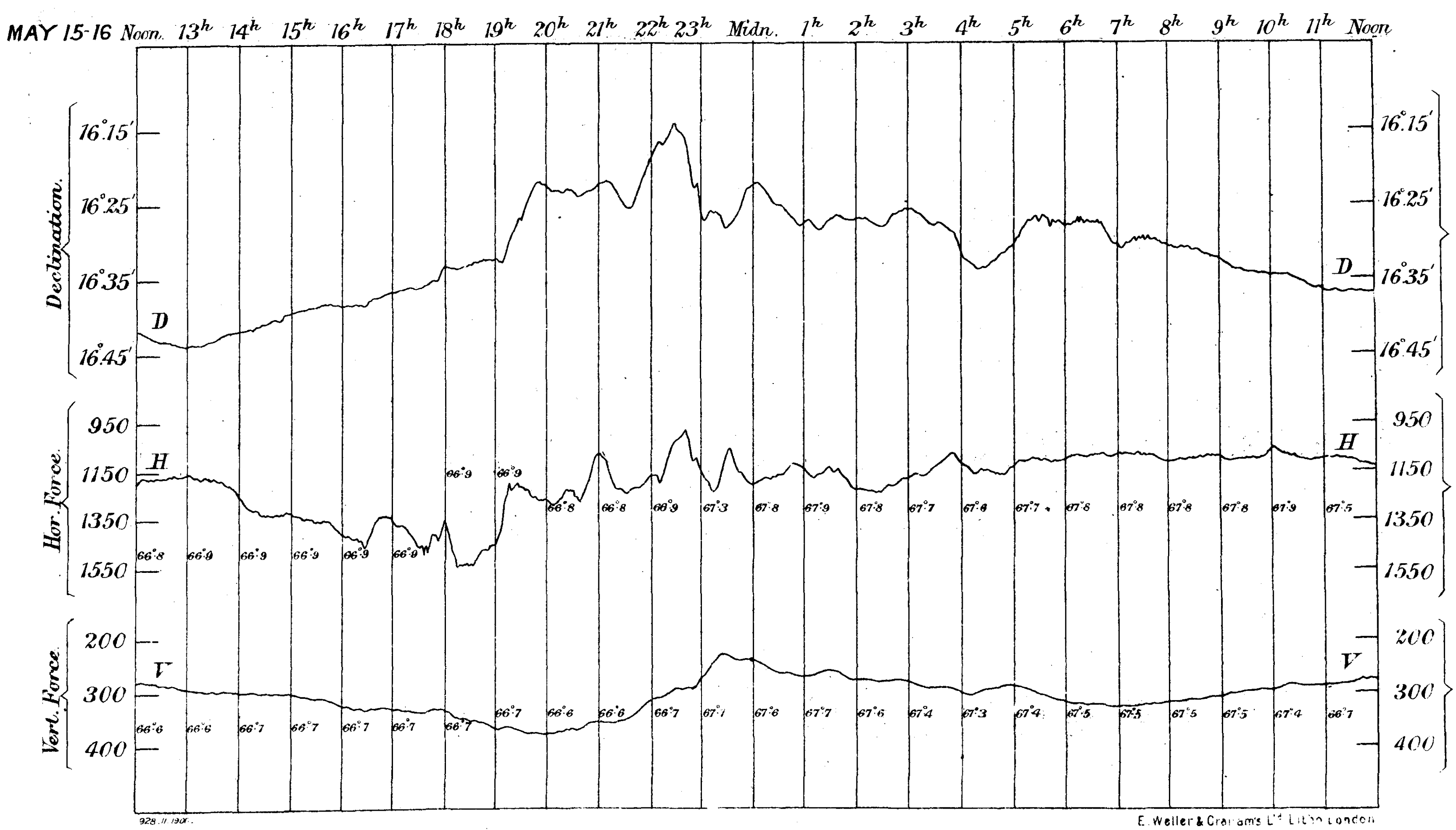


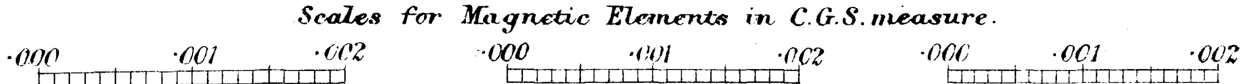
Plate IV.

Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1899.

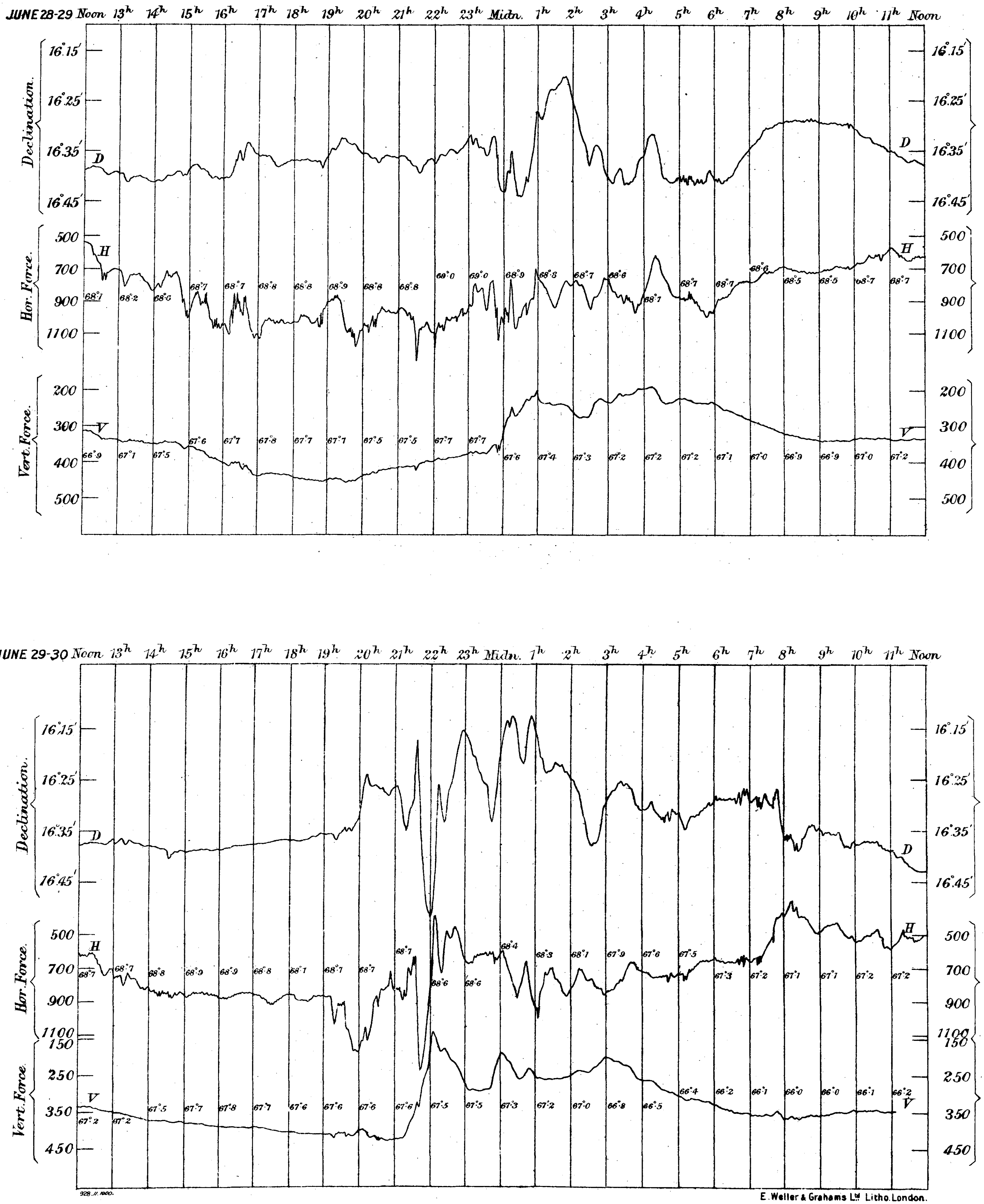




Scales for Magnetic Elements in C.G.S. measure.



Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1899.



E. Weller & Grahams Ltd. Litho. London.

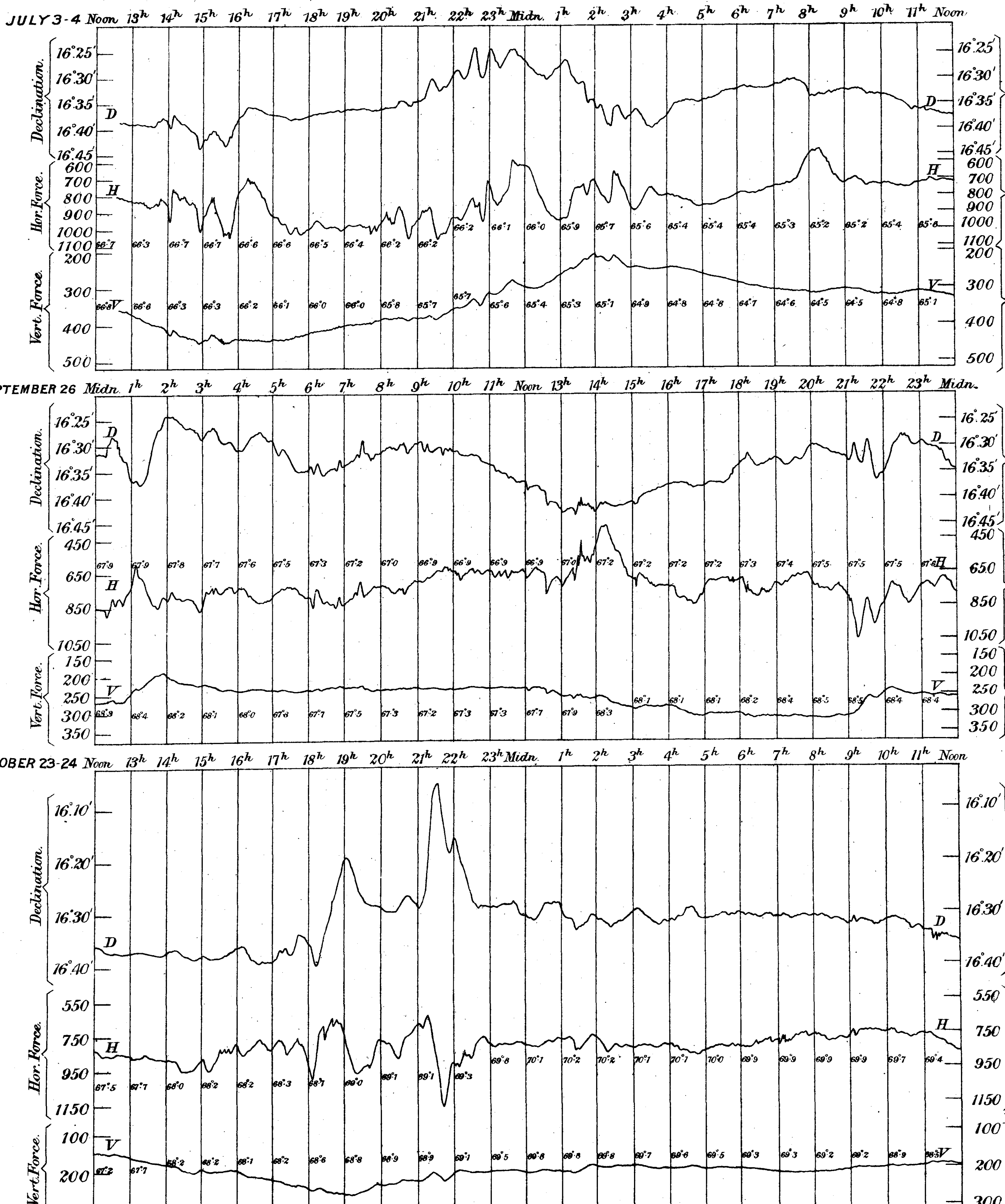
Scales for Magnetic Elements in C.G.S. measure.

·000 ·001 ·002 Declination.

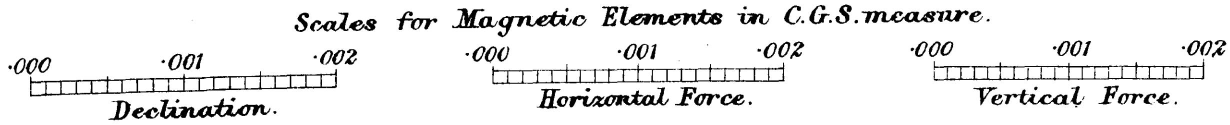
·000 ·001 ·002 Horizontal Force.

·000 ·001 ·002 Vertical Force.

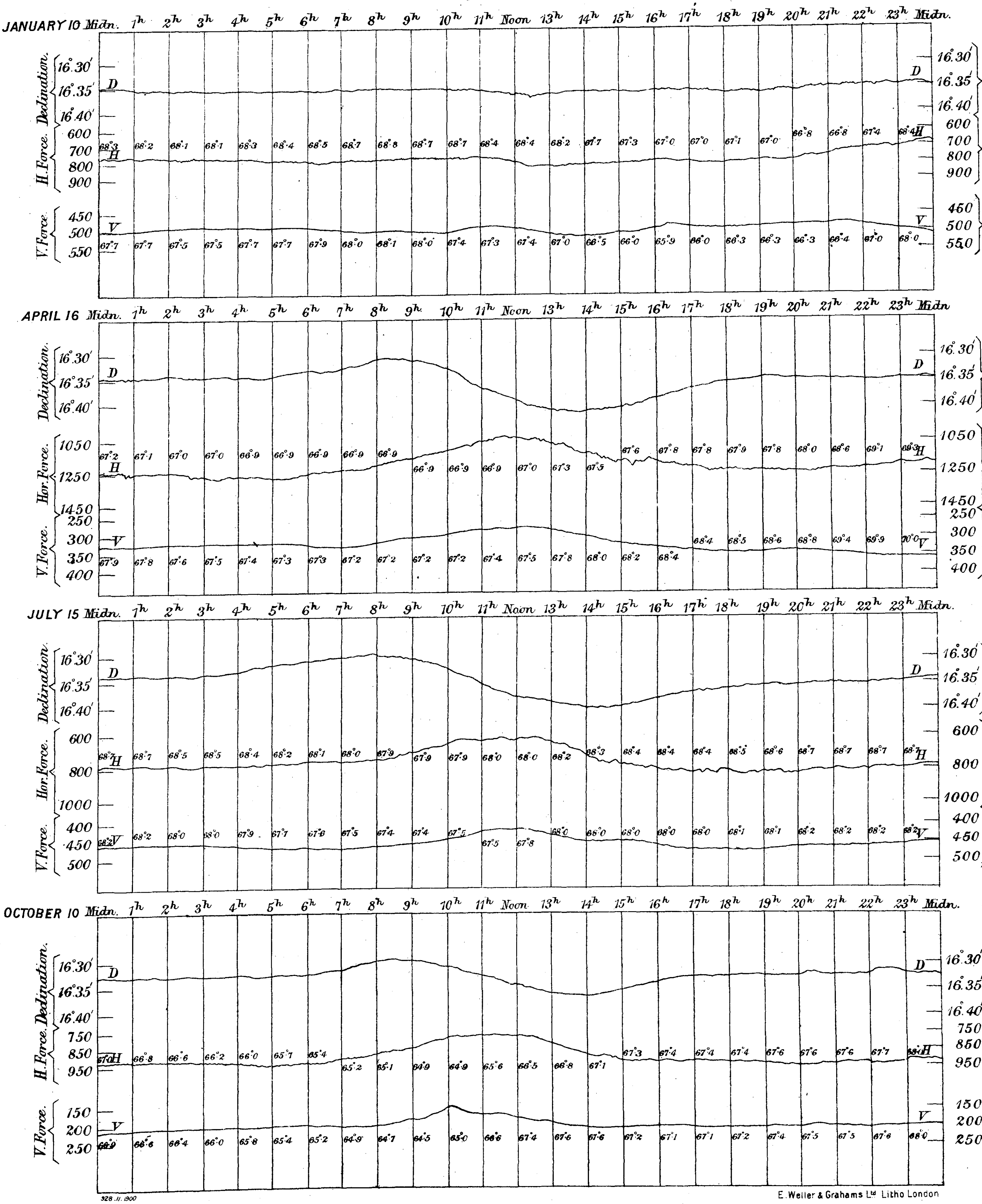
Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1899.



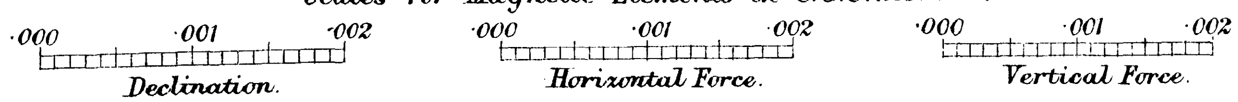
Scales for Magnetic Elements in C.G.S. measure.



Types of Magnetic Diurnal Variations at four seasons of the Year recorded at the Royal Observatory, Greenwich, 1899.



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



ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

METEOROLOGICAL OBSERVATIONS.

1899.

MONTH and DAY 1899.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Of the Air. Lowest.	Of the Air. Daily Range.	Of the Air. Mean of 24 Hourly Values.	Of the Air. Excess above Average of 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	...	29·015	42·2	33·6	8·6	39·0	+ 0·5	37·9	36·5	2·5	6·4	0·5	91	56·1	28·8	0·051	0·5	wP : wP : wN, wP
2	...	28·842	42·0	35·6	6·4	38·7	+ 0·2	36·5	33·5	5·2	8·4	1·4	83	60·8	33·0	0·154	1·5	wP : wP, vN : wP, wN
3	In Equator	29·566	44·2	39·2	5·0	41·3	+ 2·8	38·7	35·5	5·8	7·9	4·1	80	56·4	35·9	0·003	0·0	wP
4	...	29·825	53·0	41·3	11·7	49·2	+10·8	47·9	46·5	2·7	4·2	1·0	91	64·9	37·1	0·007	0·0	wP : wwP
5	Last Quarter	30·130	50·6	31·3	19·3	41·4	+ 3·1	39·8	37·8	3·6	6·8	0·9	88	51·9	23·1	0·000	0·0	wwP
6	...	30·076	45·8	30·2	15·6	40·6	+ 2·4	39·6	38·4	2·2	5·3	0·7	92	54·4	22·2	0·005*	0·0	wP
7	...	29·690	50·2	42·2	8·0	46·8	+ 8·7	45·7	44·5	2·3	4·8	0·7	92	71·7	39·0	0·029	0·0	wwP, wwN
8	...	29·589	54·1	44·3	9·8	49·3	+11·3	47·1	44·7	4·6	8·8	2·1	85	86·8	38·6	0·000	0·0	wP
9	Greatest Declination S.	29·381	52·3	43·7	8·6	47·9	+10·0	45·2	42·2	5·7	10·2	2·9	82	84·2	37·3	0·000	1·5	wwP
10	...	29·189	50·5	40·9	9·6	47·3	+ 9·4	44·8	42·1	5·2	8·2	2·2	83	62·3	32·1	0·175	4·5	wwP : wwP, wN : wP, mN
11	New	29·351	44·6	36·2	8·4	40·6	+ 2·7	38·8	36·5	4·1	6·4	2·6	86	66·2	32·0	0·125	0·0	wP : vP, vN : wP
12	Perigee	29·233	54·5	37·6	16·9	45·7	+ 7·8	42·6	39·1	6·6	13·0	1·9	78	75·1	32·0	0·275	0·0	wwP, wwN : wwP, wN : wP
13	...	29·513	54·1	39·6	14·5	44·5	+ 6·5	42·1	39·3	5·2	12·6	0·2	82	54·1	35·0	0·451	0·0	wP : wN, wP
14	...	29·766	45·0	36·4	8·6	40·2	+ 2·0	38·4	36·1	4·1	7·9	1·8	86	59·1	29·1	0·000	0·0	wP
15	In Equator	29·677	54·1	36·0	18·1	46·2	+ 7·9	44·7	43·0	3·2	4·8	1·7	89	54·1	28·5	0·255	1·5	wP : wP, wwN : wwP
16	...	29·292	53·1	42·6	10·5	48·5	+10·0	45·9	43·1	5·4	9·0	1·8	82	87·8	38·9	0·276	4·5	wwP, wwN : wwP, wwN : wP
17	...	29·717	43·3	34·2	9·1	38·3	− 0·2	35·7	32·2	6·1	9·9	1·1	79	62·0	28·8	0·095	0·0	mP, wN : mP : mP, mN
18	First Quarter	29·647	52·7	41·0	11·7	48·8	+10·3	46·7	44·5	4·3	7·8	0·2	85	64·3	37·1	0·040	0·0	wP : wwP
19	...	29·499	53·0	45·5	7·5	50·3	+11·8	48·2	46·0	4·3	5·4	2·4	86	63·7	40·0	0·072	0·0	wwP : wwP, wwN
20	...	29·528	52·1	43·8	8·3	48·0	+ 9·6	45·7	43·2	4·8	6·5	2·2	84	63·8	37·7	0·087	1·5	wP : wP, wwN
21	...	29·295	55·3	50·0	5·3	52·6	+14·3	50·0	47·4	5·2	8·9	3·0	82	67·0	47·7	0·166	6·5	wwP, wwN
22	Greatest Declination N.	29·281	53·0	44·6	8·4	49·7	+11·4	45·3	40·6	9·1	11·8	6·2	71	80·5	40·0	0·000	3·0	wwP : wP
23	...	29·673	44·6	37·2	7·4	41·5	+ 3·1	39·1	36·1	5·4	8·8	2·4	82	46·1	34·2	0·084	0·0	wP : vN, wP : mP
24	...	30·203	41·8	31·4	10·4	36·6	− 1·9	34·4	31·2	5·4	8·5	2·5	81	71·9	23·4	0·000	0·0	mP : mP : sP
25	Apogee	30·442	39·1	29·3	9·8	33·6	− 5·2	30·5	24·8	8·8	14·3	5·8	69	83·0	22·1	0·000	0·0	mP : sP
26	Full	30·448	42·1	31·2	10·9	35·4	− 3·6	33·0	29·3	6·1	10·8	3·9	77	87·0	25·8	0·000	0·0	sP : mP
27	...	30·260	42·2	31·9	10·3	35·6	− 3·7	33·5	30·3	5·3	10·1	2·7	81	80·3	25·3	0·003*	0·0	mP : sP
28	...	30·092	39·4	30·2	9·2	34·5	− 5·0	33·4	31·6	2·9	6·4	0·2	89	79·0	23·8	0·000	0·0	sP : mP
29	...	29·860	41·4	36·7	4·7	38·7	− 1·0	38·0	37·1	1·6	4·1	0·5	94	45·4	33·1	0·159	0·2	... : vN, mP
30	In Equator	29·729	43·7	34·6	9·1	39·0	− 0·8	37·2	34·9	4·1	7·7	1·8	86	63·0	29·1	0·016	0·8	wP : mP, sN : mP
31	...	29·537	39·0	31·2	7·8	35·8	− 4·0	34·7	33·0	2·8	4·6	1·6	90	47·0	25·1	0·000	0·0	sP
Means	...	29·656	47·5	37·5	10·0	42·8	+ 4·2	40·7	38·1	4·7	8·1	2·0	84·1	66·1	32·1	Sum 2·528	0·8	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 deduced from the 50 years' observations, 1841–1890. 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). Amounts entered on January 6 and 27 are derived from frost and fog.

The mean reading of the *Barometer* for the month was 29in·656, being 0in·122 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 55°·3 on January 21; the lowest in the month was 29°·3 on January 25; and the range was 26°·0.
The mean of all the highest daily readings in the month was 47°·5, 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 37°·5, being 3°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 10°·0, being 0°·5 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 42°·8, being 4°·2 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Jan. 1	0·9	7·9	WSW : SW	SW : S : WSW	7·7	0·0	0·42	300	10, shs.-r : p.-cl, slt.-f : p.-cl	v, shs.-r : v, w
2	2·3	7·9	WSW : SW : W	W : WNW	22·5	0·0	1·45	601	9 : 10 : v, r, hl, sn	6, cu, li.-cl : 10, st.-w, oc.-shs, sl
3	0·7	7·9	WNW : NW	NNW : SW : SSW	9·9	0·0	0·90	435	10, w, shs.-r : 5, li.-cl	8 : 10 : 10, slt.-r
4	1·6	7·9	SW : WSW	WSW : SW	3·7	0·0	0·28	345	10, slt.-r : 10 : 3, li.-cl	10, slt.-r : 10 : vv, slt.-r
5	0·1	8·0	NW : SW	WSW : W : NNE	1·7	0·0	0·03	155	v : 0, f, ho.-fr : 1, li.-cl, slt.-f	1, slt.-f : 0, slt.-f, ho.-fr
6	0·0	8·0	ENE : ESE : SSE	SSE : SE	2·5	0·0	0·07	155	0, slt.-f, ho.-fr : 10 : 10	10, slt.-r : 10 : 10
7	1·1	8·0	ESE : S : SSW	SSW	2·4	0·0	0·10	240	10 : 10 : 9	10, oc.-slt.-r : 10, oc.-slt.-r
8	4·2	8·0	SSW : SW	S : SSE	2·0	0·0	0·17	270	10 : 10 : p.-cl	2, th.-cl : 0
9	6·3	8·1	SSE : S	S : SSE	5·0	0·0	0·50	363	1, li.-cl, d : 0 : 0	0 : p.-cl : th.-cl, w
10	2·4	8·1	S : SSW	SW : SSW : S	7·3	0·0	0·65	394	10 : 10, shs.-r : 9, oc.-slt.-r	v, fq.-shs : 0 : v, hy.-sh, hl, sqs
11	2·5	8·1	SW : SSW	SSW : W : WSW	4·0	0·0	0·31	351	10 : v, slt.-sh : p.-cl	10, sc, fq.-shs : 1
12	0·8	8·2	SW : SSW : S	SW : WSW : W	32·0	0·0	3·10	864	p.-cl : 10, shs.-r, w : 10, sc, th.-r, w	10, c.-r, g : p.-cl, g : p.-cl, g
13	0·0	8·2	WSW : SW : SSW	SE : WSW : NW	15·9	0·0	1·19	503	li.-cl, st.-w : p.-cl : 10, r	10, sc, r : 10, r, w : 0, d
14	4·1	8·2	WSW	W : WSW	1·4	0·0	0·08	275	p.-cl : 1 li.-cl	p.-cl : 0 : 0
15	0·0	8·3	WSW : SSW : S	SW	12·0	0·0	0·80	458	th.-cl : 10, r	10, r, st.-w : 10, w
16	0·8	8·3	SW : WSW	SW : WSW	17·0	0·0	1·89	698	10, fq.-r, w : 10, w : p.-cl, so.-ha, w	v, sc, shs.-r, hl, w : 0, l
17	2·3	8·4	WSW : NNW	WSW : SSW : SE	7·8	0·0	0·43	335	v, sh.-r, ho.-fr : 1, th.-cl	p.-cl : 10, c.-r
18	0·0	8·4	WSW : SW	WSW : SW	11·5	0·0	1·10	526	10, r : 10, slt.-r	10, w : 10, w
19	0·0	8·5	SW	SSW	14·2	0·0	1·37	573	10, slt.-r, w : 10, sc, oc.-slt.-r, w	10, sc, fq.-shs, w : 0, d, lu.-ha
20	0·1	8·5	SSW : S	SSW	14·5	0·0	1·19	556	p.-cl, d : li.-cl : 9	10, sc, fq.-r, w : 10, sc, fq.-r, w
21	0·1	8·6	SSW	SSW	28·0	0·0	3·60	950	10, sc, fq.-shs, g : 10, sc, oc.-slt.-r, g	10, fq.-r, g : 10, fq.-r, g
22	4·4	8·6	SSW : SW	WSW : SW	22·3	0·0	2·24	746	p.-cl, st.-w : p.-cl, w	p.-cl, w : 0, w
23	0·0	8·6	WSW : N	N	8·8	0·0	0·86	445	p.-cl : 10, r	10 : 10
24	3·6	8·7	N	NNE : NE : ENE	1·6	0·0	0·05	248	10 : 9	1, li.-cl : 0 : 0, ho.-fr
25	7·2	8·7	ENE : NE	ENE : NE	4·3	0·0	0·20	288	0, ho.-fr : 0	0 : 0, ho.-fr
26	7·0	8·8	ENE : NE	ENE : NE	6·0	0·0	0·43	361	v, li.-cl, ho.-fr : 1, li.-cl	li.-cl : 0 : 0, ho.-fr
27	7·1	8·8	NNE : NE	ENE : NE : NNE	4·1	0·0	0·35	359	0, ho.-fr : 0	0 : 0, ho.-fr
28	6·5	8·9	NE	NE : NNE	3·6	0·0	0·18	318	0, ho.-fr : 0	0 : 10, slt.-f
29	0·0	8·9	NNE : N	N : NNE : NE	2·0	0·0	0·03	193	10 : 10 : 10, r	10, r : 10 : 9, shs.-r
30	1·2	9·0	NNE : ENE	NE : ENE	2·2	0·0	0·20	308	10 : 10, shs.-r : p.-cl, oc.-shs	p.-cl : p.-cl
31	0·0	9·1	NE	NNE : N : SW	0·0	0·0	0·00	130	v, fr : 10	10 : 10, slt.-f
Means	2·2	8·4	...	...	...	...	0·78	411		
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°·7, being 3°·5 *higher* than the average for the 50 years, 1841–1890.
The mean *Temperature of the Dew Point* for the month was 38°·1, being 2°·7 *higher* than the average for the 50 years, 1841–1890.
The mean *Degree of Humidity* for the month was 84·1, being 4·7 *less* than the average for the 50 years, 1841–1890.
The mean *Elastic Force of Vapour* for the month was 0in·230, being 0in·023 *greater* than the average for the 50 years, 1841–1890.
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·7, being 0gr·3 *greater* than the average for the 50 years, 1841–1890.
The mean *Weight of a Cubic Foot of Air* for the month was 547 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 6·0.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·259. The maximum daily amount of *Sunshine* was 7·2 hours on January 25.

The highest reading of the *Solar Radiation Thermometer* was 87°·8 on January 16; and the lowest reading of the *Terrestrial Radiation Thermometer* was 22°·1 on January 25.

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

The *Proportions of Wind* referred to the cardinal points were N. 7, E. 4, S. 11, and W. 9.

The *Greatest Pressure of the Wind* in the month was 32·0 lbs. on the square foot on January 12. The mean daily *Horizontal Movement of the Air* for the month was 411 miles; the greatest daily value was 950 miles on January 21; and the least daily value was 130 miles on January 31.

Rain fell on 18 days in the month, amounting to 2in·528, as measured by gauge No. 6 partly sunk below the ground; being 0in·539 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	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	...	29.309	39.1	32.8	6.3	36.8	− 2.9	35.0	32.5	4.3	9.0	1.0	85	44.0	27.8	0.000	0.0	mP : sP
2	...	29.355	39.8	29.4	10.4	33.3	− 6.4	31.3	27.5	5.8	12.0	1.5	79	67.9	26.3	0.000	0.0	sP
3	Last Quarter	29.670	37.3	27.5	9.8	32.6	− 7.1	31.4	28.9	3.7	6.0	0.0	86	52.4	20.9	0.000	0.0	sP
4	...	29.763	40.4	21.9	18.5	32.2	− 7.6	30.1	25.4	6.8	11.5	0.0	75	83.0	16.5	0.000	0.0	sP : mP
5	...	29.468	37.8	33.8	4.0	36.2	− 3.6	35.2	33.7	2.5	5.0	0.7	91	42.0	28.8	0.410	1.2	mP, vN : vN, wP : wP
6	Greatest Declination S.	29.575	40.2	34.6	5.6	36.9	− 2.8	36.0	34.7	2.2	4.1	0.5	92	47.0	32.6	0.196	3.8	wP : wP : vN, wwP
7	...	29.365	54.8	37.2	17.6	46.3	+ 6.9	44.8	43.1	3.2	9.2	0.0	89	91.3	36.0	0.010	0.5	wP
8	...	29.267	53.2	47.2	6.0	50.6	+11.5	49.0	47.3	3.3	4.4	2.4	89	55.0	42.0	0.430	2.7	wP, vN : wwP, wwN
9	Perigee	29.297	57.6	47.9	9.7	52.8	+14.1	49.5	46.2	6.6	12.9	3.0	79	70.3	44.2	0.127	3.8	wwP, wN
10	New	29.374	63.9	50.3	13.6	56.8	+18.4	50.0	43.8	13.0	19.3	6.0	62	105.3	44.3	0.000	1.0	wwP : wP
11	...	29.359	54.6	48.0	6.6	51.5	+13.2	47.8	44.0	7.5	10.6	4.6	76	82.5	42.3	0.011	3.0	wP : wP, vN
12	In Equator	29.171	48.9	42.8	6.1	46.1	+ 7.6	42.8	39.1	7.0	10.7	1.9	77	82.9	39.0	0.206	0.0	wP, vN : wP, sN : mP
13	...	29.138	54.4	45.7	8.7	49.8	+11.0	46.8	43.6	6.2	10.9	1.3	80	86.6	40.4	0.117	3.0	wwP : wP, vN
14	...	29.399	52.0	43.2	8.8	47.1	+ 7.9	44.5	41.6	5.5	8.6	1.9	82	82.1	38.5	0.059	0.0	wP, wN
15	...	29.619	51.3	39.7	11.6	46.3	+ 6.7	44.4	42.2	4.1	8.2	0.8	87	67.3	33.0	0.187	0.0	wP : wP : wP, vN
16	...	29.735	50.3	37.8	12.5	44.2	+ 4.4	42.0	39.4	4.8	11.4	0.6	83	84.1	31.0	0.137	0.0	vN, wP : mP : wP
17	First Quarter	29.874	55.0	36.0	19.0	44.2	+ 4.4	42.6	40.7	3.5	11.2	0.0	88	100.0	30.0	0.004*	0.0	wP
18	...	29.891	49.8	34.4	15.4	41.2	+ 1.5	40.7	40.1	1.1	3.8	0.0	96	75.7	28.8	0.000	0.0	wP : wP : mP
19	Greatest Declination N.	29.990	47.2	38.7	8.5	44.9	+ 5.3	44.4	43.8	1.1	2.9	0.2	96	54.0	33.2	0.021	0.0	wP
20	...	30.046	46.4	42.8	3.6	44.3	+ 4.8	43.2	41.9	2.4	4.4	0.6	92	55.0	40.7	0.000	0.0	wwP : wP
21	...	30.137	45.5	36.4	9.1	41.7	+ 2.2	39.4	36.5	5.2	8.8	3.1	83	99.5	30.5	0.000	0.0	wP : wP : mP
22	Apogee	30.175	49.0	32.9	16.1	39.5	− 0.1	36.3	32.1	7.4	16.0	2.2	76	101.1	25.2	0.000	0.0	mP : sP
23	...	30.114	52.1	29.2	22.9	40.3	+ 0.5	36.2	30.9	9.4	20.2	2.7	69	109.3	22.2	0.002*	0.0	sP
24	...	30.126	52.8	28.0	24.8	38.2	− 1.7	35.7	32.3	5.9	17.6	0.0	79	100.0	19.0	0.002*	0.0	sP : mP : sP
25	Full	30.174	44.1	29.7	14.4	35.4	− 4.6	34.0	31.8	3.6	10.1	0.0	87	86.7	18.9	0.005*	0.0	mP
26	In Equator	30.209	44.7	26.2	18.5	34.4	− 5.7	32.5	29.3	5.1	14.7	0.0	81	91.0	15.9	0.003*	0.0	sP
27	...	30.351	43.3	22.0	21.3	33.7	− 6.4	32.2	29.5	4.2	10.1	0.0	85	86.0	17.0	0.000	0.0	sP : mP
28	...	30.490	46.7	22.8	23.9	35.3	− 4.9	32.7	28.7	6.6	15.3	0.0	76	74.0	14.2	0.000	0.0	sP
Means	...	29.730	48.3	35.7	12.6	41.9	+ 2.4	39.7	36.8	5.1	10.3	1.2	82.9	77.7	30.0	Sum 1.927	0.7	...
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 deduced from the 50 years' observations, 1841–1890. 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). Amounts entered on February 17, 23, 24, 25, and 26 are derived from frost and fog.

The mean reading of the *Barometer* for the month was 29in.730, being 0in.069 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 63°.9 on February 10; the lowest in the month was 21°.9 on February 4; and the range was 42°.0.
The mean of all the highest daily readings in the month was 48°.3, being 3°.0 *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 12°.6, being 1°.6 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 41°.9, being 2°.4 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Feb. 1	0·0	9·1	SW : WSW	W : NNW : N	0·3	0·0	0·00	153	10, slt.-f : 10, slt.-f, glm	10, slt.-f, glm : 9
2	2·3	9·2	N	NE : N	2·7	0·0	0·09	230	p.-cl, ho.-fr : 10, th.-cl	p.-cl : p.-cl : 10
3	0·2	9·2	N : NNW	N : S : SW	0·6	0·0	0·01	138	p.-cl, ho.-fr: 10 : 9, slt.-f, glm, slt.-sn	th.-cl, slt.-f : th.-cl, f : 0, tk.-f, ho.-fr
4	3·7	9·3	Variable : S	S : SSE	4·5	0·0	0·15	193	0, tk.-f, ho.-fr: tk.-f : 5, f	p.-cl : 10 : 10
5	0·0	9·4	SSE : ESE : NE	N : NNE : ENE	1·0	0·0	0·02	169	10 : 10, r : 10, slt.-r	10 : 10
6	0·0	9·4	E : ENE : ESE	E : ESE	4·1	0·0	0·32	293	10 : 10	10, r : 10, c.-r : 10
7	2·8	9·4	SE : S : SW	SW : SSW	5·0	0·0	0·35	319	10 : 10, slt.-r : 9, sc	p.-cl : p.-cl, slt.-r
8	0·0	9·5	SW : SSW	SSW	15·3	0·0	1·38	600	10, hy.-r, sqs : 10 : 10, r	10, c.-r, w : 10, c.-r, w
9	0·6	9·6	SSW : SW	SSW	10·0	0·0	1·55	631	10, shs.-r, w : 10, li.-sc, fq.-th.-r	10, sc, fq.-slt.-r, w: 9, w : 0, w
10	5·8	9·6	SSW	SSW : SW	12·0	0·0	1·77	678	9, w : 10, w : p.-cl	3, ci.-cu, li.-cl, w: 10, w : p.-cl
11	1·3	9·7	SSW	SSW : S : SSE	16·0	0·0	1·09	538	p.-cl : p.-cl, so.-ha, slt.-r	v, shs.-r, w : 9, st.-w, oc.-slt.-r
12	3·0	9·8	SSW	SW : WSW : SSW	22·5	0·0	2·00	702	10, shs.-r, w : 10, shs.-r, w : 7, sh.-r, w	10, oc.-slt.-r, g : 10, fq.-r, g
13	1·2	9·8	SW : SSW	SSW : SW	33·4	0·0	2·20	790	10, fq.-r, w : 9, fq.-r, st.-w	v, shs.-r, st.-w : v, shs.-r, g
14	0·8	9·9	SSW : SW	SW : SSW : S	13·5	0·0	0·58	399	v, shs.-r, w: p.-cl : 9, r, so.-ha	9, so.-ha : 10, li.-shs : 9, slt.-r
15	0·9	10·0	S : SSW	SSW : S : SE	1·7	0·0	0·04	205	9 : p.-cl : v, th.-cl, so.-ha	10, th.-cl, so.-ha : 10, oc.-slt.-r : 10, c.-r
16	5·7	10·0	W : WNW : WSW	WSW : SSW	2·2	0·0	0·06	254	10, r : p.-cl : 5, th.-cl	0 : 0
17	8·7	10·1	SSE : SE : ESE	SE : ESE	0·2	0·0	0·00	157	1, li.-cl, ho.-fr: 0, slt.-f : 0	0 : th.-cl, slt.-f, d, lu.-ha
18	1·7	10·1	ESE : E	ENE : E : ESE	0·0	0·0	0·00	73	tk.-f : p.-cl, f	5, th.-cl, slt.-f: 9, th.-cl, f : 10, f
19	0·0	10·2	S : SW : WSW	SSW : SSE : ENE	0·6	0·0	0·00	124	10, f : 10, f	10, f, gt.-glm : 10, f : 9, lu.-ha, lu.-co, r
20	0·0	10·3	E : ENE	E : ESE	6·2	0·0	0·55	373	10, slt.-r : 10	10, oc.-m.-r : 10
21	8·3	10·3	E : ESE	E	7·6	0·0	0·86	435	10 : 1, li.-cl : 1, ci.-cu, li.-cl	1, ci.-cu, li.-cl : 0, d
22	8·9	10·4	E	E : ENE	2·6	0·0	0·13	252	0, ho.-fr : 0	0 : 0, ho.-fr
23	8·6	10·5	E	SE : Variable	1·2	0·0	0·02	141	0, ho.-fr : 0	1, ci.-s : 1, li.-cl, slt.-f, ho.-fr, lu.-ha
24	5·6	10·5	Variable	SE : ESE : ENE	0·6	0·0	0·01	119	th.-cl, f, ho.-fr : 1, li.-cl, tk.-f	1, ci.-s, li.-cl, slt.-f : 0, slt.-f, ho.-fr
25	7·5	10·6	ENE : E	ENE : E	2·3	0·0	0·14	194	0, f, ho.-fr: 0, f : 1, li.-cl, f	1, li.-cl : 0 : 0, slt.-f, ho.-fr
26	7·6	10·6	ENE : E	E : ENE	1·6	0·0	0·05	177	0, slt.-f, ho.-fr : 0	0 : 0, ho.-fr
27	7·0	10·7	ENE : NE	ENE : ESE : SE	0·2	0·0	0·00	119	0, ho.-fr : 0, tk.-f : 0	0 : 0, ho.-fr
28	7·1	10·8	SE : SW : SSW	WSW : SW	0·5	0·0	0·00	174	0, ho.-fr : tk.-f, ho.-fr: 1, th.-cl, f	0 : 0, ho.-fr
Means	3·5	9·9	...	...	...	...	0·48	308		
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°·7, being 1°·9 *higher* than the average for the 50 years, 1841–1890.
The mean *Temperature of the Dew Point* for the month was 36°·8, being 1°·2 *higher* than the average for the 50 years, 1841–1890.
The mean *Degree of Humidity* for the month was 82·9, being 3·1 *less* than the average for the 50 years, 1841–1890.
The mean *Elastic Force of Vapour* for the month was 0$^{\text{in}}$·218, being 0$^{\text{in}}$·010 *greater* than the average for the 50 years, 1841–1890.
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2$^{\text{grs}}$·6 being 0$^{\text{gr}}$·2 *greater* than the average for the 50 years, 1841–1890.
The mean *Weight of a Cubic Foot of Air* for the month was 549 grains, being 4 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 5·4.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·357. The maximum daily amount of *Sunshine* was 8·9 hours on February 22.

The highest reading of the *Solar Radiation Thermometer* was 109°·3 on February 23; and the lowest reading of the *Terrestrial Radiation Thermometer* was 14°·2 on February 28.

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

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

The *Greatest Pressure of the Wind* in the month was 33·4 lbs. on the square foot on February 13. The mean daily *Horizontal Movement of the Air* for the month was 308 miles; the greatest daily value was 790 miles on February 13; and the least daily value was 73 miles on February 18.

Rain fell on 12 days in the month, amounting to 1$^{\text{in}}$·927, as measured by gauge No. 6 partly sunk below the ground; being 0$^{\text{in}}$·443 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	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	...	30.454	54.0	33.2	20.8	42.0	+ 1.8	37.1	31.1	10.9	17.4	5.7	67	74.0	26.6	0.002*	0.0	sP
2	...	30.290	47.9	32.9	15.0	40.9	+ 0.5	37.7	33.7	7.2	10.5	3.5	76	74.5	26.2	0.000	0.0	sP
3	...	29.973	50.5	29.0	21.5	41.2	+ 0.7	38.5	35.1	6.1	11.6	1.4	80	89.6	25.9	0.000	0.0	mP : mP : sP
4	...	29.732	46.7	32.3	14.4	38.9	− 1.8	37.0	34.4	4.5	10.3	0.7	85	77.0	29.0	0.040	0.0	mP : sP, sN : mP
5	Last Quarter: Greatest Dec. S.	30.020	44.5	29.2	15.3	35.6	− 5.3	32.5	27.8	7.8	15.0	2.4	72	101.8	20.6	0.000	0.2	mP : mP : sP
6	...	29.855	45.6	25.9	19.7	34.9	− 6.2	30.3	22.8	12.1	21.3	6.0	60	100.7	16.1	0.003*	0.8	mP : wP : sP
7	...	29.536	49.0	23.9	25.1	37.9	− 3.1	33.8	28.2	9.7	18.3	6.4	68	93.3	16.9	0.000	0.0	sP : wP
8	...	29.348	51.0	35.2	15.8	43.0	+ 2.1	40.1	36.6	6.4	15.4	1.6	79	102.2	27.1	0.008	0.0	wP : wP : wP, sN
9	Perigee	29.029	50.1	35.4	14.7	43.4	+ 2.6	40.3	36.6	6.8	15.4	2.3	77	98.9	27.4	0.064	0.0	vN : wP : mP
10	...	29.713	54.2	32.3	21.9	42.9	+ 2.2	39.6	35.6	7.3	15.0	2.9	76	88.0	25.1	0.000	0.0	mP
11	In Equator: New	30.117	51.4	35.7	15.7	44.2	+ 3.6	43.0	41.6	2.6	4.6	0.7	91	61.9	28.0	0.002*	0.0	wP
12	...	30.286	57.1	42.6	14.5	49.0	+ 8.3	46.5	43.8	5.2	10.5	0.2	83	94.5	33.9	0.002*	0.0	wP
13	...	30.395	56.6	34.4	22.2	45.9	+ 5.0	43.8	41.4	4.5	11.4	0.4	85	100.4	28.3	0.004*	0.0	wP
14	...	30.347	57.7	29.4	28.3	41.6	+ 0.4	39.7	37.3	4.3	13.3	0.0	86	76.3	26.2	0.002*	0.0	mP : wP
15	...	30.268	59.1	28.7	30.4	45.1	+ 3.7	42.3	39.0	6.1	14.1	1.5	80	102.2	24.2	0.000	0.0	wP
16	...	30.265	44.5	32.3	12.2	40.0	− 1.5	39.3	38.4	1.6	4.0	0.2	94	55.0	23.9	0.003*	0.0	wP
17	...	30.175	46.2	37.1	9.1	41.4	− 0.2	40.4	39.1	2.3	5.9	0.0	92	65.7	31.7	0.000	0.2	wP
18	Greatest Declination N.	29.964	45.3	31.9	13.4	39.2	− 2.4	36.5	33.0	6.2	14.7	0.0	79	78.8	26.3	0.002*	0.8	wP
19	First Quarter	29.869	41.6	28.7	12.9	34.5	− 7.0	30.8	24.5	10.0	14.7	3.3	66	94.0	24.1	0.000	0.2	mP
20	...	29.626	41.0	27.6	13.4	32.1	− 9.3	29.5	23.6	8.5	15.9	3.3	70	89.7	21.1	0.001	0.8	mP : mP, sN : mP
21	Apogee	29.584	37.8	20.3	17.5	29.2	−12.2	27.8	22.9	6.3	12.7	2.0	77	78.3	11.0	0.043	0.0	mP : vP, sN : mP
22	...	29.513	40.7	24.0	16.7	30.9	−10.6	27.2	17.1	13.8	18.2	7.0	56	76.7	19.1	0.000	0.0	sP : sP, sN
23	...	29.627	37.3	23.1	14.2	29.6	−12.2	27.2	19.3	10.3	14.6	6.9	64	65.7	18.9	0.004	0.0	sP : mP
24	...	29.885	40.8	25.2	15.6	31.7	−10.4	28.7	21.5	10.2	14.0	4.0	65	86.2	18.8	0.006	0.0	mP : sP, sN : vP
25	In Equator	30.011	47.0	24.5	22.5	36.5	− 5.9	33.3	28.6	7.9	16.5	1.8	73	90.5	18.5	0.065	0.5	mP : wP, vN
26	...	29.863	54.3	40.8	13.5	47.6	+ 4.7	44.2	40.4	7.2	12.6	1.8	77	80.8	31.3	0.169	1.5	vN, wP : wP
27	Full	29.827	61.2	38.0	23.2	47.9	+ 4.6	44.5	40.8	7.1	19.2	0.7	77	109.4	28.2	0.028	0.0	wP : wP, sN : wP
28	...	29.807	55.1	43.6	11.5	50.1	+ 6.4	46.9	43.5	6.6	10.4	2.0	79	99.1	38.1	0.021	0.5	wP : wP : wP, wwN
29	...	29.797	59.9	46.3	13.6	53.2	+ 9.1	47.7	42.2	11.0	17.1	3.8	67	104.7	43.1	0.000	1.5	wwP : wP
30	...	30.070	57.8	42.8	15.0	50.2	+ 5.6	46.0	41.6	8.6	15.8	1.8	73	87.3	41.8	0.000	0.0	wP
31	...	30.001	60.5	41.8	18.7	49.9	+ 4.9	48.1	46.2	3.7	7.8	0.8	87	81.8	41.8	0.138	0.0	wP
Means	...	29.911	49.9	32.5	17.4	41.0	− 0.7	38.1	33.8	7.2	13.5	2.4	76.2	86.4	26.4	Sum 0.607	0.2	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 deduced from the 50 years' observations, 1841–1890. 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). Amounts entered on March 1, 6, 11, 12, 13, 14, 16, and 18 are derived from frost, fog, or dew.

The mean reading of the *Barometer* for the month was 29in·911, being 0in·158 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 61°·2 on March 27; the lowest in the month was 20°·3 on March 21; and the range was 40°·9.
The mean of all the highest daily readings in the month was 49°·9, being 0°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 32°·5, being 2°·5 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 17°·4, being 2°·7 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 41°·0, being 0°·7 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. OSLER'S. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	ROBINSON'S. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Mar. 1	0·5	10·8	SW : WSW	WSW : W : SW	0·8	0·0	0·01	247	0, ho.-fr : p.-cl, slt.-f	9, slt.-f, so.-ha : 0, slt.-f
2	5·3	10·9	SW : W	NW : NNW	1·0	0·0	0·01	232	0, ho.-fr : 0, h	1, li.-cl, h : 0
3	5·3	11·0	SW : WSW	WSW : WNW	0·3	0·0	0·00	189	0, h, ho.-fr : 3, th.-cl, slt.-f	0 : 5, th.-cl : 8, th.-cl
4	1·3	11·0	WSW	NNW : N : NE	2·1	0·0	0·08	244	p.-cl, slt.-f : 9, cu	9, sh.-r : 10 : 10
5	8·5	11·1	N : NNE : ENE	E : SE : SSE	1·7	0·0	0·05	203	10 : 0, ho.-fr : 1, li.-cl	0 : 0, ho.-fr
6	8·4	11·2	SSE : SE : SSW	S : SSE	1·9	0·0	0·07	188	0, ho.-fr : 0, ho.-fr : 2, ci.-s, li.-cl, so.-ha	3, ci.-s, th.-cl, so.-ha : 1, th.-cl
7	8·9	11·2	Variable : Calm : SW	WSW : SW	0·6	0·0	0·01	174	1, th.-cl, ho.-fr, slt.-f : 1, ci.-s, th.-cl	0 : 4, th.-cl
8	4·9	11·3	SW : SSW : WSW	WSW : SW : SSW	4·7	0·0	0·38	369	p.-cl : 1, li.-cl : 5, cu	p.-cl : p.-cl : 10, oc.-r
9	6·2	11·4	SSW : SW : WSW	WSW : SW : SSW	6·8	0·0	0·26	302	10, shs.-r, w : 9 : 9, sh.-r	p.-cl : 0
10	6·8	11·4	SW : WSW	WNW : W : SW	1·6	0·0	0·06	258	0, ho.-fr : 0 : p.-cl	6, cu, cu.-s : 0
11	0·0	11·5	SW : WSW	SW	0·7	0·0	0·00	241	0, ho.-fr : 10, slt.-f	10 : 0, d : 0, d
12	2·2	11·6	WSW : W : N	N : E	1·6	0·0	0·02	189	10 : 10 : 9	9 : 10
13	6·6	11·7	Calm : E	ENE : E : ESE	0·0	0·0	0·00	82	10 : tk.-f : tk.-f	0 : 0 : 0, tk.-f
14	2·6	11·7	Variable : Calm	Variable : SE	0·0	0·0	0·00	67	tk.-f : tk.-f : 1, li.-cl, f	0, f : 0 : 0, slt.-f
15	7·6	11·8	Variable : Calm : ENE	ENE : ESE : E	0·0	0·0	0·00	100	0, f, ho.-fr : 0, f	0 : 0 : 0, slt.-f, h
16	0·0	11·8	ENE	ENE : E	1·0	0·0	0·03	177	0, f : tk.-f : 10, f	10 : 10
17	0·0	11·9	E : SE	WSW : SW	0·0	0·0	0·00	123	10 : 10	9 : 9, slt.-f, h : 10, f
18	0·7	12·0	WSW : NE	NE : NNE : N	4·4	0·0	0·33	344	10, f, glm : 10, f, glm : 10, th.-r	9 : 0
19	6·1	12·0	N : NNW	N : NNW : NW	2·5	0·0	0·22	295	0, ho.-fr : 3, li.-cl	10, slt.-sn : p.-cl : 9, slt.-sn
20	6·0	12·1	NNW	N : NNE	4·7	0·0	0·31	304	10 : p.-cl	9, cu, slt.-sn : v, oc.-sn : v, li.-cl, ho.-fr
21	2·1	12·2	N : S : SW	SW : NNW	1·6	0·0	0·03	202	li.-cl, oc.-sn : 5, cu.-s, li.-cl	10, sn, gt.-glm : 9
22	5·0	12·2	NW : W : WSW	NW : N : W	7·2	0·0	0·30	341	p.-cl, fr : p.-cl, slt.-f, h	3, cu, li.-cl, h, slt.-sn : 0, h
23	2·4	12·3	W : WSW : NW	N : NNE	4·3	0·0	0·24	326	p.-cl, ho.-fr : 9, oc.-sn	9, oc.-sn : 2, th.-cl : 0, fr
24	6·2	12·4	NNW : NW : N	N : NE : S	5·7	0·0	0·28	293	0, h, ho.-fr : 4, cu.-s, li.-cl	9, sn : 1, li.-cl : 0, h, ho.-fr
25	3·5	12·4	S : SSW	SW : SSW	8·1	0·0	0·77	455	0, h, ho.-fr : p.-cl	10, r : 10, r, w
26	1·1	12·5	SW : WSW	WSW : SW	8·6	0·0	1·08	539	10, r, w : 9, w : 9, w, so.-ha	p.-cl, so.-ha : th.-cl, lu.-ha
27	2·8	12·6	SSW	WSW : SW	4·4	0·0	0·22	356	p.-cl, d : 9	9, cu, li.-cl, so.-ha : p.-cl, sh.-r : 1, th.-cl, lu.-ha
28	2·4	12·6	SW : SSW	SSW : SW	14·0	0·0	1·20	590	10 : 9, so.-ha, w	10, th.-cl, so.-ha, w : 10, shs.-r, w : 10, r, w
29	8·9	12·7	SW : WSW	WSW : W	15·5	0·0	1·56	713	10, w : 8, cu, li.-cl, w	7, cu, li.-cl, prh, w : 8
30	1·5	12·8	WSW : W	NNW : NNE : ESE	2·0	0·0	0·09	285	10 : 10, glm	8, cu : 9 : 10
31	0·1	12·8	ESE : SE : SW	WSW	2·8	0·0	0·11	279	10, r : 10, r	7 : p.-cl
Means	4·0	11·8	...	...	...	...	0·25	281		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 38°·1, being 1°·2 *lower* than the average for the 50 years, 1841–1890.
The mean *Temperature of the Dew Point* for the month was 33°·8, being 2°·5 *lower* than the average for the 50 years, 1841–1890.
The mean *Degree of Humidity* for the month was 76·2, being 4·9 *less* than the average for the 50 years, 1841–1890.
The mean *Elastic Force of Vapour* for the month was 0in·194, being 0in·020 *less* than the average for the 50 years, 1841–1890.
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·3, being 0gr·2 *less* than the average for the 50 years, 1841–1890.
The mean *Weight of a Cubic Foot of Air* for the month was 554 grains, being 4 grains *greater* than the average for the 50 years, 1841–1890.

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

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·338. The maximum daily amount of *Sunshine* was 8·9 hours on March 7 and 29.

The highest reading of the *Solar Radiation Thermometer* was 109°·4 on March 27; and the lowest reading of the *Terrestrial Radiation Thermometer* was 11°·0 on March 21.

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

The *Proportions of Wind* referred to the cardinal points were N. 6, E. 5, S. 8, and W. 11. One day was calm.

The *Greatest Pressure of the Wind* in the month was 15·5 lbs. on the square foot on March 29. The mean daily *Horizontal Movement of the Air* for the month was 281 miles; the greatest daily value was 713 miles on March 29; and the least daily value was 67 miles on March 14.

Rain fell on 10 days in the month, amounting to 0in·607, as measured by gauge No. 6 partly sunk below the ground; being 0in·854 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	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.		
Apr. 1	Greatest Declination S.	29·941	64·1	49·1	15·0	54·1	+ 8·7	51·5	49·0	5·1	12·4	1·0	82	105·6	45·7	0·012	0·0	wP : wP : vP, vN
2	...	29·922	58·0	47·7	10·3	51·4	+ 5·7	49·7	48·0	3·4	8·2	1·4	88	94·2	45·0	0·008*	0·0	wP
3	Last Quarter	29·916	60·2	46·3	13·9	52·2	+ 6·2	48·7	45·1	7·1	16·7	1·0	77	109·7	41·0	0·000	0·2	wwP : wP
4	...	29·922	56·1	45·2	10·9	50·5	+ 4·3	48·5	46·4	4·1	8·8	1·3	87	94·8	40·2	0·056	0·8	wP : wP, wwN : wP
5	...	29·979	59·2	43·0	16·2	50·5	+ 4·3	45·9	41·1	9·4	16·7	3·8	71	109·6	39·0	0·014	2·0	wP
6	Perigee	29·796	60·4	47·8	12·6	52·8	+ 6·6	49·2	45·6	7·2	20·5	1·0	77	109·5	43·1	0·037	2·5	wP : wP : wP, wN
7	...	29·175	51·8	43·4	8·4	47·1	+ 1·0	44·6	41·8	5·3	8·8	1·4	83	79·2	41·1	0·249	7·5	wN, wP : vP, sN
8	In Equator	29·459	47·1	34·8	12·3	42·4	− 3·5	38·6	34·0	8·4	14·7	1·1	73	102·9	32·9	0·133	0·0	wP : vP, sN
9	...	29·682	52·6	33·3	19·3	43·9	− 1·7	41·1	37·8	6·1	15·0	0·6	79	101·4	29·4	0·171	0·2	wP : wP : mN, wP
10	New	29·442	61·3	42·8	18·5	51·5	+ 6·0	48·8	46·0	5·5	14·3	1·2	82	106·3	38·6	0·325	0·8	wwP : wP : vP, vN
11	...	29·575	48·5	35·5	13·0	42·1	− 3·4	38·6	34·3	7·8	14·5	2·8	75	97·2	31·5	0·037	0·0	mP, wwN : vP, ssN
12	...	29·589	53·8	31·2	22·6	40·8	− 4·9	37·3	32·9	7·9	20·8	2·7	74	107·7	28·0	0·004	1·0	wP : wP : ssN, wP
13	...	28·992	48·2	37·1	11·1	42·5	− 3·5	41·1	39·4	3·1	5·1	0·9	89	83·3	32·2	0·277	3·0	wP, vN : vN, vP : vN, wP
14	Greatest Declination N.	28·828	48·0	40·3	7·7	43·0	− 3·4	41·4	39·5	3·5	6·7	0·7	87	64·3	39·0	0·297	0·2	vN, wwP : wP
15	...	29·114	53·1	40·0	13·1	44·7	− 2·2	42·2	39·3	5·4	12·6	0·2	81	102·9	37·5	0·147	0·8	vP, mN : wP : wP
16	...	29·472	47·0	37·1	9·9	42·4	− 4·9	40·1	37·3	5·1	9·4	2·1	83	67·4	33·5	0·049	0·0	wP : wP : vP, ssN
17	First Quarter	29·758	52·9	33·0	19·9	42·2	− 5·5	38·3	33·5	8·7	19·8	2·6	73	112·0	26·1	0·003	0·0	wP
18	Apogee	29·895	50·2	33·0	17·2	42·6	− 5·5	39·7	36·2	6·4	13·7	0·5	79	81·7	24·9	0·000	0·0	mP : mP : wP
19	...	29·985	59·1	30·7	28·4	46·8	− 1·5	41·1	34·7	12·1	20·9	0·0	64	107·5	26·3	0·000	0·0	wP : wP : mP
20	...	29·926	61·1	34·3	26·8	49·5	+ 1·0	43·9	37·9	11·6	20·0	2·8	64	116·0	28·1	0·003*	0·0	mP : wP : mP
21	...	29·767	47·2	40·1	7·1	44·4	− 4·1	42·8	40·9	3·5	7·4	1·8	88	76·4	36·9	0·378	0·0	wwP, vN : vN, wwP
22	In Equator	30·042	48·8	34·5	14·3	42·1	− 6·4	39·0	35·2	6·9	12·4	2·2	77	101·3	29·6	0·000	0·0	wP
23	...	30·058	55·9	36·4	19·5	45·7	− 2·7	40·9	35·5	10·2	17·2	3·9	68	121·7	32·0	0·042	0·5	wwP : wP : mN, wwP
24	...	29·621	54·7	44·6	10·1	48·3	− 0·1	45·9	43·3	5·0	11·4	0·4	83	79·3	42·0	0·401	2·5	wP, wN
25	Full	29·342	56·9	43·7	13·2	49·5	+ 1·1	46·6	43·5	6·0	16·8	0·0	80	106·8	40·0	0·203	0·0	wP : wP, vN : wP, vN
26	...	29·430	54·1	43·5	10·6	48·9	+ 0·5	45·4	41·6	7·3	11·6	1·8	76	102·0	39·4	0·093	0·0	wP, vN : wP : wP
27	...	29·752	57·9	45·9	12·0	50·8	+ 2·3	47·7	44·5	6·3	9·9	2·7	79	90·2	38·6	0·000	0·0	wP
28	Greatest Declination S.	29·703	62·0	45·7	16·3	53·5	+ 4·9	50·2	47·0	6·5	16·3	0·8	78	93·3	38·0	0·018	0·5	wP
29	...	29·526	59·7	48·8	10·9	53·6	+ 4·8	50·5	47·5	6·1	10·5	1·8	79	112·3	44·3	0·039	1·5	wwP : wwP, vN : wP
30	...	29·907	51·9	36·5	15·4	46·5	− 2·5	42·0	36·9	9·6	15·6	3·1	70	114·0	31·1	0·003	0·0	wP
Means	...	29·651	54·7	40·2	14·5	47·2	+ 0·1	44·0	40·5	6·7	13·6	1·6	78·2	98·4	35·8	Sum 2·999	0·8	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 deduced from the 50 years' observations, 1841–1890. 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). Amounts entered on April 2 and 20 are derived from dew.

The mean reading of the *Barometer* for the month was 29in·651, being 0in·090 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 64°·1 on April 1; the lowest in the month was 30°·7 on April 19; and the range was 33°·4.
The mean of all the highest daily readings in the month was 54°·7, being 2°·5 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 40°·2, being 1°·3 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 14°·5, being 3°·8 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 47°·2, being 0°·1 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. Osler's. General Direction. A.M.	Osler's. General Direction. P.M.	Osler's. Pressure on the Square Foot. Greatest.	Osler's. Pressure on the Square Foot. Least.	Osler's. Pressure on the Square Foot. Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	CLOUDS AND WEATHER. P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Apr. 1	2·7	12·9	WSW	SW	1·2	0·0	0·05	297	9, d : 10, th.-cl : 10	p.-cl, sh.-r : 0, d
2	1·6	12·9	WSW : SW	SW : SSW	0·8	0·0	0·01	204	10 : 10	p.-cl : p.-cl : 10
3	2·6	13·0	SSW : SW : WSW	WSW	3·3	0·0	0·24	335	10 : 10	10 : p.-cl : 0, d
4	0·5	13·1	WSW : SW : SSW	SW : WSW	6·2	0·0	0·63	434	10 : 8, slt.-r	10, sc, slt.-r : 10 : v
5	7·3	13·2	WSW : W	WSW : SW : SSW	8·8	0·0	0·88	543	p.-cl, d : 5, ci.-s, th.-cl	p.-cl, so.-ha : 10, oc.-shs, w
6	5·9	13·2	SW : WSW : W	SW : SSW	5·7	0·0	0·59	462	10, shs.-r : 6, li.-cl	p.-cl, so.-ha : 10, r, w : 10, r, w
7	0·7	13·3	SSW : SW	WNW : NW	15·0	0·0	2·02	739	10, r, w : 10, sc, fq.-r, st.-w	10, fq.-r, w : 10, fq.-r, st.-w
8	6·7	13·3	WNW : W	NNW : NW	26·0	0·0	1·76	664	p.-cl, w : v, slt.-sn, shs.-r, w	v, hy.-r, sl, st.-w : 9, prh, st.-w : 0
9	5·3	13·4	WNW : W : WSW	WSW : SW : SSW	3·7	0·0	0·26	364	0 : 6, cu, th.-cl	9, r : 10, c.-r : 10, fq.-r
10	3·9	13·4	WSW	WSW : NNW : NW	8·8	0·0	0·84	515	10, fq.-r : 10, shs.-r, w	p.-cl, w : 10, r : 0
11	4·6	13·5	NW : W : NNW	N : NNW : W	15·2	0·0	0·41	344	10 : 9, sn	9, cu, n, slt.-sn, w : v, cu : 1
12	5·6	13·6	W : WSW : SW	SW : SSW : S	3·5	0·0	0·05	234	p.-cl, ho.-fr : 4, th.-cl, slt.-f, h, so.-ha	p.-cl, oc.-slt.-r : p.-cl, oc.-slt.-r
13	0·1	13·7	SSE : S	SSE : SE : ENE	5·5	0·0	0·43	334	9 : 9, fq.-r, so.-ha	9, shs.-r, so.-ha : 10, r
14	0·0	13·7	N : NW : WNW	W : WSW	2·3	0·0	0·20	332	10, r : 10, r	10, fq.-slt.-r, glm : 10, oc.-slt.-r
15	2·4	13·8	WSW	W : WNW : NW	1·3	0·0	0·03	217	10, r : 10, oc.-r, gt.-glm	p.-cl, oc.-slt.-r : 10
16	0·0	13·9	NW : N	NNW : N : NNE	1·3	0·0	0·04	211	10 : 10	10, slt.-r : 10, slt.-r
17	7·5	13·9	NE : N : WSW	WSW : SW : SSW	1·0	0·0	0·02	163	p.-cl, ho.-fr : 3, th.-cl, h	5, cu, li.-cl : p.-cl, sh.-r : 0, d
18	1·4	14·0	SW : Calm : N	N : NNE : S	0·1	0·0	0·00	117	9, ho.-fr : 10	p.-cl : 0, d
19	10·6	14·0	SE : SW : WSW	WSW : W : NW	0·8	0·0	0·01	194	p.-cl, ho.-fr : 2, th.-cl	2, th.-cl : 0, h
20	6·1	14·1	WSW : SW	WSW : W : SSW	1·1	0·0	0·01	178	0 : 5, th.-cl, so.-ha	9, cu, so.-ha : 10 : 10
21	0·0	14·2	SE	ESE : E : NNE	3·3	0·0	0·12	212	10 : 10, r : 10, c.-r	10, r : 10, fq.-r
22	0·9	14·2	N : NNE : NE	NE : SSE : S	1·0	0·0	0·02	176	10 : 10	10 : 4, th.-cl : p.-cl
23	5·4	14·3	S	S : SSE	3·3	0·0	0·18	279	p.-cl : 3, cu.-s, th.-cl, so.-ha	8, th.-cl, so.-ha : 10, slt.-r : 10, r
24	0·0	14·3	S : SSW : SW	S : SE : ENE	1·5	0·0	0·07	213	10, sh.-r : 10, fq.-slt.-r	10, c.-r : 10, c.-r : 10, slt.-r
25	4·4	14·4	SW : SSW : W	W : WSW : SW	5·6	0·0	0·45	376	10, r : 10, r	p.-cl : v, hy.-r
26	2·5	14·5	SW : NNW : NW	NW : WNW : W	4·4	0·0	0·33	377	v, shs.-r : p.-cl : cu, n, slt.-r	9 : 9 : p.-cl
27	2·0	14·5	NW : NNW : N	ESE : E : SSW	0·6	0·0	0·00	159	10 : p.-cl : 10	p.-cl : p.-cl
28	0·3	14·6	SSW : SW	WSW : SW : SSW	2·0	0·0	0·10	283	10, r : 10 : 10, r	10 : 10 : 8
29	3·2	14·7	SSW : SW	WSW : W	7·7	0·0	0·85	495	10 : p.-cl : p.-cl, sh.-r	v, sh.-r : 9, li.-shs : 9
30	9·1	14·7	W : N	N : ENE : SE	3·5	0·0	0·32	299	10, li.-shs : 9, li.-cl : p.-cl	p.-cl : 0
Means	3·4	13·8	...	...	...	...	0·36	325		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 44°·0, being 0°·1 *higher* than the average for the 50 years, 1841–1890.
The mean *Temperature of the Dew Point* for the month was 40°·5, being 0°·3 *higher* than the average for the 50 years, 1841–1890.
The mean *Degree of Humidity* for the month was 78·2, being 1·6 *greater* than the average for the 50 years, 1841–1890.
The mean *Elastic Force of Vapour* for the month was $0^{in}·252$, being $0^{in}·003$ *greater* than the average for the 50 years, 1841–1890.
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was $2^{grs}·9$, being *the same as* the average for the 50 years, 1841–1890.
The mean *Weight of a Cubic Foot of Air* for the month was 542 grains, being 1 grain *less* than the average for the 50 years, 1841–1890.

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

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·249. The maximum daily amount of *Sunshine* was 10·6 hours on April 19.

The highest reading of the *Solar Radiation Thermometer* was 121°·7 on April 23; and the lowest reading of the *Terrestrial Radiation Thermometer* was 24°·9 on April 18.

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

The *Proportions of Wind* referred to the cardinal points were N. 5, E. 2, S. 10, and W. 13.

The *Greatest Pressure of the Wind* in the month was 26·0 lbs. on the square foot on April 8. The mean daily *Horizontal Movement of the Air* for the month was 325 miles; the greatest daily value was 739 miles on April 7; and the least daily value was 117 miles on April 18.

Rain fell on 20 days in the month, amounting to $2^{in}·999$, as measured by gauge No. 6 partly sunk below the ground; being $1^{in}·338$ *greater* than the average fall for the 50 years, 1841–1890.

Month and Day, 1899.	Phases of the Moon.	Barometer. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	Temperature. Of the Air. Highest.	Of the Air. Lowest.	Of the Air. Daily Range.	Of the Air. Mean of 24 Hourly Values.	Of the Air. Excess above Average of 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.		
May 1	Perigee	29·968	55·2	35·3	19·9	46·7	− 2·5	42·3	37·4	9·3	13·8	5·3	71	100·8	29·8	0·000	1·0	wP : wP : mP
2	Last Quarter	29·728	60·7	45·7	15·0	52·5	+ 3·1	48·6	44·6	7·9	13·1	1·9	75	104·7	39·4	0·000	0·0	wP
3	...	29·868	53·8	38·2	15·6	46·5	− 3·2	42·8	38·7	7·8	14·8	2·1	75	108·8	29·3	0·000	0·0	wP
4	...	30·088	53·1	33·7	19·4	42·9	− 7·1	38·6	33·4	9·5	15·4	1·7	70	130·1	24·9	0·002	0·0	mP : wP
5	In Equator	30·217	54·8	34·3	20·5	45·1	− 5·2	40·4	35·0	10·1	18·8	2·2	68	130·3	27·9	0·000	1·0	mP : wP
6	...	30·230	58·2	36·5	21·7	47·0	− 3·6	42·0	36·4	10·6	20·0	1·1	67	127·0	30·2	0·000	0·0	wP
7	...	30·128	61·8	37·7	24·1	50·3	− 0·5	43·8	36·9	13·4	22·6	3·2	61	128·2	28·8	0·000	0·0	wP
8	...	29·879	62·0	41·7	20·3	51·8	+ 0·8	46·7	41·5	10·3	20·9	2·1	68	117·5	36·0	0·006	0·0	wP : wP : vP, wwN
9	New	29·695	57·7	44·6	13·1	49·7	− 1·5	47·3	44·7	5·0	9·9	1·0	84	78·8	33·0	0·003	0·0	wP, wN : wP : mP
10	...	29·727	57·8	41·1	16·7	49·6	− 1·9	47·6	45·5	4·1	9·5	0·0	87	91·1	30·0	0·000	0·0	wP
11	...	29·739	66·1	38·3	27·8	52·0	+ 0·3	48·8	45·5	6·5	17·1	0·0	79	114·8	27·2	0·000	0·0	wP
12	Greatest Declination N.	29·749	66·3	43·9	22·4	53·3	+ 1·3	49·1	44·9	8·4	17·6	0·2	73	134·0	30·2	0·000	0·0	wP
13	...	29·635	63·7	44·4	19·3	52·3	0·0	48·6	44·8	7·5	16·0	1·0	76	134·0	39·0	0·000	0·0	wP : wP, wN : wP
14	...	29·428	60·0	48·0	12·0	53·4	+ 0·8	50·5	47·6	5·8	10·6	1·8	81	108·0	41·4	0·017	0·0	wP : wP, wwN
15	...	29·269	59·9	47·1	12·8	50·7	− 2·1	47·6	44·4	6·3	16·7	0·6	79	124·5	41·0	0·375	0·0	wP, vN : vP, sN : wP
16	Apogee	29·492	61·9	46·5	15·4	50·8	− 2·3	47·4	43·8	7·0	15·4	2·7	78	133·1	34·3	0·244	0·0	vP, ssN
17	First Quarter	29·673	61·7	47·8	13·9	52·8	− 0·5	48·0	43·2	9·6	18·2	2·4	70	124·7	43·1	0·071	0·8	wP, vN : wP : wP
18	...	29·727	70·2	49·2	21·0	58·0	+ 4·4	53·4	49·3	8·7	19·8	1·4	73	135·2	43·5	0·000	3·4	wP : wP, wN
19	In Equator	29·781	62·1	46·9	15·2	55·0	+ 1·1	51·6	48·3	6·7	13·7	1·7	79	121·9	42·0	0·036	4·8	wP
20	...	29·589	63·1	52·8	10·3	56·1	+ 1·9	53·4	50·9	5·2	10·3	1·1	83	114·3	48·7	0·234	3·0	wwP, wwN : vP, vN : wP
21	...	29·777	58·5	48·5	10·0	53·7	− 0·9	51·5	49·4	4·3	6·8	0·6	85	112·2	48·0	0·029	1·0	wwP
22	...	29·824	54·7	47·6	7·1	51·3	− 3·7	50·8	50·3	1·0	2·2	0·0	96	85·4	43·6	0·059	3·0	wwP
23	...	29·782	64·2	44·0	20·2	54·0	− 1·3	51·0	48·1	5·9	15·5	0·4	80	131·7	36·2	0·022	2·5	wwP : vP, sN : wP
24	...	29·526	63·7	49·2	14·5	54·7	− 0·9	51·5	48·4	6·3	15·0	0·0	79	128·5	47·6	0·543	1·5	wP, wN
25	Full	29·707	51·9	39·8	12·1	47·7	− 8·0	44·4	40·8	6·9	14·1	0·6	78	99·0	34·0	0·009	0·0	wN, wwP : wP : mP
26	Greatest Declination S.	29·948	51·1	36·8	14·3	43·8	− 12·1	39·3	34·0	9·8	14·3	3·1	68	115·7	32·0	0·000	0·0	mP
27	...	30·131	55·5	36·2	19·3	45·4	− 10·6	40·3	34·5	10·9	17·2	4·1	66	121·1	29·1	0·000	0·0	wP
28	Perigee	30·274	60·3	37·9	22·4	49·6	− 6·4	43·0	36·0	13·6	25·1	3·9	60	130·7	29·8	0·000	0·0	wP
29	...	30·245	63·8	37·1	26·7	52·2	− 4·0	45·9	39·5	12·7	20·9	4·2	63	134·5	26·1	0·000	0·0	wP
30	...	30·208	67·6	37·4	30·2	55·6	− 0·9	49·4	43·5	12·1	22·9	2·9	65	132·9	29·9	0·000	0·0	wP
31	Last Quarter	30·170	72·7	41·0	31·7	59·8	+ 3·0	51·7	44·6	15·2	24·0	3·1	57	134·9	36·3	0·000	0·0	wP
Means	...	29·845	60·5	42·2	18·2	51·1	− 2·1	47·0	42·8	8·3	15·9	1·8	74·0	119·0	35·2	Sum 1·650	0·7	...
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 deduced from the 50 years' observations, 1841–1890. 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 $29^{\text{in}}\cdot845$, being $0^{\text{in}}\cdot059$ *higher* than the average for the 50 years, 1841–1890.

Temperature of the Air.

The highest in the month was $72^{\circ}\cdot7$ on May 31; the lowest in the month was $33^{\circ}\cdot7$ on May 4; and the range was $39^{\circ}\cdot0$.
The mean of all the highest daily readings in the month was $60^{\circ}\cdot5$, being $3^{\circ}\cdot6$ *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was $42^{\circ}\cdot2$, being $1^{\circ}\cdot5$ *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was $18^{\circ}\cdot2$, being $2^{\circ}\cdot2$ *less* than the average for the 50 years, 1841–1890.
The mean for the month was $51^{\circ}\cdot1$, being $2^{\circ}\cdot1$ *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
May 1	0.3	14.8	SSE : SE : SSW	SSW	1.6	0.0	0.04	251	0 : 9	10 : 10
2	2.5	14.8	SW : WSW : NNW	N : NE : ENE	1.3	0.0	0.02	229	10 : 10 : 9	10 : 10
3	3.3	14.9	E : NE	NE : ENE : E	3.3	0.0	0.18	306	10 : 10, slt.-r : 10	8, slt.-r : p.-cl : 0
4	9.6	15.0	NE : NNE : N	ENE : E : ESE	2.2	0.0	0.10	235	0, ho.-fr : 8, cu	8, cu : 0
5	12.2	15.0	NE : NNE	ENE : E	1.6	0.0	0.04	234	0, ho.-fr : p.-cl	p.-cl : 0 : 0
6	12.7	15.0	NE : ENE	E : ENE : NE	3.1	0.0	0.27	331	0, ho.-fr : 0 : 2, cu, cu.-s	0 : 0
7	13.8	15.1	NNE : N	NE	3.8	0.0	0.40	381	0, ho.-fr : 0 : p.-cl	p.-cl : 0 : p.-cl
8	9.5	15.1	NNE	N : NNE	4.3	0.0	0.53	415	p.-cl : p.-cl	3, cu, ci.-cu : 10, oc.-slt.-r
9	0.6	15.2	N : SW	SW : Variable	0.6	0.0	0.00	141	10, slt.-r : 10, slt.-r, glm	10, glm : 10, slt.-f : 10, slt.-f
10	3.7	15.3	SW : NNW : N	NE	0.5	0.0	0.02	131	9, d : 10, glm	p.-cl : 1, th.-cl : 0, hy.-d, m
11	4.5	15.3	NNE : N : Variable	WSW : W : SW	0.6	0.0	0.00	137	10, f : 10, th.-cl	2, th.-cl, h : 0, h
12	6.3	15.4	SW	SSW : SW	0.9	0.0	0.03	190	0, hy.-d : p.-cl	p.-cl : p.-cl
13	4.6	15.4	SW : WSW	SW : SSW	1.7	0.0	0.06	209	10 : 9 : 8, cu	8, cu : 9 : v
14	0.2	15.5	SSW : S : SSE	SSE : SW : WSW	0.8	0.0	0.01	162	10 : 10, slt.-r	10, shs.-r : 10, slt.-r
15	5.2	15.5	WSW : SW	SW : SSW	4.3	0.0	0.34	298	10 : 10, r : 10, r	p.-cl, slt.-r, slt.-sn : p.-cl : p.-cl, slt.-r
16	8.3	15.6	SSW : SW : WSW	WSW : SW	7.2	0.0	1.01	507	10, r : 6, cu	p.-cl, shs.-r, l, t : p.-cl, lu.-ha
17	6.2	15.6	SSW : SW : WSW	WSW : SW : SSW	23.2	0.0	1.24	562	10, r, w : 8, cu, w	8, cu, th.-cl : th.-cl : 0
18	8.6	15.7	SSW : S	SSW : SW	11.2	0.0	0.79	436	10 : p.-cl : 3, ci, li.-cl, so.-ha	cu, th.-cl, w : th.-cl, w : p.-cl
19	3.2	15.7	SW	SSW : S	5.6	0.0	0.46	357	10 : p.-cl	9 : 10, r : 10, fq.-r
20	2.2	15.8	SW : SSW	WSW	12.7	0.0	0.93	490	10, r : 10, shs.-r	9, shs.-r, w : 9, w : 10
21	1.2	15.8	WSW : NE	NE : ESE	2.2	0.0	0.14	269	10 : 10	9 : 10, slt.-r : 10, shs.-r
22	0.0	15.9	ESE : E	E : ESE	0.4	0.0	0.00	133	10, shs.-r : 10, slt.-r	10, fq.-th.-r : 10, slt.-f
23	7.9	15.9	WSW : SW	SW	7.7	0.0	0.29	315	9 : 7, cu, li.-cl	9, shs.-r : p.-cl : 1, th.-cl
24	4.2	15.9	SW : SSW	SW : NE : ESE	2.7	0.0	0.14	250	10, li.-shs : 10, shs.-r : 9, cu	9, cu : 10, hy.-r
25	2.0	16.0	NNE : N	N : NNE	4.7	0.0	0.54	386	10, r : 10	10 : p.-cl : 0
26	4.7	16.0	N	N : NNE	2.2	0.0	0.11	268	p.-cl : 9, cu	10 : 10 : 0
27	9.3	16.1	N : NNE	N : NNE	4.5	0.0	0.34	348	1 : p.-cl	p.-cl : 0
28	13.8	16.1	N : NNW : NNE	NNE : N	3.6	0.0	0.23	295	1 : 5, cu, li.-cl	p.-cl : 0 : 0
29	14.2	16.1	NNE : NE	NE : ESE : SE	1.3	0.0	0.02	173	0 : 1, th.-cl	1, ci.-cu, th.-cl : 0 : 0
30	14.2	16.2	SE : S	ESE : SSW	0.3	0.0	0.00	127	0, d : 0	0 : 0, h
31	15.0	16.2	SW : S : SSE	SSE : SSW : ESE	0.2	0.0	0.00	123	0, d : 0 : 1, ci.-s	0 : 0
Means	6.6	15.5	...	...	...	...	0.27	280		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 47°·0, being 2°·2 *lower* than
The mean *Temperature of the Dew Point* for the month was 42°·8, being 2°·5 *lower* than
The mean *Degree of Humidity* for the month was 74·0, being 1·0 *less* than
The mean *Elastic Force of Vapour* for the month was 0^{in}·275, being 0^{in}·028 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3^{grs}·1, being 0^{gr}·3 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 541 grains, being 3 grains *greater* than
} the average for the 50 years, 1841–1890.

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

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·423. The maximum daily amount of *Sunshine* was 15·0 hours on May 31.

The highest reading of the *Solar Radiation Thermometer* was 135°·2 on May 18; and the lowest reading of the *Terrestrial Radiation Thermometer* was 24°·9 on May 4.

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

The *Proportions of Wind* referred to the cardinal points were N. 9, E. 6, S. 10, and W. 6.

The *Greatest Pressure of the Wind* in the month was 23·2 lbs. on the square foot on May 17. The mean daily *Horizontal Movement of the Air* for the month was 280 miles; the greatest daily value was 562 miles on May 17; and the least daily value was 123 miles on May 31.

Rain fell on 12 days in the month, amounting to 1^{in}·650, as measured by gauge No. 6 partly sunk below the ground; being 0^{in}·353 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	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.		
June 1	In Equator	30·058	77·6	46·6	31·0	63·8	+ 6·6	55·1	47·8	16·0	29·4	2·0	56	135·9	34·5	0·000	0·0	wP : wwP
2	...	29·943	80·5	54·1	26·4	68·0	+10·3	57·5	49·2	18·8	35·4	3·8	51	138·8	45·1	0·000	0·0	wwP : wwP : wP
3	...	30·014	73·2	50·8	22·4	61·5	+ 3·5	55·6	50·5	11·0	16·8	3·8	68	124·6	43·3	0·000	0·0	mP : ... : wwP
4	...	30·047	79·8	48·3	31·5	64·3	+ 6·1	58·4	53·5	10·8	24·0	0·6	68	134·1	38·1	0·000	0·0	wwP
5	...	30·087	81·5	50·0	31·5	67·5	+ 9·2	58·6	51·5	16·0	29·9	4·4	56	130·0	40·8	0·000	0·0	wP
6	...	30·104	80·9	51·5	29·4	68·0	+ 9·7	59·5	52·8	15·2	28·4	3·0	58	133·4	41·7	0·000	0·0	wwP
7	...	30·143	74·8	51·7	23·1	62·9	+ 4·7	57·2	52·4	10·5	23·8	2·1	68	134·7	41·9	0·000	0·0	wP : wwP
8	New : Greatest Declination N.	30·230	62·2	48·3	13·9	53·9	− 4·3	48·3	42·8	11·1	17·8	4·0	66	134·0	37·0	0·000	0·0	wP
9	...	30·213	65·7	47·3	18·4	54·2	− 4·0	48·7	43·3	10·9	17·5	6·4	67	134·8	44·5	0·000	0·0	mP
10	...	30·132	68·0	46·4	21·6	56·4	− 1·8	51·0	46·0	10·4	19·6	2·6	68	132·3	34·7	0·000	0·0	mP : wP
11	...	30·082	63·1	45·2	17·9	54·4	− 4·0	51·6	48·9	5·5	12·2	0·6	81	132·2	32·6	0·000	0·0	wP
12	...	29·965	75·8	47·5	28·3	60·9	+ 2·3	55·6	51·0	9·9	18·7	0·0	69	130·1	34·8	0·000	0·0	wP
13	Apogee	29·920	61·1	46·9	14·2	55·2	− 3·6	49·8	44·6	10·6	16·0	1·7	68	134·4	38·3	0·000	0·0	mP : wP
14	...	29·914	60·9	42·1	18·8	50·8	− 8·1	46·7	42·4	8·4	15·8	1·9	74	123·7	29·8	0·000	0·0	mP : wP
15	In Equator	29·939	72·0	42·5	29·5	57·8	− 1·2	50·9	44·7	13·1	24·5	1·0	61	136·1	29·9	0·000	0·0	wP
16	First Quarter	29·896	75·1	44·0	31·1	60·8	+ 1·8	54·1	48·3	12·5	25·8	1·4	63	137·8	31·0	0·000	0·0	wP : wwP
17	...	29·842	77·1	47·8	29·3	62·5	+ 3·4	54·9	48·4	14·1	29·4	0·0	60	140·8	36·6	0·000	0·0	wwP
18	...	29·648	75·0	50·4	24·6	61·5	+ 2·3	55·9	51·1	10·4	20·7	1·1	69	142·2	38·1	0·067	0·2	wwP
19	...	29·458	67·1	52·0	15·1	57·6	− 1·9	52·6	48·1	9·5	18·5	0·0	71	119·1	50·3	0·005	0·8	wP
20	...	29·240	71·9	56·0	15·9	61·8	+ 1·9	58·0	54·8	7·0	14·0	0·0	78	129·0	51·0	0·251	2·5	wN, wwP : wwP
21	...	29·413	73·0	53·4	19·6	61·9	+ 1·6	56·9	52·6	9·3	17·5	1·1	72	144·5	42·7	0·000	1·5	wwP
22	Greatest Declination S.	29·511	65·2	55·0	10·2	58·9	− 1·8	57·3	55·9	3·0	8·6	0·0	90	94·8	40·2	0·177	0·0	wwP
23	Full	29·692	64·7	54·9	9·8	58·0	− 3·0	55·5	53·2	4·8	9·7	1·1	84	89·0	53·8	0·000	0·0	wwP
24	...	29·873	71·1	54·0	17·1	60·6	− 0·6	55·7	51·5	9·1	17·3	0·8	71	127·2	47·0	0·000	0·0	wwP
25	Perigee	29·995	65·1	51·2	13·9	57·8	− 3·5	53·3	49·2	8·6	13·3	3·8	73	90·9	43·1	0·001	0·0	wwP
26	...	30·040	80·8	57·4	23·4	67·4	+ 6·0	61·9	57·5	9·9	20·6	0·4	70	142·8	52·3	0·014	0·0	wwP
27	...	30·121	71·1	52·8	18·3	62·2	+ 0·8	57·8	54·1	8·1	17·5	2·2	75	144·6	46·5	0·000	0·0	wwP
28	In Equator	29·844	76·2	51·5	24·7	61·3	0·0	56·5	52·4	8·9	25·0	1·2	73	148·3	45·3	0·001	0·0	wwP : wwP : vP, vN
29	...	29·658	76·5	57·2	19·3	64·1	+ 2·9	57·9	52·7	11·4	22·3	1·5	66	141·1	49·2	0·000	0·0	wwP
30	Last Quarter	29·743	73·0	52·3	20·7	60·1	− 1·1	54·2	49·0	11·1	21·3	0·0	67	142·0	42·8	0·242	0·2	wP : wwP, wN
Means	...	29·892	72·0	50·3	21·7	60·5	+ 1·1	54·9	50·0	10·5	20·4	1·7	68·7	130·8	41·2	Sum 0·758	0·2	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 deduced from the 50 years' observations, 1841–1890. 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·892, being 0in·081 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 81°·5 on June 5; the lowest in the month was 42°·1 on June 14; and the range was 39°·4.
The mean of all the highest daily readings in the month was 72°·0, being 1°·1 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 50°·3, being 0°·4 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 21°·7, being 0°·7 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 60°·5, being 1°·1 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
June 1	14·8	16·3	NE : ESE : SE	SSE : SE	1·9	0·0	0·08	158	0, d : 0	0 : 0
2	11·6	16·3	Variable : SW	WSW : NW : NE	3·2	0·0	0·17	227	1, li.-cl, d : 1, li.-cl	2, li.-cl : 2, li.-cl
3	12·3	16·3	NE	NNE : E : ESE	0·7	0·0	0·00	144	1, li.-cl, d : 2, li.-cl : 0	0 : 0
4	11·7	16·3	E : NE : ESE	E : ESE : SE	1·0	0·0	0·02	114	0, hy.-d : 0 : 3, cu, cu.-s, h	p.-cl : p.-cl : 0
5	10·0	16·4	Calm : S : SW	NE : Variable : SSW	0·5	0·0	0·00	90	0, d : 0 : th.-cl, h	v, cu : v, cu : 0
6	12·5	16·4	S : NE	ENE : E : ESE	0·6	0·0	0·03	126	0, d : 0 : 1, th.-cl	0 : 0
7	13·1	16·4	E : ENE	E : ESE	3·0	0·0	0·17	210	0, d : 0 : 1, ci.-cu	0 : 1 : 10
8	8·5	16·4	NE	NE : NNE	2·8	0·0	0·37	353	10 : p.-cl	3, cu.-s : p.-cl : 10
9	6·2	16·4	NE : NNE	N : NNE	2·4	0·0	0·25	320	10 : 10 : 4, cu, li.-cl	p.-cl : 1
10	10·1	16·5	N : NNE : NE	NE : E	1·4	0·0	0·10	233	9 : 10 : 4, li.-cl	0 : 0
11	6·7	16·5	E : NE : NNE	ENE : E	0·8	0·0	0·01	136	10 : 10	p.-cl : 0 : 0
12	10·1	16·5	E : NE	N : NNE	1·2	0·0	0·02	127	0, m : 0, m : 8, th.-cl, h	p.-cl, h : 0
13	5·4	16·5	NNE	NNE : NE	3·5	0·0	0·40	327	0 : 10, slt.-r : 9	9 : 9
14	4·6	16·5	NE : NNE : N	NE : NNE : ESE	1·2	0·0	0·05	224	0 : 10	p.-cl : 2, li.-cl
15	14·4	16·5	NE : NNE : N	N : ESE : S	0·5	0·0	0·01	176	0, d : 0, h	1, li.-cl : 1, li.-cl : 0, lu.-ha, lu.-co
16	14·9	16·6	Calm : NE	NNE : NE : ESE	0·8	0·0	0·02	171	0, d : 0	0 : 0 : 0, f
17	11·9	16·6	ESE : E : NE	ESE : SSW	0·7	0·0	0·00	140	p.-cl, tk.-f : 0	1, th.-cl : 0
18	7·2	16·6	SSW : SW	SW : SSW	1·7	0·0	0·10	218	0 : 7, ci.-s, th.-cl	p.-cl, so.-ha : 10 : 10, r
19	5·3	16·6	SW : NW : NNW	Variable : ESE	2·9	0·0	0·07	182	10, r : p.-cl : 8, cu, th.-cl, h	7, h : 9, so.-ha : 10, r
20	2·9	16·6	ESE : S : SSE	SSE	4·7	0·0	0·32	268	10, hy.-r : 10, shs.-r : 9, cu	p.-cl : p.-cl
21	6·3	16·6	SSE : SE	S : SSW : Calm	1·7	0·0	0·02	136	9 : 9, cu	7, th.-cl, so.-ha : 4, th.-cl, prh : 10
22	0·0	16·6	Calm : NNW : N	N : NNE	1·8	0·0	0·09	206	10 : 10 : 10, slt.-r	10, fq.-r : 10
23	0·0	16·6	N : NNE	NE : NNE : N	0·5	0·0	0·02	153	10 : 10	10 : 10
24	4·5	16·6	Calm : NNW	NNW : N	2·6	0·0	0·16	213	10 : p.-cl : 10	9, cu : 1, li.-cl
25	1·2	16·6	NNW : NW	WNW : W : WSW	1·3	0·0	0·05	208	10 : 9 : 10, slt.-r	10, slt.-r : 10 : 9
26	10·5	16·5	WSW : SW : WNW	W : NW : N	2·1	0·0	0·12	265	10, r : p.-cl : 5, cu	6, cu, li.-cl : 6, cu, li.-cl : p.-cl
27	3·1	16·5	N : NNE : ESE	E	2·3	0·0	0·16	218	10 : 10 : 5, cu, ci.-cu, ci.-s	10 : 10 : 1, li.-cl
28	4·8	16·5	E : ESE	E : NE	2·2	0·0	0·09	219	10 : 10 : 7, li.-cl	p.-cl, slt.-r : 9, l, t, oc.-slt.-r
29	10·4	16·5	NNE : WSW : W	W : WNW : NW	3·0	0·0	0·28	315	10 : p.-cl : 8, cu	7, cu : p.-cl, l : 8, l, t
30	7·3	16·5	NW : WSW : SW	W : SW : S	3·1	0·0	0·23	290	0 : 3, th.-cl	8, cu, so.-ha : 10, hy.-r
Means	8·1	16·5	...	...	...	...	0·11	206		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 54°·9, being 0°·1 *lower* 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 68·7, being 5·3 *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 531 grains, being *the same as*
} the average for the 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0, and an overcast sky by 10) was 5·1.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·490. The maximum daily amount of *Sunshine* was 14·9 hours on June 16.

The highest reading of the *Solar Radiation Thermometer* was 148°·3 on June 28; and the lowest reading of the *Terrestrial Radiation Thermometer* was 29°·8 on June 14.

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

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

The *Greatest Pressure of the Wind* in the month was 4·7 lbs. on the square foot on June 20. The mean daily *Horizontal Movement of the Air* for the month was 206 miles; the greatest daily value was 353 miles on June 8; and the least daily value was 90 miles on June 5.

Rain fell on 6 days in the month amounting to 0in·758, as measured by gauge No. 6 partly sunk below the ground; being 1in·264 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	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	...	29·393	68·7	53·9	14·8	59·3	− 2·0	55·8	52·7	6·6	13·5	0·9	79	138·4	52·9	0·489	0·8	vP, ssN : vP, vN : wwP
2	...	29·446	65·0	51·9	13·1	56·2	− 5·2	52·0	48·0	8·2	15·3	1·8	74	133·8	50·5	0·110	0·0	wwP, wN
3	...	29·696	61·9	54·0	7·9	56·7	− 5·0	53·5	50·5	6·2	10·1	3·2	80	97·8	50·0	0·020	0·0	wwP, wwN : wP, wwN
4	...	29·902	67·3	54·8	12·5	59·6	− 2·3	54·9	50·7	8·9	13·9	3·8	73	117·2	46·9	0·000	0·0	wwP
5	Greatest Declination N.	30·039	73·1	50·4	22·7	62·3	+ 0·2	56·6	52·7	9·6	19·4	3·0	69	122·9	40·6	0·000	0·0	wwP
6	...	30·056	77·0	57·5	19·5	64·6	+ 2·4	61·3	58·6	6·0	17·2	0·4	81	129·9	50·3	0·000	0·0	wwP
7	New	30·063	80·1	54·8	25·3	66·9	+ 4·8	62·7	59·3	7·6	21·6	0·2	77	128·2	49·0	0·000	0·0	wwP
8	...	30·011	78·8	56·7	22·1	67·6	+ 5·6	61·8	57·2	10·4	21·1	0·2	69	135·1	50·0	0·000	0·0	wP
9	...	29·941	79·5	56·2	23·3	67·1	+ 5·1	60·5	55·2	11·9	23·0	1·9	66	139·0	50·9	0·000	0·0	wP
10	Apogee	29·881	75·0	59·2	15·8	65·5	+ 3·4	59·8	55·1	10·4	16·3	3·8	70	130·2	53·0	0·000	0·0	wP
11	...	29·757	83·1	59·1	24·0	70·4	+ 8·1	63·6	58·4	12·0	26·0	0·9	66	145·4	55·3	0·086	0·0	wP, wN : wP : wwP
12	...	29·640	82·3	59·2	23·1	69·4	+ 6·8	62·5	57·1	12·3	19·0	5·3	64	143·0	54·2	0·000	2·0	wP
13	In Equator	29·800	75·1	56·5	18·6	63·4	+ 0·5	57·6	52·8	10·6	20·9	2·8	68	128·0	46·0	0·000	0·0	wP
14	...	29·934	75·1	50·9	24·2	63·0	− 0·1	57·7	53·2	9·8	19·2	1·8	70	145·0	41·1	0·000	0·0	wP
15	First Quarter	29·999	74·0	57·5	16·5	64·5	+ 1·3	57·6	51·9	12·6	22·7	2·3	63	139·4	48·2	0·000	0·0	wP
16	...	30·015	76·7	52·9	23·8	65·2	+ 2·0	57·9	52·0	13·2	23·1	4·0	62	135·2	43·6	0·000	0·0	wP : wP : wP, wwN
17	...	29·950	79·1	51·4	27·7	66·5	+ 3·4	59·1	53·1	13·4	24·8	1·9	62	153·5	41·0	0·000	0·0	wP, wN : wP : wwP
18	...	29·919	82·0	56·7	25·3	69·1	+ 6·1	59·1	51·3	17·8	28·1	6·3	53	146·0	44·7	0·000	0·0	wP
19	...	29·812	88·1	59·5	28·6	73·5	+10·5	62·5	54·4	19·1	30·2	7·7	51	158·0	46·9	0·000	0·0	wP
20	Greatest Declination S.	29·790	86·0	60·1	25·9	73·4	+10·4	63·6	56·4	17·0	29·4	5·8	55	146·9	47·8	0·000	0·0	wP
21	...	29·823	88·5	62·4	26·1	74·0	+11·0	65·1	58·6	15·4	33·1	5·2	58	150·0	55·7	0·000	0·0	vP, ssN : mP : wP
22	Full	29·788	81·8	62·3	19·5	69·4	+ 6·5	64·4	60·5	8·9	26·5	0·9	73	142·8	60·7	0·061	0·0	vP, mN : mP : vP, wN
23	Perigee	29·654	67·1	57·7	9·4	63·0	+ 0·2	61·5	60·2	2·8	5·6	0·7	91	89·1	56·6	0·951	0·0	vP, ssN : wP
24	...	29·780	72·7	57·4	15·3	63·9	+ 1·3	59·2	55·3	8·6	15·1	1·3	74	132·9	56·3	0·009	0·0	wP : mP
25	...	29·997	78·1	55·2	22·9	66·2	+ 3·8	58·1	51·5	14·7	24·5	6·5	60	129·6	47·0	0·000	0·0	wP
26	In Equator	30·025	81·5	60·2	21·3	69·3	+ 7·0	62·8	57·7	11·6	20·7	2·5	66	140·0	54·5	0·012	0·0	wP
27	...	30·142	72·0	56·9	15·1	63·9	+ 1·6	56·0	49·5	14·4	22·1	3·6	59	137·1	47·4	0·000	0·0	mP : wP
28	...	30·156	76·2	49·2	27·0	64·4	+ 2·1	56·3	49·6	14·8	26·0	3·4	59	139·0	38·3	0·000	0·0	wP
29	Last Quarter	30·053	80·0	50·5	29·5	67·2	+ 4·9	59·5	53·4	13·8	21·9	4·8	61	138·4	41·2	0·000	0·0	wP : mP
30	...	30·093	82·2	60·8	21·4	70·1	+ 7·8	62·8	57·2	12·9	25·0	4·0	64	139·0	52·0	0·000	0·0	wP
31	...	30·270	74·9	56·5	18·4	65·6	+ 3·3	61·1	57·4	8·2	16·8	1·1	76	145·5	47·2	0·000	0·0	wP
Means	...	29·898	76·9	56·2	20·7	65·8	+ 3·4	59·6	54·6	11·3	21·0	3·0	67·5	135·4	49·0	Sum 1·738	0·1	...
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 deduced from the 50 years' observations, 1841–1890. 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·898, being 0in·105 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 88°·5 on July 21; the lowest in the month was 49°·2 on July 28; and the range was 39°·3.
The mean of all the highest daily readings in the month was 76°·9, being 2°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 56°·2, being 3°·1 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 20°·7, being 0°·2 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 65°·8, being 3°·4 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. OSLER'S. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	ROBINSON'S. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
July 1	6·6	16·5	S : SSW : SW	SW : WSW	7·7	0·0	0·91	459	10, t.-sm, hy.-r : v, shs.-r : 8, sc, oc.-r	v, fq.-shs, t, w : v, sc, shs.-r, w : 10, sc, w
2	3·8	16·5	SW : WSW : W	W : WSW	5·6	0·0	0·85	477	10, shs.-r : 9, shs.-r	9 : 10, shs.-r
3	0·2	16·5	W : WNW : NW	NW : WNW	4·2	0·0	0·53	405	10, oc.-r : p.-cl : 10	10 : 10, sh.-r
4	2·5	16·5	WNW : NW	NW : NNW	4·6	0·0	0·43	354	10 : 9	9 : 10 : 2, li.-cl
5	10·6	16·4	NNW : SW	N : NNW	0·7	0·0	0·01	143	10 : th.-cl, h : 7, cu, th.-cl	7, cu : p.-cl : 10, m
6	1·8	16·4	SW : WSW : NW	NNW : SE : E	0·2	0·0	0·00	152	9 : 9, cu, h, m, sh.-r	9, oc.-r, h : 10, m
7	6·7	16·4	Calm : N	N : SE : SW	0·3	0·0	0·00	86	10, m, f : p.-cl, h	7, cu, h : 7, h : 2, l
8	5·8	16·4	SE : SW : W	W : NW : WSW	0·8	0·0	0·03	182	10, f : 10, f : 1, th.-cl, h, so.-ha	p.-cl, h, so.-ha : p.-cl : 0
9	8·7	16·3	WSW : W	W : WSW : SW	0·5	0·0	0·04	189	0 : 1, li.-cl : p.-cl	1, li.-cl : 1
10	2·7	16·3	SW	SW : SSW	2·1	0·0	0·13	241	10 : 10	10 : 6, ci.-cu, li.-cl : p.-cl
11	11·8	16·3	SSW : SE : S	S : SSW : SE	2·2	0·0	0·08	154	10, hy.-r : p.-cl : 2, li.-cl	2, li.-cl : 2, li.-cl
12	6·9	16·2	SE : Variable : SSW	SW	1·8	0·0	0·12	233	10 : p.-cl : 8, cu, ci.-cu	9 : 9
13	4·9	16·2	SW : WSW : W	W : WSW : SW	1·4	0·0	0·09	236	10 : 10	9, cu : 9 : 0
14	6·9	16·1	SW : SSW	SSW : SW	2·3	0·0	0·18	268	0 : p.-cl : p.-cl	9 : 0 : 1, li.-cl
15	7·5	16·1	SW : WSW : W	W : WSW : SW	1·3	0·0	0·08	217	p.-cl : p.-cl	5, li.-cl : 3, th.-cl
16	4·8	16·1	SW : Variable	NE : E : SSW	0·1	0·0	0·00	113	9 : 9 : p.-cl	10, f, glm : p.-cl : 0, d
17	11·0	16·0	Variable	ESE : E	1·2	0·0	0·05	123	0, hy.-d : 0 : 6, cu	5, cu, cu.-s : p.-cl
18	12·8	16·0	ESE : SE	SSE : SE	0·7	0·0	0·03	134	p.-cl : 0	p.-cl : 1, li.-cl : 1, li.-cl
19	13·8	16·0	SSE : S : SSW	SSW : S : SE	2·0	0·0	0·11	221	li.-cl : li.-cl : 1, ci.-cu	1, ci.-cu : 0
20	11·8	15·9	E : ENE : NE	E : ESE	2·0	0·0	0·17	209	0, d : 0 : 1, ci	2, ci, li.-cl, so.-ha : 1, li.-cl : p.-cl, lu.-co
21	10·7	15·9	Variable : WSW : W	SW : NE : NNE	1·0	0·0	0·03	174	10, l, t, slt.-r : 9 : 0	1, li.-cl : 7, l
22	6·1	15·8	NNE : NE : ENE	NE : E : SE	1·0	0·0	0·05	198	10 : 10, li.-shs : 8	2, ci.-cu : p.-cl, sh.-r : 10, l
23	0·0	15·8	N : WSW	N : NNW	1·0	0·0	0·04	176	10, t.-sm, hy.-r : 10, hy.-r : 10, m, slt.-r, t	10, slt.-r : 10, slt.-r
24	6·5	15·8	NNW : N	N : NNW : NNE	3·0	0·0	0·30	296	10, slt.-r : 10 : 8, cu	p.-cl : 10
25	11·5	15·7	NNW : NW : WNW	W : WSW	1·4	0·0	0·13	250	10 : p.-cl : 4, th.-cl	3, ci, s, ci.-s : 2, li.-cl
26	11·7	15·7	WSW : W	W : WNW : N	3·7	0·0	0·62	428	9 : 9	p.-cl : 3, ci.-cu : v, sh.-r
27	11·4	15·6	N : NNW	N : NNW	1·7	0·0	0·18	262	v : p.-cl : 4, cu, li.-cl	3, cu : 2, li.-cl : 0
28	11·1	15·6	NNW : SW	N : NNW	1·2	0·0	0·07	176	0 : 6, cu, th.-cl	6, th.-cl, so.-ha : 1, th.-cl
29	11·4	15·5	WSW : W : WNW	NW : NNW : N	2·1	0·0	0·12	224	0 : 0 : p.-cl	3, li.-cl : 1, li.-cl : 0
30	14·2	15·5	NNW : N	NNE : NE : ESE	1·0	0·0	0·10	207	p.-cl : 0 : 5, th.-cl	3, th.-cl : 0 : 0
31	11·5	15·4	ENE : NE	E : ESE	2·9	0·0	0·15	224	10, f : p.-cl : 2, cu	0 : 0 : p.-cl
Means	8·0	16·0	...	...	...	...	0·18	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 59°·6, being 1°·8 *higher* than
The mean *Temperature of the Dew Point* for the month was 54°·6, being 0°·7 *higher* than
The mean *Degree of Humidity* for the month was 67·5, being 6·3 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·427, being 0in·011 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·7, being 0gr·1 *greater* than
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 5·4.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·498. The maximum daily amount of *Sunshine* was 14·2 hours on July 30.

The highest reading of the *Solar Radiation Thermometer* was 158°·0 on July 19; and the lowest reading of the *Terrestrial Radiation Thermometer* was 38°·3 on July 28.

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

The *Proportions of Wind* referred to the cardinal points were N. 8, E. 5, S. 6, and W. 11. One day was calm.

The *Greatest Pressure of the Wind* in the month was 7·7 lbs. on the square foot on July 1. The mean daily *Horizontal Movement of the Air* for the month was 233 miles; the greatest daily value was 477 miles on July 2; and the least daily value was 86 miles on July 7.

Rain fell on 8 days in the month, amounting to 1in·738, as measured by gauge No. 6 partly sunk below the ground; being 0in·732 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	TEMPERATURE. Of the Air. Lowest.	TEMPERATURE. Of the Air. Daily Range.	TEMPERATURE. Of the Air. Mean of 24 Hourly Values.	TEMPERATURE. Of the Air. Excess above Average of 50 Years.	TEMPERATURE. Of Evaporation. Mean of 24 Hourly Values.	TEMPERATURE. Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Difference between the Air Temperature and Dew Point Temperature. Greatest.	Difference between the Air Temperature and Dew Point Temperature. Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	TEMPERATURE. Of Radiation. Lowest on the Grass.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Aug. 1	Greatest Declination N.	30·217	79·5	53·5	26·0	67·2	+ 5·0	59·9	54·1	13·1	25·7	1·1	63	144·1	42·6	0·000	0·0	mP : wP : wP
2	...	29·994	78·1	52·1	26·0	66·8	+ 4·7	60·1	54·7	12·1	22·6	3·2	65	147·2	39·1	0·000	0·0	wP
3	...	29·843	79·6	59·0	20·6	68·2	+ 6·1	63·0	58·9	9·3	18·5	3·4	72	142·0	50·3	0·000	0·0	wwP
4	...	29·802	77·2	59·8	17·4	67·7	+ 5·5	62·6	58·6	9·1	17·5	3·1	72	142·8	56·0	0·000	0·0	wwP
5	...	29·805	79·8	59·1	20·7	68·5	+ 6·2	63·0	58·7	9·8	19·9	1·6	71	141·3	55·7	0·091	0·0	wP : wP : vP, ssN
6	New : Apogee	29·808	73·8	61·9	11·9	66·1	+ 3·7	64·1	62·5	3·6	7·0	0·4	88	112·1	59·7	0·024	0·0	wwP
7	...	29·829	71·0	59·4	11·6	64·3	+ 1·8	61·4	59·0	5·3	12·6	0·5	83	115·2	51·1	0·000	0·0	wwP
8	...	29·833	75·0	57·3	17·7	64·4	+ 1·9	57·5	51·8	12·6	22·4	3·6	63	142·4	54·9	0·000	0·0	wP
9	In Equator	29·904	76·0	55·4	20·6	63·7	+ 1·2	57·9	53·1	10·6	22·6	4·4	69	141·9	48·8	0·000	0·0	wP
10	...	30·019	76·4	52·5	23·9	63·1	+ 0·6	57·5	52·8	10·3	21·1	3·0	69	151·0	43·2	0·000	0·0	wP : ... : wP
11	...	30·092	74·8	51·2	23·6	62·2	− 0·3	56·8	52·2	10·0	21·1	1·0	70	144·7	37·2	0·000	0·0	wP : ... : wP
12	...	30·095	75·1	52·2	22·9	63·1	+ 0·6	57·8	53·3	9·8	18·5	1·7	71	146·5	42·2	0·000	0·0	wP
13	...	30·080	74·2	53·5	20·7	63·2	+ 0·8	58·5	54·5	8·7	18·0	0·9	74	140·0	41·0	0·000	0·0	wP
14	First Quarter	29·996	76·8	56·1	20·7	65·2	+ 2·9	60·8	57·2	8·0	17·2	2·1	76	140·0	48·3	0·000	0·0	wP
15	...	29·847	90·0	57·9	32·1	71·3	+ 9·2	64·3	59·0	12·3	28·6	0·8	65	149·1	50·3	0·000	0·0	wP : wP : wP, sN
16	Greatest Declination S.	29·907	78·5	59·3	19·2	67·5	+ 5·5	60·2	54·4	13·1	23·1	2·7	63	131·8	49·9	0·000	0·0	wP : mP : vP
17	...	29·951	75·0	56·1	18·9	65·0	+ 3·2	56·1	48·8	16·2	24·5	5·3	55	133·2	48·7	0·000	0·0	wP : mP : mP
18	...	29·995	72·5	57·2	15·3	65·4	+ 3·8	58·2	52·3	13·1	18·7	5·7	62	125·9	48·9	0·000	0·0	mP
19	...	30·022	75·1	60·6	14·5	66·4	+ 5·0	61·8	58·1	8·3	14·1	3·2	75	114·0	55·0	0·003	0·0	wP : mP : wP
20	Perigee	30·069	76·5	54·5	22·0	65·4	+ 4·1	60·6	56·7	8·7	16·3	2·8	74	125·5	45·0	0·000	0·0	wP
21	Full	30·128	73·3	50·0	23·3	61·0	− 0·1	55·3	50·4	10·6	24·0	1·3	68	137·0	35·8	0·000	0·0	wP
22	In Equator	30·134	75·4	47·2	28·2	61·9	+ 0·9	55·8	50·6	11·3	27·7	1·6	67	142·1	35·8	0·000	0·0	mP : wP : wP
23	...	30·076	79·0	53·8	25·2	64·8	+ 3·9	60·3	56·6	8·2	21·4	0·6	75	139·9	41·6	0·000	0·0	wP
24	...	29·952	84·9	57·8	27·1	68·5	+ 7·7	63·2	59·0	9·5	27·4	0·6	72	145·2	47·0	0·000	0·0	wP
25	...	29·852	89·3	56·3	33·0	72·0	+11·2	62·1	54·7	17·3	34·6	0·9	54	150·5	42·0	0·000	0·0	wP
26	...	29·883	80·2	55·4	24·8	68·6	+ 7·8	60·6	54·4	14·2	26·5	2·1	60	128·9	45·0	0·000	0·0	... : wP
27	Last Quarter	29·665	84·2	58·7	25·5	70·1	+ 9·4	62·9	57·3	12·8	26·7	4·5	64	141·7	44·1	0·000	0·0	wP : wwP, wwN : wP
28	...	29·675	74·0	56·2	17·8	62·5	+ 1·9	58·5	55·1	7·4	21·6	2·7	77	138·9	49·5	0·154	0·0	wP : vP, ssN
29	Greatest Declination N.	29·732	69·0	52·2	16·8	61·1	+ 0·8	58·5	56·3	4·8	11·2	1·8	84	98·6	42·9	0·051	0·0	wP : wP, wN : wP
30	...	29·661	74·1	57·7	16·4	64·6	+ 4·5	59·2	54·7	9·9	18·2	1·4	71	138·2	50·9	0·005	0·0	wwP : vP, vN : wP
31	...	29·686	71·7	54·1	17·6	61·1	+ 1·2	56·5	52·5	8·6	18·0	2·2	74	119·0	48·8	0·026	0·0	wP
Means	...	29·921	77·1	55·7	21·4	65·5	+ 3·9	59·8	55·2	10·3	20·9	2·3	69·9	135·8	46·8	Sum 0·354	0·0	...
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 deduced from the 50 years' observations, 1841–1890. 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·921, being 0in·139 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 90°·0 on August 15; the lowest in the month was 47°·2 on August 22; and the range was 42°·8.
The mean of all the highest daily readings in the month was 77°·1, being 4°·3 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 55°·7, being 2°·7 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 21°·4, being 1°·6 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 65°·5, being 3°·9 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Aug. 1	12.1	15.4	ENE : NE : ESE	E : ESE	1.8	0.0	0.10	185	0, d : 0 : 1, th.-cl	0, so.-ha : 0
2	10.7	15.3	E : N[illegible]	E	2.5	0.0	0.14	211	0 : 0 : 2, ci.-s, so.-ha	p.-cl, so.-ha : 9
3	12.0	15.2	ENE	E : ENE	3.5	0.0	0.32	318	10 : p.-cl : 3, th.-cl, so.-ha	1, th.-cl : li.-cl : 10
4	9.3	15.2	ENE : E	E : ENE	4.0	0.0	0.60	372	10 : 10 : 8, cu	4, cu, li.-cl : 0 : 1, li.-cl
5	9.9	15.1	ENE : E	E : ESE : ENE	4.4	0.0	0.37	328	10 : 10 : 2, li.-cl	2, li.-cl : p.-cl : 10, t.-sm
6	2.4	15.1	ENE : ESE	ESE	1.7	0.0	0.02	161	10 : 10, shs.-r	10, oc.-slt.-r : p.-cl : 1, li.-cl
7	0.9	15.0	E : ENE	ESE : E	0.2	0.0	0.00	142	10 : 10 : 9, slt.-sh	10 : 10
8	7.0	15.0	NE	NE : NNE	2.3	0.0	0.16	297	10 : p.-cl	3, ci.-cu, li.-cl : 9 : 10
9	8.6	14.9	N : NE	E : ESE : ENE	2.5	0.0	0.15	269	9 : 10 : 8, cu	2, cu : 0 : 0
10	12.9	14.9	NE : ENE	E : ESE : ENE	1.4	0.0	0.07	225	0 : 0 : 5, cu	3, cu, cu.-s : 1, cu : 0
11	10.7	14.8	NE	NE : E	2.4	0.0	0.06	189	0, m : 1, li.-cl	p.-cl : p.-cl : 0
12	12.4	14.8	NE	ENE : ESE : E	2.0	0.0	0.07	210	p.-cl, hy.-d: li.-cl : p.-cl	5, th.-cl : 2, th.-cl : 0
13	11.4	14.7	E : NE	NE : E	2.0	0.0	0.11	217	0, hy.-d, f : 4, cu, li.-cl	0 : 0
14	6.0	14.6	ENE : E	E : ESE	1.3	0.0	0.07	201	9 : 10 : 9	6, li.-cl : 4, li.-cl
15	7.3	14.6	E : NE	Variable	7.6	0.0	0.08	152	p.-cl, m, d : 0, m : v, li.-cl	7, cu, cu.-s : p.-cl, w : v, l
16	8.1	14.5	NNE : N	N : NW : W	1.6	0.0	0.07	217	10 : 10 : 8, th.-cl	6, cu : 2, li.-cl : 2, li.-cl
17	10.8	14.4	WSW : NW	WNW : NNW	3.3	0.0	0.25	304	p.-cl : 6, th.-cl	4, ci.-cu : 10, l : 10, slt.-r
18	4.9	14.4	W : SW : NW	NW : WNW	2.8	0.0	0.14	283	9 : 9, cu	9 : 10, slt.-r : 10
19	0.9	14.3	NNW : NNE : NW	N : NNW	1.4	0.0	0.08	204	10, slt.-r : 10 : 10, slt.-r	10, oc.-slt.-r : 1, li.-cl
20	3.4	14.3	NNW : N	NNE : ESE	1.0	0.0	0.02	166	p.-cl : p.-cl : 10	p.-cl : p.-cl : 0
21	12.4	14.2	ENE	NE : ESE	0.9	0.0	0.02	141	0, h, m, d : 0 : 3, cu.-s	0 : 0
22	12.5	14.2	ENE	E	0.8	0.0	0.03	147	0, h, m, d : 0	0 : 0 : 0, slt.-f
23	11.0	14.1	E	ESE	1.5	0.0	0.07	178	0, f, d : 0, f : 1, ci, slt.-f	1, li.-cl : 1, li.-cl : 9
24	11.6	14.0	ESE	ESE	3.0	0.0	0.10	211	9, f : 0	0 : 0
25	12.9	14.0	ESE : SSE	S : SSW : WSW	2.9	0.0	0.12	217	0 : 0	4, ci.-s, li.-cl : 1, s, li.-cl
26	11.0	13.9	WSW : NNW : N	ENE : ESE : SSE	0.5	0.0	0.00	114	p.-cl : 0 : 8, th.-cl	8, th.-cl : v, li.-cl : v, li.-cl
27	9.5	13.8	E : ESE : WSW	WSW : SW : SSW	4.5	0.0	0.22	242	p.-cl : 2, cu.-s, ci.-s, li.-cl	p.-cl : v, cu.-s, th.-cl : v, slt.-sh
28	6.7	13.8	SW : WSW	WSW : SW	7.2	0.0	0.16	247	9 : 9, cu	10, hy.-shs, t : 0
29	2.3	13.7	WSW : SW	SW : SSW	2.7	0.0	0.21	287	0 : p.-cl : 9, cu, n, shs.-r	9, shs.-r : 9, shs.-r
30	9.4	13.7	SSW : SW	WSW : WNW	4.4	0.0	0.44	358	9 : p.-cl : 5, cu	v, cu, slt.-r, t : 0
31	5.4	13.6	WSW	SW : WSW	4.5	0.0	0.31	316	p.-cl : p.-cl : 5, th.-cl, so.-ha	v, hy.-sh : v, oc.-shs, l
Means	8.6	14.5	...	...	...	...	0.15	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 59°.8, being 2°.2 *higher* than
The mean *Temperature of the Dew Point* for the month was 55°.2, being 1°.0 *higher* than
The mean *Degree of Humidity* for the month was 69.9, being 6.9 *less* than
The mean *Elastic Force of Vapour* for the month was 0in.436, being 0in.015 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs.8, being 0gr.1 *greater* than
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 4.7.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0.593. The maximum daily amount of *Sunshine* was 12.9 hours on August 10 and 25.

The highest reading of the *Solar Radiation Thermometer* was 151°.0 on August 10; and the lowest reading of the *Terrestrial Radiation Thermometer* was 35°.8 on August 21 and 22.

The mean daily distribution of *Ozone* for the 12 hours ending 9h was 0.0; for the 6 hours ending 15h was 0.0; and for the 6 hours ending 21h was 0.0.

The *Proportions of Wind* referred to the cardinal points were N. 6, E. 16, S. 4, and W. 5.

The *Greatest Pressure of the Wind* in the month was 7.6 lbs. on the square foot on August 15. The mean daily *Horizontal Movement of the Air* for the month was 229 miles; the greatest daily value was 372 miles on August 4; and the least daily value was 114 miles on August 26.

Rain fell on 6 days in the month, amounting to 0in.354, as measured by gauge No. 6 partly sunk below the ground; being 1in.996 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Of the Air. Lowest.	Of the Air. Daily Range.	Of the Air. Mean of 24 Hourly Values.	Of the Air. Excess above Average of 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.	Of Radiation. 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	...	29·574	73·5	55·2	18·3	62·7	+ 3·0	56·4	51·0	11·7	23·9	3·0	66	132·0	50·3	0·014	0·0	wP : wP : wP, mN
2	...	29·600	72·3	52·1	20·2	60·6	+ 0·9	56·6	53·2	7·4	19·3	1·5	77	136·8	44·6	0·042	0·0	wP : vP, vN : wP
3	Apogee	29·867	76·6	47·9	28·7	62·3	+ 2·7	56·8	52·1	10·2	22·3	1·4	70	137·8	39·9	0·000	0·0	wP
4	...	29·894	78·3	50·4	27·9	66·2	+ 6·8	59·3	53·7	12·5	25·5	1·2	64	135·7	39·8	0·000	0·0	wwP
5	New : In Equator.	29·757	87·3	56·2	31·1	72·3	+13·0	64·1	58·0	14·3	26·4	3·4	60	144·5	46·4	0·000	0·0	... : wP : wP
6	...	29·770	78·7	60·3	18·4	68·5	+ 9·4	64·9	62·0	6·5	15·8	2·3	80	109·0	51·2	0·420	0·0	wP : vP, vN : wP
7	...	29·776	72·1	59·3	12·8	65·5	+ 6·6	64·0	62·8	2·7	7·0	0·4	91	104·9	54·5	0·121	0·0	wwP : wP, vN : wwP
8	...	29·823	73·9	58·2	15·7	65·8	+ 7·1	61·6	58·1	7·7	17·5	0·6	77	104·1	53·3	0·000	0·0	wP
9	...	29·984	68·3	54·3	14·0	60·9	+ 2·4	54·0	48·0	12·9	18·5	5·1	62	116·0	47·9	0·000	0·0	wP : mP : mP
10	...	29·981	64·0	48·9	15·1	57·7	− 0·6	52·1	47·0	10·7	20·9	2·8	68	100·3	36·8	0·000	0·0	wP
11	...	30·013	65·4	42·2	23·2	56·7	− 1·4	52·7	49·0	7·7	12·4	1·9	76	81·0	34·1	0·000	0·0	wP
12	Greatest Dec. S. : First Quarter.	29·963	69·0	51·1	17·9	60·9	+ 2·9	56·6	52·9	8·0	17·1	2·6	75	115·3	41·6	0·000	0·0	wP : mP : wP
13	...	29·913	71·2	45·4	25·8	59·1	+ 1·2	55·8	52·8	6·3	14·0	0·6	80	105·2	36·0	0·000	0·0	wP : mP : mP, wwN
14	...	29·872	67·3	54·6	12·7	61·1	+ 3·3	55·8	51·2	9·9	19·6	3·8	71	105·0	46·3	0·000	0·0	wP : mP
15	...	29·795	69·1	46·2	22·9	58·0	+ 0·3	52·8	48·1	9·9	20·0	1·9	70	113·7	37·7	0·137	0·0	wP : wP : wP, sN
16	...	29·461	62·9	53·4	9·5	57·1	− 0·4	53·2	49·6	7·5	15·0	0·8	76	106·4	46·3	0·135	0·0	wP, wN : vP, ssN : mP
17	...	29·621	69·0	50·1	18·9	58·6	+ 1·3	54·7	51·2	7·4	15·7	2·0	77	108·6	44·7	0·000	0·2	wP
18	Perigee : In Equator.	29·575	64·1	52·2	11·9	56·7	− 0·2	51·1	45·9	10·8	20·0	4·7	67	101·6	46·6	0·016	0·8	wP : mP, mN : wP
19	Full	29·532	64·1	53·5	10·6	57·1	+ 0·6	52·4	48·1	9·0	16·0	1·3	72	96·2	49·0	0·153	0·0	wP : wP : wP, wN
20	...	29·503	60·7	47·5	13·2	53·3	− 2·8	47·8	42·3	11·0	19·6	2·6	66	108·3	41·7	0·001	0·0	wP : mP, mN : mP
21	...	29·678	65·2	43·3	21·9	52·7	− 3·0	47·7	42·7	10·0	20·3	2·9	69	124·1	35·9	0·000	0·0	mP
22	...	29·574	60·5	47·4	13·1	54·4	− 1·0	48·2	42·2	12·2	20·9	0·9	63	108·5	40·3	0·170	0·0	wP, wN : mP : mP
23	...	29·794	61·2	43·2	18·0	51·2	− 4·0	47·0	42·6	8·6	16·3	3·5	73	111·0	36·2	0·016	0·0	mP : wP : wP, sN
24	...	29·747	61·9	45·3	16·6	52·5	− 2·6	47·7	42·9	9·6	19·0	4·0	70	108·9	39·6	0·023	0·0	wP : mP : wP
25	Greatest Declination N.	29·570	66·7	54·5	12·2	58·3	+ 3·3	53·6	49·4	8·9	17·1	2·1	73	112·2	48·4	0·015	0·0	wP
26	Last Quarter	29·397	63·1	49·0	14·1	55·5	+ 0·6	50·5	45·8	9·7	17·9	3·6	70	115·3	43·8	0·002	0·0	wP : wP, vN : wP
27	...	29·352	60·5	46·3	14·2	52·4	− 2·5	48·7	44·9	7·5	10·8	4·4	76	109·1	41·1	0·155	0·0	wP : vP, ssN
28	...	29·513	59·1	40·5	18·6	48·2	− 6·6	45·2	41·9	6·3	13·7	0·0	79	100·5	31·0	0·004	0·0	wP : mP, wN : mP, ssN
29	...	29·489	58·0	37·1	20·9	47·9	− 6·7	46·0	43·9	4·0	11·6	0·0	87	92·0	29·1	0·778	0·0	mP : vP, vN
30	Apogee	29·181	57·8	45·8	12·0	50·4	− 4·0	48·3	46·1	4·3	11·6	0·8	86	115·6	39·0	0·031	0·2	... : wP, ssN : wP
Means	...	29·686	67·4	49·7	17·7	58·2	+ 1·0	53·5	49·3	8·8	17·5	2·2	73·0	112·0	42·4	Sum 2·233	0·0	...
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 deduced from the 50 years' observations, 1841–1890. 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·686, being 0in·120 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 87°·3 on September 5; the lowest in the month was 37°·1 on September 29; and the range was 50°·2.
The mean of all the highest daily readings in the month was 67°·4, being 0°·1 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 49°·7, being 0°·6 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 17°·7, being 0°·5 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 58°·2, being 1°·0 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	General Direction. P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	Clouds and Weather. P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Sept. 1	8·8	13·5	WSW : W	W : WSW : SW	3·6	0·0	0·43	360	p.-cl, l : p.-cl : 6, cu, cu.-s, so.-ha	5, cu, ci.-cu : 5, cu, th.-cl : 10, r
2	6·9	13·5	WSW : SW : W	WSW : NW	4·0	0·0	0·29	293	9, r : li.-cl : 8, cu, n	v, fq.-r, l, t : 10, fq.-shs : 0
3	11·3	13·4	WSW : SW	WSW : SW : SSW	0·8	0·0	0·04	192	0, d : 0	p.-cl : p.-cl : 0
4	12·1	13·3	SSW : SE : S	SSW : S	1·4	0·0	0·07	198	0, hy.-d : 0	0 : 0
5	7·3	13·3	ENE : SSE : SW	SW	3·0	0·0	0·11	187	0 : 9 : 6, cu.-s	p.-cl : 0 : 0, l
6	1·7	13·2	SW : NE	E : ENE : NE	8·0	0·0	0·04	149	9, f : 9 : 9, shs.-r, t	10, t.-sm, w : 9, l : 9, slt.-m
7	1·2	13·1	NE : NNE : ESE	SE : S	0·1	0·0	0·00	98	10 : 10 : 10, r	10, r : p.-cl : v, slt.-m, l, t
8	5·1	13·1	SW : N	N : NNE : NNW	1·7	0·0	0·07	181	10 : p.-cl : 8, th.-cl	p.-cl : 5, cu, li.-cl : 10
9	8·8	13·0	NNW : N	NNW : NW : W	2·1	0·0	0·27	297	10 : p.-cl	3, cu, th.-cl : p.-cl : 0
10	1·5	13·0	W : NNW	N	3·2	0·0	0·25	272	v : 9	p.-cl : p.-cl : 0
11	0·0	12·9	NNW : SW	WSW : WNW	1·2	0·0	0·03	182	9 : 10	10 : 10 : p.-cl
12	4·3	12·9	NNW : N : NNE	N : NE : SSE	0·6	0·0	0·03	190	p.-cl : p.-cl : 10	8, cu, li.-cl : 0 : 0
13	2·9	12·8	SSE : Calm	WSW : NNW : NE	0·1	0·0	0·00	85	0, hy.-d : 0, m : 9	p.-cl : 10
14	3·9	12·7	NE : NNE : N	NNW : N	1·8	0·0	0·10	192	10 : 9	p.-cl : 0 : 0
15	5·9	12·6	NNW : WSW : W	WSW : SW	4·2	0·0	0·30	289	0, d : p.-cl, m : 1, li.-cl	8, cu : 10, hy.-sh, w
16	5·0	12·6	SW : W : WNW	WNW : NNW : NW	4·8	0·0	0·54	381	10, sh.-r : ci.-cu : 9, n, sc, oc.-slt.-r	v, n, r, l, t : 2, cu : 1, li.-cl
17	2·8	12·5	SW : WSW	WSW : W : WNW	3·6	0·0	0·20	291	v : li.-cl : 10	9, cu : 9, cu : 1, li.-cl, lu.-co
18	4·8	12·5	WSW : W	WNW : W : WSW	10·0	0·0	0·88	478	v : th.-cl : v, shs.-r, w	p.-cl, w : p.-cl, lu.-co, lu.-ha
19	0·7	12·4	WSW : W	WSW : SW	7·1	0·0	0·80	480	10 : 10 : 9	8, cu, th.-cl : 10, w, fq.-shs
20	8·7	12·3	WSW : W : WNW	W : WNW : WSW	12·6	0·0	1·19	544	p.-cl : p.-cl : 8, cu, w	7, cu, w, slt.-r : 0, st.-w : 0
21	8·4	12·2	WSW : W	SW : SSW : S	1·3	0·0	0·08	241	0, d : 0 : 1, th.-cl	p.-cl, h : 7, ci.-cu, th.-cl : 9
22	8·3	12·2	SSW : WNW	W : WNW : WSW	14·2	0·0	1·40	587	10, r, w : 3, li.-cl, w	7, cu, n, w : li.-cl : 0
23	4·6	12·1	WSW : SW	WSW	7·1	0·0	0·50	395	0, d : 0 : 9, cu	9, cu, slt.-r : 8, cu : 10, r
24	8·1	12·1	WSW : W : NW	NW : WSW : SW	6·0	0·0	0·57	417	v : p.-cl : p.-cl, w	p.-cl : 10, fq.-th.-r : 10
25	4·8	12·0	WSW : W : WNW	WSW : SW	3·9	0·0	0·53	394	9 : p.-cl : 4, cu, th.-cl	8, cu, ci.-cu : 10, oc.-slt.-r : 9, shs.-r
26	5·8	11·9	W : WSW : SW	WSW : SW	10·5	0·0	0·99	506	p.-cl : 0 : 5, ci.-s, li.-cl	v, r, so.-ha, w : 0, l
27	3·3	11·9	SW : SSW	SSW : SW : WSW	3·6	0·0	0·33	352	0, d : 0 : 10, shs.-r	v, shs.-r, t : v, l, t, oc.-r : 0, l
28	6·5	11·8	SW : WSW	W : NW : SW	1·3	0·0	0·02	191	0, l, d : 0, f : 3, cu, h	6, cu, th.-cl, h : p.-cl, l, t, slt.-r : 0, slt.-f, l
29	0·8	11·7	SW : SSW	S : SE : ENE	2·3	0·0	0·11	206	0, d : 10	10, r : 10, r
30	3·2	11·7	SSE : SSW : SW	SSW : S	3·6	0·0	0·20	264	10 : 10 : 9	9, shs.-r : v, li.-cl, l
Means	5·2	12·6	...	...	...	...	0·35	296		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 53°·5, being 0°·7 *lower* than
The mean *Temperature of the Dew Point* for the month was 49°·3, being 2°·1 *lower* than
The mean *Degree of Humidity* for the month was 73·0, being 7·8 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·352, being 0in·027 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·9, being 0gr·3 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 530 grains, being 3 grains *less* than
} the average for the 50 years, 1841–1890.

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

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·416. The maximum daily amount of *Sunshine* was 12·1 hours on September 4.

The highest reading of the *Solar Radiation Thermometer* was 144°·5 on September 5; and the lowest reading of the *Terrestrial Radiation Thermometer* was 29°·1 on September 29.

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

The *Proportions of Wind* referred to the cardinal points were N. 6, E. 2, S. 8, and W. 14.

The *Greatest Pressure of the Wind* in the month was 14·2 lbs. on the square foot on September 22. The mean daily *Horizontal Movement of the Air* for the month was 296 miles; the greatest daily value was 587 miles on September 22; and the least daily value was 85 miles on September 13.

Rain fell on 15 days in the month, amounting to 2in·233, as measured by gauge No. 6 partly sunk below the ground; being 0in·018 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Phases of the Moon.	Barometer. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	Temperature. Of the Air. Highest.	Temperature. Of the Air. Lowest.	Temperature. Of the Air. Daily Range.	Temperature. Of the Air. Mean of 24 Hourly Values.	Temperature. Of the Air. Excess above Average of 50 Years.	Temperature. Of Evaporation. Mean of 24 Hourly Values.	Temperature. Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Difference between the Air Temperature and Dew Point Temperature. Greatest.	Difference between the Air Temperature and Dew Point Temperature. Least.	Degree of Humidity (Saturation = 100).	Temperature. Of Radiation. Highest in Sun's Rays.	Temperature. Of Radiation. Lowest on the Grass.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Oct. 1	...	29·154	63·0	43·4	19·6	52·3	− 1·8	50·3	48·3	4·0	8·2	1·6	86	86·1	37·0	0·114	1·3	wP : wP, wN
2	In Equator	29·409	52·6	44·2	8·4	51·1	− 2·7	48·3	45·4	5·7	7·8	3·1	81	77·1	38·3	0·043	1·5	wP, wN : wP : mP
3	...	29·811	63·0	42·6	20·4	52·6	− 0·9	48·3	44·0	8·6	16·5	2·6	73	113·3	36·6	0·000	0·0	wP
4	New	29·699	57·6	48·3	9·3	52·8	− 0·4	51·6	50·4	2·4	4·6	1·0	92	59·0	48·1	0·312	0·0	wP
5	...	29·923	52·4	44·9	7·5	49·4	− 3·6	47·3	45·0	4·4	9·4	0·8	86	60·4	37·1	0·041	0·0	wP : wP : mP
6	...	30·001	54·0	42·1	11·9	47·9	− 4·8	45·9	43·7	4·2	6·8	1·7	87	79·0	32·9	0·000	0·0	wP
7	...	30·048	54·8	32·5	22·3	45·6	− 6·9	43·1	40·3	5·3	12·6	0·9	82	95·3	27·0	0·000	0·0	wP
8	...	30·208	60·2	31·2	29·0	45·5	− 6·6	43·5	41·2	4·3	13·5	0·7	85	107·1	29·2	0·000	0·0	wP
9	...	30·152	59·5	33·6	25·9	46·3	− 5·4	43·2	39·7	6·6	15·8	0·4	79	108·5	28·5	0·003	0·2	wP
10	Greatest Declination S.	30·062	60·5	32·7	27·8	46·7	− 4·6	44·1	41·1	5·6	12·7	1·2	82	94·7	27·5	0·000	0·8	wP : wP : mP
11	...	29·794	62·9	35·5	27·4	49·5	− 1·5	47·2	44·7	4·8	14·4	0·7	84	97·3	28·9	0·000	0·0	mP : wP : wP
12	First Quarter	29·412	62·9	45·3	17·6	52·9	+ 2·3	51·1	49·3	3·6	7·8	1·0	88	90·1	37·7	0·115	0·0	wP : wP : wP, wN
13	...	29·690	53·2	39·1	14·1	46·0	− 4·3	41·6	36·6	9·4	18·6	3·5	71	87·3	31·1	0·000	0·0	wP : sP : sP
14	...	29·995	53·4	35·9	17·5	43·3	− 6·8	40·3	36·7	6·6	11·8	3·1	78	98·1	28·9	0·000	0·0	mP
15	...	29·960	53·5	39·5	14·0	46·8	− 3·1	42·6	37·9	8·9	15·0	3·7	72	107·0	28·9	0·000	0·0	wP
16	In Equator: Perigee	29·778	56·3	40·7	15·6	47·7	− 2·1	44·9	41·9	5·8	11·6	1·9	81	91·9	32·9	0·000	0·0	wP : mP
17	...	29·913	60·0	42·1	17·9	49·6	0·0	46·7	43·6	6·0	14·1	0·8	80	104·0	30·9	0·000	0·0	... : mP : mP
18	Full	30·166	62·2	36·7	25·5	48·2	− 1·3	45·7	43·0	5·2	15·6	0·0	83	103·0	29·1	0·000	0·0	mP
19	...	30·227	58·3	37·0	21·3	45·4	− 3·9	43·6	41·5	3·9	15·8	0·0	87	93·4	22·0	0·000	0·0	... : mP
20	...	30·195	59·9	38·1	21·8	46·1	− 2·9	44·1	41·8	4·3	15·0	0·2	86	94·7	28·0	0·000	0·0	mP
21	...	30·223	46·0	42·0	4·0	44·0	− 4·8	43·6	43·1	0·9	1·7	0·0	97	46·9	30·8	0·000	0·0	wP : ...
22	Greatest Declination N.	30·212	46·9	41·3	5·6	44·3	− 4·2	43·8	43·2	1·1	1·9	0·2	96	54·8	36·0	0·000	0·0	... : mP
23	...	30·087	54·8	37·3	17·5	47·2	− 1·0	46·3	45·3	1·9	5·2	0·2	94	63·4	35·6	0·000	0·0	mP : wP
24	...	30·156	58·2	43·2	15·0	50·0	+ 2·1	48·5	46·9	3·1	8·9	0·2	89	74·4	37·2	0·000	0·0	wP
25	...	30·137	60·1	45·5	14·6	51·4	+ 3·8	48·6	45·7	5·7	11·2	2·5	81	90·0	38·3	0·000	0·0	wP
26	Last Quarter	29·789	58·0	47·7	10·3	53·6	+ 6·2	51·9	50·3	3·3	7·6	0·2	89	71·1	37·0	0·276	0·0	wP : wP, wN
27	...	29·621	60·5	55·4	5·1	57·7	+10·4	56·8	56·0	1·7	3·6	0·2	94	64·0	52·3	0·511	0·0	wwP, wwN
28	Apogee	29·680	63·6	51·1	12·5	57·6	+10·4	55·6	53·8	3·8	8·2	0·6	87	94·3	46·1	0·511	0·0	wwP, wN : wwP
29	...	29·750	61·0	52·8	8·2	56·0	+ 9·0	53·7	51·5	4·5	9·5	1·7	85	83·5	46·1	0·177	0·0	wwP
30	In Equator	29·586	58·1	44·4	13·7	50·4	+ 3·4	48·4	46·3	4·1	8·0	1·7	86	61·1	36·5	0·240	0·0	wP
31	...	29·900	55·0	41·2	13·8	47·3	+ 0·5	43·9	40·1	7·2	13·5	3·3	77	95·0	32·9	0·000	0·0	wP
Means	...	29·895	57·5	41·5	16·0	49·2	− 0·8	46·9	44·5	4·7	10·5	1·3	84·5	85·3	34·5	Sum 2·343	0·1	...
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 deduced from the 50 years' observations, 1841–1890. 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·895, being 0in·179 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 63°·6 on October 28; the lowest in the month was 31°·2 on October 8; and the range was 32°·4.
The mean of all the highest daily readings in the month was 57°·5, being 0°·2 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 41°·5, being 1°·8 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 16°·0, being 1°·6 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 49°·2, being 0°·8 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	WIND AS DEDUCED FROM SELF-REGISTERING ANEMOMETERS. OSLER'S. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	ROBINSON'S. Horizontal Movement of the Air.	CLOUDS AND WEATHER. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Oct. 1	0·3	11·6	SSE : E : ESE	SSE : S : SSW	5·7	0·0	0·47	333	10 : 10 : 10, slt.-r	9, shs.-r, t : v, l
2	0·0	11·6	SSW : SW : WSW	WNW : WSW	7·0	0·0	0·69	407	10, sh.-r, w : 10, slt.-r, m	10, oc.-r : 10 : 0
3	5·7	11·5	WSW : SW	WSW : SW	12·5	0·0	1·10	517	0, d : 0 : 5, ci.-cu, li.-cl	p.-cl, w : 10, w : 10
4	0·0	11·4	SW : NNE	ENE : NE	4·6	0·0	0·24	265	10 : 10 : 10, r, gt.-glm	10 : 10, r : 10, oc.-shs
5	0·0	11·3	NE : NNE	NNE : NE	1·9	0·0	0·07	237	10, r : 10 : 10	10, oc.-shs : 10, oc.-slt.-r : 0
6	0·8	11·2	NNE : SE	E : ENE	0·9	0·0	0·01	152	p.-cl : p.-cl, slt.-r	10, slt.-r : 10 : p.-cl, d
7	5·4	11·2	NNE : Variable	N	1·0	0·0	0·00	112	10, f, ho.-fr : 0, tk.-f : 1, li.-cl	2, th.-cl, h : 0, f : 0, f
8	6·4	11·1	Calm : ENE	E : ESE	0·5	0·0	0·01	103	0, f : 0, tk.-f : 1, li.-cl	p.-cl : 0, slt.-f
9	8·3	11·0	E : ESE	SE : SW	0·3	0·0	0·00	97	0, tk.-f : tk.-f : 1, slt.-f	0 : 0, d
10	6·6	11·0	SW : WSW	WSW : SW : SSW	0·1	0·0	0·00	158	0, f, ho.-fr : f : 2, th.-cl, slt.-f, h	1, th.-cl : 0, slt.-f : 0
11	6·3	10·9	SW : SSW	SW : SSW	0·5	0·0	0·01	121	f, ho.-fr : tk.-f : 3, ci.-s, li.-cl	1, li.-cl, so.-ha, prh : 1, li.-cl : 1, d
12	1·1	10·9	SE : SW	SW : W : WNW	4·3	0·0	0·20	218	10, f : 9, f	p.-cl, slt.-r : v, shs.-r, w
13	7·3	10·8	W : WSW : NW	NW : SW	5·8	0·0	0·52	370	0, f : 0, f : p.-cl	4, li.-cl : 0, h
14	2·9	10·7	SW : WSW : NE	NE : ENE	1·0	0·0	0·02	183	0, ho.-fr : 0, f : 6, cu, th.-cl	p.-cl : 0
15	9·0	10·7	ENE : E : ESE	E	6·3	0·0	0·70	357	1, ho.-fr : 0 : 4, cu, cu.-s, w	0, w : 0
16	7·0	10·6	E	E : ESE	1·8	0·0	0·18	236	0, hy.-d : 0	0 : p.-cl : 0, slt.-h
17	9·1	10·5	E	E	1·4	0·0	0·04	170	0 : 0	0 : 0, f, hy.-d
18	8·6	10·5	E : ESE : NE	E : ESE	1·6	0·0	0·02	160	0, tk.-f : 0, tk.-f : 0	0 : 0, tk.-f, d
19	5·4	10·4	E	E	1·0	0·0	0·04	124	tk.-f : tk.-f : 0, f	0 : 0, lu.-co : 0, tk.-f, d
20	4·2	10·4	ENE	ENE : E	0·7	0·0	0·01	104	tk.-f : tk.-f : 2, ci.-s, th.-cl, f	6, ci.-s, so.-ha, prh : p.-cl : 5, th.-cl, f
21	0·0	10·3	E : Variable : Calm	SW : Calm	0·1	0·0	0·00	56	tk.-f ; tk.-f	tk.-f : tk.-f
22	0·0	10·3	ESE : Calm	Variable : Calm	0·0	0·0	0·00	50	tk.-f : tk.-f	3, ci.-cu, ci.-s, f : 1, li.-cl, f
23	0·0	10·2	Calm : SW	WSW : SW	0·5	0·0	0·00	113	tk.-f : tk.-f : 10, f	10, f : 10, tk.-f : 10, slt.-f
24	0·9	10·1	WSW	NW : NNW : E	0·3	0·0	0·00	159	9 : 10, f : 9, slt.-f	9 ; v ; 10
25	4·1	10·0	E : NE : SE	S : SSW	0·8	0·0	0·01	129	9 : 9 : 5, li.-cl, h	5, li.-cl : 7, th.-cl : th.-cl
26	0·1	10·0	SSW	SSW : SW	1·1	0·0	0·07	221	li.-cl : 9 : 10, shs.-r	10, r : 10, fq.-r
27	0·0	9·9	WSW : SW : SSW	SSW : SW	3·7	0·0	0·42	361	10 : 10, fq.-r	10, r : 10, r
28	2·7	9·9	SW : SSW	WSW : W : SW	2·5	0·0	0·20	310	10, hy.-r : 7, cu, li.-cl	p.-cl, sh.-r : li.-cl : p.-cl
29	1·2	9·8	SW : SSW	SSW : SW	7·4	0·0	0·67	434	9 : 9, slt.-r	9, w, slt.-r : 9, w, fq.-r
30	0·1	9·7	SW : SSW : NNW	NNW : SW	7·2	0·0	0·69	371	10, r : 10, sc, r	8, cu, th.-cl, h : p.-cl
31	7·8	9·7	SW : WSW	W : SW : SSW	4·6	0·0	0·34	335	9, d : 0 : 2, cu, li.-cl	1, li.-cl : 0 : 0
Means	3·6	10·6	...	...	...	...	0·22	225		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 46°·9, being 1°·1 *lower* than
The mean *Temperature of the Dew Point* for the month was 44°·5, being 1°·4 *lower* than
The mean *Degree of Humidity* for the month was 84·5, being 1·1 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·294, being 0in·015 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·3, being 0gr·2 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 544 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 4·8.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·338. The maximum daily amount of *Sunshine* was 9·1 hours on October 17.

The highest reading of the *Solar Radiation Thermometer* was 113°·3 on October 3; and the lowest reading of the *Terrestrial Radiation Thermometer* was 22°·0 on October 19.

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

The *Proportions of Wind* referred to the cardinal points were N. 4, E. 10, S. 8, and W. 7. Two days were calm.

The *Greatest Pressure of the Wind* in the month was 12·5 lbs. on the square foot on October 3. The mean daily *Horizontal Movement of the Air* for the month was 225 miles; the greatest daily value was 517 miles on October 3; and the least daily value was 50 miles on October 22.

Rain fell on 10 days in the month amounting to 2in·343, as measured by gauge No. 6 partly sunk below the ground; being 0in·468 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	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	...	29·781	57·0	40·0	17·0	48·7	+ 2·0	45·4	41·8	6·9	14·1	0·9	78	105·2	35·4	0·000	0·5	wwP : ...
2	...	29·419	61·8	53·6	8·2	57·4	+10·9	55·7	54·2	3·2	5·1	1·7	89	85·2	44·0	0·303	2·0	...
3	New	29·367	59·0	48·9	10·1	54·9	+ 8·6	51·6	48·4	6·5	12·2	1·5	78	85·2	47·0	0·420	1·5	... : wwP, wwN
4	...	29·453	62·0	48·8	13·2	56·7	+10·6	55·7	54·8	1·9	4·4	0·2	94	73·2	48·4	0·674	0·7	wP, wwN : wwP : wwP
5	...	29·588	59·7	50·3	9·4	54·9	+ 9·0	53·8	52·7	2·2	3·0	1·0	92	59·7	49·5	0·667	2·3	...
6	Greatest Declination S.	29·738	52·0	42·4	9·6	49·5	+ 4·0	48·3	47·0	2·5	5·6	0·8	92	59·8	36·1	0·858	0·0	...
7	...	29·815	56·6	40·7	15·9	49·8	+ 4·7	46·8	43·6	6·2	11·2	2·7	80	95·4	35·4	0·005	0·8	...
8	...	29·327	54·8	48·2	6·6	52·1	+ 7·5	48·4	44·6	7·5	13·3	2·2	76	87·0	42·2	0·369	2·2	... : wwP
9	...	29·674	54·9	45·8	9·1	49·0	+ 5·0	45·6	42·0	7·0	14·6	2·9	77	79·1	38·0	0·000	0·2	wP
10	First Quarter	29·466	59·5	46·9	12·6	53·3	+ 9·7	50·1	46·9	6·4	12·2	1·2	79	80·1	41·5	0·415	0·8	wwN, wwP : wwP
11	...	29·915	56·2	43·5	12·7	48·7	+ 5·5	44·1	39·1	9·6	14·9	6·5	69	82·3	38·0	0·009	0·0	wwP
12	Perigee: In Equator	30·159	52·7	42·4	10·3	46·7	+ 3·8	43·4	39·7	7·0	11·8	1·7	78	69·6	36·8	0·000	0·0	wP
13	...	30·201	54·9	44·8	10·1	48·2	+ 5·4	46·6	44·9	3·3	9·8	0·6	89	74·5	35·5	0·000	0·0	...
14	...	30·085	53·5	40·9	12·6	47·3	+ 4·7	45·5	43·5	3·8	8·4	0·7	88	81·0	32·3	0·000	0·0	... : wwP
15	...	30·365	50·3	36·3	14·0	44·6	+ 2·1	43·4	42·0	2·6	9·2	0·0	91	78·9	29·5	0·000	0·0	... : wP : ...
16	...	30·477	50·2	41·2	9·0	46·2	+ 3·8	43·6	40·6	5·6	8·4	3·3	82	58·0	31·6	0·000	0·0	... : wP
17	Full	30·516	50·3	38·1	12·2	45·1	+ 2·8	43·0	40·6	4·5	9·5	1·9	84	62·0	30·7	0·000	0·0	wP
18	...	30·459	47·0	35·3	11·7	41·8	− 0·4	40·3	38·4	3·4	5·9	1·1	89	50·0	25·7	0·010*	0·0	wP
19	Greatest Declination N.	30·273	46·3	35·3	11·0	42·4	+ 0·2	40·5	38·2	4·2	8·4	1·4	86	57·9	28·0	0·000	0·0	wP
20	...	30·137	49·2	35·8	13·4	43·2	+ 1·1	41·8	40·1	3·1	4·8	1·2	89	53·0	27·4	0·000	0·0	wP
21	...	30·259	44·9	31·8	13·1	40·7	− 1·4	39·1	37·1	3·6	7·3	0·5	87	47·8	25·8	0·000	0·0	wP
22	...	30·261	49·7	44·5	5·2	47·1	+ 4·9	44·5	41·6	5·5	9·2	2·4	82	52·0	40·6	0·000	0·0	wP
23	...	30·224	50·1	44·3	5·8	47·2	+ 5·1	44·5	41·5	5·7	7·8	2·7	81	53·3	39·0	0·000	0·0	wP
24	...	30·116	50·6	45·4	5·2	47·9	+ 5·8	44·4	40·6	7·3	10·6	2·9	76	55·0	39·0	0·000	0·0	wP
25	Apogee: Last Quarter	30·193	52·0	46·8	5·2	49·2	+ 7·2	46·6	43·8	5·4	8·0	3·8	82	56·0	43·8	0·000	0·0	wP
26	In Equator	30·248	52·2	45·0	7·2	47·8	+ 5·9	44·9	41·8	6·0	9·8	3·1	81	65·0	34·2	0·000	0·5	wP
27	...	30·222	54·4	45·1	9·3	49·8	+ 8·2	47·5	45·1	4·7	6·2	3·8	85	61·1	39·2	0·000	1·5	wP
28	...	30·300	53·0	43·7	9·3	48·2	+ 6·9	46·2	44·0	4·2	8·8	1·5	86	68·1	38·3	0·000	0·0	wP
29	...	30·306	49·0	33·5	15·5	42·9	+ 1·9	41·1	38·9	4·0	10·3	0·9	86	49·2	28·5	0·000	0·0	wP
30	...	30·171	45·8	28·9	16·9	39·2	− 1·5	38·2	36·9	2·3	3·6	0·0	92	45·8	22·8	0·000	0·0	mP : ... : wwP
Means	...	30·017	53·0	42·3	10·7	48·0	+ 4·8	45·7	43·1	4·9	8·9	1·8	83·9	67·7	36·1	Sum 3·730	0·4	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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 deduced from the 50 years' observations, 1841–1890. 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). Amount entered on November 18 is derived from fog.

The mean reading of the *Barometer* for the month was 30in·017, being 0in·273 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 62°·0 on November 4; the lowest in the month was 28°·9 on November 30; and the range was 33°·1.
The mean of all the highest daily readings in the month was 53°·0, being 4°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 42°·3, being 4°·7 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 10°·7, being 0°·6 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 48°·0, being 4°·8 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1899.	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	8·7	9·6	SSW : S	S : SSE : SE	3·4	0·0	0·20	280	0, hy.-d : 0 : 2, li.-cl	1, li.-cl : 0 : p.-cl
2	0·4	9·5	SSW : S	S : SSW	5·6	0·0	0·30	345	10 : 10 : 9, fq.-r	10, shs.-r : 10, hy.-r : 10, shs.-r
3	4·1	9·5	SW : SSW	SSW : W	27·0	0·0	1·90	670	10, sh.-r : p.-cl : v, st.-w	v, sc, g : 10, sc, r, g : 10, hy.-r
4	0·2	9·4	Variable : SSW	SSW	13·0	0·0	0·72	406	10, hy.-r : 10, r, slt.-f : 10, sc, r, w	10, th.-r, w : 10, fq.-th.-r, w. : 10, fq.-th.-r, w
5	0·0	9·4	SSW : WSW : S	SSW : SW : E	8·5	0·0	0·47	282	10, slt.-r, w : 10, r : 10, c.-r	10, c.-r : 10, c.-r
6	0·0	9·3	E : NE : N	NNW : SW : SSW	0·4	0·0	0·01	177	10, hy.-r : 10, hy.-r : 10, r	10 : 0
7	3·2	9·3	SSW : S	SSW : S	6·3	0·0	0·44	377	0, d : 1, li.-cl : 8, th.-cl, so.-ha	10 : 10 : 10, r, w
8	4·8	9·2	S : SSW : SW	SW : WSW	13·0	0·0	1·94	686	10, r, st.-w : 10, r, w : v, w, li.-sc	7, cu : p.-cl, l : p.-cl, l
9	6·6	9·2	WSW : W	WSW : S : SSE	3·6	0·0	0·40	344	0 : 0 : 1, th.-cl, h	3, th.-cl : 8, th.-cl : 10
10	1·6	9·1	SSE : SE : SW	SW : WSW	12·0	0·0	1·35	605	10, r : v, sc, oc.-r	9, cu, oc.-r : 0, w
11	4·7	9·0	WSW : SW	WSW : W : WNW	13·5	0·0	1·39	610	0 : 0 : 5, cu, w	6, cu, sh.-r : p.-cl
12	2·5	9·0	WSW : W	WNW : WSW : SW	4·1	0·0	0·20	381	9 : 3, li.-cl : p.-cl	9 : 9 : v
13	0·5	8·9	WSW : SW	WSW : SSW	0·4	0·0	0·02	224	p.-cl, d : 9 : 8, th.-cl	9, th.-cl : 9, th.-cl, lu.-ha
14	3·6	8·9	S : SSW	SSW : SE	1·0	0·0	0·03	172	9 : p.-cl : 8, cu, li.-cl	5, cu, li.-cl : 8, l : 0, slt.-f
15	1·7	8·8	Variable : N	ENE : NE	2·2	0·0	0·06	172	4, th.-cl, f : tk.-f : 1, li.-cl, f	10 : 10 : 10, slt.-r
16	0·0	8·8	ENE	ENE	1·0	0·0	0·03	180	10 : 9 : 10	10 : 9 : 8
17	0·1	8·7	ENE : NNE	ENE : NE	0·1	0·0	0·00	105	9, f : 9	10 : p.-cl : 10
18	0·0	8·7	NNE : N : NNW	NNE : N	0·1	0·0	0·00	86	9, f, ho.-fr : 10, glm, f : 10, slt.-f	10 : 10, m
19	0·0	8·6	NNE : N	W : NW : SW	0·1	0·0	0·00	117	10, f : 10, f : 10	10, gt.-glm, slt.-f : p.-cl, lu.-ha, slt.-f
20	0·0	8·6	SW : WSW	N : NE	1·3	0·0	0·04	225	9, f, ho.-fr : 10, m.-r, slt.-f	10, sc : 10
21	0·0	8·6	NE : Variable : SW	WSW : SW	0·2	0·0	0·01	157	0, ho.-fr : 0, ho.-fr, slt.-f; v, f, so.-ha	9, th.-cl : 10, slt.-f
22	0·0	8·5	WSW : W	NW : WNW : WSW	1·4	0·0	0·07	255	10 : 10, f	10, slt.-f : 10
23	0·0	8·5	WSW : SW	WSW : W	1·3	0·0	0·08	234	10 : 10	10 : 10 : 0
24	0·0	8·4	WSW	WSW	2·9	0·0	0·19	328	9 : li.-cl : 9	10 : 10
25	0·0	8·3	WSW : SW	SW	0·5	0·0	0·02	189	10 : 10	10 : 10
26	1·5	8·3	SW : WSW	WSW : SW	1·6	0·0	0·08	234	10 : 9	2, ci.-cu, li.-cl : v, li.-cl
27	0·0	8·3	SW : WSW	WSW	2·3	0·0	0·25	325	p.-cl : p.-cl	10 : 10
28	3·8	8·2	WSW	WSW	1·5	0·0	0·09	256	10 : 10, glm : v, h	1, th.-cl, m, h : 0 : 0, d
29	0·0	8·2	WSW	Variable	0·1	0·0	0·00	163	0, slt.-f : 0, f, ho.-fr : f, glm	9, f : 0, slt.-f
30	0·0	8·2	SSW : Calm	ESE : SSE : SSW	0·2	0·0	0·00	109	tk.-f, ho.-fr : tk.-f	10, f : 10 : 10
Means	1·6	8·8	...	...	...	...	0·34	290		
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 4°·1 *higher* than
The mean *Temperature of the Dew Point* for the month was 43°·1, being 3°·4 *higher* than
The mean *Degree of Humidity* for the month was 83·9, being 3·6 *less* than
The mean *Elastic Force of Vapour* for the month was 0^{in}·278, being 0^{in}·034 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3^{grs}·2, being 0^{gr}·4 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 547 grains, being 1 grain *less* than
} the average for the 50 years, 1841–1890.

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

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·181. The maximum daily amount of *Sunshine* was 8·7 hours on November 1.

The highest reading of the *Solar Radiation Thermometer* was 105°·2 on November 1; and the lowest reading of the *Terrestrial Radiation Thermometer* was 22°·8 on November 30.

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

The *Proportions of Wind* referred to the cardinal points were N. 4, E. 3, S. 11, and W. 11. One day was calm.

The *Greatest Pressure of the Wind* in the month was 27·0 lbs. on the square foot on November 3. The mean daily *Horizontal Movement of the Air* for the month was 290 miles; the greatest daily value was 686 miles on November 8; and the least daily value was 86 miles on November 18.

Rain fell on 9 days in the month, amounting to 3^{in}·730, as measured by gauge No. 6 partly sunk below the ground; being 1^{in}·464 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1899.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	TEMPERATURE. Of the Air. Lowest.	TEMPERATURE. Of the Air. Daily Range.	TEMPERATURE. Of the Air. Mean of 24 Hourly Values.	TEMPERATURE. Of the Air. Excess above Average of 50 Years.	TEMPERATURE. Of Evaporation. Mean of 24 Hourly Values.	TEMPERATURE. Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Difference between the Air Temperature and Dew Point Temperature. Greatest.	Difference between the Air Temperature and Dew Point Temperature. Least.	Degree of Humidity (Saturation=100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	TEMPERATURE. Of Radiation. Lowest on the Grass.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Dec. 1	...	29·947	54·0	43·7	10·3	48·4	+ 7·8	45·8	43·0	5·4	8·4	2·1	82	76·1	41·3	0·287	0·0	wwP : wwP, wwN
2	...	30·173	45·0	35·9	9·1	41·0	+ 0·4	38·6	35·6	5·4	8·6	2·4	81	54·0	28·4	0·000	0·0	wP
3	New: Greatest Declination S.	30·325	41·8	26·4	15·4	35·5	− 5·3	34·1	32·0	3·5	5·8	0·0	87	41·8	24·0	0·000	0·0	mP : wP : wP
4	...	30·092	49·5	41·6	7·9	45·0	+ 3·9	42·5	39·6	5·4	9·0	1·5	81	72·1	33·9	0·106	0·0	wP
5	...	29·962	51·0	46·5	4·5	49·1	+ 7·8	48·8	48·5	0·6	1·9	0·4	98	51·0	43·0	0·170	0·0	wwP
6	...	29·706	54·9	48·3	6·6	51·0	+ 9·7	50·2	49·4	1·6	2·5	1·0	94	54·9	46·0	0·133	0·0	wwP, wwN : ... : ...
7	Perigee	29·492	53·8	39·6	14·2	46·5	+ 5·5	45·9	45·2	1·3	2·4	0·4	96	53·8	34·7	0·049	1·0	...
8	...	29·722	39·6	32·3	7·3	35·2	− 5·4	32·9	29·3	5·9	8·5	2·8	78	69·2	25·4	0·003	3·0	... : ... : mP
9	First Quarter: In Equator	30·041	35·8	30·3	5·5	33·5	− 6·8	30·3	24·3	9·2	11·2	5·7	68	53·3	24·9	0·000	0·0	mP
10	...	29·975	36·6	29·8	6·8	32·7	− 7·2	29·8	23·8	8·9	11·0	6·3	69	72·3	23·2	0·004	0·0	mP
11	...	29·908	32·6	23·7	8·9	29·9	− 9·9	28·8	25·3	4·6	7·6	0·6	82	40·5	16·2	0·020	0·0	mP : mP : sP
12	...	29·668	34·4	23·8	10·6	30·8	− 9·1	29·7	26·8	4·0	5·9	1·2	84	39·9	20·9	0·015	0·0	wP : mP
13	...	29·454	32·1	24·3	7·8	29·7	−10·4	27·7	21·2	8·5	18·4	1·6	69	51·0	18·0	0·014	0·0	wP : mP
14	...	29·440	32·0	23·0	9·0	28·1	−12·1	26·3	19·0	9·1	10·2	5·6	68	49·8	15·7	0·000	0·0	sP
15	...	29·748	30·0	21·9	8·1	27·4	−12·9	27·0	25·4	2·0	5·3	0·0	92	30·2	19·7	0·000	0·0	vP : sP : ssP
16	Greatest Declination N.	29·759	41·8	19·3	22·5	31·1	− 9·1	29·8	26·4	4·7	9·2	0·0	81	66·2	19·3	0·000	0·0	ssP : mP : mP
17	Full	29·793	36·3	24·2	12·1	30·4	− 9·6	29·3	26·1	4·3	4·9	2·5	83	37·8	21·2	0·009	0·0	mP : mP : wP
18	...	29·902	39·9	35·5	4·4	36·9	− 2·8	36·3	35·4	1·5	2·8	0·2	95	46·4	32·1	0·028	0·0	wP, wN : mP : mP
19	...	29·985	38·5	27·5	11·0	35·3	− 4·0	34·8	34·1	1·2	3·4	0·0	95	41·8	24·2	0·000	0·0	mP : vP
20	...	30·005	38·8	27·8	11·0	35·2	− 3·8	34·5	33·4	1·8	3·5	0·0	93	42·5	24·6	0·000	0·0	vP
21	...	30·133	38·0	34·7	3·3	36·4	− 2·4	35·4	34·0	2·4	3·6	1·0	91	39·0	34·1	0·003	0·0	vP : wP
22	Apogee	30·032	36·8	32·2	4·6	33·5	− 5·1	33·1	32·7	0·8	1·9	0·6	95	39·1	32·1	0·040	0·0	wP : wP, wN : vP
23	In Equator	29·906	41·0	30·3	10·7	35·1	− 3·3	34·5	33·5	1·6	3·9	0·0	94	54·0	27·5	0·000	0·0	vP
24	...	29·846	43·7	33·0	10·7	40·2	+ 1·9	38·9	37·2	3·0	8·4	0·3	90	46·1	29·1	0·058	0·5	vP, vN : wP : mP
25	Last Quarter	29·730	40·9	34·3	6·6	37·8	− 0·5	36·0	33·6	4·2	7·9	1·4	85	46·9	29·1	0·000	1·5	vP, wwN : mP
26	...	29·418	42·6	32·8	9·8	38·4	0·0	37·2	35·6	2·8	4·8	1·0	90	48·2	29·6	0·101	0·0	vP, vN
27	...	29·334	32·8	25·4	7·4	29·2	− 9·2	28·6	26·6	2·6	3·9	0·5	90	32·8	22·0	0·000	0·0	vP
28	...	29·186	44·8	25·3	19·5	35·5	− 3·0	34·8	33·8	1·7	3·3	0·0	94	44·8	25·3	0·180	1·5	wP, vN
29	...	28·521	50·2	44·6	5·6	47·2	+ 8·6	44·5	41·5	5·7	8·2	1·9	81	56·9	40·2	0·245	5·0	wwP, wN
30	Greatest Declination S.	28·920	48·1	38·3	9·8	43·8	+ 5·2	39·8	35·1	8·7	13·0	5·3	72	80·7	30·9	0·000	1·5	wP : wP : mP
31	...	29·495	46·6	33·4	13·2	39·9	+ 1·3	37·2	33·7	6·2	10·3	1·8	78	73·1	27·6	0·000	0·0	mP
Means	...	29·730	41·4	31·9	9·5	37·1	− 2·6	35·6	32·9	4·1	6·8	1·6	85·0	51·8	27·9	Sum 1·465	0·5	...
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 deduced from the 50 years' observations, 1841–1890. 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 $29^{in}·730$, being $0^{in}·061$ *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 54°·9 on December 6; the lowest in the month was 19°·3 on December 16; and the range was 35°·6.
The mean of all the highest daily readings in the month was 41°·4, being 2°·6 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 31°·9, being 2°·9 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 9°·5, being 0°·3 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 37°·1, being 2°·6 *lower* than the average for the 50 years, 1841–1890.

Month and Day, 1899.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Dec. 1	0·9	8·2	SW : WSW	SW : NNW : NW	5·0	0·0	0·48	388	10 : 10 : 9	9, sc : 10, r : v, r
2	2·0	8·1	NW : W : WSW	N	1·9	0·0	0·08	215	0 : 0, ho.-fr : 1, th.-cl, slt.-f	3, th.-cl : 5, th.-cl
3	0·0	8·1	WSW : SW	Variable : SSE : S	0·2	0·0	0·00	115	0, ho.-fr, slt.-f : p.-cl, f : th.-cl, f, ho.-fr	9, th.-cl, gt.-glm, slt.-f : 10
4	3·3	8·0	SSW : SW : WSW	WSW	3·6	0·0	0·41	397	10 : p.-cl : p.-cl	0 : 10, r
5	0·0	8·0	WSW	WSW	1·4	0·0	0·03	206	10 : 10 : 10, m.-r, f	10, fq.-m.-r, slt.-f : 10, fq.-m.-r
6	0·0	8·0	SW : SSW	SSW	1·3	0·0	0·08	259	10, r : 10, oc.-slt.-r	10, oc.-slt.-r : 10, oc.-slt.-r : 9
7	0·0	8·0	WSW : NNE	N : E	5·2	0·0	0·39	275	10 : 10, slt.-f : tk.-f, glm	10, slt.-r, w : 10, slt.-r, w
8	6·2	7·9	E : ESE	E	5·0	0·0	0·68	379	10, w, oc.-slt.-r : 9, w : 5, li.-cl, w	2, li.-cl : 9, ho.-fr
9	0·5	7·9	E : ENE : NE	E : ESE : SE	2·7	0·0	0·17	231	8, ho.-fr : 8, cu	p.-cl : 10
10	3·0	7·9	SSE : ESE : SE	SE : SSW	0·1	0·0	0·00	100	9 : 9	li.-cl : 8, lu.-ha, ho.-fr : 10, sn
11	0·0	7·9	WSW : NNW : N	N : NE : SSE	0·4	0·0	0·01	146	10 : 10, sn : 10, glm	10 : p.-cl, ho.-fr : th.-cl, lu.-ha
12	0·0	7·8	SE : ESE	ESE : SE	1·0	0·0	0·04	169	9 : 10, slt.-sn	10, sn : 10, oc.-sn
13	0·7	7·8	SSE : SE	SE : ESE	1·7	0·0	0·14	239	10, sn : 10 : th.-cl, so.-ha, prh	5, th.-cl, so.-ha, fr : 3, th.-cl, fr, lu.-ha
14	1·5	7·8	NE : NNE	N : NNW : WSW	1·1	0·0	0·05	201	0, fr, f : p.-cl : 6	1, th.-cl : 10
15	0·0	7·8	WSW : Variable : NNW	SW : Calm : Variable	0·1	0·0	0·00	75	10, f : 10, f, glm	10, f, glm : 10, f, ho.-fr
16	2·2	7·8	ENE : ESE : SE	SSE : SE : ESE	1·4	0·0	0·04	165	10, fr, f : 10, f : 9	li.-cl : 0 : 0, ho.-fr
17	0·0	7·8	ESE : SE : N	N : NE	1·1	0·0	0·04	174	0, ho.-fr : 10 : 10	10, sl : 10 : 10
18	0·0	7·8	NNE : N	NE	0·4	0·0	0·01	147	10, slt.-r, f : 10, oc.-m.-r	10, oc.-m.-r : 10, oc.-m.-r
19	0·0	7·8	NE : ESE	ENE : E	0·0	0·0	0·00	96	10, m : 10, f	10, f : p.-cl, ho.-fr
20	0·0	7·8	E	E : ENE : NE	0·9	0·0	0·03	167	10, slt.-f : 10, slt.-f	10 : 10
21	0·0	7·8	NE	NE : E : SE	0·7	0·0	0·05	197	10 : 10	10 : 10, slt.-r : 10
22	0·0	7·8	SE : ESE	ESE	0·3	0·0	0·00	141	10, slt.-f : 10, m.-r	10, r, sn, sl : 10, oc.-slt.-r : 10, m.-r
23	0·7	7·8	ESE : NE	Variable	0·1	0·0	0·00	101	9, f : 5, th.-cl	8, th.-cl : tk.-f : 10, tk.-f
24	0·0	7·8	S : WSW	W : SW : S	3·1	0·0	0·02	251	10 : 10, r : 10, slt.-f	9, th.-cl, slt.-f : 9, th.-cl, f : 0
25	0·9	7·8	S : W : NW	W : WSW	2·1	0·0	0·13	270	p.-cl, slt.-r : 5, th.-cl	2, th.-cl : 0
26	0·0	7·8	SW : SSW	SW : NW : NNE	1·1	0·0	0·07	240	10, r : 10	10, fq.-slt.-r : 9
27	0·0	7·8	NNE : N : NNW	N : NNE : SE	0·1	0·0	0·00	99	9, fr : 10, f	10, th.-cl : glm : 10, tk.-f, ho.-fr
28	0·0	7·8	E : ESE	ESE : SE : SSE	3·7	0·0	0·43	319	10 : 10, slt.-r	10 : 10, r : 10, fq.-r, w
29	0·0	7·8	SSE : S	S : SSW : SW	14·3	0·0	1·81	666	10, shs.-r, w : 10, sc, w, r	10, shs.-r, w : 10, shs.-r, l, w
30	5·3	7·8	SW	SW : SSW	15·0	0·0	1·62	642	v, l, w : 0, w	5, cu, ci.-cu, slt.-r : 0 : v
31	6·0	7·8	SW : SSW	SSW : S : SSE	1·6	0·0	0·12	279	0, ho.-fr : 0	0 : 0
Means	1·1	7·9	...	...	...	...	0·22	237		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 35°·6, being 2°·7 *lower* than the average for the 50 years, 1841–1890.
The mean *Temperature of the Dew Point* for the month was 32°·9, being 3°·6 *lower* than the average for the 50 years, 1841–1890.
The mean *Degree of Humidity* for the month was 85·0, being 3·5 *less* than the average for the 50 years, 1841–1890.
The mean *Elastic Force of Vapour* for the month was $0^{in}·187$, being $0^{in}·029$ *less* than the average for the 50 years, 1841–1890.
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was $2^{grs}·2$, being $0^{gr}·3$ *less* than the average for the 50 years, 1841–1890.
The mean *Weight of a Cubic Foot of Air* for the month was 555 grains, being 2 grains *greater* than the average for the 50 years, 1841–1890.
The mean amount of *Cloud* for the month (a clear sky being represented by 0, and an overcast sky by 10) was 7·7.
The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·136. The maximum daily amount of *Sunshine* was 6·2 hours on December 8.
The highest reading of the *Solar Radiation Thermometer* was 80°·7 on December 30; and the lowest reading of the *Terrestrial Radiation Thermometer* was 15°·7 on December 14.
The mean daily distribution of *Ozone* for the 12 hours ending 9^h was 0·5; for the 6 hours ending 15^h was 0·0; and for the 6 hours ending 21^h was 0·0.
The *Proportions of Wind* referred to the cardinal points were N. 5, E. 10, S. 9, and W. 6. One day was calm.
The *Greatest Pressure of the Wind* in the month was 15·0 lbs. on the square foot on December 30. The mean daily *Horizontal Movement of the Air* for the month was 237 miles; the greatest daily value was 666 miles on December 29; and the least daily value was 75 miles on December 15.
Rain fell on 15 days in the month, amounting to $1^{in}·465$, as measured by gauge No. 6 partly sunk below the ground; being $0^{in}·305$ *less* 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.		
Greenwich Civil Time, 1899.		Reading.	Greenwich Civil Time, 1899.		Reading.
	d h m	in.		d h m	in.
January	1. 23. 20	28·873	January	1. 18. 20	28·766
	5. 23. 20	30·253		2. 7. 50	28·670
	11. 10. 10	29·412		10. 12. 10	29·103
	12. 0. 50	29·539		11. 16. 10	29·255
	13. 8. 0	29·660		12. 14. 10	29·000
	15. 2. 5	29·893		13. 17. 15	29·318
	17. 15. 10	29·893		16. 16. 50	29·192
	20. 8. 20	29·599		19. 9. 0	29·450
	25. 20. 10	30·495		22. 1. 45	29·199
February	4. 9. 15	29·830	February	1. 15. 0	29·267
	5. 23. 0	29·631		5. 9. 0	29·320
	8. 9. 50	29·337		8. 4. 0	29·264
	9. 9. 35	29·374		8. 22. 30	29·192
	11. 1. 25	29·496		9. 15. 55	29·268
	12. 21. 0	29·295		12. 12. 55	29·085
	15. 12. 0	29·700		13. 11. 55	29·045
	22. 11. 0	30·206		16. 1. 15	29·539
	28. 9. 20	30·531		23. 16. 0	30·086
March	5. 21. 20	30·083	March	4. 6. 30	29·683
	13. 9. 0	30·431		9. 4. 0	28·844
	16. 10. 20	30·291		15. 17. 0	30·216
	18. 23. 15	30·007		18. 5. 10	29·903
	21. 1. 30	29·682		20. 14. 25	29·575
	25. 7. 15	30·085		21. 23. 45	29·476
	26. 23. 20	29·925		26. 4. 0	29·805
	28. 9. 50	29·884		27. 15. 55	29·755
	30. 22. 40	30·150		29. 3. 55	29·647
April	4. 7. 30	29·998	April	3. 4. 0	29·872
	5. 12. 45	30·055		4. 18. 10	29·817
	6. 9. 0	29·926		6. 2. 15	29·836

MAXIMA.			MINIMA.		
Greenwich Civil Time, 1899.		Reading.	Greenwich Civil Time, 1899.		Reading.
	d h m	in.		d h m	in.
April	9. 9. 0	29·766	April	7. 11. 45	28·980
	11. 22. 50	29·705		10. 15. 50	29·400
	19. 7. 20	30·022		14. 3. 0	28·700
	23. 0. 30	30·160		21. 15. 50	29·687
	27. 10. 25	29·790		26. 2. 30	29·204
	30. 23. 40	30·106		29. 15. 20	29·452
May	5. 23. 15	30·267	May	2. 6. 15	29·707
	12. 7. 0	29·777		9. 17. 0	29·661
	16. 22. 30	29·670		15. 9. 20	29·218
	17. 22. 10	29·801		17. 6. 0	29·518
	19. 7. 25	29·870		18. 15. 20	29·648
	22. 12. 30	29·860		20. 7. 20	29·533
	28. 9. 35	30·300		24. 17. 15	29·430
June	8. 9. 45	30·260	June	2. 16. 0	29·912
	15. 10. 0	29·967		13. 3. 30	29·872
	27. 9. 0	30·154		20. 9. 0	29·227
	30. 9. 0	29·804		29. 3. 45	29·613
July	7. 6. 50	30·088	July	1. 11. 55	29·338
	16. 8. 10	30·041		12. 9. 0	29·586
	22. 0. 30	29·882		19. 17. 0	29·759
	28. 1. 30	30·196		23. 14. 0	29·635
	31. 21. 40	30·301		29. 16. 35	29·997
August	5. 20. 30	29·864	August	5. 10. 0	29·776
	11. 9. 0	30·125		5. 23. 55	29·732
	22. 9. 0	30·160		15. 15. 0	29·749
	26. 6. 55	29·943		25. 15. 20	29·818
	29. 9. 45	29·760		27. 12. 0	29·615
	31. 7. 15	29·751		30. 4. 35	29·628

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

MAXIMA.		MINIMA.	
Greenwich Civil Time, 1899.	Reading.	Greenwich Civil Time, 1899.	Reading.
d h m	in.	d h m	in.
September 3. 23. 0	29·970	September 1. 4. 15	29·537
11. 10. 0	30·065	5. 16. 45	29·716
17. 7. 0	29·670	16. 6. 10	29·390
21. 9. 45	29·772	19. 23. 10	29·386
23. 8. 5	29·865	22. 3. 20	29·262
24. 12. 0	29·813	23. 17. 55	29·707
28. 23. 0	29·645	27. 16. 0	29·284
		30. 3. 10	29·092
October 1. 0. 30	29·344	October 1. 16. 30	28·999
3. 2. 55	29·895	4. 4. 55	29·612
8. 11. 0	30·244	12. 17. 30	29·280
14. 21. 20	30·048	16. 15. 20	29·735
19. 9. 25	30·255	20. 16. 5	30·144
21. 21. 0	30·256	23. 16. 0	30·035
24. 21. 0	30·224	27. 15. 0	29·573
29. 6. 40	29·845	30. 7. 10	29·389
31. 21. 0	30·012		

MAXIMA.		MINIMA.	
Greenwich Civil Time, 1899.	Reading.	Greenwich Civil Time, 1899.	Reading.
d h m	in.	d h m	in.
November 3. 9. 0	29·449	November 2. 15. 55	29·352
7. 5. 15	29·910	3. 16. 30	29·262
9. 17. 10	29·807	8. 9. 0	29·268
11. 9. 40	29·940	10. 11. 30	29·300
13. 10. 15	30·237	11. 15. 0	29·859
17. 19. 45	30·535	14. 15. 15	30·039
21. 9. 20	30·293	20. 7. 40	30·080
22. 21. 0	30·295	22. 4. 15	30·214
25. 23. 20	30·280	24. 16. 20	30·065
29. 10. 35	30·334	27. 5. 5	30·180
December 3. 10. 20	30·377	December 1. 18. 10	29·858
9. 18. 30	30·098	7. 14. 45	29·443
12. 19. 25	29·685	12. 6. 5	29·613
15. 20. 30	29·840	14. 0. 25	29·325
21. 18. 45	30·172	16. 21. 25	29·726
23. 19. 40	29·960	23. 4. 50	29·850
27. 23. 0	29·453	27. 5. 0	29·256
		29. 17. 0	28·286

The readings in the above table are accurate, but the times are occasionally liable to uncertainty, as the barometer will sometimes remain at its extreme reading without sensible change for a considerable interval of time. In such cases the time given is the middle of the stationary period.

The time is expressed in civil reckoning, commencing at midnight and counting from 0^h to 24^h.

The height of the barometer cistern above mean sea level is 159 feet: no correction has been applied to the readings to reduce to sea level.

HIGHEST and LOWEST READINGS of the BAROMETER in each Month for the YEAR 1899.
[Extracted from the preceding Table.]

MONTH, 1899.	Readings of the Barometer.		Range.
	Highest.	Lowest.	
	in.	in.	in.
January	30·495	28·670	1·825
February	30·531	29·045	1·486
March	30·431	28·844	1·587
April	30·160	28·700	1·460
May	30·300	29·218	1·082
June	30·260	29·227	1·033
July	30·301	29·338	0·963
August	30·160	29·615	0·545
September	30·065	29·092	0·973
October	30·256	28·999	1·257
November	30·535	29·262	1·273
December	30·377	28·286	2·091

The highest reading in the year was $30^{in.}535$ on November 17. The lowest reading in the year was $28^{in.}286$ on December 29.
The range of reading in the year was $2^{in.}249$.

MONTHLY RESULTS of METEOROLOGICAL ELEMENTS for the YEAR 1899.

MONTH, 1899.	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	29·656	55·3	29·3	26·0	47·5	37·5	10·0	42·8	+ 4·2	40·7	38·1	84·1
February	29·730	63·9	21·9	42·0	48·3	35·7	12·6	41·9	+ 2·4	39·7	36·8	82·9
March	29·911	61·2	20·3	40·9	49·9	32·5	17·4	41·0	− 0·7	38·1	33·8	76·2
April	29·651	64·1	30·7	33·4	54·7	40·2	14·5	47·2	+ 0·1	44·0	40·5	78·2
May	29·845	72·7	33·7	39·0	60·5	42·2	18·2	51·1	− 2·1	47·0	42·8	74·0
June	29·892	81·5	42·1	39·4	72·0	50·3	21·7	60·5	+ 1·1	54·9	50·0	68·7
July	29·898	88·5	49·2	39·3	76·9	56·2	20·7	65·8	+ 3·4	59·6	54·6	67·5
August	29·921	90·0	47·2	42·8	77·1	55·7	21·4	65·5	+ 3·9	59·8	55·2	69·9
September	29·686	87·3	37·1	50·2	67·4	49·7	17·7	58·2	+ 1·0	53·5	49·3	73·0
October	29·895	63·6	31·2	32·4	57·5	41·5	16·0	49·2	− 0·8	46·9	44·5	84·5
November	30·017	62·0	28·9	33·1	53·0	42·3	10·7	48·0	+ 4·8	45·7	43·1	83·9
December	29·730	54·9	19·3	35·6	41·4	31·9	9·5	37·1	− 2·6	35·6	32·9	85·0
Means	29·819	Highest. 90·0	Lowest. 19·3	Annual Range. 70·7	58·9	43·0	15·9	50·7	+ 1·2	47·1	43·5	77·3

MONTH, 1899.	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	0·230	2·7	547	0·8	6·0	18	2·528	62	137	23	35	111	276	70	27	3	0·78	411
February	0·218	2·6	549	0·7	5·4	12	1·927	44	61	176	72	113	156	29	11	10	0·48	308
March	0·194	2·3	554	0·2	5·5	10	0·607	96	56	63	47	51	234	115	59	23	0·25	281
April	0·252	2·9	542	0·8	7·7	20	2·999	77	29	23	39	108	231	142	69	2	0·36	325
May	0·275	3·1	541	0·7	6·2	12	1·650	155	127	70	37	97	214	36	5	3	0·27	280
June	0·361	4·0	531	0·2	5·1	6	0·758	151	138	138	54	60	59	42	37	41	0·11	206
July	0·427	4·7	526	0·1	5·4	8	1·738	122	42	78	55	54	152	133	91	17	0·18	233
August	0·436	4·8	526	0·0	4·7	6	0·354	68	132	287	45	17	98	50	42	5	0·15	229
September	0·352	3·9	530	0·0	6·0	15	2·233	85	36	19	26	65	220	202	60	7	0·35	296
October	0·294	3·3	544	0·1	4·8	10	2·343	42	75	163	47	84	194	65	21	53	0·22	225
November	0·278	3·2	547	0·4	7·4	9	3·730	42	59	33	16	145	232	151	17	25	0·34	290
December	0·187	2·2	555	0·5	7·7	15	1·465	75	84	137	108	93	136	70	21	20	0·22	237
Sums	...	...	...	...	...	141	22·332	1019	976	1210	581	998	2202	1105	460	209	...	...
Means	0·292	3·3	541	0·4	6·0	...	...	...	...	...	...	...	...	...	...	...	0·31	277

The greatest recorded pressure of the wind on the square foot in the year was 33·4 lbs. on February 13.
The greatest recorded daily horizontal movement of the air in the year was 950 miles on January 21.
The least recorded daily horizontal movement of the air in the year was 50 miles on October 22.

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

Hour, Greenwich Civil Time.	1899. 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	29·658	29·720	29·927	29·653	29·852	29·947	29·894	29·936	29·685	29·893	30·026	29·740	29·828
1h.	29·657	29·719	29·925	29·648	29·849	29·946	29·891	29·935	29·682	29·892	30·021	29·734	29·825
2	29·661	29·718	29·919	29·643	29·845	29·942	29·888	29·933	29·677	29·886	30·017	29·732	29·822
3	29·662	29·711	29·911	29·641	29·839	29·939	29·886	29·929	29·673	29·884	30·012	29·730	29·818
4	29·657	29·710	29·907	29·638	29·837	29·940	29·888	29·925	29·673	29·880	30·008	29·724	29·816
5	29·655	29·712	29·907	29·640	29·841	29·943	29·892	29·927	29·680	29·879	30·009	29·722	29·817
6	29·656	29·714	29·910	29·646	29·845	29·949	29·896	29·930	29·688	29·882	30·009	29·724	29·821
7	29·661	29·719	29·917	29·654	29·850	29·952	29·901	29·936	29·696	29·889	30·013	29·729	29·826
8	29·668	29·728	29·923	29·659	29·852	29·954	29·904	29·938	29·703	29·893	30·023	29·737	29·832
9	29·673	29·734	29·926	29·660	29·854	29·951	29·902	29·937	29·708	29·902	30·028	29·746	29·835
10	29·677	29·740	29·927	29·664	29·857	29·950	29·904	29·935	29·709	29·906	30·031	29·747	29·837
11	29·674	29·742	29·926	29·662	29·854	29·948	29·903	29·931	29·707	29·904	30·027	29·743	29·835
Noon	29·664	29·736	29·922	29·659	29·852	29·940	29·902	29·926	29·701	29·900	30·021	29·733	29·830
13h.	29·651	29·731	29·910	29·655	29·848	29·932	29·898	29·920	29·694	29·893	30·013	29·726	29·823
14	29·642	29·726	29·900	29·649	29·843	29·926	29·896	29·915	29·686	29·889	30·005	29·720	29·816
15	29·640	29·724	29·893	29·642	29·837	29·918	29·893	29·906	29·678	29·884	30·002	29·720	29·810
16	29·639	29·726	29·887	29·637	29·832	29·910	29·889	29·898	29·673	29·882	30·003	29·719	29·808
17	29·639	29·731	29·890	29·638	29·828	29·904	29·888	29·894	29·672	29·887	30·008	29·717	29·808
18	29·640	29·737	29·895	29·641	29·830	29·903	29·888	29·895	29·673	29·896	30·013	29·720	29·811
19	29·647	29·739	29·904	29·647	29·835	29·906	29·892	29·899	29·676	29·901	30·019	29·725	29·816
20	29·652	29·742	29·908	29·656	29·843	29·912	29·899	29·911	29·679	29·906	30·021	29·728	29·821
21	29·656	29·750	29·911	29·660	29·852	29·921	29·912	29·916	29·682	29·913	30·026	29·731	29·827
22	29·659	29·754	29·911	29·660	29·855	29·923	29·919	29·918	29·680	29·913	30·027	29·731	29·829
23	29·664	29·756	29·913	29·661	29·856	29·923	29·920	29·917	29·680	29·914	30·030	29·732	29·831
24	29·665	29·759	29·911	29·658	29·854	29·921	29·919	29·913	29·678	29·915	30·027	29·729	29·829
Means 0h.–23h.	29·656	29·730	29·911	29·651	29·845	29·932	29·898	29·921	29·686	29·895	30·017	29·730	29·823
Means 1h.–24h.	29·657	29·731	29·911	29·651	29·845	29·931	29·898	29·920	29·685	29·896	30·017	29·729	29·823
Number of Days employed.	31	28	31	30	31	28	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.	1899. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	41·8	39·8	37·9	44·7	46·4	54·5	60·5	60·0	55·3	46·4	46·5	36·2	47·5
1h.	41·5	39·7	37·2	44·4	45·8	53·6	60·0	59·4	54·8	45·9	46·3	36·1	47·1
2	41·6	39·5	36·7	43·6	45·4	53·1	59·4	58·8	54·4	45·6	45·8	36·0	46·7
3	41·5	39·2	36·4	43·5	45·0	52·8	58·8	58·5	53·7	45·3	45·7	36·0	46·4
4	41·4	39·1	36·1	43·4	44·8	52·7	58·0	58·2	53·3	45·1	45·5	36·2	46·2
5	41·4	39·0	35·7	43·2	45·1	52·9	58·0	58·3	52·5	44·8	45·4	36·2	46·0
6	41·2	38·7	35·6	43·4	46·3	54·2	59·1	58·9	52·5	45·0	45·6	36·2	46·4
7	41·3	38·7	35·8	44·2	48·2	56·3	61·4	60·9	53·6	45·2	45·8	36·2	47·3
8	41·3	38·8	37·4	45·8	50·9	59·5	64·1	64·5	55·9	46·1	46·1	36·1	48·9
9	41·8	39·9	39·6	47·5	53·1	62·4	67·0	67·9	58·5	47·9	47·2	36·5	50·8
10	42·9	41·7	42·0	48·5	54·6	65·0	69·1	70·7	60·6	50·2	48·6	37·1	52·6
11	44·0	43·8	43·9	49·9	55·9	66·7	70·8	72·6	62·1	52·7	50·2	37·8	54·2
Noon	44·9	46·1	45·7	50·7	56·9	68·1	72·1	73·7	63·5	54·4	51·3	38·8	55·5
13h.	45·6	46·9	47·2	51·6	57·6	68·8	73·1	74·2	63·8	55·4	51·9	39·5	56·3
14	45·8	47·3	47·7	52·0	58·1	69·2	74·1	73·9	64·5	55·7	52·0	39·5	56·6
15	45·3	46·9	47·8	52·2	58·4	69·0	74·2	74·0	64·8	55·4	51·6	39·1	56·6
16	44·8	46·0	47·3	51·6	58·1	68·2	73·6	72·8	63·6	54·3	50·8	38·3	55·8
17	44·0	44·8	46·0	50·5	56·9	66·8	72·2	70·9	62·3	52·6	49·7	37·8	54·5
18	43·3	43·4	44·4	49·5	55·3	65·3	70·7	68·8	60·6	51·3	49·0	37·5	53·3
19	43·0	42·5	42·9	48·4	53·2	63·0	68·5	66·3	58·8	50·1	48·4	37·0	51·8
20	42·3	41·7	41·5	47·3	51·0	60·3	66·3	64·1	57·8	49·1	48·0	36·8	50·5
21	42·1	41·0	40·5	46·4	49·4	58·0	64·2	62·6	57·0	48·1	47·4	36·5	49·4
22	42·0	40·5	39·6	45·6	48·5	56·6	62·8	61·5	56·2	47·3	46·9	36·4	48·7
23	41·8	40·1	38·8	44·9	47·7	55·5	61·4	60·5	55·5	46·7	46·6	36·2	48·0
24	41·7	39·7	38·4	44·3	46·9	54·6	60·6	59·9	54·9	46·3	46·6	36·0	47·5
Means 0h.–23h.	42·8	41·9	41·0	47·2	51·3	60·5	65·8	65·5	58·2	49·2	48·0	37·1	50·7
Means 1h.–24h.	42·8	41·9	41·0	47·2	51·3	60·5	65·8	65·5	58·1	49·2	48·0	37·1	50·7
Number of Days employed.	31	28	31	30	30	30	31	31	30	31	30	31	...

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

Hour, Greenwich Civil Time.	1899. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	40.0	38.4	36.3	43.0	44.5	52.1	57.4	57.7	52.8	45.2	44.7	34.9	45.6
1h.	39.8	38.4	35.9	42.8	44.1	51.7	57.2	57.3	52.6	44.8	44.6	34.7	45.3
2	39.8	38.3	35.5	42.4	43.7	51.3	56.7	57.0	52.3	44.5	44.2	34.8	45.0
3	39.7	38.0	35.1	42.2	43.6	51.2	56.4	56.9	51.8	44.3	44.3	34.8	44.9
4	39.7	37.9	34.9	42.0	43.6	51.0	56.0	56.7	51.4	44.1	44.1	34.9	44.7
5	39.7	37.8	34.5	41.9	43.9	51.0	56.0	56.8	50.6	43.8	44.0	35.0	44.6
6	39.5	37.6	34.2	41.8	44.9	52.0	56.8	57.1	50.6	44.0	44.2	35.0	44.8
7	39.6	37.6	34.4	42.5	46.1	53.3	57.9	58.3	51.3	44.0	44.3	35.1	45.4
8	39.8	37.7	35.6	43.4	47.6	54.9	59.1	60.1	52.4	44.6	44.6	34.9	46.2
9	40.2	38.4	37.1	44.2	48.6	56.2	60.3	61.4	53.6	46.1	45.4	35.2	47.2
10	40.9	39.8	38.6	44.6	49.3	57.1	61.0	62.2	54.4	47.8	46.2	35.6	48.1
11	41.7	41.3	39.8	45.1	49.8	57.6	61.6	62.8	55.0	49.3	47.1	36.1	48.9
Noon	42.1	42.6	40.9	45.5	50.2	58.1	62.2	62.9	55.3	50.3	47.7	36.8	49.6
13h.	42.6	42.9	41.8	46.1	50.5	58.4	62.6	63.1	56.0	50.7	48.1	37.2	50.0
14	42.7	42.9	42.1	46.5	50.8	58.5	62.9	63.0	55.9	50.8	47.9	37.2	50.1
15	42.3	42.4	42.3	46.5	50.8	58.4	62.6	63.1	56.1	50.6	47.8	36.9	50.0
16	42.1	41.9	42.0	46.4	50.6	58.3	62.4	62.7	55.6	50.0	47.5	36.5	49.7
17	41.7	41.3	41.2	45.9	49.9	57.9	61.8	61.8	54.9	49.3	46.9	36.2	49.1
18	41.2	40.5	40.4	45.4	49.1	57.2	61.3	61.0	54.5	48.6	46.3	36.0	48.5
19	40.8	40.1	39.5	44.9	48.2	56.3	61.0	60.0	54.1	47.9	45.8	35.7	47.9
20	40.3	39.5	38.7	44.2	47.0	55.0	60.3	59.2	53.9	47.2	45.6	35.5	47.2
21	40.2	39.0	38.2	43.6	46.4	54.0	59.4	58.8	53.4	46.6	45.3	35.2	46.7
22	40.0	38.8	37.7	43.1	45.7	53.3	58.7	58.3	53.1	45.9	44.9	35.0	46.2
23	39.8	38.6	37.3	42.8	45.4	52.7	58.0	57.8	52.8	45.5	44.9	34.8	45.9
24	39.8	38.3	36.9	42.6	45.0	52.2	57.5	57.5	52.5	45.2	44.8	34.7	45.6
Means { 0h.–23h.	40.7	39.7	38.1	44.0	47.3	54.9	59.6	59.8	53.5	46.9	45.7	35.6	47.1
Means { 1h.–24h.	40.7	39.7	38.1	44.0	47.3	54.9	59.6	59.8	53.5	46.9	45.7	35.6	47.1
Number of Days employed.	31	28	31	30	30	30	31	31	30	31	30	31	...

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

Hour, Greenwich Civil Time.	1899. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	37.7	36.6	34.2	41.0	42.4	49.8	54.7	55.7	50.4	43.9	42.7	33.0	43.5
1h.	37.7	36.7	34.1	40.9	42.1	49.9	54.8	55.5	50.5	43.6	42.7	32.6	43.4
2	37.5	36.7	33.8	41.0	41.7	49.5	54.3	55.4	50.2	43.2	42.4	33.0	43.2
3	37.4	36.4	33.2	40.6	42.0	49.6	54.2	55.5	50.0	43.1	42.7	33.0	43.1
4	37.6	36.3	33.1	40.3	42.2	49.3	54.2	55.4	49.5	42.9	42.5	33.0	43.0
5	37.6	36.2	32.7	40.4	42.5	49.1	54.2	55.4	48.7	42.7	42.4	33.2	42.9
6	37.4	36.1	32.1	39.9	43.3	49.8	54.7	55.5	48.7	42.8	42.6	33.2	43.0
7	37.5	36.1	32.2	40.5	43.8	50.5	54.9	56.0	49.1	42.6	42.6	33.5	43.3
8	37.9	36.2	33.1	40.7	44.2	50.8	54.9	56.5	49.1	42.9	42.9	33.1	43.5
9	38.2	36.4	33.9	40.5	44.1	50.9	54.9	56.3	49.2	44.1	43.4	33.3	43.8
10	38.6	37.4	34.4	40.4	44.2	50.6	54.7	55.7	49.0	45.3	43.6	33.5	43.9
11	39.0	38.4	35.0	40.0	44.1	50.3	54.5	55.5	48.9	45.9	43.8	33.8	44.1
Noon	38.8	38.6	35.5	40.1	44.1	50.2	54.8	55.0	48.4	46.3	44.0	34.1	44.2
13h.	39.2	38.5	35.8	40.5	44.1	50.3	54.9	55.0	49.5	46.3	44.3	34.2	44.4
14	39.2	38.0	35.9	40.9	44.2	50.2	54.8	55.1	48.9	46.2	43.7	34.2	44.3
15	38.8	37.4	36.2	40.7	44.0	50.1	54.2	55.2	48.9	46.1	43.9	34.0	44.1
16	38.9	37.2	36.1	41.1	43.9	50.5	54.2	55.2	48.9	45.8	44.1	34.1	44.2
17	39.0	37.2	35.7	41.1	43.5	50.8	54.0	54.8	48.6	46.0	43.9	34.0	44.1
18	38.7	37.1	35.7	41.0	43.2	50.6	54.0	54.9	49.2	45.8	43.4	34.0	44.0
19	38.2	37.2	35.4	41.1	43.2	50.6	55.2	54.9	49.9	45.6	43.0	33.9	44.0
20	37.9	36.8	35.3	40.7	42.8	50.4	55.5	55.1	50.4	45.1	43.0	33.7	43.9
21	37.8	36.5	35.3	40.4	43.2	50.4	55.4	55.6	50.1	45.0	43.0	33.4	43.8
22	37.5	36.6	35.2	40.3	42.7	50.2	55.2	55.6	50.2	44.4	42.7	33.0	43.6
23	37.3	36.7	35.3	40.4	42.9	50.1	55.1	55.4	50.3	44.2	43.0	32.7	43.6
24	37.4	36.5	34.8	40.6	42.9	49.9	54.8	55.4	50.2	44.0	42.8	32.7	43.5
Means { 0h.–23h.	38.1	37.0	34.6	40.6	43.3	50.2	54.7	55.4	49.4	44.6	43.2	33.5	43.7
Means { 1h.–24h.	38.1	37.0	34.6	40.6	43.3	50.2	54.7	55.4	49.4	44.6	43.2	33.5	43.7

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.	1899.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight	86	89	87	87	87	84	82	86	84	92	87	89	87
1h.	87	90	89	88	87	87	83	87	85	92	88	88	88
2	87	90	90	90	88	88	84	88	86	92	88	89	88
3	87	90	89	90	89	90	85	89	87	92	90	89	89
4	87	90	89	89	91	89	87	90	87	92	89	89	89
5	87	90	89	90	91	88	87	90	87	93	89	89	89
6	87	91	87	88	90	85	86	88	87	92	89	89	88
7	87	92	87	87	85	81	79	84	84	91	89	90	86
8	89	92	85	83	78	73	72	75	79	89	89	89	83
9	88	88	80	77	71	66	65	66	72	87	88	89	78
10	85	86	76	74	67	59	60	59	66	84	83	87	74
11	82	81	71	69	65	56	57	55	62	78	79	85	70
Noon	79	76	68	68	62	52	54	52	58	74	77	85	67
13h.	79	73	65	66	61	50	52	52	60	72	75	82	66
14	78	71	64	66	60	51	51	51	57	70	73	82	65
15	78	70	65	66	59	51	50	52	56	71	76	83	65
16	80	72	66	67	59	52	50	54	59	72	78	85	66
17	82	74	68	71	61	57	53	57	60	79	81	86	69
18	83	78	71	73	64	59	56	61	66	82	81	87	72
19	83	82	75	76	69	64	62	67	72	85	82	89	75
20	85	84	79	79	74	70	68	73	76	87	83	89	79
21	86	84	82	81	79	76	73	78	77	89	86	89	82
22	85	87	85	82	81	79	77	81	80	90	86	88	83
23	86	88	88	85	85	83	80	84	83	92	88	88	86
24	86	89	88	87	87	84	82	86	84	92	87	88	87
Means { 0h.–23h.	84	84	79	79	75	70	69	72	74	85	84	87	78
Means { 1h.–24h.	84	84	79	79	75	70	69	72	74	85	84	87	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 1899.

Month, 1899.	Registered Duration of Sunshine in the Hour ending																Total registered Duration of Sunshine in each Month.	Corresponding aggregate Period during which the Sun was above Horizon.	Proportion of Sunshine.	Mean Altitude of the Sun at Noon.
	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon.	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.				
	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h		°
January	...	...	...	...	2·0	8·5	9·8	11·1	11·7	10·5	10·0	3·7	...	...	...	...	67·3	259·6	0·259	18
February	...	...	...	0·9	6·4	10·1	12·4	14·8	14·1	13·8	12·0	10·4	4·4	...	...	...	99·3	278·0	0·357	26
March.........	...	...	0·9	6·3	10·2	14·1	15·6	15·7	15·8	14·3	12·8	11·4	6·3	0·5	...	...	123·9	366·9	0·338	37
April..........	...	0·1	4·4	7·2	8·5	10·0	10·8	12·0	11·4	9·8	10·1	10·1	6·1	2·5	0·3	...	103·3	414·3	0·249	48
May	1·8	10·6	13·7	14·1	15·0	14·4	14·7	15·7	13·9	16·7	14·9	17·4	16·0	12·2	10·7	2·2	204·0	481·9	0·423	57
June..........	1·9	9·5	11·3	15·6	16·7	19·4	20·6	21·4	20·6	18·9	18·2	19·2	18·1	14·2	12·4	4·3	242·3	494·7	0·490	62
July	1·4	10·6	14·5	16·6	19·1	19·2	19·4	19·0	18·4	21·0	21·4	19·8	18·0	16·7	10·2	2·4	247·7	497·4	0·498	60
August	...	4·1	11·7	20·0	22·5	22·2	24·0	23·8	21·4	20·7	23·3	22·8	21·4	19·3	8·8	0·4	266·4	449·5	0·593	52
September....	...	0·5	3·2	11·1	15·4	15·3	15·0	18·4	15·5	17·7	18·1	14·9	9·8	2·5	0·1	...	157·5	378·2	0·416	41
October	...	...	...	2·4	8·8	13·1	14·0	15·7	15·2	15·3	13·7	10·2	2·9	...	...	...	111·3	329·2	0·338	30
November....	...	...	...	0·6	5·5	5·3	7·6	7·0	7·6	7·0	4·5	2·4	0·5	...	...	...	48·0	265·0	0·181	20
December.....	...	...	...	...	0·3	3·0	3·5	5·5	7·5	7·4	5·4	0·6	...	...	...	...	33·2	244·0	0·136	16
For the Year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1704·2	4458·7	0·356	...

The hours are reckoned from *apparent* midnight.

READINGS of DRY-BULB THERMOMETERS placed in a STEVENSON'S SCREEN in the OBSERVATORY GROUNDS, 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 MAGNETIC PAVILION ENCLOSURE, in the YEAR 1899.

(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 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	45.4	33.6	...	...	...	...	+1.5	0.0	...	...	...	...
2	42.4	35.1	35.9	37.4	40.5	39.5	+0.2	-0.6	+0.2	-0.3	0.0	-0.1
3	45.7	37.4	40.5	42.6	43.0	41.2	+1.5	+0.3	-0.1	-0.3	+0.3	-0.1
4	52.7	40.5	47.7	51.4	52.2	51.7	-0.3	+1.3	-0.2	-0.3	-0.5	-0.1
5	53.2	36.1	38.3	42.5	42.1	37.3	+1.1	+2.3	-0.3	-0.2	+0.7	+2.6
6	46.1	32.4	40.1	43.1	44.9	44.1	+0.3	+2.2	-0.2	0.0	-0.2	+0.1
7	50.3	42.4	44.6	47.2	48.8	50.0	+0.2	+0.2	+0.5	-0.3	+0.1	-0.1
8	54.1	45.4	...	...	...	...	0.0	+0.4	...	...	...	...
9	52.5	44.9	46.2	51.0	50.8	47.7	+0.2	+1.2	-0.2	-0.7	+0.7	+0.8
10	51.8	41.8	48.7	49.0	47.0	43.8	+1.2	+0.8	-0.1	-0.3	-0.6	+0.2
11	46.9	36.4	37.1	42.1	43.0	38.6	+1.3	+0.2	-0.3	-1.2	-0.1	+0.1
12	53.9	37.1	49.6	53.9	45.3	46.0	-0.6	-0.2	-0.4	-0.5	-0.5	-0.1
13	53.8	41.0	41.9	41.8	46.9	42.8	-0.3	0.0	-1.8	-0.1	+0.1	+0.2
14	45.2	37.7	38.1	42.8	44.2	38.7	+0.2	-0.2	-1.1	-0.5	-0.4	+0.2
15	54.2	36.1	...	...	...	...	+0.1	+0.1	...	...	...	...
16	54.3	42.2	49.7	51.1	49.1	44.4	+0.2	-0.4	0.0	-0.4	-0.2	0.0
17	44.4	33.8	34.6	38.8	38.8	38.0	+0.1	-0.4	-0.6	-0.3	-0.7	-0.1
18	52.8	37.7	49.1	51.4	51.8	50.0	+0.1	-0.2	-0.2	-0.1	-0.2	0.0
19	53.2	47.0	50.6	51.9	51.2	47.0	+0.2	-0.3	-0.1	-0.1	-0.4	-0.8
20	51.3	44.1	46.6	49.6	49.6	50.9	-0.1	+0.3	-0.9	-0.1	-0.2	-0.5
21	55.2	49.9	52.5	54.8	53.5	51.5	-0.1	-0.1	+0.6	-0.2	-0.2	+0.3
22	53.1	45.8	...	...	...	...	+0.1	0.0	...	..	...	...
23	46.4	37.4	41.5	40.4	41.5	37.6	+0.3	+0.1	-0.2	-0.3	-0.1	-0.3
24	41.5	33.9	35.8	37.4	39.8	34.0	-0.3	+1.5	0.0	-0.3	-0.6	+1.6
25	38.8	30.1	31.5	37.6	37.7	32.3	-0.3	+0.8	-0.1	-1.1	-0.4	+0.5
26	42.1	31.4	33.6	39.9	39.8	35.8	0.0	+0.4	-0.1	-0.9	-0.7	-0.1
27	41.6	32.8	33.5	39.5	40.5	33.4	-0.6	-0.2	-0.4	-0.9	-1.0	+0.1
28	39.5	30.3	32.7	37.4	38.5	35.5	+0.1	+0.1	-0.4	-0.8	-0.7	-0.1
29	42.2	35.3	...	...	...	...	+0.8	0.0	...	...	...	...
30	42.8	36.3	38.8	41.5	41.3	36.6	-0.9	+0.1	-0.4	-0.5	-0.1	-0.1
31	39.2	31.8	34.0	36.5	38.6	36.6	+0.2	+0.6	-0.3	-0.2	-0.1	0.0
Means	48.0	38.0	41.3	44.3	44.6	41.7	+0.2	+0.3	-0.3	-0.4	-0.2	+0.2

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	43.9	33.2	...	...	...	...	0.0	-0.4	...	...	...	...
2	41.9	34.7	35.5	37.6	40.4	39.7	-0.3	-1.0	-0.2	-0.1	-0.1	+0.1
3	43.1	36.8	40.3	42.6	42.8	41.2	-1.1	-0.3	-0.3	-0.3	+0.1	-0.1
4	52.5	40.3	47.8	51.8	52.5	51.7	-0.5	+1.1	-0.1	+0.1	-0.2	-0.1
5	51.6	36.0	38.0	42.4	43.1	39.1	-0.5	+2.2	-0.6	-0.3	+1.7	+4.4
6	46.4	31.4	40.6	43.7	45.5	44.4	+0.6	+1.2	+0.3	+0.6	+0.4	+0.4
7	50.2	42.2	44.2	47.6	49.0	50.0	+0.1	0.0	+0.1	+0.1	+0.3	-0.1
8	55.5	45.0	...	...	...	...	+1.4	0.0	...	...	...	...
9	53.2	44.0	46.6	52.0	51.0	47.7	+0.9	+0.3	+0.2	+0.3	+0.9	+0.8
10	51.2	40.2	48.8	49.2	47.4	43.9	+0.6	-0.8	0.0	-0.1	-0.2	+0.3
11	44.7	35.8	37.0	43.0	43.2	37.5	-0.9	-0.4	-0.4	-0.3	+0.1	-1.0
12	54.7	36.0	49.7	54.5	43.5	45.7	+0.2	-1.3	-0.3	+0.1	-2.3	-0.4
13	53.9	40.6	43.2	42.5	47.3	42.7	-0.2	-0.4	-0.5	+0.6	+0.5	+0.1
14	45.1	36.5	37.9	43.2	44.4	38.5	+0.1	-1.4	-1.3	-0.1	-0.2	0.0
15	53.9	35.0	...	...	...	...	-0.2	-1.0	...	...	...	...
16	53.9	41.6	49.7	51.4	49.0	44.3	-0.2	-1.0	0.0	-0.1	-0.3	-0.1
17	44.3	33.0	34.1	39.1	38.7	38.3	0.0	-1.2	-1.1	0.0	-0.8	+0.2
18	52.6	37.9	48.9	51.6	52.0	50.0	-0.1	0.0	-0.4	+0.1	0.0	0.0
19	52.8	47.2	50.7	52.1	51.4	47.9	-0.2	-0.1	0.0	+0.1	-0.2	+0.1
20	51.0	43.4	46.7	49.7	49.7	51.0	-0.4	-0.4	-0.8	0.0	-0.1	-0.4
21	55.3	50.0	52.6	55.2	53.5	51.3	0.0	0.0	+0.7	+0.2	-0.2	+0.1
22	52.9	45.1	...	...	...	...	-0.1	-0.7	...	...	...	...
23	45.9	37.0	41.5	40.3	41.5	37.6	-0.2	-0.3	-0.2	-0.4	-0.1	-0.3
24	40.8	30.9	35.6	37.4	40.0	33.6	-1.0	-1.5	-0.2	-0.3	-0.4	+1.2
25	39.4	28.1	31.4	38.7	38.6	31.7	+0.3	-1.2	-0.2	0.0	+0.5	-0.1
26	41.7	29.9	33.6	40.7	40.7	35.3	-0.4	-1.1	-0.1	-0.1	+0.2	-0.6
27	42.4	31.9	33.6	40.4	41.5	33.7	+0.2	-1.1	-0.3	0.0	0.0	+0.4
28	39.5	28.9	32.8	37.7	38.8	35.4	+0.1	-1.3	-0.3	-0.5	-0.4	-0.2
29	40.0	35.2	...	...	...	...	-1.4	-0.1	...	...	...	...
30	43.4	35.3	38.7	41.9	41.9	36.5	-0.3	-0.9	-0.5	-0.1	+0.5	-0.2
31	39.0	30.0	34.0	37.3	38.7	36.7	0.0	-1.2	-0.3	+0.6	0.0	+0.1
Means	47.6	37.2	41.3	44.8	44.8	41.7	-0.1	-0.5	-0.3	0.0	0.0	+0.2

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 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	39·9	34·4	35·5	37·8	39·1	36·2	+0·8	+0·4	−0·2	−0·1	+0·4	−0·2
2	39·9	29·8	30·0	35·3	37·7	33·5	+0·1	+0·4	−0·3	−0·5	−0·6	−0·3
3	37·9	29·3	32·1	34·8	36·4	30·0	+0·6	+1·0	−0·1	−1·3	0·0	+1·3
4	40·1	23·1	26·3	38·0	36·2	36·2	−0·3	+1·2	−1·2	−1·5	+0·2	+0·5
5	38·4	34·1	...	...	...	...	+0·6	+0·3	...	...	...	...
6	41·6	34·5	37·1	38·1	36·3	36·6	+1·4	−0·1	−0·3	−0·3	+0·2	−0·4
7	54·8	36·3	46·0	52·7	53·8	48·2	0·0	+0·1	+0·1	−1·0	−0·1	+0·5
8	53·7	48·0	49·8	49·9	51·8	52·1	+0·5	+0·8	−0·1	0·0	−0·4	−0·1
9	57·9	47·8	48·8	53·6	54·8	56·4	+0·3	−0·1	−0·9	−0·1	−0·5	+0·2
10	63·3	52·8	58·3	61·1	61·9	52·8	−0·6	+0·5	−0·4	−0·8	−0·5	+0·1
11	56·1	49·5	50·3	52·9	52·9	50·7	+1·5	+0·4	+0·1	−0·4	−0·7	0·0
12	52·5	42·8	...	...	...	...	+1·4	0·0	...	...	...	...
13	54·0	44·1	50·3	53·3	49·9	48·6	−0·4	+0·1	−0·6	−0·5	−0·5	−0·3
14	52·6	44·1	46·1	50·6	50·6	45·7	+0·6	+0·4	−0·4	−1·3	−0·1	+0·1
15	51·0	41·2	46·4	49·5	49·9	46·0	−0·3	+1·5	−0·6	−1·0	−0·3	+0·2
16*	50·8	39·2	41·0	46·7	49·3	41·6	+0·5	+0·2	−0·5	−0·3	−0·1	+1·6
17	53·8	36·9	41·3	51·3	53·6	43·0	−1·2	+0·9	−0·7	−1·2	−0·3	+0·3
18	49·1	34·7	37·6	43·3	49·0	39·7	−0·7	+0·3	−0·1	−0·4	−0·4	+0·4
19	47·7	39·7	...	...	...	...	+0·5	+1·0	...	...	...	...
20	48·1	42·5	43·6	45·9	45·2	43·7	+0·8	−0·3	−0·2	−0·5	−0·2	0·0
21	44·8	38·9	41·8	43·8	42·5	39·9	−0·7	+0·3	−0·7	−0·6	−0·5	+0·2
22	47·9	33·1	38·0	46·1	46·7	37·5	−1·1	+0·2	−0·5	−0·7	−1·6	+0·1
23	51·8	31·5	37·6	47·3	51·4	39·2	−0·3	+2·3	−0·6	−1·2	−0·7	+2·0
24	51·7	28·4	30·1	45·5	49·9	36·5	−1·1	+0·4	−0·8	−0·9	−1·5	+1·6
25	43·1	31·3	32·8	41·7	40·5	31·9	−1·0	+1·1	−0·6	−2·4	−0·9	+0·9
26	43·1	27·3	...	...	...	...	−1·6	+1·1	...	...	...	...
27	42·6	23·3	26·4	39·5	42·1	31·9	−0·7	+1·3	+1·2	−0·8	−0·8	+1·2
28	47·4	24·4	26·5	40·1	46·7	39·6	+0·7	+1·6	−0·4	−0·6	0·0	+0·6
Means	48·4	36·5	39·7	45·8	47·0	41·6	0·0	+0·6	−0·4	−0·8	−0·4	+0·4

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	39·3	33·9	35·6	38·0	39·2	36·5	+0·2	−0·1	−0·1	+0·1	+0·5	+0·1
2	39·0	28·1	30·2	36·0	38·2	33·5	−0·8	−1·3	−0·1	+0·2	−0·1	−0·3
3	37·3	27·6	32·5	35·8	36·7	31·2	0·0	−0·7	+0·3	−0·3	+0·3	+2·5
4	40·4	22·5	26·7	39·3	37·0	36·5	0·0	+0·6	−0·8	−0·2	+1·0	+0·8
5	37·2	31·9	...	...	...	...	−0·6	−1·9	...	...	...	...
6	38·8	34·0	37·2	38·7	36·7	36·7	−1·4	−0·6	−0·2	+0·3	+0·6	−0·3
7	55·0	36·1	46·0	53·3	54·2	48·5	+0·2	−0·1	+0·1	−0·4	+0·3	+0·8
8	53·4	47·3	49·9	50·4	52·0	52·4	+0·2	+0·1	0·0	+0·5	−0·2	+0·2
9	57·7	47·4	49·4	53·8	54·9	56·5	+0·1	−0·5	−0·3	+0·1	−0·4	+0·3
10	63·8	52·5	58·8	61·7	62·1	52·7	−0·1	+0·2	+0·1	−0·2	−0·3	0·0
11	54·8	49·2	50·5	53·4	53·5	50·9	+0·2	+0·1	+0·3	+0·1	−0·1	+0·2
12	53·5	42·2	...	...	...	...	+2·4	−0·6	...	...	...	...
13	54·0	44·0	50·5	53·8	50·1	48·7	−0·4	0·0	−0·4	0·0	−0·3	−0·2
14	52·1	43·3	46·2	51·4	50·9	45·7	+0·1	−0·4	−0·3	−0·5	+0·2	+0·1
15	50·7	40·4	47·2	50·4	50·7	45·9	−0·6	+0·7	+0·2	−0·1	+0·5	+0·1
16	50·5	38·3	41·1	47·5	49·7	41·1	+0·2	−0·7	−0·4	+0·5	+0·3	+1·1
17	55·3	36·2	41·6	51·8	54·6	42·1	+0·3	+0·2	−0·4	−0·7	+0·7	−0·6
18	50·2	34·1	37·9	44·2	49·9	39·7	+0·4	−0·3	+0·2	+0·5	+0·5	+0·4
19	48·2	38·8	...	...	...	...	+1·0	+0·1	...	...	...	...
20	47·5	42·1	43·7	46·2	45·6	43·6	+0·2	−0·7	−0·1	−0·2	+0·2	−0·1
21	46·0	37·1	42·3	45·0	43·6	39·2	+0·5	−1·5	−0·2	+0·6	+0·6	−0·5
22	49·5	31·2	39·1	47·7	48·1	36·5	+0·5	−1·7	+0·6	+0·9	−0·2	−0·9
23	53·0	28·9	38·7	48·8	52·5	38·1	+0·9	−0·3	+0·5	+0·3	+0·4	+0·9
24	53·4	28·1	30·5	46·6	51·8	35·4	+0·6	+0·1	−0·4	+0·2	+0·4	+0·5
25	44·5	30·4	33·2	43·6	42·5	30·6	+0·4	+0·2	−0·2	−0·5	+1·1	−0·4
26	45·4	25·5	...	...	...	...	+0·7	−0·7	...	...	...	...
27	44·7	23·0	26·9	39·7	42·6	31·5	+1·4	+1·0	+1·7	−0·6	−0·3	+0·8
28	47·5	22·2	27·0	39·3	47·4	38·8	+0·8	−0·6	+0·1	−1·4	+0·7	−0·2
Means	48·7	35·6	40·1	46·5	47·7	41·3	+0·3	−0·3	0·0	0·0	+0·3	+0·2

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

MARCH.

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

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	54·7	31·8	39·4	46·9	54·7	45·4	+0·7	−1·4	+0·3	+0·2	+0·8	+0·7
2	48·4	31·7	36·4	44·7	48·2	42·7	+0·5	−1·2	−0·6	0·0	+0·5	+0·2
3	51·4	30·6	37·4	46·2	50·5	43·9	+0·9	+1·6	+0·4	0·0	+1·0	+0·8
4	47·0	31·2	36·5	45·6	46·7	37·7	+0·3	−1·1	+0·2	+0·1	+0·2	0·0
5	44·7	27·9	...	...	...	...	+0·2	−1·7	...	...	...	...
6	46·6	26·0	39·0	42·7	45·7	31·3	+1·0	+0·1	+0·3	−0·6	+1·9	+0·6
7	49·9	24·2	37·2	44·4	49·4	40·7	+0·9	+0·3	+0·5	−0·2	+0·8	−0·3
8	51·2	35·4	41·7	49·2	49·3	43·0	+0·2	+0·2	−0·1	+0·2	+0·3	−0·1
9	50·3	38·2	43·5	47·4	49·0	39·9	+0·2	−1·0	+0·4	+1·5	+1·0	+0·2
10	54·0	34·0	40·7	48·9	53·6	45·2	−0·2	+1·7	−0·4	+0·4	+1·1	+0·5
11	51·5	36·9	40·8	45·5	50·3	46·5	+0·1	+1·2	−0·2	+0·7	+0·6	+0·8
12	57·0	43·1	...	...	...	...	−0·1	+0·5	...	...	...	...
13	58·4	38·0	40·8	50·1	57·7	42·7	+1·8	0·0	+0·3	+0·2	+1·1	+1·2
14	57·0	29·4	35·7	43·9	54·0	44·9	−0·7	0·0	−0·7	−1·4	−1·0	+1·2
15	60·3	32·0	40·4	55·4	58·9	43·3	+1·2	+3·3	+4·1	−0·3	0·0	−0·1
16	44·8	34·2	35·4	42·0	44·6	41·0	+0·3	+1·9	+0·7	+0·3	+0·3	+0·1
17	47·8	37·9	40·7	44·2	45·7	38·5	+1·6	−0·1	+0·2	+0·7	+0·7	+0·1
18	45·5	31·6	40·7	43·6	44·5	36·0	+0·2	−0·3	−0·4	+0·2	−0·2	+0·3
19	40·2	27·7	...	...	...	...	−1·4	−1·0	...	...	...	...
20	40·4	26·9	31·7	36·7	34·7	29·5	−0·6	−0·7	−0·2	+0·4	−1·2	−0·2
21	37·6	20·2	31·5	36·2	32·8	27·3	−0·2	−0·1	−0·6	+1·0	+0·3	−0·5
22	39·7	23·1	29·7	36·2	37·9	31·6	−1·0	−0·9	−0·5	+0·3	−0·2	0·0
23	36·7	22·0	28·0	32·2	35·4	29·7	−0·6	−1·1	−1·6	+0·6	+0·1	0·0
24	39·9	23·9	32·2	36·9	36·3	30·4	−0·9	−1·3	+0·2	−0·1	+0·9	+1·3
25	46·5	26·2	39·1	46·2	41·7	40·0	−0·5	+1·7	+0·5	+0·5	+0·1	+0·2
26	54·5	39·5	...	...	...	...	+0·2	0·0	...	...	...	...
27	60·9	38·1	48·2	57·6	56·9	47·4	−0·3	+0·1	0·0	+0·9	+0·9	−0·1
28	54·8	43·1	50·7	51·8	53·0	53·0	−0·3	−0·5	+0·2	+0·2	+0·4	−0·2
29	59·5	49·4	54·7	58·2	57·7	50·5	−0·4	−0·5	0·0	+0·7	+0·5	+0·3
30	57·7	44·4	50·3	53·8	55·8	49·1	−0·1	−0·6	+0·4	+0·1	+0·7	+0·3
31	60·3	41·9	...	...	...	...	−0·2	+0·1	...	...	...	...
Means	50·0	32·9	39·3	45·6	47·9	40·4	+0·1	0·0	+0·1	+0·3	+0·4	+0·3

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

APRIL.

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

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground.						Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground.					
	Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	65·3	49·2	51·7	54·6	62·7	53·9	+1·2	+0·1	+0·5	+0·9	+1·7	+0·4
2	59·9	48·2	...	...	...	...	+1·9	+0·5	...	...	...	...
3	60·5	47·8	...	...	...	...	+0·3	+0·7	...	...	...	...
4	55·8	44·5	53·0	55·1	53·4	51·2	−0·3	−0·7	+1·3	+0·6	−0·1	0·0
5	59·5	42·2	50·9	56·7	58·3	48·9	+0·3	−0·8	−0·1	−0·2	−0·2	−0·2
6	61·2	47·3	52·5	58·3	59·5	51·9	+0·8	−0·1	0·0	−0·3	+1·5	0·0
7	51·9	41·3	47·0	47·8	45·7	42·0	−0·2	−2·1	+0·2	−0·6	−3·0	−3·1
8	46·7	34·0	44·7	44·4	35·3	41·6	−0·4	−0·8	0·0	−0·2	−0·9	−0·1
9	53·3	33·2	...	...	...	...	+0·7	−0·1	...	...	...	...
10	61·5	44·5	53·4	56·7	60·6	45·7	+0·2	−0·5	−0·1	+0·4	−0·3	+0·3
11	47·9	37·4	41·6	44·8	44·5	38·9	−0·6	−0·8	+0·3	+0·9	+0·5	0·0
12	56·0	31·2	40·1	46·9	53·8	40·8	+2·2	0·0	−0·3	+0·2	+2·1	+0·2
13	47·9	37·0	42·5	44·2	46·8	43·1	−0·3	−0·1	−0·1	+0·5	+0·7	−0·1
14	47·4	39·0	40·7	43·5	46·2	43·3	−0·6	−1·3	−0·7	−0·2	0·0	0·0
15	53·1	39·1	44·5	45·0	49·5	46·4	0·0	−0·9	−0·9	+0·1	−0·1	+0·2
16	46·4	38·1	...	...	...	...	−1·4	−1·5	...	...	...	...
17	53·9	32·3	42·5	46·2	52·8	40·4	+1·0	−0·7	+0·6	+0·4	+0·6	+1·5
18	50·3	34·3	43·1	48·1	49·7	42·9	+0·1	+1·3	−0·2	+0·6	+0·5	+1·8
19	60·0	32·0	48·5	55·4	59·0	49·6	+0·9	+1·3	+0·7	+1·1	+1·3	+1·1
20	61·9	36·0	52·3	58·5	60·0	49·7	+0·8	+1·7	+0·6	+1·3	+1·3	+0·5
21	50·0	42·1	42·5	43·9	45·8	43·7	+0·2	+0·3	−0·2	+0·4	+0·7	−0·1
22	50·2	34·0	42·8	50·2	48·8	40·9	+1·4	−0·5	−0·1	+2·7	+1·8	+0·6
23	54·3	37·0	...	...	...	...	−1·6	+0·8	...	...	...	...
24	54·7	44·1	53·3	51·7	48·1	46·4	0·0	+0·2	+1·2	+0·2	−0·4	−0·1
25	56·2	42·3	51·8	52·5	54·9	43·8	−0·7	−1·4	0·0	0·0	+0·4	−0·4
26	53·6	42·4	49·7	51·9	53·4	52·0	−0·5	−1·1	+0·3	+0·2	+0·5	0·0
27	58·6	46·0	50·7	52·3	58·4	50·5	+0·7	+0·1	−0·2	+0·9	+1·7	+0·5
28	62·0	46·1	53·5	60·9	61·5	54·0	0·0	+0·4	+0·5	+0·9	+0·3	+0·2
29	60·5	48·4	54·7	57·3	57·4	52·4	+0·8	−0·4	+0·3	+1·4	−0·6	−0·1
30	52·5	40·8	...	...	...	...	+0·2	−0·2	...	...	...	...
Means	55·1	40·4	47·8	51·1	52·8	46·4	+0·2	−0·2	+0·1	+0·5	+0·4	+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 ft. above the ground. Maximum.	Minimum.	9ʰ	Noon.	15ʰ	21ʰ	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9ʰ	Noon.	15ʰ	21ʰ
d	°	°	°	°	°	°	°	°	°	°	°	°
1	54·0	38·2	50·1	52·8	52·2	46·4	−1·2	+2·9	−0·5	−1·1	−0·3	+0·1
2	60·1	45·4	54·6	57·4	57·5	52·9	−0·6	+0·3	−0·1	+0·6	0·0	0·0
3	53·0	41·7	45·6	50·6	50·8	42·2	−0·8	+0·6	+0·1	+0·7	−0·8	+0·2
4	51·3	34·6	46·2	48·7	49·2	41·6	−1·8	+0·9	−1·6	0·0	−0·2	+0·1
5	53·2	34·2	50·0	53·0	52·3	44·7	−1·6	−0·1	+0·3	0·0	−0·6	+0·3
6	56·5	37·1	50·8	54·8	55·8	46·1	−1·7	+0·6	+1·1	−1·3	−1·8	+0·4
7	61·1	36·6	...	...	...	...	−0·7	−1·1	...	...	...	...
8	62·2	42·4	57·3	60·5	61·7	48·4	+0·2	+0·7	+0·6	0·0	+0·4	+0·5
9	57·8	46·3	48·0	49·7	55·0	50·9	+0·1	+0·4	+0·3	+0·1	−0·4	+1·4
10	57·1	42·7	51·8	52·8	56·3	47·2	−0·7	+1·6	−0·1	+0·6	−1·1	+0·5
11	66·6	42·1	47·9	57·0	64·8	51·9	+0·5	+3·8	−0·5	+0·3	+0·3	+0·2
12	65·0	44·3	54·1	60·8	61·0	49·1	−1·3	+0·4	−0·8	+1·0	+0·5	0·0
13	63·2	44·9	51·3	59·4	59·7	50·3	−0·5	+0·5	+0·8	+0·8	+0·9	+0·6
14	60·1	48·3	...	...	...	...	+0·1	+0·7	...	...	...	...
15	60·0	46·3	47·6	52·6	59·8	48·2	+0·1	−0·8	−1·0	0·0	+1·0	+0·3
16	60·2	46·1	56·3	59·1	50·5	49·6	−1·7	−0·4	+1·0	+0·6	−1·0	−0·1
17	61·1	46·3	53·6	59·6	59·6	50·4	−0·6	−1·5	+0·3	+0·6	+0·4	−0·1
18	70·2	49·2	58·6	67·9	69·0	53·4	0·0	+0·3	−1·0	−0·4	+0·4	+0·1
19	63·0	47·0	56·8	60·2	60·0	56·7	+0·9	+0·1	+0·5	+0·3	0·0	−0·1
20	61·5	53·1	55·6	56·5	60·2	55·0	−1·6	+0·3	−0·1	0·0	−1·7	0·0
21	57·4	50·3	...	...	...	...	−1·1	+0·1	...	...	...	...
22	53·1	48·6	...	...	...	...	−1·6	+0·3	...	...	...	...
23	63·5	45·0	59·0	62·0	58·1	52·1	−0·7	+1·0	−0·4	+0·8	−0·7	+0·4
24	61·9	49·4	56·0	61·2	61·6	51·3	−1·8	+0·2	0·0	−0·9	+0·6	+0·2
25	51·4	43·7	47·1	47·8	50·8	44·0	−0·5	+0·7	−0·1	0·0	+0·6	+1·0
26	50·6	37·0	46·5	47·0	49·7	44·0	−0·5	+0·2	−0·3	+0·3	+0·5	+0·4
27	53·1	36·9	48·5	50·5	52·1	45·0	−2·4	+0·7	+0·4	+0·1	+0·5	+0·3
28	60·1	38·2	...	...	...	...	−0·2	+0·3	...	...	...	...
29	63·9	38·9	55·6	62·0	63·6	49·6	+0·1	+1·8	+1·1	+2·7	+0·6	+0·7
30	68·3	40·0	60·7	66·3	66·2	54·7	+0·7	+2·6	+0·2	+0·5	−0·6	+0·3
31	73·3	43·9	63·8	71·4	73·3	59·0	+0·6	+2·9	−0·6	+1·3	+0·6	+3·1
Means	59·8	43·2	52·8	57·0	58·1	49·4	−0·7	+0·7	0·0	+0·3	−0·1	+0·4

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground. Maximum.	Minimum.	9ʰ	Noon.	15ʰ	21ʰ	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9ʰ	Noon.	15ʰ	22ʰ
d	°	°	°	°	°	°	°	°	°	°	°	°
1	55·5	36·1	51·8	54·9	53·2	46·2	+0·3	+0·8	+1·2	+1·0	+0·7	−0·1
2	60·8	44·8	55·1	58·8	58·7	52·6	+0·1	−0·3	+0·4	+2·0	+1·2	−0·3
3	55·4	39·9	45·7	51·6	51·7	41·5	+1·6	−1·2	+0·2	+1·7	+0·1	−0·5
4	54·5	33·0	46·4	50·5	52·0	40·7	+1·4	−0·7	−1·4	+1·8	+2·6	−0·8
5	56·5	33·2	51·8	55·8	55·4	43·7	+1·7	−1·1	+2·1	+2·8	+2·5	−0·7
6	60·5	35·1	51·7	55·8	58·7	45·6	+2·3	−1·4	+2·0	−0·3	+1·1	−0·1
7	62·7	36·9	...	...	...	...	+0·9	−0·8	...	...	...	...
8	62·3	41·1	56·0	60·7	60·9	47·5	+0·3	−0·6	−0·7	+0·2	−0·4	−0·4
9	58·4	45·5	47·9	49·7	55·7	51·0	+0·7	−0·4	+0·2	+0·1	+0·3	+1·5
10	58·5	41·8	51·7	53·2	58·5	46·5	+0·7	+0·7	−0·2	+1·0	+1·1	−0·2
11	68·0	40·7	48·7	56·8	65·9	51·8	+1·9	+2·4	+0·3	+0·1	+1·4	+0·1
12	66·7	43·9	56·1	63·5	62·1	50·1	+0·4	0·0	+1·2	+3·7	+1·6	+1·0
13	65·7	43·6	51·9	61·2	59·8	50·0	+2·0	−0·8	+1·4	+2·6	+1·0	+0·3
14	62·5	47·4	...	...	...	...	+2·5	−0·2	...	...	...	...
15	60·4	46·1	47·0	53·7	59·5	47·8	+0·5	−1·0	−1·6	+1·1	+0·7	−0·1
16	60·8	45·9	56·0	58·7	51·2	49·3	−1·1	−0·6	+0·7	+0·2	−0·3	−0·4
17	61·9	47·4	53·8	60·7	60·8	50·9	+0·2	−0·4	+0·5	+1·7	+1·6	+0·4
18	70·5	48·5	59·8	67·9	69·0	53·1	+0·3	−0·4	+0·2	−0·4	+0·4	−0·2
19	63·8	45·2	57·7	61·2	61·0	56·6	+1·7	−1·7	+1·4	+1·3	+1·0	−0·2
20	62·9	52·4	56·2	56·1	62·8	55·0	−0·2	−0·4	+0·5	−0·4	+0·9	0·0
21	59·5	50·3	...	...	...	...	+1·0	+0·1	...	...	...	...
22	55·5	48·2	...	...	...	...	+0·8	−0·1	...	...	...	...
23	64·6	43·8	60·2	63·3	59·2	51·7	+0·4	−0·2	+0·8	+2·1	+0·4	0·0
24	64·0	48·9	57·3	63·0	63·4	51·2	+0·3	−0·3	+1·3	+0·9	+2·4	+0·1
25	52·0	42·3	47·2	48·1	51·0	43·6	+0·1	−0·7	0·0	+0·3	+0·8	+0·6
26	50·9	34·8	47·2	47·3	49·7	43·6	−0·2	−2·0	+0·4	+0·6	+0·5	0·0
27	54·0	35·0	48·4	52·5	52·8	44·7	−1·5	−1·2	+0·3	+2·1	+1·2	0·0
28	60·5	36·3	...	...	...	...	+0·2	−1·6	...	...	...	...
29	64·6	35·9	54·0	59·7	63·7	48·9	+0·8	−1·2	−0·5	+0·4	+0·7	0·0
30	70·6	39·0	62·6	66·4	68·9	54·6	+3·0	+1·6	+2·1	+0·6	+2·1	+0·2
31	76·2	43·3	66·1	71·8	74·7	58·1	+3·5	+2·3	+1·7	+1·7	+2·0	+2·2
Means	61·3	42·1	53·4	57·8	59·2	49·1	+0·9	−0·4	+0·6	+1·1	+1·1	+0·1

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

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	79·2	47·4	71·9	75·5	78·8	62·7	+1·6	+0·8	+1·3	+0·3	+1·4	+2·5
2	83·4	55·1	76·1	79·2	81·8	66·2	+2·9	+1·0	+1·3	+0·6	+1·5	+0·6
3	74·1	50·4	63·8	71·8	73·2	60·2	+0·9	−0·4	+2·1	+0·4	+2·0	+1·5
4	81·4	49·2	...	...	...	...	+1·6	+0·9	...	...	...	...
5	82·3	51·4	...	...	...	...	+0·8	+1·4	...	...	...	...
6	83·2	54·6	73·8	81·1	82·1	62·2	+2·3	+3·1	+1·1	+1·7	+2·8	+0·2
7	75·5	52·9	71·3	75·5	72·7	55·5	+0·7	+1·2	+2·6	+1·6	−0·1	−0·2
8	63·7	48·2	52·5	57·9	61·6	52·0	+1·5	−0·1	+0·5	+0·9	+0·6	+0·3
9	65·3	47·3	52·9	59·8	64·8	54·7	−0·4	0·0	+1·3	−0·7	+0·8	0·0
10	68·7	49·3	54·9	63·7	68·7	51·7	+0·7	−0·2	+0·4	+1·5	+3·0	+1·0
11	64·5	45·6	...	...	...	...	+1·4	+0·4	...	...	...	...
12	76·7	47·2	60·8	71·7	74·2	62·1	+0·9	−0·1	+1·1	+1·6	+1·8	+0·6
13	62·5	51·4	55·7	58·5	57·6	53·8	+0·9	−0·6	0·0	−1·2	+0·7	+0·1
14	58·7	42·4	50·6	53·7	58·1	47·2	−2·2	+0·3	+0·6	+0·2	+1·2	−0·9
15	71·7	42·1	59·4	66·8	70·7	56·3	−0·3	−0·4	+0·7	+0·5	+0·8	+1·6
16	76·1	45·9	64·4	72·6	74·6	55·0	+1·0	+1·9	+2·2	+3·3	+0·6	+1·0
17	78·6	47·4	64·7	74·2	77·7	61·4	+1·5	−0·4	+0·1	+0·5	+2·7	+0·5
18	75·5	52·1	...	...	...	...	+0·5	+1·7	...	...	...	...
19	68·3	52·1	58·6	65·6	67·9	57·5	+1·2	+0·1	+1·7	+2·8	+2·9	+0·3
20	73·4	55·0	62·7	70·2	69·2	61·3	+1·5	−1·0	−0·6	+1·5	+0·6	+0·7
21	73·3	53·6	65·1	70·6	69·6	60·7	+0·3	+0·2	+1·3	+2·6	+0·9	+2·0
22	65·9	56·3	64·2	62·9	61·7	58·2	+0·7	+1·3	+1·4	+1·2	+0·9	+0·3
23	64·5	54·5	58·3	62·3	64·4	59·9	−0·2	−0·4	+0·4	+1·1	+0·8	0·0
24	71·5	54·5	65·2	65·8	70·5	58·0	+0·4	−0·1	+1·9	+2·0	+1·8	+0·5
25	64·7	51·1	...	...	...	...	−0·4	−0·1	...	...	...	...
26	81·2	56·8	70·6	76·9	78·5	68·6	+0·4	−0·6	+2·0	+1·4	+0·5	+0·2
27	73·0	54·4	67·1	71·2	63·8	56·0	+1·9	−1·5	+1·4	+1·6	+1·1	−0·2
28	77·7	51·2	66·6	76·6	71·0	60·8	+1·5	−0·3	+2·1	+0·9	+3·1	0·0
29	76·9	57·1	66·9	71·7	74·8	62·1	+0·4	−0·1	+1·2	+1·0	+1·1	+0·2
30	73·3	52·4	64·5	69·9	68·6	54·9	+0·3	+0·1	+1·5	+1·2	+1·7	0·0
Means	72·8	51·0	63·3	69·0	70·3	58·4	+0·8	+0·3	+1·2	+1·1	+1·4	+0·5

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 ft. above the ground. Maxi-mum.	Mini-mum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maxi-mum.	Mini-mum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	68·3	53·7	61·1	65·5	62·6	57·5	−0·4	−0·2	+0·1	+0·1	+1·1	−0·1
2	63·8	51·5	...	...	...	...	−1·2	−0·4	...	...	...	...
3	61·1	54·2	56·1	59·3	60·3	58·4	−0·8	+0·2	+0·1	−0·5	−0·4	+0·4
4	66·7	55·0	59·9	62·9	65·7	60·5	−0·6	+0·2	−0·2	−1·1	−0·2	+0·6
5	72·2	51·6	62·8	68·8	69·8	65·9	−0·9	+1·2	−0·9	+1·1	+0·9	+1·2
6	76·2	58·0	66·2	70·3	75·2	63·8	−0·8	+0·5	−0·4	−1·3	+0·9	+1·1
7	79·2	56·4	69·9	76·4	74·8	66·9	−0·9	+1·6	+0·2	−0·2	+0·3	+1·2
8	77·3	58·2	67·7	74·8	75·9	67·6	−1·5	+1·5	−0·6	+0·1	0·0	+0·4
9	78·2	56·2	...	...	...	...	−1·3	0·0	...	...	...	...
10	73·4	59·2	64·6	69·8	71·3	64·4	−1·6	0·0	−0·2	+0·1	−0·6	+0·2
11	83·6	59·1	70·6	79·7	81·6	70·7	+0·5	0·0	−0·1	−2·0	−0·1	+2·8
12	79·9	62·2	76·2	69·5	74·3	62·2	−2·4	+0·1	−1·5	0·0	+0·2	0·0
13	73·3	57·8	62·2	66·7	72·4	61·1	−1·8	+0·5	−0·6	+0·1	−0·6	+0·1
14	73·7	50·5	66·0	72·5	70·0	62·2	−1·4	−0·4	+0·7	+0·3	−0·6	+0·3
15	72·4	57·8	68·1	68·8	70·2	62·8	−1·6	+0·3	+1·9	+0·3	−2·8	−0·1
16	76·1	54·9	...	...	...	...	−0·6	+2·0	...	...	...	...
17	78·5	53·5	73·1	74·2	77·3	64·8	−0·6	+2·1	+0·3	+0·2	−0·2	+1·4
18	81·5	58·3	74·4	79·9	79·1	65·9	−0·5	+1·6	+2·1	+0·1	+0·3	+2·9
19	86·8	61·3	76·1	82·9	86·0	71·3	−1·3	+1·8	−0·8	−1·3	+1·6	+1·6
20	85·3	62·1	80·7	85·1	83·5	69·1	−0·7	+2·0	+0·9	+0·2	−0·1	+1·0
21	88·4	63·4	72·6	81·9	86·9	73·2	−0·1	+1·0	−0·1	−0·3	+1·2	+0·5
22	81·2	63·1	64·1	74·9	80·1	67·9	−0·6	+0·8	+0·2	+1·0	−0·7	+0·2
23	68·0	61·2	...	...	...	...	+0·1	+0·3	...	...	...	...
24	72·3	57·4	63·2	69·5	70·8	65·9	−0·4	0·0	+0·8	+0·6	−0·1	+0·7
25	76·9	56·1	64·6	69·8	76·3	69·2	−1·2	+0·9	−0·9	−0·5	−1·4	−0·2
26	80·4	61·3	67·7	74·4	78·9	67·6	−1·1	+1·1	−0·9	−0·3	−1·1	+0·4
27	71·1	60·9	64·3	69·0	70·5	62·1	−0·9	+2·6	+0·7	+1·9	+0·3	+0·4
28	75·7	51·2	63·4	72·3	74·9	68·2	−0·5	+2·0	−1·3	+1·8	+0·7	+0·8
29	79·1	53·2	66·6	74·1	78·0	69·9	−0·9	+2·7	−0·1	−0·6	+0·6	+0·3
30	82·5	61·9	...	...	...	...	+0·3	+0·7	...	...	...	...
31	75·0	57·6	68·6	74·7	73·8	62·2	+0·1	+1·1	+1·7	+1·0	+1·1	+0·4
Means	76·1	57·4	67·3	72·6	74·6	65·4	−0·8	+0·9	0·0	0·0	0·0	+0·7

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground. Maxi-mum.	Mini-mum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maxi-mum.	Mini-mum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	69·5	52·7	62·1	66·2	63·1	57·3	+0·8	−1·2	+1·1	+0·8	+1·6	−0·3
2	65·2	51·4	...	...	...	...	+0·2	−0·5	...	...	...	...
3	61·1	53·2	56·6	60·0	60·6	58·0	−0·8	−0·8	+0·6	+0·2	−0·1	0·0
4	67·4	54·1	60·6	64·1	67·2	60·2	+0·1	−0·7	+0·5	+0·1	+1·3	+0·3
5	73·9	50·7	64·1	69·6	70·9	66·3	+0·8	+0·3	+0·4	+1·9	+2·0	+1·6
6	77·1	57·2	67·2	71·6	75·5	63·7	+0·1	−0·3	+0·6	0·0	+1·2	+1·0
7	79·7	55·8	69·8	77·4	75·5	66·7	−0·4	+1·0	+0·1	+0·8	+1·0	+1·0
8	80·1	57·5	69·5	75·8	78·8	66·9	+1·3	+0·8	+1·2	+1·1	+2·9	−0·3
9	81·0	55·5	...	...	...	...	+1·5	−0·7	...	...	...	...
10	74·9	58·7	65·9	71·5	72·8	64·0	−0·1	−0·5	+1·1	+1·8	+0·9	−0·2
11	85·6	59·4	72·2	80·5	82·8	70·9	+2·5	+0·3	+1·5	−1·2	+1·1	+3·0
12	80·8	61·4	79·3	70·2	75·4	61·9	−1·5	−0·7	+1·6	+0·7	+1·3	−0·3
13	75·2	57·0	62·9	67·7	73·5	60·3	+0·1	−0·3	+0·1	+1·1	+0·5	−0·7
14	75·6	50·4	68·2	74·5	71·3	61·8	+0·5	−0·5	+2·9	+2·3	+0·7	−0·1
15	74·5	56·7	68·6	70·6	70·4	62·2	+0·5	−0·8	+2·4	+2·1	−2·6	−0·7
16	78·0	53·7	...	...	...	...	+1·3	+0·8	...	...	...	...
17	79·5	52·1	73·6	75·4	78·4	64·5	+0·4	+0·7	+0·8	+1·4	+0·9	+1·1
18	83·4	57·3	74·5	78·7	79·7	65·3	+1·4	+0·6	+2·2	−1·1	+0·9	+2·3
19	88·9	60·6	77·5	83·8	86·4	70·5	+0·8	+1·1	+0·6	−0·4	+2·0	+0·8
20	85·9	61·0	80·7	84·9	85·9	68·9	−0·1	+0·9	+0·9	0·0	+2·3	+0·8
21	90·2	62·9	73·4	82·9	89·2	72·7	+1·7	+0·5	+0·7	+0·7	+3·5	0·0
22	82·6	62·7	63·9	75·1	81·4	67·7	+0·8	+0·4	0·0	+1·2	+0·6	0·0
23	67·7	61·0	...	...	...	...	−0·2	+0·1	...	...	...	...
24	72·6	57·3	63·9	69·8	71·6	66·0	−0·1	−0·1	+1·5	+0·9	+0·7	+0·8
25	79·2	54·8	65·3	72·1	78·7	69·0	+1·1	−0·4	−0·2	+1·8	+1·0	−0·4
26	81·8	59·8	68·7	75·8	80·7	67·4	+0·3	−0·4	+0·1	+1·1	+0·7	+0·2
27	72·2	57·6	65·8	68·1	72·1	61·0	+0·2	−0·7	+2·2	+1·0	+1·9	−0·7
28	76·3	50·1	65·6	71·5	76·0	67·1	+0·1	+0·9	+0·9	+1·0	+1·8	−0·3
29	81·3	52·4	67·6	76·5	78·2	69·9	+1·3	+1·9	+0·9	+1·8	+0·8	+0·3
30	81·9	60·6	...	...	...	...	−0·3	−0·6	...	...	...	...
31	75·3	56·2	66·7	73·7	74·6	61·7	+0·4	−0·3	−0·2	0·0	+1·9	−0·1
Means	77·4	56·5	68·2	73·4	75·8	65·1	+0·5	0·0	+0·9	+0·8	+1·2	+0·4

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

AUGUST.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 ft. above the ground.						Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground.					
	Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	79·4	54·8	71·3	77·9	78·0	62·7	−0·1	+1·3	0·0	+1·4	+0·1	+0·6
2	78·5	54·9	73·0	76·0	77·5	65·2	+0·4	+2·8	+1·3	+0·7	+0·6	+0·2
3	79·1	60·1	71·3	78·3	75·0	64·8	−0·5	+1·1	+0·5	+0·7	+1·4	+0·8
4	76·7	61·7	69·7	76·0	76·7	62·9	−0·5	+0·5	−0·6	−0·8	0·0	+0·3
5	79·9	59·3	72·2	77·8	78·8	64·8	+0·1	+0·2	+0·8	+0·3	+0·1	+0·3
6	73·0	62·1	...	...	...	...	−0·8	+0·2	...	...	...	...
7	69·9	60·2	...	...	...	...	−1·1	+0·8	...	...	...	...
8	73·3	57·3	66·6	72·3	71·5	60·9	−1·7	0·0	+0·9	+0·6	−1·4	+0·9
9	75·9	56·1	60·6	73·3	75·2	60·5	−0·1	+0·7	+0·2	+0·6	0·0	+0·3
10	76·0	53·2	68·7	73·5	73·5	60·3	−0·4	+0·7	−0·1	+1·9	−0·8	+0·5
11	74·4	52·8	64·6	71·9	71·8	59·6	−0·4	+1·6	+2·5	+1·8	+0·7	+1·4
12	74·2	53·9	67·8	72·1	71·1	60·1	−0·9	+1·7	+0·8	+1·3	−1·6	+1·4
13	74·5	54·9	...	...	...	...	+0·3	+1·4	...	...	...	...
14	74·9	57·1	65·5	72·5	74·5	62·6	−1·9	+1·0	−1·0	−0·4	+0·6	+0·4
15	88·8	59·0	75·2	84·8	88·2	68·3	−1·2	+1·1	+1·5	−0·2	+0·2	+0·8
16	77·2	61·5	66·1	72·8	75·9	66·9	−1·3	+2·2	−0·1	+1·1	−0·2	−0·6
17	73·8	56·1	65·1	70·1	72·9	66·8	−1·2	0·0	−0·2	−0·7	−0·9	+0·1
18	70·6	57·4	66·5	70·0	68·7	67·9	−1·9	+0·2	−0·2	+0·5	−0·3	−0·3
19	72·3	61·1	65·8	69·9	69·8	67·6	−2·8	+0·5	−0·1	−0·7	+0·2	0·0
20	74·6	60·3	...	...	...	...	−1·9	+0·3	...	...	...	...
21	73·9	51·1	63·8	70·1	73·4	57·7	+0·6	+1·1	+0·4	+1·4	+1·1	+1·0
22	75·1	50·2	66·9	74·3	73·5	59·4	−0·3	+3·0	+1·1	+1·0	−0·8	+0·8
23	78·4	55·2	68·4	77·9	76·0	61·6	−0·6	+1·4	−0·4	+0·7	−0·5	+0·1
24	83·4	59·0	71·6	82·9	80·0	64·7	−1·5	+1·2	0·0	−1·8	−0·1	+0·8
25	88·4	58·2	79·8	86·9	85·8	67·8	−0·9	+1·9	−0·8	−1·3	−0·8	+0·3
26	80·3	58·4	71·9	78·0	79·8	65·7	+0·1	+3·0	+2·4	+1·0	+1·0	+1·5
27	82·3	60·9	...	...	...	...	−1·9	+2·2	...	...	...	...
28	74·5	58·4	67·3	67·5	62·8	58·7	+0·5	+0·4	+0·7	+1·2	−0·4	+0·7
29	67·9	53·3	64·8	66·7	62·9	63·2	−1·1	+1·1	−0·9	−0·8	−0·5	−0·1
30	74·2	60·1	65·6	72·2	71·2	62·7	+0·1	0·0	+1·1	+1·5	+0·7	0·0
31	69·8	54·1	65·2	68·7	66·3	61·0	−1·9	0·0	−0·2	−0·8	−0·4	0·0
Means	76·3	57·2	68·3	74·4	74·3	63·2	−0·8	+1·1	+0·4	+0·4	−0·1	+0·5

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground.						Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground.					
	Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	80·0	53·8	71·5	78·2	78·4	62·9	+0·5	+0·3	+0·2	+1·7	+0·5	+0·8
2	78·4	53·0	73·0	76·0	78·0	65·0	+0·3	+0·9	+1·3	+0·7	+1·1	0·0
3	80·0	60·0	71·5	77·5	76·4	64·3	+0·4	+1·0	+0·7	−0·1	+2·8	+0·3
4	78·1	61·5	70·3	76·6	78·1	62·6	+0·9	+0·3	0·0	−0·2	+1·4	0·0
5	81·2	59·3	71·5	79·0	80·2	64·5	+1·4	+0·2	+0·1	+1·5	+1·5	0·0
6	74·6	61·5	...	...	...	...	+0·8	−0·4	...	...	...	...
7	70·9	59·5	...	...	...	...	−0·1	+0·1	...	...	...	...
8	73·8	57·2	68·1	72·5	72·9	60·1	−1·2	−0·1	+2·4	+0·8	0·0	+0·1
9	76·7	54·9	61·2	73·4	76·1	60·0	+0·7	−0·5	+0·8	+0·7	+0·9	−0·2
10	76·8	52·8	67·4	73·4	73·8	59·8	+0·4	+0·3	−1·4	+1·8	−0·5	0·0
11	72·8	51·5	62·1	71·7	72·8	58·0	−2·0	+0·3	0·0	+1·6	+1·7	−0·2
12	75·3	52·4	67·5	71·5	71·7	59·4	+0·2	+0·2	+0·5	+0·7	−1·0	+0·7
13	74·7	53·5	...	...	...	...	+0·5	0·0	...	...	...	...
14	76·7	56·2	66·6	73·9	76·5	62·2	−0·1	+0·1	+0·1	+1·0	+2·6	0·0
15	90·4	58·1	75·9	87·0	89·7	67·9	+0·4	+0·2	+2·2	+2·0	+1·7	+0·4
16	79·3	60·8	65·9	72·5	78·8	66·1	+0·8	+1·5	−0·3	+0·8	+2·7	−1·4
17	74·7	54·6	66·0	70·5	73·9	66·5	−0·3	−1·5	+0·7	−0·3	+0·1	−0·2
18	72·0	56·6	68·1	70·3	70·0	67·8	−0·5	−0·6	+1·4	+0·8	+1·0	−0·4
19	73·6	60·5	66·4	70·7	69·7	67·0	−1·5	−0·1	+0·5	+0·1	+0·1	−0·6
20	73·8	59·4	...	...	...	...	−2·7	−0·6	...	...	...	...
21	73·0	51·2	63·0	67·9	72·7	56·7	−0·3	+1·2	−0·4	−0·8	+0·4	0·0
22	75·6	48·3	65·4	73·0	72·9	58·7	+0·2	+1·1	−0·4	−0·3	−1·4	+0·1
23	78·9	53·7	68·7	77·0	76·8	61·2	−0·1	−0·1	−0·1	−0·2	+0·3	−0·3
24	83·5	56·8	72·4	82·9	80·8	63·8	−1·4	−1·0	+0·8	−1·8	+0·7	−0·1
25	88·5	56·7	81·1	87·0	86·4	67·2	−0·8	+0·4	+0·5	−1·2	−0·2	−0·3
26	79·8	57·2	69·9	76·9	79·4	65·7	−0·4	+1·8	+0·4	−0·1	+0·6	+1·5
27	83·2	59·4	...	...	...	...	−1·0	+0·7	...	...	...	...
28	74·3	57·6	68·8	67·7	63·7	58·2	+0·3	−0·4	+2·2	+1·4	+0·5	+0·2
29	69·1	52·3	66·2	67·7	63·4	63·3	+0·1	+0·1	+0·5	+0·2	0·0	0·0
30	75·2	59·4	66·7	71·6	72·5	62·4	+1·1	−0·7	+2·2	+0·9	+2·0	−0·3
31	71·2	53·1	66·4	70·2	68·0	60·7	−0·5	−1·0	+1·0	+0·7	+1·3	−0·3
Means	77·0	56·2	68·5	74·5	75·1	62·8	−0·1	+0·1	+0·6	+0·5	+0·8	0·0

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 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	72·8	55·1	62·9	69·4	69·8	61·4	−0·7	−0·1	+0·4	+0·9	0·0	−0·1
2	71·1	55·8	62·7	67·9	67·8	58·2	−1·2	0·0	+0·3	−0·6	−0·3	+0·6
3	75·4	49·9	...	...	...	...	−1·2	+2·0	...	...	...	...
4	79·4	53·2	69·8	78·3	78·7	64·4	+1·1	+2·8	−0·9	+0·8	−0·3	+2·2
5	87·2	58·3	72·5	86·6	85·0	72·0	−0·1	+2·1	+0·6	−0·3	+0·3	+1·2
6	77·7	62·7	73·1	76·5	70·6	65·1	−1·0	+2·4	+0·5	−1·1	−0·2	+0·2
7	71·4	63·1	63·6	65·1	69·8	63·7	−0·7	+0·2	−0·5	−0·6	−0·6	+0·3
8	74·3	59·3	66·8	71·7	73·5	64·2	+0·4	+1·1	+0·3	−0·2	+0·2	+0·4
9	68·1	53·8	61·0	66·8	66·1	60·5	−0·2	−0·5	+1·8	+0·9	+0·9	+0·1
10	63·7	52·4	...	...	...	...	−0·3	+2·4	...	...	...	...
11	65·1	43·9	53·8	59·2	63·1	64·2	−0·3	+1·7	+0·1	−0·4	−0·7	0·0
12	68·5	55·1	59·8	62·6	68·3	55·1	−0·5	+2·0	+0·1	−1·0	+0·9	+2·0
13	69·2	47·1	60·2	64·0	69·1	62·6	−2·0	+1·7	−0·1	0·0	+0·3	+0·9
14	66·8	57·7	59·3	62·9	66·8	59·8	−0·5	+0·2	−0·4	−0·4	+0·5	+1·1
15	67·7	48·0	58·6	65·3	67·0	59·9	−1·4	+1·8	+1·0	−0·4	−1·7	0·0
16	62·8	54·5	58·9	62·1	55·5	56·5	−0·1	+0·3	−0·8	+1·1	+0·1	+0·6
17	67·7	50·3	...	...	...	...	−1·3	+0·2	...	...	...	...
18	63·4	52·1	56·5	60·8	62·8	55·0	−0·7	−0·1	−0·2	+0·8	−0·9	−0·6
19	63·1	53·5	55·2	60·9	61·5	56·3	−1·0	0·0	−0·3	−0·2	−0·5	−0·5
20	60·1	49·3	53·2	56·9	57·4	50·7	−0·6	−0·3	−0·5	0·0	0·0	0·0
21	64·6	43·3	51·8	57·9	64·3	53·7	−0·6	0·0	−0·5	+0·8	+0·6	+0·5
22	60·1	50·9	53·7	56·6	57·8	51·1	−0·4	0·0	−0·5	+0·7	+0·5	−0·2
23	61·2	43·2	53·2	59·8	57·8	51·8	0·0	0·0	−0·2	+1·7	−0·2	−0·4
24	61·3	45·0	...	...	...	...	−0·6	−0·3	...	...	...	...
25	66·0	51·0	56·1	61·8	64·3	58·2	−0·9	+0·3	−0·5	+0·5	0·0	−0·6
26	62·8	49·0	56·3	62·2	61·3	52·7	−0·3	0·0	−2·4	+0·4	0·0	−0·1
27	59·9	48·0	53·5	57·8	58·5	49·9	−0·6	−0·4	−0·6	+0·2	0·0	−0·2
28	58·6	40·4	47·7	53·5	58·2	44·9	−0·5	−0·2	−1·0	−0·2	+0·5	+0·2
29	56·6	39·9	48·0	54·6	51·0	51·5	−1·4	+2·8	−0·7	+0·2	−0·2	−0·3
30	57·1	46·1	47·5	55·7	54·2	47·9	−0·7	−0·1	−0·6	+1·3	−0·2	+0·4
Means	66·8	51·1	58·3	63·7	64·6	57·4	−0·6	+0·7	−0·2	+0·2	0·0	+0·3

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	73·5	54·1	64·1	68·7	71·0	61·0	0·0	−1·1	+1·6	+0·2	+1·2	−0·5
2	71·8	55·1	63·5	69·0	68·4	57·3	−0·5	−0·7	+1·1	+0·5	+0·3	−0·3
3	76·5	48·3	...	...	...	...	−0·1	+0·4	...	...	...	...
4	79·5	52·2	70·9	77·7	79·1	65·9	+1·2	+1·8	+0·2	+0·2	+0·1	+3·7
5	87·5	57·4	74·7	85·9	84·7	72·8	+0·2	+1·2	+2·8	−1·0	0·0	+2·0
6	78·2	62·7	72·7	77·0	72·2	65·0	−0·5	+2·4	+0·1	−0·6	+1·4	+0·1
7	74·0	62·7	64·0	66·1	71·8	63·5	+1·9	−0·2	−0·1	+0·4	+1·4	+0·1
8	73·7	58·6	67·1	71·1	73·4	64·1	−0·2	+0·4	+0·6	−0·8	+0·1	+0·3
9	67·9	54·4	59·7	67·2	66·2	59·9	−0·4	+0·1	+0·5	+1·3	+1·0	−0·5
10	64·0	49·5	...	...	...	...	0·0	−0·5	...	...	...	...
11	65·5	42·1	54·7	60·1	64·0	63·6	+0·1	−0·1	+1·0	+0·5	+0·2	−0·6
12	68·4	53·6	59·7	63·3	68·4	53·7	−0·6	+0·5	0·0	−0·3	+1·0	+0·6
13	71·0	46·5	61·3	64·7	70·4	62·9	−0·2	+1·1	+1·0	+0·7	+1·6	+1·2
14	67·2	57·9	60·1	64·1	66·8	58·0	−0·1	+0·4	+0·4	+0·8	+0·5	−0·7
15	68·8	46·4	58·5	65·3	68·8	59·9	−0·3	+0·2	+0·9	−0·4	+0·1	0·0
16	63·5	53·6	59·7	62·8	55·4	55·5	+0·6	−0·6	0·0	+1·8	0·0	−0·4
17	69·2	49·2	...	...	...	...	+0·2	−0·9	...	...	...	...
18	63·7	51·2	56·7	60·2	63·2	54·8	−0·4	−1·0	0·0	+0·2	−0·5	−0·8
19	63·6	53·2	55·8	61·7	62·5	56·1	−0·5	−0·3	+0·3	+0·6	+0·5	−0·7
20	59·6	48·0	53·9	57·5	57·7	50·2	−1·1	−1·6	+0·2	+0·6	+0·3	−0·5
21	66·2	43·4	52·8	58·1	65·2	53·8	+1·0	+0·1	+0·5	+1·0	+1·5	+0·6
22	59·8	50·1	54·2	56·9	58·2	51·0	−0·7	−0·8	0·0	+1·0	+0·9	−0·3
23	61·5	41·5	55·1	59·7	58·2	51·4	+0·3	−1·7	+1·7	+1·6	+0·2	−0·8
24	61·8	44·1	...	...	...	...	−0·1	−1·2	...	...	...	...
25	67·3	50·3	56·7	62·2	65·0	58·2	+0·4	−0·4	+0·1	+0·9	+0·7	−0·6
26	63·1	47·8	58·2	61·9	61·6	52·4	0·0	−1·2	−0·5	+0·1	+0·3	−0·4
27	59·9	46·8	53·6	58·6	58·8	49·0	−0·6	−1·6	−0·5	+1·0	+0·3	−1·1
28	59·5	39·0	48·7	54·5	59·5	43·8	+0·4	−1·6	0·0	+0·8	+1·8	−0·9
29	57·4	38·3	49·5	55·7	51·2	51·2	−0·6	+1·2	+0·8	+1·3	0·0	−0·6
30	58·3	45·3	47·9	55·4	54·9	47·9	+0·5	−0·9	−0·2	+1·0	+0·5	+0·4
Means	67·4	50·1	59·0	64·1	65·3	57·0	0·0	−0·2	+0·5	+0·5	+0·6	0·0

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

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

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

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h	Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground. Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	57·2	41·3	51·7	55·9	54·9	50·0	+0·2	+1·3	+0·5	0·0	+0·7	+0·1
2	61·5	49·3	58·3	59·6	60·9	57·9	−0·3	−0·1	+0·1	+0·2	+0·1	−0·1
3	58·5	49·3	55·7	57·8	57·9	50·4	−0·5	−1·4	−0·1	+0·1	−0·1	−0·3
4	61·7	48·1	59·5	61·7	60·9	59·8	−0·3	−0·7	−0·3	+0·1	0·0	0·0
5	60·5	51·2	...	...	...	...	+0·3	+0·2	...	...	...	...
6	51·8	45·2	48·7	50·7	50·8	46·9	−0·4	+0·4	−0·2	−0·3	−0·4	+2·1
7	56·0	43·2	52·7	55·3	52·0	53·5	−0·6	+2·5	+0·5	+0·4	+0·4	+0·1
8	56·0	48·4	50·5	54·8	54·7	50·9	+1·2	−0·9	−0·4	+0·9	0·0	−0·4
9	55·5	45·2	49·2	53·5	52·7	47·3	+0·6	−1·4	0·0	0·0	−0·1	+0·6
10	59·4	47·1	57·0	59·4	57·5	49·4	−0·1	+1·0	+0·2	+0·3	−0·2	+0·4
11	55·8	42·4	49·9	54·8	55·7	46·5	−0·4	−1·1	−0·3	+0·1	+0·2	0·0
12	52·3	41·1	...	...	...	...	−0·4	−1·3	...	...	...	...
13	54·7	44·1	47·2	52·0	53·2	49·4	−0·2	−0·7	−0·2	+0·3	+0·7	+1·2
14	53·2	42·6	49·5	53·0	51·1	43·8	−0·3	+0·8	+0·8	+0·1	+0·4	+1·9
15	49·8	35·9	38·9	49·4	49·6	48·9	−0·5	−0·4	+0·2	+1·8	−0·1	0·0
16	49·9	40·3	45·0	49·2	49·9	42·3	−0·3	−0·9	−0·5	+0·5	+0·2	−0·7
17	50·6	39·8	44·9	50·1	49·5	41·6	+0·3	+0·3	0·0	+0·4	+0·3	+0·4
18	46·0	35·1	40·2	43·8	46·0	43·7	−1·0	−0·2	+0·2	+0·3	−0·2	−0·4
19	46·0	39·0	...	...	...	...	−0·3	−0·1	...	...	...	...
20	48·7	34·6	41·9	46·5	48·7	45·8	−0·5	−1·2	−0·3	0·0	−0·2	−0·2
21	46·3	33·0	35·2	43·5	44·4	44·2	0·0	+1·2	+2·8	+0·7	+0·1	0·0
22	49·7	43·3	48·0	49·7	49·7	48·6	0·0	−0·8	+0·2	0·0	+0·1	+0·6
23	49·7	44·7	46·5	49·0	49·7	47·5	−0·4	+0·4	−0·2	+0·3	−0·1	−0·5
24	50·4	44·3	48·3	50·1	50·4	49·2	−0·2	−1·0	−0·4	+0·2	−0·2	−0·3
25	51·9	46·4	48·5	51·0	51·7	49·1	−0·1	−0·4	−0·1	+0·3	+0·2	+0·1
26	52·5	44·4	...	...	...	...	+0·3	−0·6	...	...	...	...
27	54·1	44·3	49·4	53·0	53·7	51·2	−0·3	−0·8	−0·2	+0·3	0·0	−0·2
28	53·3	44·2	46·8	51·8	51·9	45·4	+0·3	−1·7	−0·1	+0·1	+0·2	−0·5
29	48·9	38·9	40·8	48·8	48·9	40·9	−0·1	+2·4	+0·2	+0·8	+0·2	+4·4
30	45·6	30·9	34·0	40·0	43·0	45·6	−0·1	+2·0	+1·1	+0·2	0·0	−0·1
Means	52·9	42·6	47·6	51·7	51·9	48·1	−0·1	−0·1	+0·1	+0·3	+0·1	+0·3

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 ft. above the ground.						Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground.					
	Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	54.1	44.0	48.0	51.3	53.1	45.6	+0.1	−0.7	−0.2	+0.2	−0.2	−0.2
2	46.6	36.1	37.2	43.7	44.3	40.0	+0.6	+0.2	+0.1	−0.2	+0.1	0.0
3	41.7	28.2	...	...	...	...	−0.3	+1.8	...	...	...	...
4	49.5	36.5	44.3	47.8	47.5	45.9	0.0	−0.3	−0.3	−0.1	−0.2	−0.6
5	51.1	44.9	49.3	50.3	50.7	50.3	+0.1	−1.3	−0.1	−0.2	−0.2	−0.3
6	54.8	47.3	49.6	51.1	51.4	54.8	−0.1	−1.0	−0.1	0.0	0.0	0.0
7	55.1	41.7	45.6	43.8	46.9	42.7	+0.3	−0.5	+0.3	+0.1	−0.1	+0.4
8	42.9	31.8	34.0	34.6	34.8	33.7	−0.3	−0.5	−0.2	−0.3	+0.2	+0.2
9	38.3	30.1	33.0	35.1	32.5	33.5	+2.5	−0.2	−0.4	−0.5	+0.3	+0.1
10	36.7	29.8	...	...	...	...	+0.1	0.0	...	...	...	...
11	35.1	24.6	30.2	29.5	30.8	25.8	+2.5	+0.9	−0.2	−0.2	−0.3	+1.3
12	33.2	24.2	31.8	31.8	31.8	31.6	−1.2	+0.4	−0.4	+0.1	−0.2	+0.1
13	32.0	25.2	30.8	31.6	29.5	26.6	−0.1	−1.0	0.0	−0.4	+0.1	−0.1
14	32.1	23.2	28.3	30.7	30.7	31.1	+0.1	+0.2	−0.4	−0.7	0.0	+0.1
15	32.4	23.1	29.1	29.3	27.9	23.7	+1.5	−0.6	+0.1	+0.3	−0.4	0.0
16	43.4	19.2	33.5	37.7	39.0	31.8	+1.6	−0.1	−0.4	−1.1	+0.3	+0.1
17	35.7	24.1	...	...	...	...	+0.2	−0.1	...	...	...	...
18	39.1	33.9	35.8	37.8	38.8	37.8	−0.1	−1.3	−0.5	−0.6	−0.2	−0.6
19	38.1	30.5	32.6	34.9	37.1	32.5	−1.8	+1.2	−0.3	−0.2	−0.6	+3.2
20	38.6	29.1	34.6	37.4	37.3	38.1	−0.2	+1.6	+0.3	−0.3	−0.4	−0.4
21	39.6	34.9	35.9	36.8	37.0	35.8	+0.9	−0.8	−0.3	−0.2	−0.3	−0.3
22	35.9	31.2	32.4	33.3	33.7	35.0	−0.4	−1.0	−0.3	−0.4	−0.1	−0.2
23	40.1	29.6	34.8	37.7	38.5	33.6	−0.9	−0.7	+0.4	−0.6	−0.1	+0.9
24	43.6	33.0	...	...	...	...	−0.1	−0.2	...	...	...	...
25	41.4	34.4	...	...	...	...	+0.5	−1.1	...	...	...	...
26	44.8	33.3	...	...	...	...	+2.2	−1.0	...	...	...	...
27	40.6	26.4	28.3	28.1	28.1	27.5	−0.1	−0.2	−0.2	−0.1	0.0	+0.3
28	42.3	24.3	33.1	38.7	40.5	41.9	+0.2	−1.0	−0.4	−0.3	+0.2	−0.2
29	50.4	41.2	48.3	48.7	48.1	47.8	+0.2	−0.7	+0.4	+0.2	−0.4	−0.3
30	49.8	39.2	44.8	46.9	43.8	40.0	+0.8	−0.5	−0.4	−0.4	−0.4	0.0
31	47.7	34.3	...	...	...	...	+1.1	+0.9	...	...	...	...
Means	42.2	31.9	36.9	38.7	38.9	37.0	+0.3	−0.2	−0.1	−0.2	−0.1	+0.1

Days of the Month.	Readings of Thermometers on the Roof of the Magnet House, 20 ft. above the ground.						Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground.					
	Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°
1	53.8	44.5	48.1	51.5	53.3	44.9	−0.2	−0.2	−0.1	+0.4	0.0	−0.9
2	45.0	35.8	36.7	43.6	43.8	40.6	−1.0	−0.1	−0.4	−0.3	−0.4	+0.6
3	41.7	27.1	...	...	...	...	−0.3	+0.7	...	...	...	...
4	49.5	38.1	44.2	48.0	47.5	45.9	0.0	+1.3	−0.4	+0.1	−0.2	−0.6
5	50.8	45.5	49.2	50.4	50.8	50.3	−0.2	−0.7	−0.2	−0.1	−0.1	−0.3
6	54.7	47.9	49.7	51.4	51.4	54.7	−0.2	−0.4	0.0	+0.3	0.0	−0.1
7	54.7	41.8	45.6	43.7	46.8	42.2	−0.1	−0.4	+0.3	0.0	−0.2	−0.1
8	42.9	30.1	34.2	35.1	34.5	32.8	−0.3	−2.2	0.0	+0.2	−0.1	−0.7
9	36.0	28.8	32.9	35.7	32.1	33.5	+0.2	−1.5	−0.5	+0.1	−0.1	+0.1
10	37.7	29.0	...	...	...	...	+1.1	−0.8	...	...	...	...
11	31.9	23.9	30.2	29.7	30.8	24.9	−0.7	+0.2	−0.2	0.0	−0.3	+0.4
12	32.5	23.1	31.8	31.8	31.9	31.5	−1.9	−0.7	−0.4	+0.1	−0.1	0.0
13	32.6	24.9	30.9	31.9	29.5	26.1	+0.5	−1.3	+0.1	−0.1	+0.1	−0.6
14	31.7	21.7	28.6	31.1	30.6	31.1	−0.3	−1.3	−0.1	−0.3	−0.1	+0.1
15	31.5	23.9	28.9	29.2	28.0	24.5	+0.6	+0.2	−0.1	+0.2	−0.3	+0.8
16	43.0	19.2	33.4	36.8	38.9	31.1	+1.2	−0.1	−0.5	−2.0	+0.2	−0.6
17	34.9	23.8	...	...	...	...	−0.6	−0.4	...	...	...	...
18	39.1	34.4	36.1	38.0	39.1	37.9	−0.1	−0.8	−0.2	−0.4	+0.1	−0.5
19	38.6	30.6	32.7	35.4	37.7	32.5	−1.3	+1.3	−0.2	+0.3	0.0	+3.2
20	38.4	29.2	34.5	37.2	37.3	38.2	−0.4	+1.7	+0.2	−0.5	−0.4	−0.3
21	39.0	35.2	36.0	36.8	36.9	35.8	+0.3	−0.5	−0.2	−0.2	−0.4	−0.3
22	36.6	31.5	32.5	33.4	33.9	35.0	+0.3	−0.7	−0.2	−0.3	+0.1	−0.2
23	40.5	29.9	34.4	37.5	38.2	34.5	−0.5	−0.4	0.0	−0.8	−0.4	+1.8
24	43.3	33.9	...	...	...	...	−0.4	+0.7	...	...	...	...
25	41.0	34.2	...	...	...	...	+0.1	−1.3	...	...	...	...
26	42.4	33.1	...	...	...	...	−0.2	−1.2	...	...	...	...
27	39.9	25.1	28.3	27.6	27.8	27.4	−0.8	−1.5	−0.2	−0.6	−0.3	+0.2
28	42.4	24.6	33.3	38.8	40.3	42.4	+0.3	−0.7	−0.2	−0.2	0.0	+0.3
29	50.0	42.1	48.6	48.8	48.3	47.9	−0.2	+0.2	+0.7	+0.3	−0.2	−0.2
30	48.9	39.0	44.8	47.1	43.8	39.8	−0.1	−0.7	−0.4	−0.2	−0.4	−0.2
31	47.6	34.0	...	...	...	...	+1.0	+0.6	...	...	...	...
Means	41.7	31.8	36.9	38.8	38.9	36.9	−0.1	−0.4	−0.1	−0.2	−0.1	+0.1

READINGS of the WET-BULB THERMOMETER placed in a STEVENSON'S SCREEN in the OBSERVATORY GROUNDS; and EXCESS of the READINGS above those of the corresponding THERMOMETER on the ORDINARY STAND in the MAGNETIC PAVILION ENCLOSURE, in the YEAR 1899.

[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 ft. above the ground.				Excess above readings of the Thermometer on ordinary stand, 4 ft. above the ground.			
	9h	Noon.	15h	21h	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
2	35.1	36.8	37.1	36.4	0.0	+ 0.2	+ 0.6	+ 0.5
3	38.6	39.7	39.8	38.8	+ 0.3	− 0.1	+ 0.4	+ 0.4
4	47.2	49.7	50.9	50.1	0.0	0.0	+ 0.2	+ 0.2
5	37.7	40.5	39.6	36.1	+ 0.1	+ 0.6	+ 1.4	+ 2.4
6	38.8	41.1	44.1	43.3	+ 0.3	− 0.2	+ 0.1	+ 0.1
7	43.9	45.3	47.8	49.0	+ 0.8	+ 0.1	+ 0.3	+ 0.3
9	44.6	47.1	47.1	45.3	+ 0.1	− 0.3	+ 0.7	+ 0.8
10	46.1	46.9	43.6	42.3	− 0.3	− 0.1	+ 0.2	+ 0.4
11	36.1	39.8	41.9	37.1	− 0.3	− 1.2	+ 0.2	+ 0.6
12	48.8	47.9	43.9	41.2	− 0.3	− 0.1	− 0.1	+ 0.2
13	40.1	41.1	46.6	40.9	− 0.7	− 0.2	+ 0.3	+ 0.8
14	37.2	40.4	40.9	37.1	− 0.5	− 0.2	+ 0.5	+ 0.5
16	47.1	46.7	44.8	41.9	− 0.2	+ 0.3	+ 0.4	+ 0.4
17	32.1	35.1	35.9	37.6	+ 0.4	+ 0.9	+ 0.8	0.0
18	47.1	48.3	48.3	48.4	0.0	− 0.2	0.0	+ 0.1
19	49.0	50.6	50.3	46.4	− 0.1	− 0.1	− 0.2	− 0.1
20	44.4	46.9	47.9	49.2	− 0.7	+ 0.4	+ 0.4	0.0
21	51.1	50.7	50.1	49.5	0.0	− 0.3	+ 0.1	− 0.1
23	40.8	39.4	39.1	36.4	+ 0.3	0.0	0.0	+ 0.2
24	35.1	36.1	37.1	32.0	+ 0.4	− 0.1	+ 0.3	+ 0.8
25	30.1	33.1	33.2	31.2	+ 0.1	− 0.3	+ 0.5	+ 0.8
26	32.5	36.4	35.7	34.3	+ 0.1	− 0.3	− 0.8	− 0.1
27	32.6	36.0	36.5	32.4	− 0.2	− 0.4	− 0.3	+ 0.4
28	32.1	35.7	36.1	35.3	− 0.3	− 0.5	− 0.3	− 0.1
30	38.1	39.8	38.1	35.1	0.0	− 0.2	+ 0.1	+ 0.5
31	33.7	35.8	37.1	36.0	0.0	+ 0.2	+ 0.4	+ 0.6
Means	40.0	41.8	42.1	40.1	0.0	− 0.1	+ 0.2	+ 0.4

FEBRUARY.

Days of the Month.	9h	Noon.	15h	21h	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	34.1	34.8	36.0	34.9	+ 0.1	+ 0.5	+ 0.8	0.0
2	29.9	33.8	32.7	31.4	+ 0.4	− 0.3	0.0	+ 0.3
3	31.1	33.1	34.3	29.5	− 0.3	− 0.6	+ 0.2	+ 1.0
4	26.2	33.7	33.0	33.1	− 0.9	− 0.8	+ 0.3	+ 0.4
6	35.8	36.8	35.4	36.5	+ 0.1	0.0	+ 0.3	− 0.1
7	45.5	49.9	49.4	47.0	+ 0.1	− 0.3	+ 0.7	+ 0.3
8	48.1	48.9	50.4	50.9	0.0	0.0	− 0.2	− 0.1
9	46.7	52.1	52.4	49.5	− 1.0	− 0.5	− 0.3	+ 0.2
10	50.3	51.4	52.8	49.5	− 0.4	− 1.3	+ 0.3	+ 0.4
11	47.1	48.2	48.9	47.3	0.0	− 0.6	− 0.5	− 0.4
13	48.1	48.3	44.8	43.9	− 0.1	− 0.4	− 0.6	+ 0.2
14	44.1	47.0	47.0	44.6	− 0.4	− 0.6	+ 0.2	+ 0.2
15	45.0	46.8	46.1	45.1	− 0.1	− 0.9	− 0.1	+ 0.2
16	40.1	43.2	44.0	40.8	+ 0.1	+ 0.9	+ 0.9	+ 1.7
17	40.9	48.0	48.3	41.3	− 0.6	− 0.7	− 0.3	+ 0.6
18	37.6	42.8	47.1	39.7	− 0.1	− 0.1	0.0	+ 0.4
20	43.1	44.5	44.1	42.1	0.0	+ 0.3	+ 0.1	− 0.1
21	40.0	40.4	39.1	38.0	0.0	− 0.3	− 0.3	+ 0.4
22	35.6	40.3	39.5	35.9	− 0.6	− 0.3	− 2.0	0.0
23	34.5	41.2	41.7	36.3	− 0.7	− 1.5	− 0.9	+ 1.3
24	30.1	42.2	42.2	35.0	− 0.6	− 0.7	− 1.2	+ 1.1
25	32.8	37.9	36.4	30.9	− 0.6	− 1.2	− 0.3	+ 0.9
27	26.4	36.1	38.0	31.6	+ 1.2	− 1.0	− 0.9	+ 1.2
28	26.4	37.7	39.2	35.3	− 0.3	+ 0.3	+ 0.5	+ 0.6
Means	38.3	42.5	42.6	39.6	− 0.2	− 0.4	− 0.1	+ 0.4

MARCH.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 ft. above the ground.				Excess above readings of the Thermometer on ordinary stand, 4 ft. above the ground.			
	9h	Noon.	15h	21h	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	34.1	40.2	45.1	39.4	− 0.3	+ 0.5	+ 0.1	− 0.1
2	33.5	40.5	43.0	39.4	− 1.2	− 0.1	+ 0.6	+ 0.2
3	36.8	41.2	44.1	41.3	+ 1.3	− 0.3	− 0.1	+ 0.2
4	35.3	41.2	41.1	35.5	+ 0.1	− 0.2	+ 0.1	0.0
6	32.8	34.0	35.1	28.1	− 0.9	− 1.6	− 0.5	+ 0.6
7	31.0	37.8	39.4	38.1	− 2.0	0.0	− 0.1	+ 0.4
8	39.3	43.5	42.2	40.7	− 0.6	+ 0.1	+ 0.1	− 0.2
9	40.1	41.7	42.0	38.7	− 0.6	+ 0.2	0.0	+ 0.7
10	38.2	43.2	45.6	42.0	− 0.1	+ 0.3	+ 0.9	+ 0.2
11	40.7	44.1	48.0	45.3	− 0.3	+ 0.1	+ 0.3	+ 0.9
13	40.7	47.1	49.6	41.9	+ 0.2	− 0.6	− 1.0	+ 1.7
14	35.5	41.8	48.2	42.8	− 0.9	− 0.6	− 0.6	+ 1.0
15	37.2	48.8	49.7	42.8	+ 2.0	− 0.4	− 1.5	+ 0.9
16	34.9	41.0	42.1	40.1	+ 0.2	0.0	− 0.3	+ 0.4
17	39.5	41.0	42.8	38.5	− 0.4	− 0.8	− 0.2	+ 0.1
18	40.4	39.0	38.2	33.0	− 0.3	+ 0.3	− 0.5	+ 0.3
20	28.7	31.7	32.1	29.0	+ 0.1	+ 0.5	− 0.2	+ 0.3
21	28.8	31.4	31.4	26.6	− 0.8	+ 0.6	− 0.2	− 0.4
22	26.3	30.8	31.1	27.6	− 0.6	+ 0.1	− 0.3	+ 0.4
23	25.9	29.6	32.1	26.9	− 0.8	+ 0.2	+ 0.4	− 0.3
24	29.4	32.1	32.8	29.1	+ 0.2	+ 0.4	+ 0.8	+ 1.0
25	33.1	38.3	37.9	38.2	+ 0.2	+ 0.1	− 0.3	− 0.3
27	42.6	46.1	50.1	46.8	0.0	− 0.3	− 0.9	+ 0.4
28	47.1	47.9	49.1	48.6	− 0.4	+ 0.4	+ 0.5	0.0
29	48.2	50.0	49.1	46.3	− 0.4	+ 0.3	− 0.3	− 0.2
30	46.9	47.9	48.4	44.9	+ 0.3	+ 0.2	+ 0.3	− 0.2
Means	36.4	40.5	41.9	38.1	− 0.2	0.0	− 0.1	+ 0.3

APRIL.

Days of the Month.	9h	Noon.	15h	21h	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	49.3	51.3	55.3	52.1	+ 0.4	+ 0.5	− 0.3	+ 0.2
4	48.7	51.1	52.2	48.6	+ 0.5	− 0.2	+ 0.1	+ 0.2
5	46.2	48.1	49.1	46.3	+ 0.3	− 0.1	− 0.6	− 0.2
6	48.0	47.6	51.9	49.6	0.0	+ 0.4	0.0	− 0.1
7	44.4	46.3	45.1	41.8	− 0.3	− 0.4	− 0.2	+ 0.3
8	38.7	38.3	36.2	38.1	− 0.4	+ 0.1	0.0	+ 0.5
10	50.6	51.8	53.1	42.3	+ 0.2	− 0.1	− 0.3	+ 0.4
11	39.9	39.7	37.1	36.9	+ 0.1	+ 0.5	− 0.7	+ 0.2
12	37.4	40.2	42.1	38.7	+ 0.4	− 0.7	− 0.3	− 0.2
13	41.0	42.1	44.1	42.3	− 0.9	− 0.7	− 0.4	0.0
14	40.3	41.3	43.1	41.4	0.0	− 0.2	+ 0.2	+ 0.4
15	42.3	42.5	43.9	42.4	− 0.2	+ 0.5	+ 0.7	+ 0.1
17	39.1	41.1	44.1	38.7	+ 1.4	+ 1.1	+ 1.4	+ 1.6
18	40.4	42.0	42.6	41.1	− 0.2	+ 0.3	− 0.3	+ 2.0
19	42.0	45.2	47.6	43.1	+ 0.9	+ 0.7	0.0	+ 0.7
20	45.2	49.2	49.1	44.5	− 1.5	+ 0.5	0.0	+ 0.5
21	41.6	42.1	43.1	42.6	− 0.1	− 0.4	− 0.3	+ 0.1
22	39.0	41.0	41.3	39.2	− 0.4	− 0.5	+ 0.2	+ 0.9
24	47.4	47.9	47.1	46.2	− 0.4	− 1.0	+ 0.1	+ 0.3
25	50.7	47.2	46.2	43.9	+ 0.2	+ 0.6	+ 0.4	+ 1.2
26	45.5	46.7	49.3	48.7	+ 0.4	+ 0.9	+ 0.8	+ 0.2
27	46.9	48.2	51.1	47.5	+ 0.4	− 0.1	− 0.1	+ 0.4
28	51.2	52.9	51.7	48.5	+ 0.1	+ 0.7	− 0.2	+ 0.2
29	49.9	51.7	53.4	49.9	− 0.7	+ 1.0	0.0	0.0
Means	44.4	45.6	46.7	43.9	0.0	+ 0.1	0.0	+ 0.4

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 ft. above the ground. 9h	Noon.	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 ft. above the ground. 9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	44·8	46·4	45·4	43·2	− 0·5	− 1·5	− 0·5	− 0·1
2	50·1	51·5	51·1	48·5	+ 0·1	+ 1·3	+ 0·7	0·0
3	43·2	44·3	43·5	39·1	+ 0·1	+ 0·6	− 0·5	+ 0·4
4	41·1	41·1	42·2	37·7	− 1·1	+ 0·4	+ 0·1	+ 0·3
5	42·6	44·2	45·1	40·9	− 0·9	− 0·7	− 0·1	+ 0·4
6	44·9	45·6	45·8	41·2	+ 1·4	− 1·4	− 1·8	+ 0·6
8	50·4	51·9	51·0	47·6	+ 0·4	+ 0·1	+ 0·2	+ 0·4
9	46·6	47·6	50·3	47·1	+ 0·1	+ 0·9	+ 0·4	+ 0·9
10	49·0	50·3	52·0	46·2	+ 0·1	+ 0·4	+ 0·2	+ 0·8
11	46·3	52·9	55·8	48·2	+ 0·1	+ 0·7	+ 0·7	0·0
12	50·4	54·0	53·1	47·4	− 0·8	+ 1·2	+ 1·0	+ 0·1
13	48·1	51·1	53·3	47·6	+ 0·4	+ 0·4	+ 1·1	+ 0·2
15	46·9	48·9	51·7	46·1	+ 0·2	+ 1·0	+ 0·4	+ 0·7
16	50·1	51·2	49·2	46·7	+ 0·9	+ 1·3	− 0·1	+ 0·3
17	48·1	50·3	52·5	47·5	+ 0·1	+ 0·3	+ 0·5	0·0
18	54·1	56·2	58·8	51·1	− 0·6	− 0·5	0·0	+ 0·4
19	51·7	53·4	54·4	55·2	+ 0·6	+ 0·3	− 0·3	+ 0·4
20	54·3	55·4	55·3	51·5	+ 0·3	+ 0·5	− 0·9	0·0
23	54·1	56·1	53·3	50·9	− 0·3	+ 0·1	+ 0·1	+ 0·8
24	52·1	54·2	53·7	51·1	+ 0·4	− 0·3	+ 1·0	+ 0·2
25	44·5	43·3	44·7	40·3	+ 0·1	+ 0·9	+ 1·2	+ 1·2
26	42·3	40·9	43·2	40·5	+ 0·5	+ 0·4	+ 0·8	+ 0·8
27	43·1	45·1	44·1	40·2	+ 0·8	+ 0·4	+ 0·7	+ 0·2
29	49·2	51·8	52·1	46·3	+ 1·2	+ 2·2	+ 1·0	+ 0·6
30	52·2	54·9	55·4	51·4	− 0·9	− 1·2	− 1·2	+ 0·8
31	53·4	58·0	59·2	52·7	− 0·9	0·0	− 0·5	+ 0·7
Means	48·2	50·0	50·6	46·4	+ 0·1	+ 0·3	+ 0·2	+ 0·4

JUNE.

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

JULY.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 ft. above the ground. 9h	Noon.	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 ft. above the ground. 9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	56·8	58·8	57·8	53·0	+ 0·5	+ 0·1	+ 0·4	+ 0·3
3	53·5	55·0	55·3	54·2	− 0·4	− 0·4	+ 0·1	0·0
4	55·1	56·3	57·6	55·1	+ 0·1	− 0·5	− 0·4	+ 0·4
5	56·2	59·6	60·2	60·1	− 1·2	+ 1·1	+ 1·3	+ 1·1
6	62·1	63·1	64·2	62·1	− 0·4	0·0	+ 0·7	+ 0·5
7	62·1	64·5	64·7	65·0	− 0·5	− 0·7	+ 0·8	+ 0·8
8	63·6	63·6	64·1	61·1	− 0·1	+ 0·3	+ 0·6	0·0
10	59·9	62·8	62·2	60·1	− 0·6	0·0	− 0·3	+ 0·4
11	64·2	69·5	67·6	63·8	− 0·4	− 1·2	− 0·5	+ 1·5
12	66·6	64·1	63·4	57·2	− 0·6	− 0·1	+ 0·3	+ 0·2
13	57·2	59·0	60·8	55·1	− 0·6	+ 0·2	− 0·5	+ 0·2
14	58·0	61·9	62·1	59·7	− 0·4	+ 0·2	− 0·6	+ 0·1
15	58·1	57·6	59·1	57·5	+ 1·1	+ 0·6	− 0·6	+ 0·4
17	63·3	62·0	63·4	59·4	+ 0·1	− 0·9	− 1·0	+ 0·9
18	62·7	64·1	64·6	58·3	+ 0·2	+ 0·1	+ 0·2	+ 1·4
19	64·4	66·9	68·4	61·5	− 0·2	− 1·6	+ 1·0	+ 1·1
20	66·6	67·8	66·3	63·2	+ 0·4	+ 0·6	+ 0·3	+ 0·4
21	65·1	69·0	66·5	68·3	+ 0·4	+ 0·5	+ 0·8	+ 0·7
22	63·1	67·4	64·6	64·9	+ 0·3	+ 0·4	− 0·1	+ 0·2
24	58·6	60·5	62·4	62·1	+ 0·8	+ 0·2	+ 0·9	+ 0·6
25	57·1	58·4	63·4	62·4	− 0·2	− 0·3	+ 0·5	+ 0·7
26	63·4	66·6	67·6	63·2	− 0·4	+ 0·2	− 0·4	+ 0·3
27	55·6	57·6	58·2	54·7	+ 0·9	+ 0·9	+ 0·1	+ 0·5
28	55·1	58·9	59·1	58·2	− 1·6	+ 0·3	− 0·8	+ 0·3
29	58·0	63·1	66·3	63·5	− 0·1	+ 0·7	+ 0·9	+ 0·9
31	61·6	65·0	65·1	60·2	+ 0·2	+ 0·2	+ 0·8	+ 0·3
Means	60·3	62·4	62·9	60·1	− 0·1	0·0	+ 0·2	+ 0·5

AUGUST.

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

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 ft. above the ground. 9h	Noon.	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 ft. above the ground. 9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	56·6	57·6	57·1	58·0	+ 0·1	+ 0·1	− 0·4	− 0·3
2	57·9	57·8	58·1	54·6	+ 0·1	− 0·3	− 0·8	+ 0·3
4	61·1	64·1	64·1	59·0	− 1·2	− 0·4	− 0·6	+ 1·3
5	65·6	70·0	68·2	64·1	+ 0·6	− 0·7	− 0·8	+ 0·8
6	66·1	68·1	67·3	63·8	+ 0·7	− 0·5	+ 0·3	+ 0·4
7	62·2	64·0	66·4	63·0	− 0·8	− 0·2	− 0·3	+ 0·4
8	63·3	64·6	63·0	58·6	+ 0·5	− 0·3	0·0	0·0
9	53·5	56·1	55·6	53·2	+ 0·9	+ 0·3	− 0·2	− 0·5
11	49·2	53·1	57·1	60·2	− 0·1	+ 0·5	− 0·5	0·0
12	56·1	57·1	58·5	53·1	− 0·1	− 0·4	+ 0·7	+ 1·4
13	56·4	59·3	61·9	59·1	− 0·1	− 0·4	+ 0·1	+ 0·6
14	55·2	55·8	56·1	54·4	− 0·3	0·0	+ 0·4	+ 0·7
15	51·7	54·6	56·1	55·8	+ 1·0	+ 0·1	− 1·0	+ 0·3
16	53·5	54·2	52·9	52·1	− 0·9	+ 0·7	− 0·3	+ 0·2
18	52·0	54·2	52·0	49·3	− 0·1	+ 0·3	− 0·6	− 0·3
19	50·1	52·9	54·8	55·2	− 0·4	− 0·4	+ 0·1	+ 0·2
20	48·2	47·9	47·3	45·6	− 0·3	− 0·1	− 0·1	− 0·1
21	47·3	49·1	52·4	51·2	+ 0·2	− 0·3	+ 0·4	+ 0·5
22	46·3	46·8	47·9	45·8	− 0·4	+ 0·4	− 0·3	+ 0·2
23	47·9	50·4	50·7	49·9	+ 0·4	+ 0·7	+ 0·5	+ 0·3
25	51·9	53·3	54·4	55·2	− 0·2	+ 0·6	0·0	− 0·5
26	50·7	52·1	52·3	48·9	− 1·2	− 0·2	− 0·2	0·0
27	49·6	53·2	53·3	46·4	− 0·2	+ 0·9	0·0	+ 0·3
28	44·8	47·5	50·6	43·6	− 0·6	− 0·5	+ 0·2	+ 0·4
29	45·8	48·2	48·1	51·2	− 0·9	− 0·5	− 0·2	− 0·2
30	45·3	49·0	50·1	45·6	− 0·7	+ 0·5	− 0·3	+ 0·6
Means	53·4	55·4	56·0	53·7	− 0·2	0·0	− 0·1	+ 0·3

OCTOBER.

Days of the Month.	9h	Noon.	15h	21h	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
2	50·6	48·3	48·5	45·8	+ 0·1	− 0·2	− 0·2	+ 0·1
3	49·3	52·1	53·3	51·6	− 0·8	+ 0·2	− 0·8	− 0·3
4	51·2	51·3	50·6	48·6	+ 0·5	+ 0·4	+ 0·5	+ 0·6
5	47·6	48·0	48·3	46·8	0·0	+ 0·5	0·0	+ 0·5
6	46·1	49·9	49·4	46·2	0·0	− 0·2	0·0	+ 0·5
7	40·4	48·6	48·9	43·0	+ 0·5	+ 0·6	+ 0·8	+ 2·2
9	43·5	49·6	50·0	41·8	− 1·1	− 0·3	− 0·5	+ 1·1
10	42·2	52·1	52·8	46·0	− 0·9	+ 0·8	+ 0·1	+ 2·7
11	42·6	54·1	55·8	49·7	− 1·2	+ 0·3	− 0·3	+ 1·2
12	51·7	55·4	57·6	47·2	− 0·7	0·0	− 0·1	− 0·1
13	42·0	43·3	43·3	41·1	+ 0·1	− 0·5	+ 0·8	+ 0·9
14	39·0	47·1	45·1	39·3	+ 0·1	+ 1·1	+ 0·7	+ 0·6
16	43·6	49·6	49·1	46·6	− 0·3	+ 0·9	− 0·6	− 0·9
17	45·9	52·4	50·5	45·8	− 0·8	+ 0·4	+ 0·3	+ 1·3
18	44·3	53·2	52·9	47·1	− 0·5	+ 0·8	+ 0·2	+ 0·6
19	41·7	50·6	47·9	44·2	− 0·8	+ 1·1	+ 0·2	− 0·5
20	40·3	48·5	48·6	45·1	+ 0·1	+ 0·4	+ 0·4	+ 1·1
21	43·3	44·3	45·1	43·4	+ 0·8	+ 0·3	+ 0·4	0·0
23	44·1	50·1	52·1	50·3	− 0·1	+ 0·1	+ 0·1	+ 0·1
24	46·9	50·1	52·1	49·8	+ 0·1	0·0	+ 0·5	+ 0·2
25	47·5	52·9	52·8	49·0	− 0·3	− 0·6	− 0·4	+ 0·5
26	51·2	53·6	53·4	54·2	− 0·2	+ 0·2	− 0·4	+ 0·1
27	56·1	57·9	58·3	58·4	− 0·3	0·0	− 0·3	− 0·3
28	56·8	58·1	58·1	50·1	+ 0·1	− 0·1	+ 0·4	− 0·1
30	47·6	45·3	46·1	44·1	+ 0·3	− 0·3	+ 0·2	+ 0·3
31	43·3	47·9	48·3	45·2	− 0·9	+ 0·5	− 0·1	+ 0·7
Means	46·1	50·5	50·7	46·9	− 0·2	+ 0·2	+ 0·1	+ 0·5

NOVEMBER.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 ft. above the ground. 9h	Noon.	15h	21h	Excess above readings of the Thermometer on ordinary stand, 4 ft. above the ground. 9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	47·1	48·6	47·3	47·6	− 1·0	+ 0·1	− 0·1	+ 0·2
2	57·3	58·1	58·4	55·4	0·0	0·0	+ 0·2	+ 0·4
3	51·6	52·1	52·1	49·8	− 0·3	+ 0·2	+ 0·3	− 0·3
4	58·1	59·6	59·1	59·0	− 0·1	− 0·1	− 0·3	+ 0·1
6	48·1	49·1	49·1	45·9	+ 0·2	+ 0·1	− 0·1	+ 1·5
7	48·1	49·1	48·1	50·1	− 0·8	− 0·2	+ 0·3	+ 0·4
8	48·1	48·4	48·7	47·2	− 0·1	+ 0·1	+ 0·5	+ 0·4
9	45·6	47·4	47·1	45·0	0·0	+ 0·3	+ 0·3	+ 0·6
10	54·1	54·8	53·3	43·3	+ 0·1	+ 0·1	+ 0·1	+ 0·7
11	46·0	50·1	50·4	42·3	0·0	+ 0·7	+ 0·7	+ 0·5
13	46·1	48·9	49·1	48·5	− 0·1	+ 0·5	+ 0·4	+ 1·0
14	47·1	48·4	47·4	42·2	+ 0·5	− 0·3	− 0·3	+ 0·8
15	38·9	47·0	47·7	48·2	+ 0·2	+ 0·2	0·0	+ 0·3
16	42·5	45·3	46·0	42·1	− 0·2	− 0·2	+ 0·2	+ 0·6
17	43·3	45·7	45·0	40·3	− 0·3	− 0·4	+ 0·2	+ 0·6
18	39·1	41·1	43·6	43·0	+ 0·3	+ 0·2	− 0·1	+ 0·2
20	40·8	44·9	47·0	44·7	0·0	+ 0·2	0·0	+ 0·3
21	33·6	40·9	41·2	42·3	+ 1·5	+ 0·3	0·0	0·0
22	45·4	46·1	46·1	45·2	0·0	+ 0·1	+ 0·4	+ 0·3
23	43·5	45·4	46·4	45·3	+ 0·5	+ 0·3	− 0·3	+ 0·4
24	44·1	45·6	45·7	45·0	− 0·7	+ 0·4	+ 0·1	+ 0·2
25	46·1	48·1	49·1	47·1	+ 0·2	+ 0·4	+ 0·1	+ 0·2
27	47·3	50·1	51·2	49·4	+ 0·1	+ 0·2	0·0	+ 0·2
28	45·3	48·1	48·4	44·2	+ 0·1	+ 0·1	+ 0·1	− 0·2
29	40·0	44·9	44·1	38·6	+ 0·4	+ 0·3	+ 0·4	+ 2·6
30	32·6	38·8	41·5	43·8	+ 0·2	0·0	− 0·2	+ 0·1
Means	45·4	47·9	48·2	46·0	0·0	+ 0·1	+ 0·1	+ 0·5

DECEMBER.

Days of the Month.	9h	Noon.	15h	21h	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	45·1	47·9	50·1	44·6	0·0	+ 0·3	+ 0·4	+ 0·2
2	36·5	41·0	40·6	37·1	+ 0·2	0·0	+ 0·7	+ 0·5
4	41·6	43·7	44·3	45·1	+ 0·1	0·0	− 0·6	− 0·1
5	49·1	50·1	50·6	50·1	− 0·1	0·0	+ 0·1	− 0·1
6	49·0	50·2	51·1	53·9	+ 0·1	− 0·1	+ 0·3	+ 0·2
7	45·4	43·7	46·9	42·1	+ 0·3	+ 0·2	+ 0·1	0·0
8	32·1	31·7	32·1	32·0	− 0·1	− 0·1	+ 0·4	+ 0·5
9	31·5	32·1	29·2	30·7	+ 0·2	− 0·6	+ 0·5	+ 0·2
11	29·5	28·5	29·5	25·1	0·0	− 0·1	− 0·1	+ 1·1
12	30·7	31·0	30·4	29·8	− 0·2	+ 0·1	− 0·1	+ 0·2
13	28·8	28·1	26·3	23·5	+ 0·3	− 0·3	+ 0·2	− 0·1
14	26·6	27·6	27·7	28·9	− 0·2	− 0·1	0·0	+ 0·1
15	28·3	28·6	27·1	23·3	+ 0·1	+ 0·3	− 0·3	0·0
16	32·7	36·1	36·1	29·8	− 0·3	− 0·6	+ 0·1	+ 0·2
18	35·8	37·3	38·3	37·2	− 0·2	− 0·4	− 0·1	− 0·2
19	32·6	34·8	36·1	31·7	− 0·2	− 0·1	− 0·4	+ 2·4
20	33·8	36·4	36·2	37·1	+ 0·5	− 0·2	− 0·1	0·0
21	34·9	35·6	36·2	35·5	+ 0·2	0·0	− 0·3	− 0·2
22	32·3	33·1	33·5	35·0	0·0	− 0·1	+ 0·3	+ 0·2
23	34·5	36·5	37·1	33·6	+ 0·5	− 0·3	+ 0·4	+ 0·9
27	27·3	27·4	27·4	26·8	− 0·1	− 0·1	0·0	+ 0·3
28	33·1	38·5	39·6	41·3	− 0·3	− 0·3	− 0·1	0·0
29	44·9	45·1	44·6	45·1	0·0	− 0·2	− 0·2	− 0·1
30	40·2	41·1	40·2	38·1	+ 0·1	− 0·1	− 0·5	− 0·1
Means	35·7	36·9	37·1	35·7	0·0	− 0·1	0·0	+ 0·3

(I.)—Readings 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.

1899.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	52·78	52·21	51·52	50·73	50·00	49·65	49·75	50·56	51·74	52·95	53·80	53·82
2	52·75	52·18	51·47	50·73	49·98	49·64	49·76	50·60	51·78	52·97	53·82	53·78
3	52·77	52·14	51·41	50·66	49·97	49·63	49·79	50·62	51·83	53·03	53·84	53·76
4	52·78	52·13	51·38	50·65	49·94	49·63	49·80	50·66	51·88	53·06	53·84	53·78
5	52·75	52·10	51·38	50·66	49·93	49·61	49·83	50·69	51·95	53·09	53·83	53·78
6	52·73	52·10	51·36	50·60	49·91	49·63	49·85	50·72	51·97	53·13	53·83	53·78
7	52·72	52·11	51·34	50·56	49·90	49·63	49·87	50·76	52·00	53·16	53·85	53·74
8	52·71	52·08	51·33	50·54	49·89	49·61	49·89	50·78	52·04	53·20	53·85	53·70
9	52·70	52·05	51·29	50·51	49·86	49·61	49·91	50·83	52·07	53·22	53·86	53·67
10	52·69	52·05	51·28	50·50	49·85	49·62	49·93	50·87	52·10	53·27	53·87	53·68
11	52·65	52·02	51·25	50·45	49·83	49·60	49·96	50·91	52·15	53·32	53·87	53·67
12	52·65	51·96	51·22	50·42	49·83	49·63	49·97	50·94	52·20	53·34	53·87	53·65
13	52·62	51·96	51·19	50·40	49·81	49·62	50·00	50·97	52·25	53·36	53·88	53·63
14	52·59	51·92	51·16	50·37	49·79	49·60	50·02	51·03	52·29	53·38	53·88	53·62
15	52·57	51·90	51·15	50·33	49·77	49·63	50·03	51·06	52·33	53·41	53·86	53·61
16	52·59	51·87	51·12	50·32	49·76	49·66	50·08	51·08	52·36	53·45	53·86	53·62
17	52·53	51·85	51·08	50·29	49·75	49·64	50·10	51·13	52·40	53·49	53·87	53·60
18	52·55	51·81	51·07	50·28	49·75	49·63	50·13	51·16	52·44	53·51	53·85	53·58
19	52·53	51·78	51·02	50·26	49·73	49·63	50·16	51·20	52·49	53·53	53·87	53·57
20	52·51	51·77	50·99	50·24	49·72	49·65	50·19	51·25	52·52	53·54	53·87	53·57
21	52·48	51·74	50·96	50·20	49·71	49·66	50·21	51·28	52·57	53·57	53·84	53·53
22	52·46	51·72	50·93	50·18	49·69	49·65	50·25	51·33	52·60	53·59	53·86	53·51
23	52·42	51·67	50·90	50·16	49·68	49·67	50·26	51·37	52·64	53·63	53·86	53·51
24	52·40	51·65	50·88	50·14	49·68	49·68	50·30	51·42	52·70	53·64	53·86	53·51
25	52·36	51·62	50·88	50·12	49·65	49·68	50·33	51·47	52·73	53·67	53·86	53·46
26	52·34	51·58	50·85	50·10	49·65	49·71	50·36	51·50	52·78	53·71	53·85	53·46
27	52·33	51·55	50·83	50·08	49·65	49·72	50·37	51·56	52·79	53·73	53·86	53·41
28	52·30	51·53	50·82	50·08	49·63	49·72	50·42	51·58	52·82	53·76	53·84	53·42
29	52·28		50·80	50·05	49·64	49·73	50·46	51·62	52·87	53·76	53·81	53·43
30	52·26		50·78	50·01	49·63	49·73	50·50	51·67	52·92	53·75	53·78	53·40
31	52·24		50·73		49·64		50·53	51·70		53·78		53·38
Means	52·55	51·89	51·11	50·35	49·78	49·65	50·10	51·11	52·34	53·42	53·85	53·60

The mean of the twelve monthly values is 51°·65.

(II.)—Readings 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.

1899.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	52·14	50·09	48·56	47·25	47·38	48·96	52·11	55·34	58·16	...	56·30	54·28
2	52·06	49·98	48·51	47·19	47·41	49·03	52·18	55·51	58·22	...	56·23	54·15
3	52·02	49·90	48·50	47·14	47·44	49·08	52·33	55·57	...	...	56·13	54·07
4	52·00	49·86	48·46	47·11	47·43	49·15	52·45	55·71	...	...	56·03	54·05
5	51·84	49·78	48·39	47·08	47·50	49·20	52·57	55·80	...	...	55·91	54·00
6	51·77	49·72	48·36	47·07	47·51	49·26	52·68	55·90	...	...	55·83	53·92
7	51·70	49·70	48·32	47·03	47·54	49·33	52·80	55·97	...	...	55·72	53·81
8	51·62	49·62	48·29	47·02	47·60	49·36	52·91	56·08	...	...	55·68	53·69
9	51·55	49·54	48·23	47·04	47·60	49·45	53·02	56·18	...	58·28	55·63	53·58
10	51·46	49·48	48·19	47·07	47·66	49·55	53·10	56·32	...	58·21	55·62	53·51

(II.)—Readings 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.*

1899.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
11	51·35	49·37	48·13	47·05	47·69	49·63	53·17	56·42	...	58·17	55·53	53·43
12	51·30	49·25	48·04	47·06	47·76	49·78	53·26	56·56	...	58·10	55·48	53·35
13	51·20	49·20	48·00	47·09	47·79	49·86	53·35	56·62	...	57·98	55·42	53·30
14	51·06	49·10	47·94	47·10	47·84	49·92	53·41	56·74	...	57·90	55·38	53·20
15	51·00	49·03	47·90	47·11	47·87	50·13	53·49	56·90	...	57·88	55·31	53·11
16	50·96	48·97	47·85	47·13	47·91	50·27	53·64	56·94	...	57·76	55·26	53·06
17	50·83	48·90	47·78	47·17	47·97	50·40	53·73	57·00	...	57·70	55·22	52·98
18	50·80	48·84	47·75	47·20	48·06	50·53	53·81	57·10	...	57·61	55·12	52·90
19	50·75	48·81	47·68	47·22	48·08	50·61	53·93	57·18	...	57·49	55·10	52·79
20	50·69	48·79	47·63	47·26	48·15	50·78	54·02	57·29	...	57·37	55·02	52·70
21	50·61	48·75	47·59	47·26	48·18	50·90	54·12	57·35	...	57·28	54·92	52·57
22	50·55	48·72	47·58	47·27	48·25	51·00	54·22	57·47	...	57·21	54·95	52·45
23	50·45	48·68	47·54	47·29	48·33	51·12	54·33	57·55	...	57·11	54·85	52·36
24	50·39	48·66	47·50	47·30	48·38	51·27	54·43	57·67	...	57·02	54·80	52·27
25	50·32	48·65	47·50	47·30	48·43	51·39	54·55	57·78	...	56·95	54·71	52·09
26	50·30	48·60	47·49	47·32	48·50	51·55	54·65	57·81	...	56·86	54·63	52·00
27	50·26	48·57	47·46	47·35	48·56	51·65	54·77	57·93	...	56·80	54·61	51·81
28	50·20	48·57	47·42	47·36	48·61	51·76	54·88	57·94	...	56·71	54·51	51·77
29	50·17		47·40	47·37	48·71	51·90	54·99	57·97	...	56·57	54·41	51·70
30	50·12		47·35	47·34	48·80	51·98	55·17	58·07	...	56·43	54·30	51·52
31	50·09		47·27		48·90		55·27	58·10		56·35		51·40
Means	51·02	49·18	47·89	47·18	47·99	50·29	53·66	56·86	...	...	55·29	52·96

At temperatures exceeding 58°·30 the spirit of this thermometer passes beyond range of the scale and enters the upper bulb. The readings were out of range on this account from September 3 to October 8 inclusive.

(III.)—Readings 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.

1899.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	49·88	47·66	46·75	45·29	47·92	51·49	57·90	61·98	...	60·22	55·16	52·44
2	49·74	47·49	46·60	45·41	48·10	51·62	57·82	62·10	...	59·97	55·20	52·30
3	49·64	47·34	46·45	45·63	48·23	51·80	57·96	62·20	...	59·81	55·11	52·15
4	49·50	47·20	46·30	45·86	48·35	52·09	58·10	62·33	...	59·57	54·67	52·10
5	49·30	46·61	46·16	46·07	48·50	52·40	58·16	62·23	...	59·34	54·72	52·00
6	49·17	46·77	46·06	46·32	48·60	52·77	58·17	62·50	...	59·19	54·50	51·80
7	49·11	46·60	45·99	46·51	48·69	53·11	58·20	...	...	58·98	54·76	51·59
8	49·03	46·46	45·90	46·71	48·76	53·41	58·22	...	...	58·87	54·80	51·46
9	48·95	46·27	45·80	46·92	48·80	53·79	58·28	...	...	58·63	54·81	51·37
10	48·90	46·21	45·73	47·05	48·92	54·15	58·32	...	...	58·42	54·79	51·30
11	48·90	46·29	45·69	47·14	49·06	54·45	58·49	...	...	58·21	54·70	51·20
12	48·90	46·41	45·52	47·19	49·20	54·75	58·60	...	...	58·00	54·64	51·02
13	48·80	46·60	45·61	47·23	49·30	54·93	58·75	...	...	57·66	54·59	50·80
14	48·70	46·76	45·61	47·28	49·43	55·06	59·00	...	...	57·46	54·48	50·55
15	48·61	46·87	45·71	47·30	49·57	55·37	59·18	...	...	57·30	54·36	50·29

(III.)—Readings 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.*

1899.												
Days of the Month	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
16	48·51	46·98	45·79	47·32	49·75	55·56	59·43	...	...	57·10	54·23	50·01
17	48·45	47·09	45·84	47·33	49·90	55·70	59·60	...	...	56·90	54·10	49·71
18	48·45	47·18	45·90	47·29	50·10	55·84	59·78	...	...	56·67	53·91	49·42
19	48·45	47·22	45·93	47·27	50·18	55·93	60·00	...	...	56·45	53·84	49·14
20	48·41	47·25	45·95	47·25	50·30	56·19	60·16	...	...	56·22	53·69	48·89
21	48·43	47·25	45·97	47·20	50·43	56·40	60·31	...	62·36	56·04	53·50	48·62
22	48·45	47·27	45·90	47·25	50·59	56·57	60·51	...	62·17	55·89	53·42	48·43
23	48·48	47·27	45·81	47·28	50·78	56·72	61·22	...	62·00	55·75	53·20	48·28
24	48·58	47·25	45·70	47·33	50·93	56·91	61·10	...	61·72	55·58	53·07	48·13
25	48·60	47·20	45·56	47·33	51·12	57·03	61·29	...	61·54	55·47	52·93	47·97
26	48·62	47·11	45·36	47·42	51·20	57·21	61·45	...	61·30	55·34	52·79	47·87
27	48·57	47·00	45·17	47·54	51·31	57·23	61·36	...	61·05	55·25	52·72	47·70
28	48·42	46·89	45·04	47·60	51·38	57·29	61·60	...	60·80	55·01	52·62	47·61
29	48·26		44·99	47·70	51·40	57·40	61·70	...	60·64	55·01	52·52	47·55
30	48·04		45·03	47·85	51·38	57·50	61·82	...	60·46	55·02	52·47	47·39
31	47·85		45·11		51·41		61·89	...		55·05		47·28
Means	48·76	46·95	45·77	46·96	49·79	55·02	59·62	...	...	57·24	54·01	49·88

At temperatures exceeding 62°·50 the spirit of this thermometer passes beyond range of the scale and enters the upper bulb. The readings were out of range on this account from September 7 to October 20 inclusive.

(IV.)—Readings 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.

1899.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	45·57	42·95	42·30	44·04	48·13	52·40	61·18	65·59	65·81	57·51	53·29	49·00
2	45·27	42·79	42·10	44·62	48·30	53·29	60·91	65·77	65·51	57·13	52·89	48·76
3	45·00	42·50	42·06	45·27	48·49	54·29	60·66	65·89	65·33	57·07	52·90	48·50
4	44·90	42·18	41·99	45·79	48·68	55·20	60·31	66·11	65·09	56·75	52·93	48·01
5	45·00	41·57	42·03	46·11	48·61	55·91	60·09	66·38	65·11	56·62	53·13	47·70
6	45·15	41·45	41·95	46·30	48·45	56·64	60·00	66·49	65·12	56·50	53·50	47·80
7	45·00	41·50	41·74	46·55	48·53	57·32	60·26	66·56	65·41	56·21	53·38	48·03
8	45·11	41·80	41·55	46·75	48·80	57·75	60·55	66·52	65·53	55·84	53·08	48·26
9	45·48	42·50	41·60	46·50	49·15	58·01	60·96	66·41	65·41	55·27	52·91	47·88
10	45·61	43·37	41·95	46·19	49·49	58·03	61·29	66·32	65·08	54·86	52·51	47·17
11	45·80	44·14	42·10	46·30	49·57	58·04	61·78	66·11	64·61	54·48	52·43	46·50
12	45·67	44·66	42·31	46·33	49·72	58·21	62·13	65·97	64·19	54·19	52·21	45·86
13	45·50	44·91	42·70	46·04	50·08	58·21	62·62	65·87	63·91	54·10	51·90	45·20
14	45·26	45·05	43·18	45·84	50·46	58·29	62·92	65·89	63·61	53·94	51·62	44·66
15	45·12	45·10	43·39	45·70	50·77	58·35	63·00	66·09	63·47	53·51	51·40	44·08
16	45·02	45·15	43·39	45·66	50·97	58·28	63·21	66·11	63·11	53·17	51·16	43·55
17	45·40	45·20	43·42	45·65	50·97	58·50	63·38	66·31	62·81	52·90	50·91	43·15
18	45·26	45·00	43·51	45·49	51·02	58·92	63·53	66·32	62·41	52·72	50·63	42·75
19	45·27	44·90	43·41	45·40	51·15	59·30	63·91	66·30	62·10	52·60	50·40	42·56
20	45·63	44·90	43·01	45·40	51·52	59·69	64·37	66·40	61·71	52·41	50·15	42·59

(IV.)—Readings 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.*

1899.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
21	45·87	44·94	42·61	45·60	51·87	59·80	64·90	66·32	61·32	52·22	49·70	42·49
22	46·23	44·90	42·07	45·98	52·04	59·90	65·30	66·20	60·71	52·12	49·47	42·49
23	46·50	44·55	41·52	45·96	52·28	60·00	66·10	65·99	60·34	51·99	49·23	42·50
24	46·36	44·16	41·00	46·00	52·18	59·90	65·70	65·91	59·81	51·80	49·31	42·48
25	45·91	43·82	40·60	46·23	52·40	59·75	65·38	66·11	59·45	51·83	49·35	42·43
26	45·70	43·50	40·33	46·64	52·29	59·77	65·17	66·20	59·30	52·02	49·38	42·48
27	44·50	43·10	40·70	46·85	51·81	59·80	65·42	66·51	59·16	52·25	49·50	42·35
28	43·84	42·70	41·35	47·10	51·32	60·28	65·09	66·50	58·90	52·70	49·51	42·25
29	43·32		42·09	47·47	51·16	60·50	65·01	66·52	58·46	53·32	49·52	42·00
30	43·09		42·91	47·89	51·27	60·81	65·11	66·36	57·81	53·95	49·32	42·27
31	43·10		43·49		51·70		65·35	66·07		53·60		42·62
Means	45·17	43·69	42·21	46·05	50·42	58·17	63·08	66·20	62·69	54·05	51·25	44·79
The mean of the twelve monthly values is 52°·31.												

(V.)—Readings 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.

1899.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	40·0	38·3	38·1	49·5	49·2	58·9	61·3	68·7	63·9	51·8	49·1	46·8
2	39·9	36·3	38·2	49·1	51·1	62·1	58·0	68·9	63·9	52·3	54·0	43·1
3	40·9	36·0	38·8	49·8	49·9	61·1	58·1	70·0	62·8	53·0	53·0	39·1
4	43·7	34·9	39·2	50·0	47·7	62·6	59·5	69·7	65·0	53·8	55·0	43·5
5	42·1	36·6	37·7	48·4	47·0	64·0	60·8	70·2	68·0	51·9	54·7	46·4
6	41·0	37·9	36·9	49·9	48·1	65·0	63·0	68·0	69·0	51·3	51·7	48·2
7	43·5	41·9	36·2	48·7	49·9	64·8	64·0	66·8	65·5	48·8	50·0	47·5
8	46·0	45·1	39·8	45·2	52·3	59·8	64·8	66·8	65·7	50·6	50·9	40·9
9	45·4	46·9	41·5	43·3	51·2	59·1	65·0	65·8	62·0	48·6	48·5	39·0
10	46·1	48·9	40·5	49·0	51·0	59·5	65·3	66·9	60·7	46·8	52·3	37·2
11	42·0	48·1	41·6	45·8	50·7	58·1	67·5	65·3	58·8	48·9	48·6	37·0
12	45·0	45·0	43·0	43·0	53·5	61·5	69·1	66·8	61·9	51·8	47·9	36·0
13	43·0	47·1	44·0	44·0	53·8	60·0	65·5	65·8	60·1	48·6	48·2	35·9
14	41·8	45·4	41·3	44·0	54·6	56·4	67·0	66·7	61·8	46·8	48·3	34·0
15	42·1	44·5	41·5	44·5	52·1	59·2	65·9	70·0	60·0	48·0	45·8	34·4
16	46·7	43·8	42·0	44·8	53·0	61·7	66·2	68·5	59·8	48·0	46·5	35·0
17	40·0	43·1	42·9	42·6	52·4	62·7	66·5	66·7	58·5	49·2	47·0	35·0
18	44·9	42·3	42·0	43·6	55·0	63·8	68·2	66·8	58·1	48·4	44·0	36·9
19	47·6	43·8	38·3	43·8	54·7	61·4	70·0	67·2	58·0	47·9	45·9	37·1
20	45·8	44·5	36·0	45·5	55·9	62·0	71·8	67·0	56·0	46·9	44·4	37·2
21	49·0	43·1	35·5	46·3	55·0	62·7	71·1	65·0	54·8	47·5	42·9	38·1
22	47·8	40·6	34·8	45·0	53·8	62·5	69·0	65·0	55·2	46·9	46·0	37·1
23	44·0	39·0	34·2	45·9	54·4	60·5	65·9	66·2	54·2	47·4	46·4	37·5
24	40·8	38·7	34·7	47·9	55·0	61·3	64·6	67·8	53·9	49·1	47·3	39·5
25	37·4	39·2	36·1	48·8	50·7	60·0	64·4	69·1	56·3	50·0	48·0	38·3

(V.)—Readings 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.*

1899.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
26	37·0	37·0	41·9	47·8	48·2	64·3	67·3	69·2	56·8	51·8	48·1	38·9
27	37·0	36·0	43·0	48·9	48·5	65·2	61·7	70·1	55·0	54·4	48·3	35·1
28	36·1	35·5	46·0	50·9	48·8	63·8	65·0	69·0	52·1	56·2	47·0	36·3
29	37·8		48·5	51·8	51·6	64·5	66·2	65·9	52·0	55·0	45·1	42·3
30	40·0		47·2	48·8	53·3	63·4	68·3	66·2	52·1	52·5	41·3	42·0
31	38·1		46·2		55·8		68·1	64·6		49·3		39·1
Means	42·3	41·4	40·2	46·9	51·9	61·7	65·5	67·4	59·4	50·1	48·2	39·2

The mean of the twelve monthly values is 51°·18.

(VI.)—Readings 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.

1899.												
Days of the Month	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	39·0	36·7	44·2	55·5	53·5	75·9	65·4	77·9	69·5	52·6	53·9	50·5
2	37·6	34·4	41·6	51·2	57·2	79·2	58·5	77·6	68·8	51·4	59·6	40·6
3	42·1	34·0	44·2	55·5	51·2	72·8	58·5	78·6	71·4	57·3	56·9	32·2
4	50·2	35·9	42·3	54·6	49·5	77·9	63·0	74·5	76·2	53·5	61·8	45·9
5	40·4	37·2	38·0	56·3	52·5	79·7	68·5	77·9	83·0	50·7	54·3	50·0
6	42·7	38·4	41·0	56·8	53·3	79·7	68·9	69·9	76·6	53·0	50·8	51·2
7	46·3	50·8	42·2	48·9	56·9	75·8	74·0	68·7	67·3	49·0	53·4	46·1
8	51·2	49·8	47·3	45·0	59·9	60·4	73·1	70·4	69·8	53·5	52·1	34·4
9	49·4	52·7	45·7	48·5	51·0	62·8	72·9	70·4	67·2	53·5	51·6	35·4
10	49·2	58·9	46·0	55·5	53·7	64·0	71·0	74·8	63·0	53·8	58·4	34·8
11	40·6	52·5	45·3	45·6	54·3	58·2	78·9	72·5	58·5	56·6	54·4	31·7
12	51·8	45·9	51·8	45·1	61·6	70·8	74·3	76·1	63·2	57·5	50·1	32·6
13	42·7	52·0	48·0	44·0	59·0	61·2	68·4	72·6	63·7	48·8	50·1	31·8
14	41·0	49·7	41·3	43·3	59·8	54·9	73·2	73·0	63·5	49·4	50·4	29·9
15	45·6	49·5	48·7	44·7	52·8	68·5	71·7	83·9	64·8	51·1	46·3	30·7
16	49·7	46·7	42·3	45·9	58·6	72·6	75·4	73·8	61·4	52·8	48·5	36·2
17	37·3	47·8	43·0	44·6	58·7	74·9	76·1	71·4	62·2	55·6	47·5	31·0
18	50·3	43·0	42·6	46·3	65·2	74·7	79·9	71·1	59·9	54·1	43·2	37·1
19	51·9	45·7	37·2	52·6	60·6	64·6	84·0	69·5	60·1	49·8	45·2	35·3
20	49·2	45·4	36·3	56·8	59·7	67·2	84·5	70·6	57·1	47·6	44·7	37·2
21	53·6	44·0	35·7	45·6	58·5	69·2	82·8	70·4	58·7	45·6	40·7	37·2
22	50·2	43·7	34·9	47·3	54·1	65·8	72·2	73·6	58·3	47·0	47·9	34·2
23	41·5	43·0	31·7	51·9	63·0	61·7	66·1	76·1	60·1	50·4	48·0	35·9
24	37·8	40·9	37·1	52·9	61·2	64·4	68·9	79·2	55·9	51·3	48·4	41·9
25	35·0	41·0	44·2	52·0	48·1	62·5	71·2	84·3	61·0	55·2	50·5	36·8
26	38·0	38·0	50·5	51·3	48·5	75·6	74·8	77·5	61·5	56·3	49·6	41·1
27	37·3	36·3	53·5	52·5	52·3	71·7	67·2	83·4	56·9	59·4	52·4	29·3
28	36·3	36·3	52·2	58·5	57·0	73·3	73·1	72·6	53·9	60·0	51·0	38·1
29	38·1		47·8	56·9	60·9	70·5	74·9	69·1	54·4	59·0	44·3	48·0
30	41·4		53·3	48·7	66·5	69·1	76·4	73·3	54·2	48·5	38·5	45·9
31	36·5		49·7		70·6		73·5	68·6		52·2		41·1
Means	43·7	43·9	43·9	50·5	57·1	69·3	72·3	74·3	63·4	52·8	50·1	38·2

The mean of the twelve monthly values is 54°·96.

ABSTRACT of the CHANGES of the DIRECTION of the WIND, as derived from the Records of OSLER'S ANEMOMETER in the Year 1899.

(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. 0	1. 1	W.S.W.	S.W.		22½
1. 13½	1. 14	S.W.	S.		45
1. 17½	1. 18½	S.	W.S.W.	67½	
1. 22½	2. 2½	W.S.W.	S.W.		22½
2. 6	2. 10	S.W.	W.	45	
2. 21	2. 22	W.	W.N.W.	22½	
3. 5	3. 7	W.N.W.	N.W.	22½	
3. 10½	3. 11½	N.W.	N.N.W.	22½	
3. 15	3. 17	N.N.W.	S.W.		112½
3. 19	3. 19¼	S.W.	S.S.W.		22½
4. 0	4. 3	S.S.W.	W.S.W.	45	
4. 4½	4. 6	W.S.W.	S.W.		22½
4. 22	5. 0	S.W.	W.N.W.	67½	
5. 4	5. 4¼	W.N.W.	S.W.		67½
5. 11½	5. 13½	S.W.	W.	45	
5. 14¾	5. 15	W.	W.N.W.	22½	
5. 15¾	5. 16	W.N.W.	W.S.W.		45
5. 20¼	5. 20¾	W.S.W.	N.N.E.		225
6. 0	6. 0½	N.N.E.	E.N.E.	45	
6. 1¾	6. 2	E.N.E.	E.	22½	
6. 3¼	6. 3½	E.	E.N.E.		22½
6. 5	6. 5¼	E.N.E.	E.S.E.	45	
6. 8	6. 9	E.S.E.	S.E	22½	
7. 0	7. 0½	S.E.	E.S.E.		22½
7. 6	7. 7½	E.S.E.	S.	67½	
7. 9	7. 10	S.	S.S.W.	22½	
8. 11¾	8. 12	S.S.W.	S.		22½
8. 15½	8. 16½	S.	S.S.E.		22½
9. 10	9. 11½	S.S.E.	S.	22½	
10. 5	10. 6	S.	S.S.W.	22½	
10. 12	10. 13	S.S.W.	W.S.W.	45	
10. 15	10. 17¾	W.S.W.	S.		67½
10. 20½	10. 21	S.	S.S.E.		22½
10. 22¼	10. 22½	S.S.E.	S.S.W.	45	
11. 6	11. 7	S.S.W.	S.W.	22½	
11. 10	11. 11	S.W.	S.S.W.		22½
11. 16	11. 17¼	S.S.W.	W.	67½	
11. 19	11. 19¾	W.	W.S.W.		22½
12. 0	12. 0½	W.S.W.	S.W.		22½
12. 2½	12. 4¼	S.W.	S.		45
12. 6	12. 6½	S.	S.S.W.	22½	
12. 8½	12. 9½	S.S.W.	S.W.	22½	
12. 14	12. 16	S.W.	W.S.W.	22½	
13. 5	13. 6	W.S.W.	S.W.		22½
13. 10	13. 11½	S.W.	S.		45
13. 12¾	13. 13	S.	S.E.		45
13. 14½	13. 15¼	S.E.	W.S.W.	112½	
13. 18¼	13. 19½	W.S.W.	N.W.	67½	
13. 23	14. 0	N.W.	W.S.W.		67½
15. 3	15. 4	W.S.W.	S.W.		22½

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Jan.—*cont.*					
d h	d h				
15. 6	15. 7	S.W.	S.S.W.		22½
15. 9½	15. 10	S.S.W.	S.		22½
15. 11½	15. 13	S.	S.W.	45	
16. 3½	16. 4	S.W.	W.S.W.	22½	
16. 6	16. 7	W.S.W.	S.W.		22½
16. 15	16. 15½	S.W.	W.S.W.	22½	
17. 1	17. 2½	W.S.W.	N.N.W.	90	
17. 4½	17. 5½	N.N.W.	N.W.		22½
17. 8	17. 9	N.W.	W.S.W		67½
17. 14	17. 15	W.S W.	S.W.		22½
17. 16½	17. 17	S.W.	S.S.W.		22½
17. 20	17. 21¼	S.S.W.	S.E.		67½
17. 23	18. 0	S.E.	S.S.E.	22½	
18. 1	18. 1¾	S.S.E.	W.S.W.	90	
18. 5	18. 7	W.S.W.	S.W.		22½
19. 12	19. 13	S.W.	S.S.W.		22½
22. 3	22. 5	S.S.W.	S.W.	22½	
23. 3	23. 5	S.W.	W.S.W.	22½	
23. 9½	23. 10¼	W.S.W.	N.	112½	
24. 13	24. 13¼	N.	N.N.E.	22½	
24. 17½	24. 18½	N.N.E.	N.E.	22½	
25. 9	25. 10	N.E.	E.N.E.	22½	
25. 16½	25. 17½	E.N.E.	N.E.		22½
26. 23¼	27. 0	N.E.	N.N.E.		22½
27. 2	27. 3	N.N.E.	N.E.	22½	
27. 11	27. 12	N.E.	E.N.E.	22½	
27. 16	27. 17	E.N.E.	N.E.		22½
28. 23	28. 23½	N.E.	N.N.E.		22½
29. 10¾	29. 11	N.N.E.	N.		22½
29. 12	29. 12¼	N.	N.N.E.	22½	
29. 18½	29. 19½	N.N.E.	N.E.	22½	
29. 23	29. 23¾	N.E.	N.N.E.		22½
30. 5½	30. 6½	N.N.E.	N.E.	22½	
30. 9	30. 10	N.E.	E.N.E.	22½	
30. 11½	30. 12	E.N.E.	N.E.		22½
30. 14	30. 15	N.E.	E.N.E.	22½	
30. 20	30. 21	E.N.E.	N.E.		22½
31. 12¾	31. 13	N.E.	N.N.E.		22½
31. 18	31. 18½	N.N.E.	N.		22½
31. 22	31. 22¼	N.	S.W.	225	
			Sums	1957½	1620

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
February.					
d h	d h				
1. 4	1. 5	S.W.	W.S.W.	22½	
1. 11¾	1. 12	W.S.W.	W.	22½	
1. 14¼	1. 14½	W.	N.W.	45	
1. 16	1. 16¼	N.W.	N.N.W.	22½	
1. 17½	1. 18	N.N.W.	N.	22½	
2. 10¾	2. 11¼	N.	N.E.	45	
2. 18	2. 21½	N.E.	N.		45
3. 4½	3. 5	N.	N.N.W.		22½
3. 18	3. 18¼	N.N.W.	N.	22½	
3. 19¼	3. 19½	N.	S.S.W.	202½	
3. 22	3. 22½	S.S.W.	S.W.	22½	
4. 2¼	4. 2½	S.W.	S.E.		90
4. 4	4. 4¼	S.E.	E.		45
4. 5¼	4. 5½	E.	N.E.		45
4. 7¾	4. 8	N.E.	E.N.E.	22½	
4. 9¼	4. 10¼	E.N.E.	S.	112½	
4. 12½	4. 13	S.	S.S.E.		22½
4. 19½	4. 20	S.S.E.	S.	22½	
4. 23¾	5. 0	S.	S.S.E.		22½
5. 2	5. 3	S.S.E.	E.S.E.		45
5. 6¼	5. 6½	E.S.E.	E.N.E.		45
5. 8	5. 9	E.N.E.	N.E.		22½
5. 11	5. 11¼	N.E.	N.		45
5. 16	5. 16½	N.	N.N.E.	22½	
5. 18½	5. 18¾	N.N.E.	S.S.W.		180
5. 19½	5. 19¾	S.S.W.	S.E.		67½
5. 20	5. 20½	S.E.	N.E.		90
5. 23	5. 23½	N.E.	E.N.E.	22½	
6. 2¾	6. 3½	E.N.E.	E.S.E.	45	
6. 8	6. 9	E.S.E.	E.		22½
6. 12	6. 13	E.	E.S.E.	22½	
7. 3½	7. 4	E.S.E.	S.E.	22½	
7. 5¼	7. 10	S.E.	S.W.	90	
7. 18½	7. 19¼	S.W.	S.S.W.		22½
8. 3	8. 4	S.S.W.	S.W.	22½	
8. 8	8. 10	S.W.	S.S.W.		22½
10. 14	10. 15	S.S.W.	S.W.	22½	
10. 19	10. 21	S.W.	S.S.W.		22½
11. 14	11. 15¼	S.S.W.	S.S.E.		45
11. 18	11. 19	S.S.E.	S S.W.	45	
12. 11½	12. 12	S.S.W.	S.W.	22½	
12. 14½	12. 15½	S.W.	W.S.W.	22½	
12. 20½	12. 21¾	W.S.W.	S.S.W.		45
13. 0	13. 1	S.S.W.	S.W.	22½	
13. 3	13. 5	S.W.	S.S.W.		22½
13. 15¼	13. 15½	S.S.W.	S.W.	22½	
14. 0	14. 2	S.W.	S.S.W.		22½
14. 9½	14. 10	S.S.W.	S.W.	22½	
14. 15	14. 16	S.W.	S.S.W.		22½
14. 18	14. 18½	S.S.W.	S.		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. Retro-grade.
Feb.—*cont.*				°	°
d h	d h				
15. 6	15. 7	S.	S.S.W.	22½	
15. 13¾	15. 14	S.S.W.	S.		22½
15. 16¾	15. 17¼	S.	S.S.E.		22½
15. 21½	15. 21¾	S.S.E.	E.		67½
15. 23	15. 23½	E.	E.S.E.	22½	
16. 1	16. 1¼	E.S.E.	W.		202½
16. 3	16. 3½	W.	W.N.W.	22½	
16. 5½	16. 5¾	W.N.W.	W.		22½
16. 6½	16. 7½	W.	W.S.W.		22½
16. 16	16. 16¾	W.S.W.	S.W.		22½
16. 17½	16. 18¼	S.W.	S.S.W.		22½
16. 22½	16. 23¼	S.S.W.	S.S.E.		45
17. 4	17. 4½	S.S.E.	S.E.		22½
17. 6½	17. 7	S.E.	E.S.E.		22½
17. 10	17. 12	E.S.E.	S.E.	22½	
17. 17½	17. 18½	S.E.	E.S.E.		22½
18. 11	18. 11½	E.S.E.	E.N.E.		45
18. 14	18. 14¼	E.N.E.	E.	22½	
18. 15½	18. 15¾	E.	E.S.E.	22½	
18. 23	18. 23¼	E.S.E.	S.S.E.	45	
19. 0	19. 0¼	S.S.E.	S.	22½	
19. 1	19. 1¼	S.	S.W.	45	
19. 8	19. 9	S.W.	W.S.W.	22½	
19. 12	19. 12¼	W.S.W.	W.N.W.	45	
19. 12¾	19. 13	W.N.W.	S.S.W.		90
19. 14¾	19. 15	S.S.W.	S.S.E.		45
19. 19¼	19. 19½	S.S.E.	E.N.E.		90
20. 10	20. 11	E.N.E.	E.	22½	
21. 6½	21. 7¼	E.	E.S.E.	22½	
21. 12	21. 13	E.S.E.	E.		22½
22. 12½	22. 13	E.	E.N.E.		22½
22. 23¾	23. 0	E.N.E.	E.	22½	
23. 11½	23. 13	E.	S.E.	45	
23. 20½	23. 20¾	S.E.	N.N.E.	247½	
23. 22¾	23. 23½	N.N.E.	S.E.	112½	
24. 0½	24. 0¾	S.E.	N.E.		90
24. 7¼	24. 7½	N.E.	E.N.E.	22½	
24. 9	24. 9¼	E.N.E.	E.S.E.	45	
24. 11	24. 11¼	E.S.E.	N.N.E.		90
24. 11¾	24. 12¼	N.N.E.	E.S.E.	90	
24. 22¼	24. 22½	E.S.E.	E.		22½
25. 0	25. 0¼	E.	E.N.E.		22½
25. 9½	25. 10	E.N.E.	E.	22½	
25. 12½	25. 13	E.	E.N.E.		22½
25. 15	25. 15¼	E.N.E.	E.	22½	
25. 23½	26. 0	E.	E.N.E.		22½
26. 10	26. 11	E.N.E.	E.	22½	
26. 21½	26. 22	E.	E.N.E.		22½
27. 4	27. 5	E.N.E.	N.E.		22½
27. 10	27. 11	N.E.	E.N.E.	22½	
27. 15	27. 16	E.N.E.	E.S.E.	45	
28. 2	28. 3½	E.S.E.	W.	157½	
28. 4½	28. 4¾	W.	S.W.		45
28. 8	28. 8¾	S.W.	S.S.E.		67½
28. 9¼	28. 9¾	S.S.E.	S.S.W.	45	
28. 10½	28. 11	S.S.W.	W.S.W.	45	
28. 21	28. 22	W.S.W.	S.W.		22½
			Sums	2340	2340

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro-grade.
March.				°	°
d h	d h				
1. 5	1. 6	S.W.	W.S.W.	22½	
1. 15½	1. 16	W.S.W.	W.	22½	
1. 17¼	1. 17½	W.	W.S.W.		22½
1. 18½	1. 19	W.S.W.	S.W.		22½
2. 9½	2. 11¾	S.W.	N.W.	90	
2. 16	2. 17	N.W.	N.N.W.	22½	
2. 23	2. 23¾	N.N.W.	N.W.		22½
3. 0½	3. 0¾	N.W.	S.W.		90
3. 5	3. 6	S.W.	S.S.W.		22½
3. 9½	3. 10¼	S.S.W.	W.S.W.	45	
3. 20	3. 20¼	W.S.W.	N.W.	67½	
3. 21	3. 21½	N.W.	W.		45
3. 23¼	3. 23½	W.	W.S.W.		22½
4. 11	4. 11¼	W.S.W.	N.W.	67½	
4. 12¼	4. 12½	N.W.	N.N.W.	22½	
4. 14	4. 14½	N.N.W.	N.	22½	
4. 16	4. 18	N.	N.E.	45	
4. 21½	4. 23	N.E.	N.		45
5. 7¼	5. 7½	N.	N.N.E.	22½	
5. 9	5. 11	N.N.E.	E.N.E.	45	
5. 15	5. 17	E.N.E.	S.E.	67½	
5. 19½	5. 21	S.E.	S.S.E.	22½	
6. 0½	6. 2	S.S.E.	S.E.		22½
6. 8	6. 9	S.E.	S.S.W.	67½	
6. 11½	6. 12	S.S.W.	S.		22½
6. 15¼	6. 15½	S.	S.S.E.		22½
6. 16¾	6. 17	S.S.E.	S.E.		22½
7. 0¼	7. 0½	S.E.	N.N.E.		112½
7. 3	7. 3½	N.N.E.	S.E.	112½	
7. 6½	7. 6¾	S.E.	N.N.E.		112½
7. 8½	7. 8¾	N.N.E.	S.E.	112½	
7. 9½	7. 10	S.E.	S.W.	90	
7. 19	7. 19¼	S.W.	S.S.W.		22½
7. 20	7. 21	S.S.W.	S.W.	22½	
8. 6	8. 7½	S.W.	W.S.W.	22½	
8. 15	8. 18	W.S.W.	S.S.W.		45
9. 4	9. 5	S.S.W.	S.W.	22½	
9. 8	9. 9	S.W.	W.S.W.	22½	
9. 15	9. 16	W.S.W.	S.W.		22½
9. 18	9. 18½	S.W.	S.S.W.		22½
9. 20	9. 20¼	S.S.W.	S.W.	22½	
10. 6½	10. 7½	S.W.	W.S.W.	22½	
10. 10½	10. 11¼	W.S.W.	W.N.W.	45	
10. 12¾	10. 13	W.N.W.	W.		22½
10. 15	10. 15½	W.	W.N.W.	22½	
10. 16½	10. 17	W.N.W.	W.		22½
10. 18	10. 19	W.	S.W.		45
12. 3	12. 4	S.W.	W.	45	
12. 5¼	12. 5½	W.	W.S.W.		22½
12. 9½	12. 9¾	W.S.W.	N.	112½	
12. 16½	12. 17	N.	N.N.W.		22½
12. 18¼	12. 18½	N.N.W.	E.	112½	
13. 10½	13. 10¾	E.	E.N.E.		22½
13. 15	13. 17	E.N.E.	E.S.E.	45	
14. 1½	14. 1¾	E.S.E.	N.E.		67½
14. 2¼	14. 2½	N.E.	E.S.E.	67½	
14. 7½	14. 7¾	E.S.E.	W.N.W.		180
14. 9	14. 9¼	W.N.W.	W.S.W.		45
14. 12½	14. 14	W.S.W.	E.S.E.	225	

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro-grade.
March—*cont.*				°	°
d h	d h				
14. 20¾	14. 21	E.S.E.	E.		22½
15. 0½	15. 0¾	E.	E.S.E.	22½	
15. 1½	15. 2½	E.S.E.	N.E.		67½
15. 6¼	15. 6½	N.E.	E.S.E.	67½	
15. 9¼	15. 9½	E.S.E.	E.N.E.		45
15. 14	15. 15	E.N.E.	E.S.E.	45	
15. 18½	15. 19	E.S.E.	E.N.E.		45
15. 20¾	15. 21¼	E.N.E.	E.	22½	
16. 0	16. 1	E.	E.N.E.		22½
16. 6	16. 7	E.N.E.	N.E.		22½
16. 11	16. 11½	N.E.	E.N.E.	22½	
16. 21	16. 21½	E.N.E.	E.	22½	
17. 5½	17. 6	E.	E.S.E.	22½	
17. 8	17. 9	E.S.E.	S.E.	22½	
17. 11	17. 11½	S.E.	S.W.	90	
17. 12½	17. 13	S.W.	W.S.W.	22½	
18. 6	18. 7	W.S.W.	N.E.	157½	
18. 12½	18. 13½	N.E.	N.N.E.		22½
18. 22	18. 23	N.N.E.	N.		22½
19. 4	19. 5	N.	N.N.W.		22½
19. 19	19. 20	N.N.W.	N.W.		22½
19. 21¼	19. 22	N.W.	N.N.W.	22½	
20. 13	20. 14	N.N.W.	N.	22½	
20. 16	20. 16¼	N.	N.N.E.	22½	
20. 18½	20. 18¾	N.N.E.	N.		22½
20. 21½	20. 22	N.	N.N.E.	22½	
21. 0½	21. 0¾	N.N.E.	N.		22½
21. 4½	21. 4¾	N.	S.S.W.		157½
21. 6½	21. 6¾	S.S.W.	S.S.E.		45
21. 9	21. 10	S.S.E.	S.W.	67½	
21. 14	21. 14½	S.W.	S.S.W.		22½
21. 16	21. 17	S.S.W.	W.S.W.	45	
21. 17¾	21. 18¼	W.S.W.	N.N.W.	90	
22. 0¼	22. 0½	N.N.W.	N.W.		22½
22. 4	22. 4¾	N.W.	W.		45
22. 6¾	22. 7	W.	W.S.W.		22½
22. 8½	22. 10½	W.S.W.	N.W.	67½	
22. 14	22. 14½	N.W.	N.N.W.	22½	
22. 18	22. 18½	N.N.W.	N.W.		22½
22. 22	22. 22¾	N.W.	W.		45
23. 1¾	23. 2¼	W.	W.S.W.		22½
23. 6½	23. 7	W.S.W.	W.N.W.	45	
23. 8½	23. 9	W.N.W.	N.W.	22½	
23. 10½	23. 11	N.W.	N.N.W.	22½	
23. 12	23. 13	N.N.W.	N.N.E.	45	
23. 19	23. 19½	N.N.E.	N.		22½
23. 22	23. 23	N.	N.N.W.		22½
24. 2	24. 3	N.N.W.	N.W.		22½
24. 7½	24. 9	N.W.	N.	45	
24. 15¾	24. 16	N.	N.N.E.	22½	
24. 17	24. 17½	N.N.E.	N.E.	22½	
24. 18¾	24. 19	N.E.	S.E.	90	
24. 20	24. 20¾	S.E.	S.	45	
24. 23¾	25. 0	S.	S.S.W.	22½	
25. 4	25. 4¼	S.S.W.	S.W	22½	
25. 5¼	25. 5½	S.W.	S.S.W.		22½
25. 11½	25. 12	S.S.W.	S.W.	22½	
26. 4½	26. 7	S.W.	W.S.W.	22½	
26. 18	26. 19	W.S.W.	S.W.		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.
				°	°
March—*cont.*					
d h	d h				
26. 23	27. 0	S.W.	S.S.W.		22½
27. 11¾	27. 12	S.S.W.	S.W.	22½	
27. 13¾	27. 14¼	S.W.	W.S.W.	22½	
27. 17	27. 17¼	W.S.W.	S.W.		22½
28. 9	28. 10	S.W.	S.S.W.		22½
29. 0	29. 1	S.S.W.	S.W.	22½	
29. 8	29. 9	S.W.	W.S.W.	22½	
29. 10	29. 10½	W.S.W.	W.	22½	
29. 17	29. 19	W.	W.S.W.		22½
30. 10	30. 10¼	W.S.W.	W.	22½	
30. 11¼	30. 11½	W.	N.W.	45	
30. 15	30. 15½	N.W.	N.N.W.	22½	
30. 16¾	30. 17¼	N.N.W.	N.N.E.	45	
30. 20	30. 21½	N.N.E.	E.S.E.	90	
31. 6	31. 7	E.S.E.	S.E.	22½	
31. 8½	31. 10½	S.E.	W.S.W.	112½	
			Sums	3600	2137½
April.					
1. 11½	1. 12	W.S.W.	S.W.		22½
2. 0½	2. 1½	S.W.	W.S.W.	22½	
2. 5½	2. 6½	W.S.W.	S.W.		22½
2. 20	2. 22	S.W.	S.S.W.		22½
3. 1½	3. 3	S.S.W.	S.W.	22½	
3. 6	3. 7	S.W.	W.S.W.	22½	
4. 2	4. 2½	W.S.W.	S.W.		22½
4. 19¼	4. 19½	S.W.	W.S.W.	22½	
5. 16	5. 16½	W.S.W.	S.W.		22½
5. 17½	5. 18	S.W.	S.S.W.		22½
5. 20½	5. 21	S.S.W.	S.W.	22½	
6. 2½	6. 3½	S.W.	W.	45	
6. 4	6. 4½	W.	S.W.		45
6. 7	6. 8	S.W.	W.S.W.	22½	
6. 13	6. 13½	W.S.W.	S.W.		22½
6. 14¾	6. 15¼	S.W.	S.S.W.		22½
7. 2	7. 2¼	S.S.W.	S.W.	22½	
7. 4	7. 5	S.W.	S.S.W.		22½
7. 9	7. 10	S.S.W.	S.W.	22½	
7. 11½	7. 12	S.W.	W.S.W.	22½	
7. 13	7. 13¼	W.S.W.	W.N.W.	45	
7. 20	7. 20½	W.N.W.	N.W.	22½	
7. 23	8. 0	N.W.	W.N.W.		22½
8. 2	8. 2½	W.N.W.	W.		22½
8. 6½	8. 7	W.	W.N.W.	22½	
8. 10	8. 11	W.N.W.	N.W.	22½	
8. 21	8. 22	N.W.	W.N.W.		22½
9. 3	9. 3¾	W.N.W.	W.S.W.		45
9. 5½	9. 5¾	W.S.W.	S.W.		22½
9. 6¾	9. 7¼	S.W.	W.S.W.	22½	
9. 9	9. 9¼	W.S.W.	W.	22½	
9. 10¾	9. 11	W.	W.S.W.		22½
9. 13¼	9. 14	W.S.W.	S.W.		22½
9. 16	9. 17	S.W.	S.S.W.		22½

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
April—*cont.*					
d h	d h				
9. 19	9. 19½	S.S.W.	S.W.	22½	
9. 20½	9. 21	S.W.	W.S.W.	22½	
10. 19	10. 19¼	W.S.W.	N.N.W.	90	
10. 20	10. 21	N.N.W.	N.W.		22½
11. 3½	11. 3¾	N.W.	W.N.W.		22½
11. 5¾	11. 7½	W.N.W.	N.N.W.	45	
11. 14¼	11. 14¾	N.N.W.	N.W.		22½
11. 15½	11. 16	N.W.	N.	45	
11. 18	11. 18¼	N.	N.N.W.		22½
11. 20½	11. 21	N.N.W.	N.W.		22½
11. 22	11. 23	N.W.	W.S.W.		67½
12. 0½	12. 1	W.S.W.	W.	22½	
12. 2¾	12. 3	W.	W.S.W.		22½
12. 5	12. 6	W.S.W.	S.W.		22½
12. 8½	12. 9¼	S.W.	W.N.W.	67½	
12. 11	12. 12	W.N.W.	S.W.		67½
12. 17	12. 17½	S.W.	S.S.W.		22½
12. 21	12. 23	S.S.W.	S.S.E.		45
13. 4½	13. 6	S.S.E.	S.	22½	
13. 11	13. 12	S.	S.S.E.		22½
13. 13	13. 15	S.S.E.	S.E.		22½
13. 18	13. 19½	S.E.	E.S.E.		22½
13. 20½	13. 21	E.S.E.	E.N.E.		45
14. 0¾	14. 6	E.N.E.	N.W.		112½
14. 8	14. 8½	N.W.	W.N.W.		22½
14. 11¾	14. 12	W.N.W.	W.		22½
14. 21	14. 22	W.	W.S.W.		22½
15. 13¼	15. 13½	W.S.W.	W.	22½	
15. 14½	15. 14¾	W.	W.N.W.	22½	
15. 15½	15. 15¾	W.N.W.	W.		22½
15. 16¼	15. 16½	W.	W.N.W.	22½	
15. 18	15. 19	W.N.W.	W.S.W.		45
15. 20½	15. 20¾	W.S.W.	N.W.	67½	
15. 22	15. 22¼	N.W.	W.N.W.		22½
15. 23½	15. 23¾	W.N.W.	N.W.	22½	
16. 3½	16. 4	N.W.	N.	45	
16. 11½	16. 12	N.	N.N.W.		22½
16. 14¼	16. 15	N.N.W.	N.N.E.	45	
16. 23¼	16. 23½	N.N.E.	E.N.E.	45	
17. 0	17. 0½	E.N.E.	N.E.		22½
17. 2½	17. 3	N.E.	N.		45
17. 7	17. 8	N.	N.N.E.	22½	
17. 9¾	17. 10	N.N.E.	W.S.W.		135
17. 12	17. 13	W.S.W.	S.W.		22½
17. 15½	17. 16	S.W.	S.S.W.		22½
18. 5	18. 5¼	S.S.W.	N.N.W.	135	
18. 5¾	18. 6½	N.N.W.	E.S.E.	135	
18. 7½	18. 7¾	E.S.E.	N.		112½
18. 14	18. 15	N.	N.N.E.	22½	
18. 18½	18. 20¼	N.N.E.	S.	157½	
18. 23¼	18. 23½	S.	E.	270	
19. 0	19. 0¼	E.	S.E.	45	
19. 2	19. 2¼	S.E.	S.S.W.	67½	
19. 5	19. 6¼	S.S.W.	W.S.W.	45	
19. 15	19. 15¼	W.S.W.	W.	22½	
19. 16	19. 16¼	W.	W.N.W.	22½	
19. 18	19. 18½	W.N.W.	N.W.	22½	
19. 20	19. 20½	N.W.	W.		45
19. 22	19. 23	W.	S.W.		45

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
April—*cont.*					
d h	d h				
20. 9½	20. 10	S.W.	W.S.W.	22½	
20. 17	20. 17¼	W.S.W.	W.	22½	
20. 19¼	20. 19½	W.	S.S.W.		67½
20. 20¾	20. 22	S.S.W.	W.S.W.	45	
20. 23¼	20. 23½	W.S.W.	N.E.	157½	
21. 0¾	21. 1	N.E.	S.E.	90	
21. 11½	21. 12½	S.E.	E.S.E.		22½
21. 14½	21. 15	E.S.E.	E.		22½
21. 16½	21. 18¾	E.	N.N.E.		67½
22. 0½	22. 1	N.N.E.	N.		22½
22. 4	22. 5	N.	N.N.E.	22½	
22. 7½	22. 8	N.N.E.	N.E.	22½	
22. 16½	22. 16¾	N.E.	S.S.E.	112½	
22. 18¾	22. 19	S.S.E.	S.S.W.	45	
22. 21¼	22. 21½	S.S.W.	S.S.E.		45
23. 0	23. 1	S.S.E.	S.	22½	
23. 3¼	23. 4	S.	S.S.E.		22½
23. 6	23. 7	S.S.E.	S.	22½	
23. 20	23. 21	S.	S.S.E.		22½
24. 1	24. 2	S.S.E.	S.S.W.	45	
24. 11½	24. 12	S.S.W.	S.		22½
24. 14	24. 15	S.	S.S.E.		22½
24. 16½	24. 17½	S.S.E.	S.E.		22½
24. 21¼	24. 21½	S.E.	E.N.E.		67½
24. 23¾	25. 0	E.N.E.	S.E.	67½	
25. 1	25. 1½	S.E.	S.W.	90	
25. 3½	25. 4¼	S.W.	S.		45
25. 5	25. 5½	S.	S.S.W.	22½	
25. 8	25. 10	S.S.W.	W.	67½	
25. 13½	25. 14	W.	W.S.W.		22½
25. 18¾	25. 19	W.S.W.	S.W.		22½
26. 1½	26. 2¼	S.W.	W.S.W.	22½	
26. 3	26. 4	W.S.W.	N.W.	67½	
26. 12	26. 12½	N.W.	W.N.W.		22½
26. 14	26. 14½	W.N.W.	W.		22½
26. 15¾	26. 16¼	W.	N.N.W.	67½	
26. 17½	26. 18½	N.N.W.	W.N.W.		45
26. 20	26. 20½	W.N.W.	N.W.	22½	
27. 4	27. 5	N.W.	N.N.W.	22½	
27. 8	27. 8½	N.N.W.	N.	22½	
27. 11	27. 12	N.	E.S.E.	112½	
27. 13½	27. 13¾	E.S.E.	E.		22½
27. 15¾	27. 16	E.	E.S.E.	22½	
27. 18	27. 19	E.S.E.	S.S.W.	90	
28. 6	28. 7	S.S.W.	S.W.	22½	
28. 10½	28. 11½	S.W.	W.S.W.	22½	
28. 15	28. 15½	W.S.W.	S.W.		22½
28. 21½	28. 22	S.W.	S.S.W.		22½
29. 7	29. 8	S.S.W.	S.W.	22½	
29. 11	29. 12	S.W.	W.S.W.	22½	
29. 23	30. 0	W.S.W.	W.	22½	
30. 1	30. 1¼	W.	N.	90	
30. 16	30. 16½	N.	N.E.	45	
30. 19	30. 19½	N.E.	E.N.E.	22½	
30. 21	30. 22¼	E.N.E.	S.E.	67½	
			Sums	3667½	2340

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

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
May.				°	°
d h	d h				
1. 5	1. 6	S.E.	S.S.E.	22½	
1. 7	1. 7¼	S.S.E.	S.	22½	
1. 8	1. 8½	S.	S.S.W.	22½	
1. 23	2. 0	S.S.W.	S.W.	22½	
2. 3	2. 4	S.W.	W.S.W.	22½	
2. 6½	2. 8½	W.S.W.	N.N.W.	90	
2. 12	2. 12½	N.N.W.	N.N.E.	45	
2. 14½	2. 15	N.N.E.	N.E.	22½	
2. 19	2. 20	N.E.	E.N.E.	22½	
2. 22¾	2. 23	E.N.E.	E.	22½	
3. 2½	3. 4	E.	N.E.		45
3. 17	3. 17½	N.E.	E.	45	
3. 21	3. 21¼	E.	E.N.E.		22½
3. 22½	3. 22¾	E.N.E.	N.E.		22½
4. 1	4. 2	N.E.	N.N.E.		22½
4. 4	4. 4½	N.N.E.	N.		22½
4. 7	4. 7¼	N.	N.N.E.	22½	
4. 10	4. 11	N.N.E.	N.E.	22½	
4. 12½	4. 13	N.E.	E.N.E.	22½	
4. 16	4. 17	E.N.E.	E.S.E.	45	
4. 21	4. 23	E.S.E.	N.E.		67½
5. 3	5. 4	N.E.	N.N.E.		22½
5. 7	5. 8	N.N.E.	N.E.	22½	
5. 13	5. 13½	N.E.	E.N.E.	22½	
5. 17	5. 18	E.N.E.	E.	22½	
5. 20¾	5. 21	E.	E.N.E.		22½
5. 23	6. 0	E.N.E.	N.E.		22½
6. 9	6. 9½	N.E.	E.N.E.	22½	
6. 13	6. 13¼	E.N.E.	E.	22½	
6. 15¼	6. 15½	E.	E.N.E.		22½
6. 18½	6. 18¾	E.N.E.	E.	22½	
6. 20	6. 21¼	E.	N.E.		45
7. 1	7. 1½	N.E.	N.N.E.		22½
7. 11	7. 11½	N.N.E.	N.E.	22½	
7. 22½	7. 23½	N.E.	N.N.E.		22½
8. 11¾	8. 12	N.N.E.	N.		22½
8. 19	8. 19½	N.	N.N.E.	22½	
9. 0	9. 1	N.N.E.	N.		22½
9. 10¼	9. 10½	N.	S.W.		135
9. 14¾	9. 15	S.W.	N.N.E.	157½	
9. 15¾	9. 16	N.N.E.	S.	157½	
9. 16¼	9. 17	S.	N.E.	225	
9. 18½	9. 19	N.E.	W.S.W.	202½	
9. 22	9. 23	W.S.W.	S.W.		22½
10. 1½	10. 2	S.W.	N.N.W.	112½	
10. 6¾	10. 7	N.N.W.	S.S.E.		180
10. 8	10. 8¼	S.S.E.	N.	202½	
10. 10	10. 11	N.	S.W.		135
10. 12	10. 12½	S.W.	N.E.		180
11. 1	11. 2	N.E.	N.N.E.		22½
11. 4	11. 4¼	N.N.E.	N.		22½
11. 6¾	11. 7	N.	N.N.W.		22½
11. 8½	11. 8¾	N.N.W.	S.		157½
11. 9½	11. 11	S.	N.	180	
11. 12½	11. 12¾	N.	W.S.W.		112½
11. 14½	11. 14¾	W.S.W.	W.	22½	
11. 15½	11. 16	W.	S.W.		45
12. 11	12. 12	S.W.	S.S.W.		22½

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
May—*cont.*				°	°
d h	d h				
12. 22	13. 0	S.S.W.	S.W.	22½	
13. 11	13. 12	S.W.	W.	45	
13. 12¼	13. 12½	W.	S.W.		45
13. 15	13. 17	S.W.	S.S.W.		22½
14. 1	14. 2	S.S.W.	S.		22½
14. 10	14. 10½	S.	S.S.E.		22½
14. 15	14. 17	S.S.E.	S.W.	67½	
14. 20½	14. 21	S.W.	W.S.W.	22½	
15. 11	15. 11½	W.S.W.	S.W.		22½
15. 12½	15. 13	S.W.	S.S.W.		22½
15. 14	15. 14½	S.S.W.	S.W.	22½	
15. 19	15. 20	S.W.	S.S.W.		22½
16. 6	16. 7	S.S.W.	S.W.	22½	
16. 9	16. 9½	S.W.	W.S.W.	22½	
16. 16	16. 17	W.S.W.	S.W.		22½
16. 23	17. 0¾	S.W.	S.		45
17. 2	17. 2¼	S.	S.S.W.	22½	
17. 6	17. 6¼	S.S.W.	S.W.	22½	
17. 8½	17. 9½	S.W.	W.S.W.	22½	
17. 14	17. 15	W.S.W.	S.W.		22½
17. 19	17. 20	S.W.	S.S.W.		22½
18. 2¾	18. 3	S.S.W.	S.		22½
18. 5	18. 5½	S.	S.S.W.	22½	
18. 14½	18. 15½	S.S.W.	S.W.	22½	
19. 11½	19. 12	S.W.	S.S.W.		22½
20. 0	20. 1	S.S.W.	S.W.	22½	
20. 3	20. 4	S.W.	S.S.W.		22½
20. 7	20. 8	S.S.W.	S.W.	22½	
20. 11	20. 12½	S.W.	W.S.W.	22½	
21. 9	21. 9½	W.S.W.	N.	112½	
21. 10¼	21. 10½	N.	N.E.	45	
21. 13	21. 14½	N.E.	E.S.E.	67½	
22. 9	22. 9½	E.S.E.	E.		22½
22. 16	22. 16½	E.	E.S.E.	22½	
22. 21¾	22. 23	E.S.E.	W.S.W.	135	
23. 1½	23. 2½	W.S.W.	S.W.		22½
24. 9	24. 10½	S.W.	S.S.W.		22½
24. 16	24. 16½	S.S.W.	S.W.	22½	
24. 18	24. 18¾	S.W.	E.N.E.	202½	
24. 19¾	24. 20	E.N.E.	E.S.E.	45	
24. 22	24. 23	E.S.E.	N.N.E.		90
25. 7	25. 8	N.N.E.	N.		22½
26. 15½	26. 16	N.	N.N.E.	22½	
26. 22	26. 23	N.N.E.	N.		22½
27. 6½	27. 7	N.	N.N.E.	22½	
27. 11	27. 12	N.N.E.	N.		22½
27. 17	27. 17¼	N.	N.N.E.	22½	
27. 20	27. 20½	N.N.E.	N.		22½
28. 8	28. 9	N.	N.N.E.	22½	
29. 1	29. 2	N.N.E.	N.E.	22½	
29. 6	29. 7	N.E.	N.N.E.		22½
29. 16½	29. 18	N.N.E.	E.S.E.	90	
29. 22	29. 23	E.S.E.	S.E.	22½	
30. 2¼	30. 2½	S.E.	S.S.E.	22½	
30. 4¼	30. 4½	S.S.E.	S.S.W.	45	
30. 5¾	30. 6¾	S.S.W.	S.E.		67½
30. 11½	30. 12	S.E.	E.S.E.		22½
30. 20	30. 21	E.S.E.	S.S.W.	90	

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
May—*cont.*				°	°
d h	d h				
31. 3	31. 3½	S.S.W.	S.		22½
31. 7½	31. 8	S.	S.S.E.		22½
31. 14	31. 14½	S.S.E.	S.S.W.	45	
31. 16½	31. 17½	S.S.W.	E.S.E.		90
			Sums	3397½	2340
June.					
1. 0	1. 0¼	E.S.E.	N.N.E.		90
1. 1	1. 1¼	N.N.E.	E.N.E.	45	
1. 2	1. 2¼	E.N.E.	E.	22½	
1. 2½	1. 2¾	E.	N.W.		135
1. 3½	1. 3¾	N.W.	N.E.	90	
1. 7½	1. 8½	N.E.	E.S.E.	67½	
1. 9½	1. 10	E.S.E.	S.E.	22½	
1. 12	1. 13	S.E.	S.S.E.	22½	
1. 18	1. 19	S.S.E.	S.E.		22½
2. 1½	2. 2½	S.E.	N.E.		90
2. 4½	2. 4¾	N.E.	S.E.	90	
2. 5¼	2. 5½	S.E.	N.	225	
2. 5¾	2. 6	N.	E.	90	
2. 6½	2. 7½	E.	S.S.W.	112½	
2. 10½	2. 11	S.S.W.	S.W.	22½	
2. 16¼	2. 16½	S.W.	N.W.	90	
2. 21	2. 22¼	N.W.	N.N.E.	67½	
3. 0½	3. 0¾	N.N.E.	N.		22½
3. 1¾	3. 2	N.	N.N.E.	22½	
3. 8	3. 9	N.N.E.	N.E.	22½	
3. 13	3. 14	N.E.	N.		45
3. 15	3. 16¾	N.	E.S.E.	112½	
3. 18	3. 18¼	E.S.E.	E.		22½
3. 19	3. 20	E.	E.S.E.	22½	
4. 6¾	4. 7	E.S.E.	N.E.		67½
4. 8½	4. 9	N.E.	E.S.E.	67½	
4. 11½	4. 12	E.S.E.	S.S.W.		270
4. 13	4. 14	S.S.W.	E.		112½
4. 15	4. 16	E.	E.S.E.	22½	
4. 17	4. 18	E.S.E.	S.E.	22½	
5. 3½	5. 4	S.E.	S.	45	
5. 6	5. 6½	S.	E.		90
5. 7	5. 8	E.	S.W.	135	
5. 11½	5. 12	S.W.	N.		225
5. 12½	5. 13	N.	N.E.	45	
5. 16	5. 16½	N.E.	E.S.E.	67½	
5. 17½	5. 18¾	E.S.E.	S.S.W.	90	
6. 1	6. 1¼	S.S.W.	S.S.E.	315	
6. 4	6. 4½	S.S.E.	N.E.		112½
6. 6	6. 6¼	N.E.	N.N.E.		22½
6. 9½	6. 9¾	N.N.E.	S.S.E.	135	
6. 10½	6. 11	S.S.E.	E.N.E.	270	
6. 15	6. 16	E.N.E.	E.S.E.	45	
6. 21	6. 23	E.S.E.	E.		22½
7. 5	7. 5½	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.
				°	°
June—*cont.*					
d h	d h				
7. 7	7. 7½	E.N.E.	E.	22½	
7. 13	7. 13¼	E.	E.S.E.	22½	
7. 19	7. 20	E.S.E.	E.		22½
7. 23	8. 0	E.	N.E.		45
8. 11½	8. 12	N.E.	N.N.E.		22½
10. 6	10. 8	N.N.E.	N.E.	22½	
10. 16	10. 16¼	N.E.	E.N.E.	22½	
10. 17½	10. 17¾	E.N.E	E.	22½	
11. 3	11. 3½	E.	N.N.E.		67½
11. 11	11. 12	N.N.E.	E.N.E.	45	
11. 16	11. 17	E.N.E.	E.	22½	
12. 7¾	12. 8	E.	N.E.		45
12. 11½	12. 11¾	N.E.	S.W.		180
12. 12½	12. 12¾	S.W.	N.	135	
12. 16	12. 16¼	N.	N.N.E.	22½	
12. 21	12. 21¼	N.N.E.	E.N.E.	45	
12. 22¼	12. 22½	E.N.E.	N.N.E.		45
13. 22	13. 23	N.N.E.	N.E.	22½	
14. 2½	14. 3	N.E.	N.N.E.		22½
14. 4	14. 5	N.N.E.	N.		22½
14. 8	14. 9	N.	N.N.E.	22½	
14. 18½	14. 18¾	N.N.E.	E.S.E.	90	
14. 20¼	14. 20½	E.S.E.	E.		22½
14. 21½	14. 22	E.	N.N.E.		67½
14. 23½	15. 0	N.N.E.	N.E.	22½	
15. 3	15. 3¼	N.E.	N.N.E.		22½
15. 12	15. 12½	N.N.E.	N.		22½
15. 18	15. 18¾	N.	E.N.E.	67½	
15. 19¼	15. 20	E.N.E.	E.S.E.	45	
15. 21½	15. 22¾	E.S.E.	S.	67½	
15. 23¾	16. 0	S.	S.W.	45	
16. 1	16. 2	S.W.	N.E.	180	
16. 12	16. 12½	N.E.	N.N.E.		22½
16. 17¼	16. 17¾	N.N.E.	E.S.E.	90	
16. 22½	16. 23	E.S.E.	S.E.	22½	
17. 0¾	17. 1	S.E.	E.S.E.		22½
17. 2½	17. 3	E.S.E.	N.E.		67½
17. 12½	17. 13	N.E.	E.S.E.	67½	
17. 17¼	17. 17¾	E.S.E.	S.S.W.	90	
18. 4½	18. 5	S.S.W.	S.W.	22½	
18. 20	18. 21	S.W.	S.S.W.		22½
19. 1	19. 2½	S.S.W.	N.W.	112½	
19. 6½	19. 7	N.W.	N.N.W.	22½	
19. 9	19. 10	N.N.W.	N.	22½	
19. 13	19. 14	N.	S.E.	135	
19. 21½	19. 22¼	S.E.	E.		45
20. 0½	20. 1	E.	E.S.E.	22½	
20. 2½	20. 3½	E.S.E.	S.	67½	
20. 5	20. 6	S.	S.S.E.		22½
20. 10	20. 11	S.S.E.	S.S.W.	45	
20. 12	20. 13	S.S.W.	S.S.E.		45
21. 1	21. 2	S.S.E.	S.E.		22½
21. 10	21. 11	S.E.	S.S.E.	22½	
21. 13	21. 13½	S.S.E.	S.S.W.	45	
22. 3	22. 3½	S.S.W.	N.N.W.	135	
22. 9	22. 10	N.N.W.	N.	22½	
22. 17½	22. 18	N.	N.N.E.	22½	
22. 22	22. 23	N.N.E.	N.		22½
23. 1	23. 1½	N.	N.N.E.	22½	

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
June—*cont.*					
d h	d h				
23. 16	23. 17	N.N.E.	N.		22½
23. 20¼	23. 20½	N.	N.E.	45	
23. 21½	23. 21¾	N.E.	S.E.	90	
23. 22½	23. 22¾	S.E.	S.W.	90	
24. 0	24. 1	S.W.	N.N.W.	112½	
25. 9	25. 10	N.N.W.	N.W.		22½
25. 11½	25. 12	N.W.	W.N.W.		22½
25. 15½	25. 16	W.N.W.	W.		22½
25. 18½	25. 19½	W.	W.S.W.		22½
26. 9	26. 10	W.S.W.	W.N.W.	45	
26. 12	26. 13	W.N.W.	W.S.W.		45
26. 13¾	26. 14	W.S.W.	W.	22½	
26. 15½	26. 16½	W.	N.W.	45	
26. 18	26. 18¼	N.W.	N.N.W.	22½	
26. 19½	26. 20	N.N.W.	N.	22½	
27. 2½	27. 3	N.	N.N.E.	22½	
27. 7	27. 8	N.N.E.	N.E.	22½	
27. 9	27. 10	N.E.	E.	45	
27. 23	28. 0	E.	E.S.E.	22½	
28. 12	28. 12½	E.S.E.	E.		22½
28. 19½	28. 20¼	E.	N.N.E.	292½	
29. 2	29. 3	N.N.E.	W.S.W.		135
29. 10	29. 10½	W.S.W.	W.	22½	
29. 17	29. 17½	W.	W.N.W.	22½	
29. 20¼	29. 20½	W.N.W.	N.W.	22½	
30. 2	30. 2¼	N.W.	W.N.W.		22½
30. 4¼	30. 4½	W.N.W.	W.S.W.		45
30. 14	30. 15	W.S.W.	S.W.		22½
30. 19	30. 20½	S.W.	S.S.E.		67½
30. 22½	30. 23	S.S.E.	S.S.W.	45	
			Sums	5355	2745
July.					
1. 3¼	1. 3½	S.S.W.	N.W.	112½	
1. 4	1. 4½	N.W.	S.		135
1. 5½	1. 6	S.	S.S.W.	22½	
1. 8½	1. 9½	S.S.W.	S.W.	22½	
1. 12	1. 12¼	S.W.	W.S.W.	22½	
2. 7	2. 7½	W.S.W.	W.	22½	
2. 16	2. 17	W.	W.S.W.		22½
3. 2	3. 3	W.S.W.	W.	22½	
3. 4½	3. 5	W.	W.N.W.	22½	
3. 14	3. 15	W.N.W.	N.W.	22½	
3. 18	3. 20	N.W.	W.N.W.		22½
4. 6¼	4. 7	W.N.W.	N.W.	22½	
5. 3¾	5. 5	N.W.	S.W.		90
5. 8	5. 8¼	S.W.	N.N.W.	112½	
5. 23	6. 0	N.N.W.	S.W.		112½
6. 2½	6. 3	S.W.	W.S.W.	22½	
6. 9¼	6. 9½	W.S.W.	N.N.W.	90	
6. 10¾	6. 11¼	N.N.W.	W.N.W.		45
6. 12¼	6. 12½	W.N.W.	N.N.W.	45	

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
July—*cont.*					
d h	d h				
6. 13½	6. 15	N.N.W.	E.S.E.	135	
6. 16¼	6. 16½	E.S.E.	S.S.E.	45	
6. 17½	6. 17¾	S.S.E.	S.	22½	
6. 19	6. 19¼	S.	E.S.E.		67½
6. 20½	6. 21	E.S.E.	E.N.E.		45
6. 22	6. 23	E.N.E.	S.S.E.	90	
6. 23½	6. 23¾	S.S.E.	S.W.	67½	
7. 0¼	7. 0½	S.W.	E.S.E.	247½	
7. 3½	7. 4	E.S.E.	N.N.W.	225	
7. 11½	7. 12	N.N.W.	N.	22½	
7. 16½	7. 16¾	N.	S.E.	135	
7. 21	7. 21½	S.E.	S.W.	90	
7. 23	8. 0	S.W.	E.S.E.	247½	
8. 1	8. 1½	E.S.E.	S.E.	22½	
8. 2½	8. 4	S.E.	W.S.W.	112½	
8. 5	8. 6	W.S.W.	W.N.W.	45	
8. 11	8. 11¼	W.N.W.	W.		22½
8. 14¾	8. 15	W.	N.W.	45	
8. 17¼	8. 17½	N.W.	W.		45
8. 21	8. 22	W.	W.S.W.		22½
9. 8½	9. 9	W.S.W.	W.	22½	
9. 12½	9. 13	W.	W.S.W.		22½
9. 15½	9. 16½	W.S.W.	S.W.		22½
10. 20	10. 22	S.W.	S.S.W.		22½
11. 7¾	11. 8	S.S.W.	S.E.		67½
11. 9½	11. 11	S.E.	S.	45	
11. 14½	11. 15	S.	S.S.W.	22½	
11. 18	11. 19½	S.S.W.	S.E.		67½
11. 21	11. 21½	S.E.	E.S.E.		22½
11. 23	12. 0	E.S.E.	S.E.	22½	
12. 2½	12. 2¾	S.E.	S.S.W.	67½	
12. 3¼	12. 3½	S.S.W.	E.N.E.		135
12. 5	12. 5¼	E.N.E.	E.S.E.	45	
12. 6	12. 7	E.S.E.	S.E.	22½	
12. 10	12. 11½	S.E.	S.W.	90	
13. 7	13. 8¼	S.W.	W.	45	
13. 14½	13. 14¾	W.	W.S.W.		22½
13. 18	13. 20	W.S.W.	S.W.		22½
14. 3¾	14. 4	S.W.	S.S.W.		22½
14. 22	14. 23	S.S.W.	S.W.	22½	
15. 5	15. 6	S.W.	W.S.W.	22½	
15. 10½	15. 11	W.S.W.	W.	22½	
15. 12	15. 12¼	W.	W.S.W.		22½
15. 21	15. 22	W.S.W.	S.W.		22½
16. 11	16. 13	S.W.	N.E.	180	
16. 15½	16. 16¼	N.E.	E.	45	
16. 18	16. 18½	E.	E.S.E.	22½	
16. 19¼	16. 19½	E.S.E.	S.E.	22½	
16. 20½	16. 21½	S.E.	S.S.W.	67½	
17. 0½	17. 0¾	S.S.W.	N.E.	202½	
17. 1¾	17. 2½	N.E.	S.	135	
17. 4½	17. 5	S.	S.S.W.	22½	
17. 7	17. 7¼	S.S.W.	E.N.E.		135
17. 9	17. 9½	E.N.E.	E.S.E.	45	
18. 9	18. 9½	E.S.E.	S.E.	22½	
18. 11	18. 12	S.E.	S.S.E.	22½	
18. 20	18. 21	S.S.E.	S.E.		22½
19. 1½	19. 2	S.E.	S.S.E.	22½	
19. 7	19. 7½	S.S.E.	S.	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. °
July.—*cont.*					
d h	d h				
19. 10½	19. 11	S.	S.S.W.	22½	
19. 15¾	19. 16	S.S.W.	S.		22½
19. 18	19. 19	S.	S.E.		45
19. 23	19. 23¼	S.E.	E.S.E.		22½
20. 0½	20. 1	E.S.E.	E.N.E.		45
20. 2¾	20. 3	E.N.E.	E.	22½	
20. 5½	20. 6	E.	N.E.		45
20. 8	20. 9	N.E.	E.	45	
20. 16	20. 16¼	E.	E.S.E.	22½	
20. 20	20. 20½	E.S.E.	E.		22½
20. 22	20. 23	E.	E.N.E.		22½
21. 1½	21. 2	E.N.E.	N.W.		112½
21. 2¾	21. 3¼	N.W.	N.E.	90	
21. 4¾	21. 5	N.E.	W.S.W.		157½
21. 8	21. 9	W.S.W.	W.	22½	
21. 13½	21. 14	W.	W.S.W.		22½
21. 17½	21. 18	W.S.W.	N.E.	157½	
21. 19	21. 20	N.E.	N.N.E.		22½
22. 1½	22. 2	N.N.E.	N.E.	22½	
22. 4½	22. 5	N.E.	E.	45	
22. 6	22. 7½	E.	N.E.		45
22. 10	22. 10½	N.E.	E.N.E.	22½	
22. 12	22. 12¼	E.N.E.	N.N.E.		45
22. 13	22. 13½	N.N.E.	N.E.	22½	
22. 14½	22. 15	N.E.	E.S.E.	67½	
22. 16½	22. 17½	E.S.E.	E.N.E.		45
22. 20¾	22. 21	E.N.E.	N.E.		22½
22. 22	22. 22¼	N.E.	S.E.	90	
22. 23½	22. 23¾	S.E.	N.E.		90
23. 1	23. 1½	N.E.	N.N.W.		67½
23. 5	23. 6	N.N.W.	W.S.W.		90
23. 7½	23. 8	W.S.W.	N.N.E.	135	
23. 9¼	23. 9½	N.N.E.	N.		22½
23. 15	23. 16	N.	N.N.W.		22½
24. 15	24. 15½	N.N.W.	N.	22½	
24. 19	24. 19½	N.	N.N.E.	22½	
24. 21¼	24. 21½	N.N.E.	N.N.W.		45
25. 2	25. 3	N.N.W.	N.W.		22½
25. 9	25. 9½	N.W.	W.N.W.		22½
25. 11	25. 11½	W.N.W.	W.		22½
25. 21	25. 22	W.	W.S.W.		22½
26. 7	26. 8	W.S.W.	W.	22½	
26. 15	26. 15¼	W.	W.N.W.	22½	
26. 17	26. 18	W.N.W.	W.		22½
26. 22½	26. 22¾	W.	N.	90	
27. 7	27. 8	N.	N.N.W.		22½
28. 3¾	28. 4	N.N.W.	S.W.		112½
28. 6	28. 7½	S.W.	N.W.	90	
28. 10	28. 11	N.W.	N.N.W.	22½	
28. 12	28. 12¼	N.N.W.	N.	22½	
28. 17½	28. 17¾	N.	N.N.W.		22½
28. 19	28. 19½	N.N.W.	N.W.		22½
28. 20½	28. 21	N.W.	N.	45	
29. 0¼	29. 0½	N.	S.W.	225	
29. 1	29. 1½	S.W.	W.S.W.	22½	
29. 6½	29. 7	W.S.W.	W.N.W.	45	
29. 9½	29. 10	W.N.W.	W.		22½
29. 12	29. 12½	W.	N.W.	45	
29. 13½	29. 14	N.W.	N.N.W.	22½	

Greenwich Civil Time From	Greenwich Civil Time To	Change of Direction From	Change of Direction To	Amount of Motion Direct. °	Amount of Motion Retrograde. °
July.—*cont.*					
d h	d h				
29. 19¾	29. 20	N.N.W.	N.	22½	
29. 22	29. 23	N.	N.N.W.		22½
30. 11½	30. 12	N.N.W.	N.	22½	
30. 13½	30. 14	N.	N.N.E.	22½	
30. 16	30. 17¼	N.N.E.	E.N.E.	45	
30. 18½	30. 19½	E.N.E.	E.S.E.	45	
31. 0	31. 1	E.S.E.	E.		22½
31. 2	31. 3	E.	N.E.		45
31. 5½	31. 6½	N.E.	E.N.E.	22½	
31. 10½	31. 11	E.N.E.	E.	22½	
31. 16	31. 16½	E.	E.S.E.	22½	
31. 20½	31. 21	E.S.E.	E.		22½
			Sums	5130	2722½
August.					
1. 0	1. 0¼	E.	E.N.E.		22½
1. 2¾	1. 3	E.N.E.	N.E.		22½
1. 5	1. 6	N.E.	E.S.E.	67½	
1. 12¼	1. 12½	E.S.E.	E.		22½
1. 18	1. 19	E.	E.S.E.	22½	
1. 20½	1. 21	E.S.E.	E.		22½
2. 4	2. 4¼	E.	N.E.		45
2. 8	2. 8¼	N.E.	E.	45	
2. 14	2. 14½	E.	E.S.E.	22½	
2. 17	2. 17½	E.S.E.	E.		22½
2. 21½	2. 22	E.	E.N.E.		22½
3. 12¾	3. 13	E.N.E.	E.	22½	
3. 14	3. 14¼	E.	E.S.E.	22½	
3. 15	3. 15½	E.S.E.	E.		22½
3. 20	3. 20½	E.	E.N.E.		22½
4. 7	4. 7½	E.N.E.	E.	22½	
4. 20½	4. 21	E.	E.N.E.		22½
5. 9½	5. 10½	E.N.E.	E.	22½	
5. 15	5. 15½	E.	E.S.E.	22½	
5. 20½	5. 21½	E.S.E.	E.N.E.		45
6. 1	6. 1½	E.N.E.	E.	22½	
6. 4	6. 4¼	E.	E.N.E.		22½
6. 6¾	6. 7¼	E.N.E.	E.S.E.	45	
7. 3	7. 4	E.S.E.	E.		22½
7. 7	7. 7½	E.	E.N.E.		22½
7. 11½	7. 12	E.N.E.	E.	22½	
7. 13	7. 13½	E.	E.S.E.	22½	
7. 15½	7. 15¾	E.S.E.	N.E.		67½
7. 16¼	7. 16½	N.E.	E.S.E.	67½	
7. 22	7. 23	E.S.E.	E.N.E.		45
8. 0	8. 1	E.N.E.	N.E.		22½
8. 12½	8. 13	N.E.	E.N.E.	22½	
8. 17	8. 19	E.N.E.	N.N.E.		45
9. 0	9. 1	N.N.E.	N.		22½
9. 11	9. 12½	N.	E.N.E.	67½	
9. 13	9. 13½	E.N.E.	E.	22½	
9. 16	9. 16¼	E.	E.S.E.	22½	
9. 18¼	9. 18½	E.S.E.	E.		22½

Greenwich Civil Time From	Greenwich Civil Time To	Change of Direction From	Change of Direction To	Amount of Motion Direct. °	Amount of Motion Retrograde. °
Aug.—*cont.*					
d h	d h				
9. 20	9. 21	E.	E.N.E.		22½
9. 23¾	10. 0	E.N.E.	N.E.		22½
10. 9½	10. 10	N.E.	E.N.E.	22½	
10. 12½	10. 13½	E.N.E.	E.S.E.	45	
10. 20	10. 21	E.S.E.	E.N.E.		45
11. 0½	11. 1	E.N.E.	N.E.		22½
11. 13	11. 14	N.E.	E.	45	
12. 1	12. 1½	E.	E.N.E.		22½
12. 2	12. 3½	E.N.E.	N.E.		22½
12. 8¾	12. 9	N.E.	E.N.E.	22½	
12. 13½	12. 14	E.N.E.	E.S.E.	45	
12. 20½	12. 21	E.S.E.	E.		22½
13. 3¼	13. 3½	E.	E.N.E.		22½
13. 4¼	13. 4½	E.N.E.	N.N.E.		45
13. 6	13. 6½	N.N.E.	E.N.E.	45	
13. 12	13. 12¼	E.N.E.	N.E.		22½
13. 14	13. 15	N.E.	E.	45	
14. 0	14. 1	E.	E.N.E.		22½
14. 9½	14. 10	E.N.E.	E.	22½	
15. 6¾	15. 7	E.	N.E.		45
15. 11	15. 12	N.E.	S.W.	180	
15. 14	15. 14¼	S.W.	S.S.W.		22½
15. 15½	15. 16	S.S.W.	S.W.	22½	
15. 16½	15. 16¾	S.W.	W.N.W.	67½	
15. 17½	15. 18½	W.N.W.	S.S.W.		90
15. 19	15. 19½	S.S.W.	N.	157½	
15. 20	15. 22	N.	S.S.E.	157½	
15. 23½	16. 0	S.S.E.	N.	202½	
16. 13	16. 14	N.	W.N.W.		67½
16. 16½	16. 17	W.N.W.	N.W.	22½	
16. 19	16. 19½	N.W.	W.N.W.		22½
16. 23	17. 0½	W.N.W.	W.S.W.		45
17. 4	17. 4½	W.S.W.	W.	22½	
17. 5½	17. 7	W.	N.W.	45	
17. 11½	17. 12	N.W.	W.N.W.		22½
17. 18	17. 19	W.N.W.	N.W.	22½	
17. 19¾	17. 20	N.W.	N.N.W.	22½	
17. 23½	18. 1	N.N.W.	W.		67½
18. 2½	18. 3	W.	S.W.		45
18. 6	18. 6½	S.W.	W.S.W.	22½	
18. 7½	18. 9½	W.S.W.	N.W.	67½	
18. 20	18. 21	N.W.	W.N.W.		22½
18. 23½	19. 0	W.N.W.	N.W.	22½	
19. 1	19. 3	N.W.	N.N.E.	67½	
19. 5	19. 6½	N.N.E.	W.N.W.		90
19. 7¾	19. 8	W.N.W.	N.W.	22½	
19. 12¼	19. 12½	N.W.	N.N.W.	22½	
19. 14½	19. 15	N.N.W.	N.	22½	
19. 19	19. 19½	N.	N.N.W.		22½
20. 2½	20. 3¼	N.N.W.	N.	22½	
20. 13	20. 14	N.	N.N.E.	22½	
20. 17¼	20. 17½	N.N.E.	N.E.	22½	
20. 18½	20. 18¾	N.E.	E.S.E.	67½	
20. 22	20. 23	E.S.E.	N.E.		67½
21. 8½	21. 8¾	N.E.	E.N.E.	22½	
21. 11	21. 12	E.N.E.	N.N.E.		45
21. 12¾	21. 13	N.N.E.	N.E.	22½	
21. 16½	21. 17¼	N.E.	E.S.E.	67½	
22. 3¾	22. 4	E.S.E.	N.E.		67½

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

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
Aug.—*cont.*					
d h	d h				
22. 6¼	22. 6½	N.E.	E.S.E.	67½	
22. 8	22. 8½	E.S.E.	E.N.E.		45
22. 12	22. 13	E.N.E.	E.S.E.	45	
22. 20	22. 22	E.S.E.	E.		22½
23. 15	23. 15½	E.	E.S.E.	22½	
24. 12½	24. 13	E.S.E.	E.		22½
24. 16	24. 16½	E.	E.S.E.	22½	
24. 22	24. 23	E.S.E.	E.		22½
25. 3	25. 4	E.	E.S.E.	22½	
25. 8	25. 9	E.S.E.	S.S.E.	45	
25. 11	25. 11½	S.S.E.	S.	22½	
25. 13½	25. 14	S.	S.S.W.	22½	
25. 17	25. 18	S.S.W.	S.W.	22½	
25. 20	25. 21	S.W.	W.S.W.	22½	
26. 5	26. 5½	W.S.W.	N.N.W.	90	
26. 6½	26. 7	N.N.W.	N.	22½	
26. 13	26. 13½	N.	N.E.	45	
26. 16¼	26. 16½	N.E.	E.S.E.	67½	
26. 18	26. 19	E.S.E.	S.S.E.	45	
26. 21¼	26. 21½	S.S.E.	E.S.E.		45
26. 23¼	26. 23½	E.S.E.	E.N.E.		45
27. 0¼	27. 0½	E.N.E	S.S.E.	90	
27. 1¾	27. 2	S.S.E.	E.N.E.		90
27. 4½	27. 5	E.N.E.	E.	22½	
27. 7½	27. 8	E.	E.S.E.	22½	
27. 9	27. 10	E.S.E.	W.S.W.	135	
27. 16	27. 16½	W.S.W.	S.W.		22½
27. 21	27. 21¼	S.W.	S.S.W.		22½
28. 0	28. 1	S.S.W.	S.W.	22½	
28. 3	28. 4	S.W.	W.S.W.	22½	
28. 9	28. 10	W.S.W.	S.W.		22½
28. 12	28. 12½	S.W.	W.S.W.	22½	
28. 15	28. 16	W.S.W.	S.W.		22½
28. 21½	28. 22½	S.W.	W.S.W.	22½	
29. 2	29. 3	W.S.W.	S.W.		22½
29. 19	29. 21	S.W.	S.S.W.		22½
30. 5½	30. 6½	S.S.W.	S.W.	22½	
30. 12	30. 12½	S.W.	W.S.W.	22½	
30. 17¼	30. 17½	W.S.W.	W.N.W.	45	
30. 18½	30. 19½	W.N.W.	W.S.W.		45
31. 11	31. 12	W.S.W.	S.W.		22½
31. 22	31. 23	S.W.	W.S.W.	22½	
			Sums	3352½	2115
September.					
1. 9	1. 9¼	W.S.W.	W.	22½	
1. 18	1. 19	W.	W.S.W.		22½
2. 1½	2. 2½	W.S.W.	S.W.		22½
2. 4½	2. 5½	S.W.	W.S.W.	22½	
2. 16	2. 16¼	W.S.W.	N.W.	67½	
2. 18	2. 18½	N.W.	S.S.W.		112½
2. 19	2. 20	S.S.W.	W.S.W.	45	
3. 2	3. 3	W.S.W.	S.W.		22½

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
Sept.—*cont.*					
d h	d h				
3. 11	3. 11½	S.W.	W.S.W.	22½	
3. 17	3. 18	W.S.W.	S.W.		22½
3. 19½	3. 20	S.W.	S.S.W.		22½
4. 2¾	4. 3	S.S.W.	S.		22½
4. 4	4. 5	S.	S.E.		45
4. 7	4. 8	S.E.	S.S.E.	22½	
4. 9½	4. 11	S.S.E.	S.S.W.	45	
4. 18	4. 18½	S.S.W.	S.		22½
4. 23½	5. 0	S.	E.N.E.		112½
5. 0¾	5. 1	E.N.E.	E.	22½	
5. 2	5. 2¾	E.	E.N.E.		22½
5. 7	5. 7½	E.N.E.	S.E.	67½	
5. 9	5. 10	S.E.	S.W.	90	
6. 2½	6. 2¾	S.W.	N.N.E.	157½	
6. 3¾	6. 4	N.N.E.	E.S.E.	90	
6. 5	6. 5½	E.S.E.	N.E.		67½
6. 11½	6. 13¼	N.E.	E.	405	
6. 16½	6. 17	E.	N.E.		45
6. 19	6. 19½	N.E.	E.N.E.	22½	
6. 22	6. 22½	E.N.E.	N.E.		22½
7. 2	7. 3	N.E.	N.		45
7. 3¾	7. 4	N.	N.E.	45	
7. 8	7. 9	N.E.	E.S.E.	67½	
7. 20	7. 20½	E.S.E.	S.E.	22½	
7. 22½	7. 22¾	S.E.	S.	45	
8. 1	8. 1½	S.	S.W.	45	
8. 3½	8. 5½	S.W.	N.	135	
8. 17	8. 18	N.	N.N.E.	22½	
8. 20	8. 21	N.N.E.	N.N.W.		45
9. 7	9. 8	N.N.W.	N.	22½	
9. 12	9. 12½	N.	N.N.W.		22½
9. 19½	9. 20	N.N.W.	N.W.		22½
9. 21½	9. 23	N.W.	W.		45
10. 2	10. 2½	W.	W.N.W.	22½	
10. 3¾	10. 4¼	W.N.W.	W.S.W.		45
10. 6	10. 6¼	W.S.W.	W.N.W.	45	
10. 8	10. 8½	W.N.W.	N.N.W.	45	
10. 11½	10. 12½	N.N.W.	N.	22½	
10. 23	11. 0	N.	N.N.W.		22½
11. 4½	11. 5½	N.N.W.	S.W.		112½
11. 11	11. 12	S.W.	W.S.W.	22½	
11. 18	11. 18¾	W.S.W.	S.S.W.		45
11. 19½	11. 21	S.S.W.	W.N.W.	90	
11. 22¼	11. 23	W.N.W.	N.W.	22½	
12. 3	12. 5	N.W.	N.N.W.	22½	
12. 6½	12. 7	N.N.W.	N.	22½	
12. 8	12. 8½	N.	N.N.E.	22½	
12. 10½	12. 11	N.N.E.	N.		22½
12. 15½	12. 16¼	N.	N.E.	45	
12. 18½	12. 21	N.E.	S.S.E.	112½	
13. 3¾	13. 4¼	S.S.E.	S.W.	67½	
13. 5¼	13. 5½	S.W.	S.S.E.		67½
13. 8	13. 8½	S.S.E.	S.S.W.	45	
13. 10¾	13. 11	S.S.W.	E.		112½
13. 12	13. 13	E.	W.S.W.		202½
13. 15¾	13. 16	W.S.W.	N.N.W.	90	
13. 17½	13. 17¾	N.N.W.	S.S.E.	180	
13. 18½	13. 19½	S.S.E.	N.E.	247½	
14. 3	14. 4	N.E.	N.N.E.		22½

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
				°	°
Sept.—*cont.*					
d h	d h				
14. 9½	14. 10	N.N.E.	N.		22½
14. 11½	14. 12	N.	N.N.W.		22½
15. 0½	15. 1½	N.N.W.	W.S.W.		90
15. 7	15. 8	W.S.W.	N.N.W.	90	
15. 9½	15. 10	N.N.W.	W.		67½
15. 12½	15. 13	W.	W.S.W.		22½
15. 16	15. 17	W.S.W.	S.W.		22½
16. 3	16. 4¼	S.W.	W.N.W.	67½	
16. 5	16. 5¼	W.N.W.	W.		22½
16. 8	16. 8¼	W.	W.N.W.	22½	
16. 14	16. 15	W.N.W.	N.N.W.	45	
16. 18½	16. 19½	N.N.W.	N.W.		22½
16. 22½	16. 23	N.W.	W.N.W.		22½
17. 0½	17. 1¾	W.N.W.	W.S.W.		45
17. 16	17. 16½	W.S.W.	W.N.W.	45	
17. 17¾	17. 18¼	W.N.W.	W.		22½
17. 19½	17. 20	W.	W.S.W.		22½
18. 10	18. 11	W.S.W.	W.N.W.	45	
18. 18	18. 18½	W.N.W.	W.		22½
18. 20	18. 20½	W.	W.S.W.		22½
20. 7	20. 9	W.S.W.	W.N.W.	45	
20. 11½	20. 12	W.N.W.	W.		22½
20. 13	20. 13½	W.	W.N.W.	22½	
20. 18	20. 18¼	W.N.W.	W.		22½
20. 20	20. 20½	W.	W.S.W.		22½
21. 9	21. 9½	W.S.W.	W.N.W.	45	
21. 10¼	21. 11	W.N.W.	W.S.W.		45
21. 13	21. 14	W.S.W.	S.W.		22½
21. 17	21. 18	S.W.	S.S.W.		22½
21. 19	21. 19½	S.S.W.	S.		22½
21. 22	21. 22½	S.	S.S.W.	22½	
22. 0	22. 1	S.S.W.	S.W.	22½	
22. 3	22. 4½	S.W.	W.N.W.	67½	
22. 17¾	22. 18½	W.N.W.	W.S.W.		45
23. 1	23. 2	W.S.W.	S.W.		22½
23. 5	23. 7	S.W.	W.S.W.	22½	
24. 7	24. 8½	W.S.W.	N.W.	67½	
24. 14	24. 15	N.W.	W.		45
24. 16½	24. 17	W.	W.S.W.		22½
24. 19	24. 19½	W.S.W.	S.W.		22½
24. 22	24. 23	S.W.	W.S.W.	22½	
25. 3	25. 4	W.S.W.	W.N.W.	45	
25. 6	25. 7	W.N.W.	W.		22½
25. 11	25. 12	W.	S.W.		45
25. 22	25. 23	S.W.	W.S.W.	22½	
26. 1	26. 1¾	W.S.W.	W.N.W.	45	
26. 2¾	26. 4	W.N.W.	W.S.W.		45
26. 21	26. 23	W.S.W.	S.W.		22½
27. 8½	27. 9½	S.W.	S.S.W.		22½
27. 13	27. 14	S.S.W.	S.W.	22½	
27. 19	27. 19½	S.W.	W.S.W.	22½	
28. 13	28. 13¼	W.S.W.	N.W.	67½	
28. 13¾	28. 14¼	N.W.	W.S.W.		67½
28. 15	28. 15¼	W.S.W.	W.N.W.	45	
28. 16½	28. 17½	W.N.W.	N.N.W.	45	
28. 18	28. 18¼	N.N.W.	S.S.W.		135
28. 18½	28. 19¼	S.S.W.	S.W.	22½	
28. 21	28. 21½	S.W.	S.S.W.		22½
29. 5	29. 5½	S.S.W.	S.S.E.		45

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

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Sept.—*cont.*					
d h	d h				
29. 7	29. 7¼	S.S.E.	S.S.W.	45	
29. 11	29. 11¼	S.S.W.	S.		22½
29. 13	29. 13½	S.	S.S.E.		22½
29. 14¼	29. 14½	S.S.E.	S.E.		22½
29. 16	29. 16½	S.E.	E.N.E.		67½
29. 20¼	29. 21½	E.N.E.	S.E.	67½	
29. 22½	29. 23½	S.E.	S.S.E.	22½	
30. 3¾	30. 4	S.S.E.	S.S.W.	45	
30. 9	30. 11	S.S.W.	S.W.	22½	
30. 12	30. 12¼	S.W.	S.S.W.		22½
30. 13¾	30. 14	S.S.W.	S.		22½
30. 15½	30. 16	S.	S.S.W.	22½	
30. 17¼	30. 17½	S.S.W.	S.		22½
30. 23	30. 23½	S.	S.S.E.		22½
			Sums	3847½	2857½
October.					
1. 1½	1. 3½	S.S.E.	S.E.		22½
1. 4½	1. 5½	S.E.	E.S.E.		22½
1. 6¼	1. 6½	E.S.E.	E.		22½
1. 9	1. 10	E.	E.S.E.	22½	
1. 12	1. 13½	E.S.E.	S.S.E.	45	
1. 15½	1. 16	S.S.E.	S.	22½	
1. 18½	1. 19	S.	S.S.W.	22½	
2. 4½	2. 5½	S.S.W.	S.W.	22½	
2. 8	2. 8½	S.W.	W.S.W.	22½	
2. 11	2. 13	W.S.W.	W.N.W.	45	
2. 19	2. 20	W.N.W.	W.S.W.		45
3. 18	3. 20	W.S.W.	S.W.		22½
4. 8¼	4. 8½	S.W.	N.N.E.	157½	
4. 12	4. 12½	N.N.E.	E.N.E.	45	
4. 15	4. 16	E.N.E.	N.E.		22½
4. 21	4. 22	N.E.	N.N.E.		22½
4. 23	5. 0	N.N.E.	E.N.E.	45	
5. 1	5. 2	E.N.E.	N.N.E.		45
5. 7	5. 8	N.N.E.	N.E.	22½	
5. 10	5. 10¼	N.E.	N.N.E.		22½
5. 12½	5. 12¾	N.N.E.	N.E.	22½	
6. 0	6. 1	N.E.	N.N.E.		22½
6. 8¾	6. 9¾	N.N.E.	S.E.	112½	
6. 11	6. 12	S.E.	E.		45
6. 14¼	6. 14½	E.	E.N.E.		22½
6. 17¾	6. 18	E.N.E.	E.	22½	
6. 19	6. 19¼	E.	E.N.E.		22½
6. 21	6. 21¼	E.N.E.	E.	22½	
6. 23	7. 0	E.	N.N.E.		67½
7. 3	7. 3¼	N.N.E.	N.N.W.		45
7. 5¼	7. 5½	N.N.W.	N.W.		22½
7. 6½	7. 6¾	N.W.	W.S.W.		67½
7. 10	7. 11	W.S.W.	N.	112½	
7. 16	7. 18	N.	N.N.W.		22½
7. 21	7. 22	N.N.W.	N.	22½	
7. 23	8. 0	N.	N.N.W.		22½

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Oct.—*cont.*					
d h	d h				
8. 2½	8. 2¾	N.N.W.	W.S.W.		90
8. 4	8. 4¼	W.S.W.	N.N.W.	90	
8. 9	8. 9¼	N.N.W.	N.E.	67½	
8. 9¾	8. 10	N.E.	E.N.E.	22½	
8. 14	8. 15½	E.N.E.	E.S.E.	45	
8. 18	8. 18½	E.S.E.	E.		22½
9. 5½	9. 6	E.	N.N.E.		67½
9. 7½	9. 7¾	N.N.E.	E.	67½	
9. 8½	9. 9	E.	E.S.E.	22½	
9. 12	9. 12¼	E.S.E.	S.E.	22½	
9. 21¾	9. 22	S.E.	S.W.	90	
10. 0½	10. 1	S.W.	W.S.W.	22½	
10. 2	10. 3	W.S.W.	S.W.		22½
10. 17	10. 18	S.W.	S.S.W.		22½
11. 7½	11. 7¾	S.S.W.	N.E.		157½
11. 8½	11. 9½	N.E.	S.S.W.	157½	
11. 11	11. 12	S.S.W.	S.W.	22½	
11. 16	11. 17½	S.W.	S.S.W.		22½
12. 1	12. 1¼	S.S.W.	S.E.		67½
12. 2¾	12. 3	S.E.	E.N.E.		67½
12. 3¾	12. 4	E.N.E.	S.E.	67½	
12. 6	12. 6¼	S.E.	S.W.	90	
12. 17½	12. 18	S.W.	W.	45	
12. 19	12. 19½	W.	W.N.W.	22½	
12. 21	12. 21½	W.N.W.	W.		22½
13. 0½	13. 1½	W.	W.S.W.		22½
13. 7	13. 10	W.S.W.	N.W.	67½	
13. 20	13. 21	N.W.	W.S.W.		67½
14. 8¾	14. 10	W.S.W.	N.E.	157½	
14. 16	14. 17	N.E.	E.N.E.	22½	
15. 6	15. 7	E.N.E.	E.S.E.	45	
15. 12	15. 12½	E.S.E.	E.		22½
16. 16	16. 17	E.	E.S.E.	22½	
17. 2	17. 3	E.S.E.	E.		22½
17. 9	17. 9¼	E.	E.S.E.	22½	
17. 11	17. 11¼	E.S.E.	E.		22½
17. 13	17. 13¼	E.	E.N.E.		22½
17. 15	17. 16	E.N.E.	E.	22½	
18. 3	18. 3¼	E.	E.S.E.	22½	
18. 5	18. 6	E.S.E.	N.E.		67½
18. 7	18. 8	N.E.	E.S.E.	67½	
18. 10	18. 11	E.S.E.	E.N.E.		45
18. 13	18. 13½	E.N.E.	E.S.E.	45	
18. 14¼	18. 14½	E.S.E.	E.		22½
18. 15½	18. 16	E.	E.S.E.	22½	
18. 22¾	18. 23	E.S.E.	N.E.		67½
18. 23¾	19. 0	N.E.	E.	45	
19. 18½	19. 19	E.	E.N.E.		22½
20. 14	20. 15	E.N.E.	E.	22½	
21. 3¼	21. 3½	E.	N.E.		45
21. 4	21. 4¼	N.E.	E.	45	
21. 5¾	21. 6	E.	N.N.W.		112½
21. 8¼	21. 8½	N.N.W.	N.E.	67½	
21. 9½	21. 9¾	N.E.	S.W.	180	
21. 16½	21. 17	S.W.	S.S.W.		22½
21. 18	21. 18½	S.S.W.	S.		22½
21. 22½	21. 22½	S.	E.S.E.		67½
22. 7	22. 7¼	E.S.E.	N.E.		67½
22. 8¼	22. 8½	N.E.	E.S.E.	67½	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
Oct.—*cont.*					
d h	d h				
22. 12	22. 13	E.S.E.	N.E.		67½
22. 13¾	22. 14¼	N.E.	E.S.E.	67½	
22. 22	22. 23½	E.S.E.	W.S.W.	135	
23. 1¾	23. 2	W.S.W.	S.S.W.		45
23. 8	23. 9	S.S.W.	S.W.	22½	
23. 13	23. 14	S.W.	W.S.W.	22½	
23. 18½	23. 19½	W.S.W.	S.W.		22½
24. 2	24. 4	S.W.	W.S.W.	22½	
24. 13	24. 13½	W.S.W.	N.W.	67½	
24. 14½	24. 15	N.W.	N.N.W.	22½	
24. 20¼	24. 21½	N.N.W.	E.	112½	
25. 1	25. 1¼	E.	N.E.		45
25. 4½	25. 5	N.E.	S.E.	90	
25. 6	25. 6¼	S.E.	N.E.		90
25. 8¼	25. 8½	N.E.	S.E.	90	
25. 10	25. 11	S.E.	S.	45	
26. 1¾	26. 2¼	S.	S.S.W.	22½	
26. 21	26. 23	S.S.W.	S.W.	22½	
27. 4½	27. 5½	S.W.	S.S.W.		22½
27. 21	27. 22	S.S.W.	S.W.	22½	
28. 12	28. 13	S.W.	W.S.W.	22½	
28. 20	28. 22	W.S.W.	S.W.		22½
29. 3	29. 4½	S.W.	S.S.W.		22½
30. 7¼	30. 7½	S.S.W.	N.N.W.	135	
30. 13¼	30. 13¾	N.N.W.	N.W.		22½
30. 15½	30. 16½	N.W.	S.W.		90
31. 1	31. 3	S.W.	W.S.W.	22½	
31. 12	31. 12½	W.S.W.	W.	22½	
31. 14¾	31. 15	W.	W.S.W.		22½
31. 16	31. 17	W.S.W.	S.W.		22½
31. 21½	31. 22	S.W.	S.S.W.		22½
			Sums	3555	2430
November.					
1. 2	1. 3	S.S.W.	S.		22½
1. 14	1. 14½	S.	S.S.E.		22½
1. 15½	1. 16	S.S.E.	S.E.		22½
1. 18¾	1. 19	S.E.	S.S.E.	22½	
1. 20½	1. 21	S.S.E.	S.	22½	
2. 7	2. 8	S.	S.S.W.	22½	
2. 12	2. 12¼	S.S.W.	S.		22½
2. 15½	2. 16	S.	S.S.W.	22½	
3. 0	3. 1	S.S.W.	S.W.	22½	
3. 3	3. 5	S.W.	S.S.W.		22½
3. 20½	3. 20¾	S.S.W.	W.	67½	
3. 23	4. 0	W.	S.E.		135
4. 1	4. 1½	S.E.	N.N.E.		112½
4. 2½	4. 2¾	N.N.E.	S.S.W.	180	
4. 4	4. 4¾	S.S.W.	N.	157½	
4. 5¼	4. 5½	N.	S.S.W.	202½	
5. 4½	5. 4¾	S.S.W.	W.S.W.	45	
5. 6	5. 6¾	W.S.W.	S.S.W.		45
5. 20	5. 20½	S.S.W.	E.S.E.		90

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

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro-grade.
				°	°
Nov.—*cont*.					
d h	d h				
5. 22½	5. 22¾	E.S.E.	E.		22½
6. 0¼	6. 1½	E.	N.E.		45
6. 8½	6. 9	N.E.	E.	45	
6. 10	6. 11	E.	N.		90
6. 12	6. 12¼	N.	N.N.W.		22½
6. 13¼	6. 13¾	N.N.W.	W.S.W.		90
6. 15	6. 16	W.S.W.	S.W.		22½
6. 20	6. 21	S.W.	S.S.W.		22½
7. 2	7. 2½	S.S.W.	S.		22½
7. 9	7. 9½	S.	S.S.W.	22½	
7. 16	7. 17	S.S.W	S.		22½
7. 21	7. 21½	S.	S.S.W.	22½	
8. 0	8. 1	S.S.W	S.		22½
8. 3	8. 4	S.	S.S.W.	22½	
8. 7½	8. 7¾	S.S.W.	S.W.	22½	
8. 18	8. 19	S.W.	W.S.W.	22½	
9. 8	9. 9	W.S.W.	W.	22½	
9. 11½	9. 12	W.	W.S.W.		22½
9. 15	9. 15½	W.S.W.	S.W.		22½
9. 16½	9. 17	S.W.	S.		45
9. 20½	9. 21	S.	S.S.E.		22½
10. 0½	10. 1	S.S.E.	S.E.		22½
10. 2½	10. 3	S.E.	S.S.E.	22½	
10. 5½	10. 7	S.S.E.	S.W.	67½	
10. 12	10. 13	S.W.	W.S.W.	22½	
11. 1	11. 3	W.S.W.	S.W.		22½
11. 10	11. 12	S.W.	W.S.W.	22½	
11. 16	11. 18	W.S.W.	W.N.W.	45	
11. 20	11. 21	W.N.W.	W.S.W.		45
12. 9	12. 11	W.S.W.	W.N.W.	45	
12. 16	12. 16½	W.N.W.	W.S.W.		45
12. 22	13. 0	W.S.W.	S.W.		22½
13. 8½	13. 9½	S.W.	W.S.W.	22½	
13. 14	13. 16	W.S.W.	S.S.W.		45
13. 22	13. 22½	S.S.W.	S.		22½
14. 9	14. 10	S.	S.S.W.	22½	
14. 20½	14. 20¾	S.S.W.	S.E.		67½
14. 23¼	14. 23½	S.E.	N.N.W.		157½
15. 1	15. 1½	N.N.W.	S.S.W.	225	
15. 2¾	15. 3	S.S.W.	N.		202½
15. 9½	15. 10	N.	E.N.E.	67½	
15. 13	15. 14	E.N.E.	N.E.		22½
15. 21	15. 22	N.E.	E.N.E.	22½	
17. 16½	17. 17	E.N.E.	N.E.		22½
18. 1	18. 1¼	N.E.	N.N.E.		22½
18. 4½	18. 4¾	N.N.E.	N.		22½
18. 11½	18. 11¾	N.	N.N.W.		22½
18. 12½	18. 13	N.N.W.	N.N.E.	45	
19. 10	19. 10½	N.N.E.	N.		22½
19. 14	19. 14¼	N.	W.		90
19. 17¼	19. 17½	W.	N.W.	45	
19. 20	19. 20½	N.W.	S.W.		90
20. 6	20. 7	S.W.	W.S.W.	22½	
20. 11	20. 13	W.S.W.	N.	112½	
20. 17½	20. 18	N.	N.E.	45	
21. 3	21. 3½	N.E.	N.N.W.		67½
21. 7½	21. 7¾	N.N.W.	S.		157½
21. 9¼	21. 10	S.	S.W.	45	
21. 22	21. 23	S.W.	W.S.W.	22½	

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro-grade
				°	°
Nov.—*cont*.					
d h	d h				
22. 8¾	22. 9	W.S.W.	W.	22½	
22. 11	22. 12	W.	N.W.	45	
22. 18¼	22. 18½	N.W.	W.N.W.		22½
22. 21	22. 22	W.N.W.	W.S.W.		45
23. 17	23. 17½	W.S.W.	W.	22½	
23. 20	23. 21	W.	W.S.W.		22½
24. 11	24. 12	W.S.W.	S.W.		22½
24. 18	24. 19	S.W.	W.S.W.	22½	
25. 4	25. 5	W.S.W.	S.W.		22½
26. 9½	26. 10½	S.W.	W.S.W.	22½	
26. 14	26. 15	W.S.W.	S.W.		22½
27. 8	27. 9½	S.W.	W.S.W.	22½	
29. 10	29. 11	W.S.W.	W.	22½	
29. 13¼	29. 13½	W.	N.W.	45	
29. 14¾	29. 15	N.W.	N.N.W.	22½	
29. 17¼	29. 17½	N.N.W.	S.S.E.		180
29. 19	29. 20	S.S.E.	S.S.W.	45	
29. 22½	29. 23¼	S.S.W.	W.S.W.	45	
30. 0½	30. 1	W.S.W.	S.S.W.		45
30. 9½	30. 9¾	S.S.W.	S.S.E.		45
30. 11	30. 11½	S.S.E.	E.S.E.		45
30. 14½	30. 15½	E.S.E.	S.S.E.	45	
30. 18½	30. 19½	S.S.E.	S.S.W.	45	
			Sums	2295	2655
December.					
1. 1	1. 1½	S.S.W.	S.W.	22½	
1. 3	1. 4	S.W.	W.S.W.	22½	
1. 9½	1. 10¼	W.S.W.	S.W.		22½
1. 18½	1. 18¾	S.W.	N.N.W.	112½	
1. 21	1. 22	N.N.W.	N.W.		22½
2. 5	2. 6¼	N.W.	W.S.W.		67½
2. 11	2. 12	W.S.W.	N.N.W.	90	
2. 16	2. 17	N.N.W.	N.	22½	
3. 1	3. 2	N.	W.S.W.		112½
3. 6	3. 6¼	W.S.W.	S.W.		22½
3. 14	3. 14½	S.W.	S.E.		90
3. 19	3. 20	S.E.	S.	45	
3. 22	3. 23	S.	S.S.W.	22½	
4. 5	4. 8	S.S.W.	W.S.W.	45	
5. 23	6. 1	W.S.W.	S.W.		22½
6. 5	6. 6	S.W.	S.S.W.		22½
6. 23	7. 2	S.S.W.	W.S.W.	45	
7. 10½	7. 11	W.S.W.	N.	112½	
7. 14	7. 15	N.	E.N.E.	67½	
7. 16	7. 16½	E.N.E.	E.	22½	
8. 6½	8. 7	E.	E.S.E.	22½	
8. 11½	8. 12	E.S.E.	E.		22½
9. 0½	9. 1	E.	E.N.E.		22½
9. 5½	9. 6	E.N.E.	N.E.		22½
9. 9	9. 9½	N.E.	E.N.E.	22½	
9. 11	9. 11½	E.N.E.	E.	22½	
9. 13	9. 14	E.	E.S.E.	22½	

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro grade.
				°	°
Dec.—*cont*.					
d h	d h				
9. 20½	9. 22½	E.S.E.	S.S.E.	45	
10. 6	10. 6¼	S.S.E.	E.N.E.		90
10. 7	10. 8	E.N.E.	E.S.E.	45	
10. 9	10. 10	E.S.E.	S.E.	22½	
10. 19	10. 21	S.E.	S.S.W.	67½	
10. 23¼	11. 0½	S.S.W.	W.S.W.	45	
11. 1¼	11. 2½	W.S.W.	N.N.W.	90	
11. 8	11. 9	N.N.W.	N.	22½	
11. 16	11. 17	N.	N.E.	45	
11. 18¼	11. 18½	N.E.	E.N.E.	22½	
11. 19¾	11. 21	E.N.E.	S.S.E.	90	
11. 23	12. 0	S.S.E.	S.E.		22½
12. 7	12. 8	S.E.	E.S.E.		22½
12. 19	12. 20	E.S.E.	S.E.	22½	
12. 23	13. 0	S.E.	S.S.E.	22½	
13. 8	13. 10	S.S.E.	S.E.		22½
13. 15	13. 17	S.E.	E.S.E.		22½
13. 23	14. 0	E.S.E.	N.E.		67½
14. 6½	14. 7	N.E.	N.N.E.		22½
14. 13½	14. 14½	N.N.E.	N.N.W.		45
14. 21½	14. 22½	N.N.W.	W.S.W.		90
15. 0	15. 0¾	W.S.W.	N.W.	67½	
15. 1½	15. 2	N.W.	W.S.W.		67½
15. 6½	15. 6¾	W.S.W.	S.S.W.		45
15. 8	15. 8½	S.S.W.	N.N.W.	135	
15. 11	15. 11¼	N.N.W.	W.S.W.		90
15. 11¾	15. 12	W.S.W.	S.W.		22½
15. 14½	15. 15	S.W.	S.S.W.		22½
15. 22	15. 22¼	S.S.W.	E.N.E.		135
16. 5½	16. 6	E.N.E.	S.E.	67½	
16. 12	16. 12¼	S.E.	S.S.E.	22½	
16. 14	16. 14½	S.S.E.	S.E.		22½
16. 16	16. 18	S.E.	E.S.E.		22½
17. 9½	17. 10¾	E.S.E.	N.		112½
17. 15	17. 16	N.	N.E.	45	
18. 0	18. 1	N.E.	N.N.E.		22½
18. 4½	18. 5	N.N.E.	N.		22½
18. 10	18. 11	N.	N.N.E.	22½	
18. 12½	18. 13	N.N.E.	N.E.	22½	
19. 9½	19. 9¾	N.E.	E.S.E.	67½	
19. 11	19. 11½	E.S.E.	S.E.	22½	
19. 12½	19. 12¾	S.E.	E.N.E.		67½
19. 17	19. 18	E.N.E.	E.	22½	
20. 14½	20. 15	E.	E.N.E.		22½
21. 3	21. 3¼	E.N.E.	N.E.		22½
21. 14	21. 15	N.E.	E.N.E.	22½	
21. 17	21. 18	E.N.E.	E.	22½	
21. 21	21. 21½	E.	S.E.	45	
22. 2¾	22. 3¼	S.E.	E.S.E.		22½
22. 10	22. 11½	E.S.E.	S.E.	22½	
22. 14	22. 15½	S.E.	E.S.E.		22½
23. 7½	23. 8	E.S.E.	N.E.		67½
23. 10½	23. 10¾	N.E.	E.S.E.	67½	
23. 12	23. 12½	E.S.E.	N.		112½
23. 13½	23. 13¾	N.	N.E.	45	
23. 14½	23. 15¾	N.E.	W.S.W.	157½	
23. 17	23. 17½	W.S.W.	S.S.W.		45
23. 20½	23. 21	S.S.W.	S.	22½	
24. 3	24. 3½	S.	S.S.W.	22½	

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

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
Dec.—*cont.*				°	°
d h	d h				
24. 4½	24. 5½	S.S.W.	W.S.W.	45	
24. 10	24. 11	W.S.W.	W.	22½	
24. 16¼	24. 17½	W.	S.W.		45
24. 19½	24. 20	S.W.	S.		45
25. 2½	25. 3	S.	W.	90	
25. 5¼	25. 5½	W.	N.W.	45	
25. 7½	25. 7¾	N.W.	W.N.W.		22½
25. 9¼	25. 10¼	W.N.W.	W.S.W.		45
25. 11½	25. 12	W.S.W.	W.N.W.	45	
25. 13	25. 13¼	W.N.W.	W.		22½
25. 16	25. 16¼	W.	W.S.W.		22½
25. 22	26. 0	W.S.W.	S.W.		22½
26. 2½	26. 3½	S.W.	S.S.W.		22½

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
Dec.—*cont.*				°	°
d h	d h				
26. 5½	26. 6¼	S.S.W.	S.W.	22½	
26. 14	26. 15	S.W.	W.S.W.	22½	
26. 16	26. 16¼	W.S.W.	N.W.	67½	
26. 18½	26. 19	N.W.	N.	45	
26. 20	26. 21	N.	N.N.E.	22½	
27. 3	27. 3½	N.N.E.	N.		22½
27. 16	27. 16½	N.	N.N.E.	22½	
27. 19	27. 19½	N.N.E.	S.E.		247½
27. 23	28. 0½	S.E.	E.		45
28. 6½	28. 7	E.	E.S.E.	22½	
28. 16½	28. 17	E.S.E.	S.E.	22½	
28. 21	28. 22	S.E.	S.S.E.	22½	
29. 3	29. 4	S.S.E.	S.	22½	

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
Dec.—*cont.*				°	°
d h	d h				
29. 17	29. 18	S.	S.W.	45	
30. 16½	30. 17	S.W.	S.S.W.		22½
30. 21	30. 22	S.S.W.	S.W.	22½	
31. 7½	31. 8	S.W.	S.S.W.		22½
31. 10	31. 11	S.S.W.	S.W.	22½	
31. 12¼	31. 12½	S.W.	S.S.W.		22½
31. 17½	31. 18	S.S.W.	S.		22½
31. 21¾	31. 22½	S.	S.S.E.		22½
			Sums	2812½	2497½

Excess of Motion in each Month.

1899.	Direct.	Retrograde.
	°	°
January	337½	
February	0	
March	1462½	
April	1327½	
May	1057½	
June	2610	
July	2407½	
August	1237½	
September	990	
October	1125	
November		360
December	315	

The whole excess of direct motion for the year was 12510°.

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	1899.												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	16·9	10·6	10·6	12·9	9·6	6·7	7·8	8·0	11·1	8·0	11·4	9·6	10·3
2	16·4	10·7	10·8	12·2	9·6	5·4	7·8	7·7	10·3	7·7	11·1	9·8	10·0
3	16·1	11·4	10·4	11·0	9·8	5·6	7·5	6·8	10·4	7·5	11·1	9·9	9·8
4	15·8	11·5	10·1	11·4	9·2	6·1	7·2	6·5	10·9	7·8	11·3	10·2	9·8
5	15·6	11·9	10·3	11·5	9·3	6·9	6·8	6·5	10·6	7·9	10·7	10·6	9·9
6	16·4	11·5	10·3	11·8	9·6	6·8	7·4	7·6	10·2	7·5	9·7	10·1	9·9
7	15·2	11·5	10·0	12·3	10·4	7·0	7·7	7·1	10·3	7·6	10·5	9·4	9·9
8	15·1	11·6	10·3	12·4	10·8	7·9	8·7	8·2	10·8	7·6	10·5	9·3	10·3
9	15·1	12·3	10·3	12·7	11·7	7·8	9·3	9·2	11·7	7·7	10·5	9·1	10·6
10	16·1	12·5	11·4	13·5	12·2	9·0	10·8	10·1	12·8	9·8	11·6	9·8	11·6
11	17·0	13·2	12·9	14·0	12·4	9·6	10·7	10·3	13·5	10·3	12·0	9·9	12·2
Noon.	18·5	14·1	13·8	14·7	13·8	10·0	11·8	10·8	14·7	10·8	13·2	9·7	13·0
13h.	18·5	15·4	14·0	16·1	13·9	10·0	12·3	11·4	15·2	12·3	14·4	10·7	13·7
14	18·6	17·1	14·8	16·1	14·2	10·8	12·8	12·5	15·7	12·2	13·8	11·1	14·1
15	19·1	16·7	14·2	16·7	15·2	11·3	12·7	12·5	15·6	11·7	13·7	10·8	14·2
16	18·0	15·8	13·4	16·3	14·6	11·0	11·7	12·2	15·0	11·6	13·1	10·5	13·6
17	18·6	14·9	13·8	15·4	14·6	11·2	12·1	12·1	14·0	10·7	12·8	9·9	13·3
18	18·4	13·7	12·5	14·5	14·0	11·0	11·3	12·0	12·6	10·3	12·5	9·6	12·7
19	18·7	12·8	11·8	14·0	12·6	10·6	11·0	11·2	12·2	10·6	13·3	9·4	12·3
20	17·4	12·9	11·3	13·4	11·6	9·7	9·9	10·0	11·5	9·9	13·2	9·0	11·7
21	17·3	12·8	11·4	13·2	10·7	8·4	9·6	9·3	12·3	9·6	12·6	9·5	11·4
22	17·3	11·3	11·6	13·4	10·1	8·0	9·5	9·8	12·2	9·2	12·7	10·0	11·3
23	17·8	11·0	10·7	13·3	10·7	7·7	8·6	9·3	11·7	8·4	12·0	9·6	10·9
Midnight.	17·2	10·8	10·0	12·3	9·6	7·2	7·6	8·3	11·1	7·9	11·9	9·4	10·3
Means............	17·1	12·8	11·7	13·5	11·7	8·6	9·7	9·6	12·3	9·4	12·1	9·9	11·5
Greatest Hourly Measures......	53	45	46	37	40	22	29	22	35	34	46	40	...
Least Hourly Measures......	0	1	0	1	1	0	0	1	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.)

1899.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d.												
1	+ 173	+ 951	+1187	+ 125	+ 307	+ 150	+ 67	+ 365	...	+ 159	...	+ 91
2	+ 121	+1019	+1125	+ 161	+ 382	+ 210	+ 63	+ 177	+ 170	+ 321	...	+ 258
3	+ 253	+1141	+ 960	+ 184	+ 303	...	+ 132	+ 158	+ 187	+ 273	...	+ 430
4	+ 145	+ 966	+ 827	+ 212	+ 460	+ 125	+ 168	+ 130	+ 176	+ 269	+ 107	+ 243
5	+ 117	+ 48	+ 652	+ 235	+ 421	+ 175	+ 131	+ 131	...	+ 367	...	...
6	+ 209	+ 39	+ 803	+ 182	+ 337	+ 116	...	+ 135	+ 174	+ 383	...	...
7	+ 111	+ 356	+ 693	+ 106	+ 316	+ 128	+ 156	...	+ 74	+ 475	...	...
8	+ 160	+ 84	+ 229	+ 318	+ 386	+ 302	+ 221	+ 279	+ 209	+ 411	...	...
9	+ 134	+ 143	+ 194	+ 154	+ 444	+ 459	+ 201	+ 275	+ 486	+ 387	+ 228	+ 657
10	+ 131	+ 238	+ 709	+ 117	+ 470	+ 379	+ 281	...	+ 353	+ 431	...	+ 708
11	+ 173	+ 214	+ 423	+ 257	+ 364	+ 250	+ 186	+ 288	+ 400	+ 487	+ 160	+ 845
12	+ 85	+ 228	+ 307	+ 325	+ 306	+ 252	+ 193	...	+ 382	+ 298	+ 220	+ 472
13	+ 133	+ 210	+ 329	− 118	+ 277	+ 272	+ 268	+ 324	+ 373	+ 757	...	+ 519
14	+ 388	+ 190	+ 527	− 87	+ 186	+ 460	+ 270	+ 231	+ 430	+ 689	...	+1144
15	+ 204	+ 259	+ 385	+ 311	+ 47	+ 333	+ 336	+ 245	+ 342	+ 456	...	+1112
16	+ 103	+ 261	+ 300	+ 165	+ 208	+ 352	+ 258	+ 307	+ 434	+ 470	...	+1060
17	+ 455	+ 333	+ 228	+ 354	+ 178	+ 205	+ 222	+ 535	+ 265	...	+ 285	+ 625
18	+ 173	+ 432	+ 400	+ 493	+ 82	+ 94	+ 182	+ 510	+ 349	+ 478	+ 341	+ 622
19	+ 94	+ 331	+ 535	+ 390	...	+ 217	+ 207	+ 414	+ 188	...	+ 309	+ 721
20	+ 213	+ 160	+ 734	+ 415	+ 69	+ 78	+ 303	+ 239	+ 535	+ 558	+ 321	+ 408
21	+ 74	+ 397	+ 458	− 615	+ 116	+ 127	+ 274	+ 346	+ 532	...	+ 390	+ 352
22	+ 256	+ 882	+ 887	+ 364	...	...	+ 360	+ 402	+ 589	...	+ 376	+ 313
23	+ 363	+1029	+ 747	...	+ 96	+ 126	+ 156	+ 273	+ 395	+ 486	+ 376	+ 572
24	+ 827	+ 961	+ 750	+ 126	+ 137	+ 111	+ 403	+ 161	+ 379	+ 367	+ 410	+ 368
25	+1031	+ 874	+ 88	+ 213	+ 295	+ 113	+ 395	...	...	+ 315	+ 400	+ 545
26	+ 987	+ 939	+ 33	+ 271	+ 490	+ 91	+ 325	...	+ 249	+ 215	+ 395	+ 198
27	+ 980	+ 829	+ 353	+ 313	+ 405	...	+ 392	+ 153	+ 232	+ 54	+ 197	+ 777
28	+1006	+1182	+ 268	+ 213	+ 313	...	+ 341	+ 200	+ 535	+ 52	+ 270	+ 134
29	...		+ 240	+ 107	+ 324	+ 133	+ 396	+ 223	+ 84	+ 60	+ 310	+ 71
30	+ 623		+ 399	+ 237	+ 269	+ 79	+ 301	...	...	+ 140	+ 306	+ 413
31	+1090		+ 174		+ 245		+ 347	+ 300		+ 149		+ 621
Means..........	+ 360	+ 525	+ 514	+ 191	+ 284	+ 205	+ 251	+ 272	+ 328	+ 352	+ 300	+ 529

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.	1899.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 351	+ 571	+ 496	+ 218	+ 343	+ 238	+ 271	+ 392	+ 331	+ 398	+ 298	+ 649	+ 380
1$^{h.}$	+ 353	+ 573	+ 490	+ 205	+ 331	+ 234	+ 266	+ 361	+ 320	+ 386	+ 302	+ 643	+ 372
2	+ 340	+ 563	+ 476	+ 209	+ 317	+ 223	+ 244	+ 324	+ 296	+ 371	+ 309	+ 590	+ 355
3	+ 332	+ 541	+ 486	+ 193	+ 285	+ 216	+ 129	+ 301	+ 283	+ 347	+ 283	+ 503	+ 325
4	+ 320	+ 511	+ 528	+ 148	+ 308	+ 211	+ 91	+ 282	+ 285	+ 320	+ 269	+ 431	+ 309
5	+ 320	+ 475	+ 538	+ 129	+ 263	+ 208	+ 246	+ 266	+ 285	+ 306	+ 258	+ 424	+ 310
6	+ 330	+ 468	+ 538	+ 165	+ 263	+ 225	+ 210	+ 259	+ 279	+ 279	+ 251	+ 387	+ 305
7	+ 345	+ 493	+ 566	+ 191	+ 304	+ 222	+ 260	+ 249	+ 289	+ 248	+ 248	+ 383	+ 316
8	+ 345	+ 534	+ 588	+ 183	+ 294	+ 209	+ 270	+ 229	+ 287	+ 209	+ 266	+ 422	+ 320
9	+ 349	+ 565	+ 588	+ 142	+ 263	+ 222	+ 276	+ 236	+ 338	+ 266	+ 280	+ 443	+ 331
10	+ 368	+ 549	+ 609	+ 157	+ 297	+ 271	+ 336	+ 307	+ 467	+ 379	+ 341	+ 503	+ 382
11	+ 356	+ 502	+ 587	+ 176	+ 299	+ 260	+ 337	+ 316	+ 492	+ 405	+ 341	+ 578	+ 387
Noon.	+ 327	+ 477	+ 548	+ 190	+ 262	+ 223	+ 304	+ 243	+ 356	+ 369	+ 344	+ 580	+ 352
13$^{h.}$	+ 340	+ 468	+ 511	+ 200	+ 185	+ 197	+ 280	+ 236	+ 366	+ 340	+ 333	+ 561	+ 335
14	+ 355	+ 421	+ 452	+ 184	+ 191	+ 168	+ 252	+ 220	+ 359	+ 354	+ 316	+ 525	+ 316
15	+ 358	+ 454	+ 429	+ 138	+ 193	+ 151	+ 233	+ 201	+ 275	+ 358	+ 309	+ 483	+ 298
16	+ 366	+ 499	+ 342	+ 158	+ 239	+ 149	+ 227	+ 173	+ 288	+ 389	+ 308	+ 467	+ 300
17	+ 378	+ 543	+ 450	+ 105	+ 248	+ 152	+ 238	+ 218	+ 354	+ 420	+ 312	+ 510	+ 327
18	+ 402	+ 543	+ 539	+ 188	+ 261	+ 157	+ 237	+ 270	+ 340	+ 409	+ 316	+ 534	+ 350
19	+ 425	+ 503	+ 539	+ 239	+ 311	+ 156	+ 214	+ 264	+ 342	+ 369	+ 318	+ 563	+ 354
20	+ 406	+ 600	+ 529	+ 265	+ 310	+ 157	+ 220	+ 258	+ 279	+ 355	+ 299	+ 556	+ 353
21	+ 385	+ 581	+ 530	+ 258	+ 319	+ 203	+ 274	+ 232	+ 323	+ 377	+ 304	+ 630	+ 368
22	+ 396	+ 576	+ 511	+ 272	+ 364	+ 237	+ 308	+ 362	+ 309	+ 404	+ 312	+ 675	+ 394
23	+ 404	+ 588	+ 475	+ 263	+ 362	+ 238	+ 302	+ 334	+ 322	+ 390	+ 288	+ 651	+ 385
24	+ 400	+ 583	+ 459	+ 227	+ 346	+ 228	+ 300	+ 350	+ 307	+ 374	+ 284	+ 654	+ 376
Means 0$^{h.}$–23$^{h.}$	+ 360	+ 525	+ 514	+ 191	+ 284	+ 205	+ 251	+ 272	+ 328	+ 352	+ 300	+ 529	+ 343
Means 1$^{h.}$–24$^{h.}$	+ 362	+ 525	+ 513	+ 191	+ 284	+ 205	+ 252	+ 270	+ 327	+ 351	+ 300	+ 529	+ 342
Number of Days employed.	30	28	31	29	29	26	30	25	26	27	18	27	...

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

(The results depend on the Photographic Register, using all days on which the rainfall amounted to or exceeded $0^{in}\cdot020$. The scale employed is arbitrary: the sign + indicates positive potential.)

Hour, Greenwich Civil Time.	1899. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
Midnight.	+ 186	+ 295	+ 165	+ 171	+ 230	+ 197	+ 200	+ 304	+ 282	+ 201	+ 40	+ 466	+ 228
1^{h}	+ 193	+ 292	+ 129	+ 153	+ 220	+ 173	+ 202	+ 282	+ 295	+ 176	0	+ 469	+ 215
2	+ 175	+ 279	+ 92	+ 159	+ 199	+ 43	+ 160	+ 248	+ 256	+ 163	+ 190	+ 358	+ 194
3	+ 171	+ 218	+ 149	+ 129	+ 84	+ 100	+ 7	+ 254	+ 235	+ 159	+ 260	+ 216	+ 165
4	+ 163	+ 130	+ 323	+ 53	+ 183	+ 110	− 357	+ 262	+ 265	+ 103	+ 10	+ 140	+ 115
5	+ 155	+ 14	+ 366	+ 18	+ 49	+ 113	+ 168	+ 244	+ 304	+ 94	+ 80	+ 210	+ 151
6	+ 163	+ 11	+ 385	+ 73	− 16	+ 110	− 57	+ 224	+ 324	+ 102	+ 160	+ 221	+ 142
7	+ 173	+ 52	+ 425	+ 78	+ 56	+ 113	+ 110	+ 206	+ 325	+ 109	+ 180	+ 256	+ 174
8	+ 169	+ 129	+ 436	+ 64	+ 57	+ 113	+ 213	+ 168	+ 298	+ 92	+ 110	+ 294	+ 179
9	+ 159	+ 233	+ 419	− 11	+ 49	+ 100	+ 183	+ 164	+ 351	+ 125	+ 100	+ 294	+ 180
10	+ 137	+ 230	+ 429	− 6	+ 126	+ 87	+ 212	+ 238	+ 515	+ 225	+ 150	+ 350	+ 224
11	+ 154	+ 163	+ 397	+ 24	+ 177	+ 80	+ 317	+ 212	+ 545	+ 265	+ 110	+ 456	+ 242
Noon.	+ 166	+ 254	+ 376	+ 87	+ 110	+ 57	+ 328	− 12	+ 289	+ 211	+ 120	+ 441	+ 202
13^{h}	+ 151	+ 266	+ 376	+ 144	− 139	+ 93	+ 257	+ 176	+ 302	+ 186	+ 110	+ 371	+ 191
14	+ 163	+ 105	+ 239	+ 133	− 13	+ 83	+ 217	+ 210	+ 308	+ 191	+ 110	+ 320	+ 172
15	+ 162	+ 150	+ 284	+ 48	− 14	+ 37	+ 200	+ 170	+ 98	+ 195	+ 150	+ 212	+ 141
16	+ 165	+ 213	+ 48	+ 92	+ 141	+ 13	+ 140	− 8	+ 105	+ 228	+ 190	+ 193	+ 127
17	+ 181	+ 270	+ 181	− 14	+ 163	+ 53	+ 195	+ 236	+ 203	+ 271	+ 130	+ 259	+ 177
18	+ 217	+ 205	+ 415	+ 125	+ 91	+ 87	+ 232	+ 302	+ 260	+ 248	+ 90	+ 287	+ 213
19	+ 257	+ 66	+ 424	+ 171	+ 204	+ 97	+ 160	+ 276	+ 189	+ 200	+ 70	+ 301	+ 201
20	+ 201	+ 231	+ 272	+ 210	+ 216	+ 57	+ 163	+ 232	+ 140	+ 246	+ 70	+ 263	+ 192
21	+ 157	+ 172	+ 323	+ 210	+ 214	+ 50	+ 170	− 90	+ 177	+ 277	+ 50	+ 344	+ 171
22	+ 162	+ 163	+ 300	+ 239	+ 274	+ 40	+ 217	+ 342	+ 126	+ 292	+ 50	+ 463	+ 222
23	+ 189	+ 165	+ 230	+ 232	+ 259	− 3	+ 218	+ 112	+ 205	+ 284	+ 40	+ 509	+ 203
24	+ 201	+ 159	+ 194	+ 182	+ 197	− 7	+ 200	+ 222	+ 220	+ 254	+ 40	+ 513	+ 198
Means 0^{h}–23^{h}	+ 174	+ 179	+ 299	+ 108	+ 122	+ 83	+ 161	+ 198	+ 267	+ 193	+ 107	+ 321	+ 184
Means 1^{h}–24^{h}	+ 174	+ 174	+ 300	+ 108	+ 120	+ 75	+ 161	+ 195	+ 264	+ 196	+ 107	+ 323	+ 183
Number of Days employed.	15	10	8	16	7	3	6	5	10	10	1	9	...

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.	1899.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 597	+ 790	+ 624	+ 300	+ 409	+ 263	+ 289	+ 412	+ 368	+ 514	+ 325	+ 737	+ 469
1h.	+ 577	+ 788	+ 625	+ 310	+ 392	+ 263	+ 284	+ 385	+ 335	+ 510	+ 332	+ 765	+ 464
2	+ 564	+ 765	+ 619	+ 326	+ 387	+ 266	+ 265	+ 347	+ 314	+ 494	+ 324	+ 785	+ 455
3	+ 554	+ 758	+ 610	+ 319	+ 384	+ 246	+ 153	+ 315	+ 300	+ 458	+ 291	+ 727	+ 426
4	+ 539	+ 763	+ 599	+ 303	+ 380	+ 237	+ 196	+ 289	+ 276	+ 448	+ 292	+ 636	+ 413
5	+ 544	+ 778	+ 590	+ 290	+ 366	+ 231	+ 265	+ 275	+ 250	+ 431	+ 279	+ 592	+ 408
6	+ 551	+ 775	+ 579	+ 287	+ 378	+ 252	+ 275	+ 271	+ 229	+ 383	+ 269	+ 526	+ 398
7	+ 571	+ 797	+ 591	+ 369	+ 400	+ 248	+ 298	+ 262	+ 247	+ 330	+ 266	+ 475	+ 404
8	+ 575	+ 818	+ 609	+ 350	+ 385	+ 235	+ 284	+ 241	+ 251	+ 278	+ 291	+ 498	+ 401
9	+ 589	+ 810	+ 618	+ 340	+ 336	+ 251	+ 302	+ 243	+ 283	+ 349	+ 301	+ 541	+ 414
10	+ 645	+ 777	+ 649	+ 366	+ 340	+ 308	+ 361	+ 306	+ 391	+ 469	+ 361	+ 598	+ 464
11	+ 638	+ 741	+ 635	+ 390	+ 313	+ 291	+ 334	+ 318	+ 455	+ 488	+ 369	+ 638	+ 468
Noon.	+ 552	+ 648	+ 573	+ 349	+ 308	+ 250	+ 284	+ 285	+ 401	+ 461	+ 370	+ 674	+ 430
13h.	+ 560	+ 636	+ 539	+ 306	+ 286	+ 211	+ 272	+ 232	+ 411	+ 431	+ 360	+ 698	+ 412
14	+ 582	+ 645	+ 517	+ 283	+ 250	+ 184	+ 251	+ 204	+ 385	+ 450	+ 341	+ 658	+ 396
15	+ 590	+ 674	+ 511	+ 280	+ 235	+ 173	+ 230	+ 196	+ 365	+ 454	+ 328	+ 665	+ 392
16	+ 598	+ 707	+ 434	+ 314	+ 239	+ 176	+ 235	+ 208	+ 362	+ 484	+ 331	+ 658	+ 395
17	+ 617	+ 742	+ 540	+ 340	+ 242	+ 176	+ 233	+ 204	+ 395	+ 508	+ 336	+ 667	+ 417
18	+ 640	+ 779	+ 576	+ 360	+ 280	+ 180	+ 220	+ 254	+ 415	+ 504	+ 337	+ 678	+ 435
19	+ 647	+ 836	+ 564	+ 373	+ 317	+ 176	+ 206	+ 253	+ 405	+ 469	+ 335	+ 716	+ 441
20	+ 664	+ 867	+ 611	+ 371	+ 333	+ 180	+ 216	+ 260	+ 358	+ 419	+ 314	+ 735	+ 444
21	+ 657	+ 860	+ 601	+ 356	+ 348	+ 236	+ 284	+ 311	+ 351	+ 435	+ 321	+ 815	+ 465
22	+ 667	+ 859	+ 598	+ 340	+ 388	+ 279	+ 315	+ 364	+ 366	+ 471	+ 327	+ 824	+ 483
23	+ 656	+ 885	+ 593	+ 334	+ 397	+ 287	+ 318	+ 385	+ 365	+ 453	+ 303	+ 788	+ 480
24	+ 631	+ 883	+ 596	+ 327	+ 393	+ 278	+ 321	+ 381	+ 343	+ 445	+ 297	+ 778	+ 473
Means 0h.–23h.	+ 599	+ 771	+ 584	+ 331	+ 337	+ 233	+ 265	+ 284	+ 345	+ 445	+ 321	+ 671	+ 432
Means 1h.–24h.	+ 600	+ 775	+ 582	+ 333	+ 337	+ 234	+ 267	+ 283	+ 344	+ 443	+ 320	+ 672	+ 432
Number of Days employed.	12	16	19	7	18	20	22	19	11	17	16	13	...

AMOUNT of RAIN COLLECTED in each MONTH of the YEAR 1899.

MONTH, 1899.	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.		
							In Magnetic Pavilion Enclosure.	In Observatory Grounds.	
		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	18	1·242	1·182	1·747	1·980	2·345	2·528	2·385	2·507
February	12	1·264	1·239	1·489	1·685	1·791	1·927	1·778	1·831
March	10	0·209	0·204	0·414	0·469	0·599	0·607	0·548	0·595
April	20	1·661	1·616	2·130	2·524	2·910	2·999	2·758	2·904
May	12	1·155	1·187	1·347	1·585	1·700	1·650	1·586	1·658
June	6	0·560	0·500	0·641	0·741	0·765	0·758	0·766	0·758
July	8	1·312	1·380	1·578	1·709	1·772	1·738	1·729	1·738
August	6	0·241	0·199	0·293	0·342	0·370	0·354	0·354	0·361
September	15	1·388	1·375	1·732	1·966	2·125	2·233	2·120	2·145
October	10	1·382	1·349	1·889	2·036	2·282	2·343	2·286	2·310
November	9	2·738	2·743	3·180	3·326	3·680	3·730	3·711	3·690
December	15	0·786	0·765	1·033	1·174	1·356	1·465	1·393	1·388
Sums	141	13·938	13·739	17·473	19·537	21·695	22·332	21·414	21·885
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.

1899.

Month and Day, 1899.		Greenwich Civil Time.	Observer.	Apparent Size of Meteor in Star-Magnitudes.	Colour of Meteor.	Duration of Meteor in Seconds of Time.	Appearance and Duration of Train.	Length of Meteor's Path in Degrees.	No. for Reference.
		h m s				s		°	
August	9	21. 20. 3	C.	3	Bluish-white	1·0	None	5	1
	„	21. 50. 34	R.	>1	Bluish-white	1·0	Slight	10	2
	„	22. 10. 58	C.	3	Bluish-white	2·5	Bright	30	3
	„	22. 26. 58	R.	1	Bluish-white	0·5	None	5	4
	„	23. 27. 24	D.	1	White	1·0	None	10	5
	„	23. 35. 34	D.	3	White	1·0	None	5	6
	„	23. 40. 49	D.	2	White	1·0	None	7	7
	„	23. 43. 49	D.	1	Bluish-green	1·0	None	8	8
	„	23. 46. 4	D.	1	White	1·0	None	5	9
	„	23. 48. 46	D.	1	Bluish-white	1·0	None	10	10
	„	23. 49. 24	D.	1	Bluish-white	1·0	Train	20	11
	„	23. 51. 34	D.	2	White	1·0	None	3	12
	„	23. 53. 34	D.	1	Greenish-white	1·0	Train	5	13
August	10	0. 2. 34	D.	2	White	0·5	None	5	14
	„	0. 9. 39	D.	2	White	0·5	None	3	15
	„	0. 12. 15	D.	1	Bluish-white	1·0	Bright	10	16
	„	0. 17. 52	D.	2	White	0·5	None	4	17
	„	0. 19. 22	D.	3	White	0·5	None	3	18
	„	0. 24. 33	D.	2	Bluish-white	1·0	Slight	5	19
	„	0. 25. 9	D.	1	White	1·5	None	10	20
	„	0. 35. 10	D.	2	White	0·3	None	15	21
	„	0. 36. 49	D.	1	Bluish-white	1·0	Brilliant	20	22
	„	0. 41. 35	D.	...	Bluish-white	1·0	Slight	10	23
	„	0. 41. 50	D.	...	White	1·0	Bright	15	24
	„	0. 49. 49	D.	...	Greenish-white	1·5	Train	12	25
	„	0. 51. 8	D.	...	White	0·5	Slight	8	26
	„	0. 54. 12	D.	...	Bluish-green	0·5	None	4	27
	„	0. 59. 44	D.	...	White	1·0	None	10	28
	„	1. 9. 46	D.	...	Bluish-green	4·0	Brilliant: lasting for 3^s	15	29
	„	1. 16. 20	D.	...	White	0·5	None	7	30
	„	1. 18. 5	D.	...	Bluish-white	1·0	None	8	31

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 midway between α and β Ursæ Majoris towards λ Ursæ Majoris.
2	From ε Cygni to a point a little beyond α Cygni.
3	From α Cassiopeiæ towards Polaris.
4	From a point a little above γ Andromedæ towards μ Andromedæ.
5	From a point near β Cassiopeiæ towards α Cygni.
6	From a point near β Cephei towards η Cassiopeiæ.
7	From a point 5° S.W. of ε Cygni towards α Aquilæ.
8	From κ Andromedæ towards β Pegasi.
9	From a point near α Aquilæ fell vertically downwards.
10	From β Cephei towards α Cygni.
11	From π Herculis towards α Ophiuchi.
12	From a point near 46 Capricorni towards δ Aquarii.
13	From α Andromedæ towards α Pegasi.
14	From γ Draconis towards α Lyræ.
15	From κ Cygni towards a point near γ Lyræ.
16	From π Pegasi towards θ Pegasi.
17	From a point near γ Cephei towards Polaris.
18	From γ Draconis towards α Lyræ.
19	From a point near α Aquilæ fell vertically downwards.
20	From ε Pegasi towards δ Capricorni.
21	From ε Cygni towards α Aquilæ.
22	From κ Andromedæ towards α Pegasi.
23	From ε Pegasi towards δ Capricorni.
24	From γ Cygni fell vertically downwards.
25	From α Cephei towards γ Draconis.
26	From γ Cephei towards β Ursæ Minoris.
27	From β Cygni towards α Lyræ.
28	From α Cassiopeiæ to a point midway between α and γ Pegasi.
29	From β Andromedæ towards α Arietis.
30	From α Lyræ fell vertically downwards.
31	From β Persei to a point a little N. of the Pleiades.

Month and Day, 1899.	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 10	21. 49. 10	R.	2	Bluish-white	1·5	Long train	20	1
"	21. 54. 19	C.	3	Bluish-white	0·4	None	...	2
"	21. 54. 36	R.	3	Bluish-white	0·5	None	8	3
"	21. 55. 13	R.	>1	Bluish-white	0·5	None	5	4
"	21. 55. 44	C.	2	Bluish-white	1·0	Long train: lasting about 5^s	20	5
"	22. 12. 16	J.	>1	Bluish-white	0·5	Slight	10	6
"	22. 13. 9	R.	2	Bluish-white	0·5	None	5	7
"	22. 19. 55	J.	>1	Bluish-white	1·0	None	20	8
"	22. 24. 49	R.	3	Bluish-white	0·5	None	5	9
"	22. 28. 37	C.	4	Bluish-white	0·8	None	6	10
"	22. 32. 56	R.	1	Whitish-green	1·0	Brilliant	20	11
"	22. 33. 29	C.	3	Bluish-white	0·5	Slight	4	12
"	22. 34. 44	D.	1	White	3·0	Very bright	20	13
"	22. 37. 33	J.	3	Bluish	1·0	Bright	30	14
"	22. 38. 43	D.	1	Bluish-white	0·5	None	5	15
"	22. 40. 7	D.	2	White	2·0	Bright	25	16
"	22. 43. 29	D.	1	Bluish-white	2·0	Brilliant	20	17
"	22. 51. 59	J.	2	Bluish-white	0·5	None	10	18
"	22. 53. 34	R.	1	Bluish-white	0·5	Slight	5	19
"	22. 54. 23	D.	>1	Greenish-white	3·0	Brilliant	20	20
"	22. 59. 15	J.	2	Bluish-white	1·0	Slight	20	21
"	23. 0. 16	R.	1	Bluish-white	0·5	None	10	22
"	23. 2. 27	D.	>1	White	2·0	Very bright: Broken	25	23
"	23. 4. 45	D.	2	Greenish-white	1·0	Bright	10	24
"	23. 10. 10	D.	2	White	1·5	Broken	15	25
"	23. 12. 38	D.	1	Bluish-white	2·0	Bright	20	26
"	23. 18. 24	J.	2	White	1·0	Slight	10	27
"	23. 20. 30	D.	2	White	1·0	None	12	28
"	23. 21. 34	R.	2	Bluish-white	0·5	Slight	10	29
"	23. 22. 1	J.	3	Bluish-white	1·0	Bright	25	30
"	23. 22. 56	D.	>1	Bluish-green	0·5	Broken	5	31
"	23. 23. 59	R.	1	Bluish-white	0·5	None	5	32

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 θ Andromedæ to a point between α and β Pegasi.
2	From γ Andromedæ to a point a little above θ Andromedæ.
3	From a point between α and β Pegasi towards ε Pegasi.
4	From φ Andromedæ to a point a little above θ Andromedæ.
5	From a point a little below θ Andromedæ towards α Andromedæ.
6	From β Persei towards γ Andromedæ.
7	From a point near α Cassiopeiæ towards β Cephei.
8	From δ Piscium towards α Pegasi.
9	From a point a little below ζ Cassiopeiæ towards α Cygni.
10	From κ Draconis to a point a little beyond λ Draconis.
11	From ε Cassiopeiæ towards β Cephei.
12	From a point between η and π Pegasi towards ο Pegasi.
13	From η Ursæ Majoris towards Arcturus.
14	From a point a little below 23 Ursæ Majoris moved towards α Canum Venaticûm.
15	From κ Ophiuchi fell vertically downwards.
16	From β Cephei towards γ Draconis.
17	From κ Draconis towards η Herculis.
18	From β Andromedæ towards γ Pegasi.
19	From ζ Cephei towards Polaris.
20	From α Cephei towards γ Draconis.
21	From ε Cassiopeiæ to a point near β Cephei.
22	From ε Cephei towards β Pegasi.
23	From η Ursæ Majoris to a point a little to N.W. of Arcturus.
24	From β Boötis towards α Coronæ.
25	From γ Draconis to a point a little to the N. of α Lyræ.
26	From τ Herculis to a point between α Coronæ and β Boötis.
27	From a point a little to the right of α Persei moved towards γ Trianguli.
28	From α Lyræ to 109 Herculis.
29	From λ Andromedæ to π Pegasi.
30	From Polaris towards ε Ursæ Majoris.
31	From η Aquilæ fell vertically downwards.
32	From γ Persei towards ε Cassiopeiæ.

Month and Day, 1899.		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	10	23.25. 7	J.	>1	Bluish	1·0	None	15	1
	,,	23.30.59	D.	1	White	2·0	Brilliant	20	2
	,,	23.33.52	D.	1	Bluish-white	1·5	Bright	12	3
	,,	23.34.29	J.	2	Bluish-white	1·0	None	10	4
	,,	23.37. 8	R.	2	Greenish-white	1·0	Bright	20	5
	,,	23.39.55	D.	3	White	0·5	None	5	6
	,,	23.42.22	J.	3	Bluish-white	1·0	Bright, slightly broken	15	7
	,,	23.43.27	J.	3	Bluish-white	1·0	Brilliant	20	8
	,,	23.43.40	C.	4	Bluish-white	0·4	Bright, lasting 2ˢ	3	9
	,,	23.47.33	J.	2	Bluish	1·0	None	15	10
	,,	23.47.47	D.	>1	Bluish-white	1·5	Bright	15	11
	,,	23.52. 3	D.	1	White	0·8	Bright	4	12
	,,	23.57. 8	C.	3	Greenish-white	0·5	None	4	13
	,,	23.57.50	R.	2	Bluish-white	0·5	None	10	14
	,,	23.58.11	D.	1	White	0·5	Bright	10	15
	,,	23.58.47	C.	2	Bluish-white	0·4	None	3	16
August	11	0. 1. 7	D.	1	Bluish-white	0·5	Broken	15	17
	,,	0. 3. 0	J.	>1	Bluish-green	1·0	None	20	18
	,,	0. 3.58	C.	2	Bluish-white	0·6	Slight	5	19
	,,	0. 5.34	J.	1	Bluish-white	0·5	None	10	20
	,,	0.10.15	C.	2	Bluish-white	0·5	Brilliant	15	21
	,,	0.10.30	D.	>1	Bluish-white	3·0	Brilliant	20	22
	,,	0.13.20	J.	3	Bluish	1·0	Bright	20	23
	,,	0.17.58	R.&J.	2	Bluish-white	1·0	Bright	20	24
	,,	0.18.28	D.	Jupiter	Bluish-white	2·0	Very bright	20	25
	,,	0.21.43	J.	3	Bluish-white	0·5	Bright	10	26
	,,	0.26. 5	D.	2	White	0·5	None	5	27
	,,	0.28.21	D.	1	White	1·5	Bright, broken	15	28
	,,	0.29.27	D.	>1	Bluish-white	1·0	Brilliant	20	29
	,,	0.30.28	J.	4	Bluish	2·0	Brilliant	25	30
	,,	0.34.42	D.	2	Greenish-white	0·5	Slight	7	31

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 π Pegasi towards a point near α Aquarii.
2	From a point near κ Draconis towards α Coronæ.
3	From η Cygni towards 31 Aquilæ.
4	From a point a little above β Cassiopeiæ towards Polaris.
5	From β Camelopardali towards κ Draconis.
6	From ϵ Draconis towards α Canum Venaticûm.
7	From β Cassiopeiæ towards α Cygni.
8	From α Andromedæ towards θ Aquarii.
9	From a point midway between γ and ϵ Cassiopeiæ towards β Cassiopeiæ.
10	From a point near γ Arietis fell vertically downwards.
11	From β Draconis towards δ Herculis.
12	From α Ophiuchi towards λ Ophiuchi.
13	From ϵ Persei to ξ Persei.
14	From η Piscium fell vertically downwards.
15	From η Herculis towards β Boötis.
16	From a point between α and δ Persei moved towards ϵ Persei.
17	From a point near η Herculis towards β Herculis.
18	From δ Aurigæ towards Castor.
19	From λ Persei towards α Aurigæ.
20	From a point near Polaris moved to a point a little above ϵ Cassiopeiæ.
21	From B^2 Camelopardali towards λ Draconis.
22	From ζ Cygni towards η Aquilæ.
23	From α Cygni towards ϵ Pegasi.
24	From α Lyræ moved to a point near α Ophiuchi.
25	From a point between α Lyræ and γ Draconis moved towards β Herculis.
26	From δ Cassiopeiæ towards β Persei.
27	From 102 Herculis towards α Ophiuchi.
28	From ϵ Pegasi fell vertically downwards.
29	From 90 Herculis towards α Herculis.
30	From a point a little below Polaris moved towards η Draconis.
31	From μ Aquilæ to λ Aquilæ.

Month and Day, 1899.		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. 35. 11	C.	3	Bluish-white	0·5	None	3	1
"		0. 35. 25	J.	3	Bluish	1·0	Bright	25	2
"		0. 40. 31	D.	1	Bluish-white	1·0	Slight	15	3
"		0. 40. 46	C.	2	Bluish-white	0·4	Slight	5	4
"		0. 40. 57	J.	4	Bluish-white	0·5	Bright	15	5
"		0. 44. 47	J.	2	White	0·5	Slight	20	6
"		0. 46. 45	R.	2	Bluish-white	1·0	Train	20	7
"		0. 47. 42	D.	1	White	0·5	Bright	15	8
"		0. 48. 16	J.	2	Bluish-white	1·0	Slight	25	9
"		0. 51. 46	R.	2	Bluish-white	2·0	Train	20	10
"		0. 54. 34	J.	3	Bluish-white	1·0	Bright	20	11
"		0. 55. 23	C.	2	Bluish-white	0·6	Brilliant	10	12
"		0. 56. 40	D.	2	Bluish-white	0·5	Slight	5	13
"		0. 56. 44	R.	1	Bluish-white	1·0	None	20	14
"		0. 57. 26	C.	2	Bluish-white	0·8	Train	15	15
"		0. 58. 20	R.	1	Bluish-white	0·5	None	10	16
"		1. 0. 6	C.	3	Bluish-white	0·5	None	5	17
"		1. 4. 15	C.	1	Bluish-white	1·0	Brilliant	20	18
"		1. 6. 10	R.	1	Bluish-white	0·5	None	10	19
"		1. 8. 59	D.	1	White	1·0	Broken	8	20
"		1. 9. 53	J.	>1	Bluish-white	0·5	Slight	10	21
"		1. 12. 52	C.	3	Bluish-white	0·5	Train lasted about 1s	10	22
"		1. 12. 54	C.	2	Bluish-white	0·6	Slight	10	23
"		1. 14. 41	J.	2	Bluish-white	0·5	Slight	20	24
"		1. 21. 44	C.	3	Bluish-white	0·4	None	5	25
"		1. 22. 30	R.	>1	Bluish-white	0·5	Slight	10	26
"		1. 28. 7	R.	1	Bluish-white	0·3	...	5	27
"		1. 28. 7	C.	2	Bluish-white	0·5	Brilliant	8	28
"		1. 29. 13	D.	1	Bluish-white	1·0	Bright	10	29
"		1. 29. 32	R.	2	Greenish-white	2·0	Brilliant	20	30
"		1. 34. 38	D.	>1	White	1·5	Brilliant	20	31
"		1. 34. 39	C.	2	Bluish-white	0·6	Long Train	10	32

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 P 54 Camelopardali towards α Camelopardali.
2	From a point a little above Polaris disappeared near ζ Draconis.
3	From 31 Aquilæ towards 1 Vulpeculæ.
4	From θ Persei moved towards a point midway between β and γ Andromedæ.
5	From γ Draconis towards δ Herculis.
6	From β Camelopardali fell vertically downwards.
7	From 51 Andromedæ towards β Pegasi.
8	From ε Pegasi towards β Aquarii.
9	Moved from η Draconis and disappeared near γ Ursæ Majoris.
10	From 7 Camelopardali towards θ Aurigæ.
11	From β Ursæ Minoris to η Ursæ Majoris.
12	From a point a little to the right of γ Persei towards γ Andromedæ.
13	From a point near γ Ursæ Minoris moved towards ι Ursæ Minoris.
14	From ζ Cassiopeiæ towards α Andromedæ.
15	From P 5·1 Camelopardali towards Polaris.
16	From χ Piscium fell vertically downwards.
17	From ζ Cassiopeiæ towards λ Andromedæ.
18	From β Andromedæ moved to a point midway between α and γ Persei.
19	From a point midway between γ and β Andromedæ towards α Andromedæ.
20	From ξ Cygni towards α Lyræ.
21	From γ Persei towards ε Cassiopeiæ.
22	From λ Persei towards δ Aurigæ.
23	From β Trianguli towards α Persei.
24	From γ Draconis towards β Herculis.
25	From ο Ursæ Majoris to φ Ursæ Majoris.
26	From ι Ursæ Majoris fell vertically downwards.
27	From α Ursæ Majoris towards θ Ursæ Majoris.
28	From θ Cygni towards α Lyræ.
29	From ζ Cygni towards ε Pegasi.
30	From α Aquilæ fell vertically downwards.
31	From η Aquilæ fell vertically downwards.
32	From ξ Ursæ Minoris to κ Draconis.

Month and Day, 1899.		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	1. 37. 3	J.	3	Bluish-white	1·0	None	10	1
	"	1. 38. 26	R.	3	Bluish-white	2·0	Bright	20	2
	"	1. 39. 18	C.	3	Bluish-white	0·4	None	6	3
	"	1. 39. 24	D.	2	Bluish-white	0·5	Broken	10	4
	"	1. 39. 41	J.	4	White	0·5	Bright	20	5
	"	1. 40. 51	D.	2	White	0·5	None	12	6
	"	1. 40. 54	D.	1	White	0·5	Broken	12	7
	"	1. 41. 9	D.	1	White	0·5	Brilliant	20	8
	"	1. 42. 27	J.	3	Bluish-white	1·0	Bright	15	9
	"	1. 43. 10	C.	2	Bluish-white	0·8	Slight	15	10
	"	1. 43. 38	R.	...	Bluish-white	0·3	None	5	11
	"	1. 46. 56	R.	...	Bluish-white	0·3	None	5	12
	"	1. 47. 46	J.	>1	Bluish-white	0·5	None	10	13
	"	1. 47. 56	C.	2	Bluish-white	0·5	None	10	14
	"	1. 49. 26	R.	...	Greenish-white	1·0	Bright	20	15
	"	1. 51. 50	J.	1	Bluish-white	0·5	Slight	15	16
	"	1. 51. 50	D.	>1	Bluish-white	0·5	Bright	25	17
	"	1. 51. 52	D.	1	Bluish-white	0·5	Bright	12	18
	"	1. 52. 46	C.	3	Bluish-white	0·4	None	8	19
	"	22. 55. 59	J.	2	Bluish-white	1·0	Bright	10	20
	"	22. 58. 51	J.	3	Bluish-white	2·0	Brilliant	10	21
	"	23. 1. 4	J.	1	Bluish-white	0·5	None	5	22
	"	23. 1. 18	D.	>1	Bluish-white	2·0	Brilliant	25	23
	"	23. 5. 4	J.	3	Bluish-white	1·0	Brilliant	5	24
	"	23. 9. 34	J.	2	White	1·0	Bright	10	25
	"	23. 9. 50	D.	>1	White	2·0	Very brilliant, lasting 2^s	30	26
	"	23. 17. 3	J.	2	Bluish-white	1·5	Slight	20	27
	"	23. 17. 56	D.	1	Bluish-white	1·0	Broken	20	28
	"	23. 45. 33	D.	>1	White	3·0	Brilliant	35	29
	"	23. 49. 32	J.	4	Bluish-white	2·0	Brilliant	20	30
	"	23. 52. 17	D.	2	White	1·0	None	10	31
	"	23. 56. 17	J.	4	Bluish-white	3·0	Brilliant	20	32

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 α Persei towards α Aurigæ.
2	From a point between γ and β Andromedæ moved towards α Andromedæ.
3	From ξ Aurigæ towards 21 Lyncis.
4	From α Delphini towards η Aquilæ.
5	Moved from β Andromedæ and disappeared near γ Piscium.
6	From a point a little above π Herculis towards ξ Herculis.
7	From a point near π Herculis moved to a point a little below ε Herculis.
8	From a point a little to the N. of α Lyræ moved towards δ Herculis.
9	From a point near γ Draconis moved towards π Herculis.
10	From δ Cygni towards α Aquilæ.
11	From α Arietis fell vertically downwards.
12	From α Tauri fell vertically downwards.
13	From a point a little to the N. of γ Persei fell vertically downwards and disappeared near α Aurigæ
14	From β Trianguli towards η Piscium.
15	From α Aquilæ towards α Lyræ.
16	Moved from β Persei and disappeared near the Pleiades.
17	From ε Cygni towards α Aquilæ.
18	From κ Cygni towards α Lyræ.
19	From λ Ursæ Minoris towards δ Ursæ Minoris.
20	From β Persei towards ε Arietis.
21	From β Andromedæ moved slowly towards α Arietis.
22	From β Andromedæ towards γ Pegasi.
23	From a point a little above β Cygni towards θ Serpentis.
24	Moved from a point a little N. of β Andromedæ and disappeared between α and δ Andromedæ.
25	From a point near α Persei fell vertically downwards, disappearing near ι Aurigæ.
26	From ι Draconis to a point midway between ζ Herculis and α Coronæ.
27	From α Cassiopeiæ towards β Pegasi.
28	From a point near ε Pegasi to a point a little E. of δ Capricorni.
29	From a point between β and γ Lyræ towards α Ophiuchi.
30	From ζ Cephei towards β Ursæ Minoris.
31	From a point near ξ Herculis towards a point near α Ophiuchi
32	Moved from γ Andromedæ and disappeared near η Piscium.

Month and Day, 1899.		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	12	0. 2. 31	J.	>1	Bluish-white	0·5	None	15	1
	,,	0. 2. 56	D.	2	Greenish-white	1·5	Slight	10	2
	,,	0. 7. 24	J.	2	Bluish-white	2·0	Slight, broken	30	3
	,,	0. 11. 11	J.	3	Bluish	2·0	Brilliant	35	4
	,,	0. 14. 26	D.	1	White	0·5	None	8	5
	,,	0. 17. 9	D.	2	White	1·0	Slight	10	6
	,,	0. 17. 16	J.	3	Bluish-white	1·0	Bright	25	7
	,,	0. 21. 7	D.	1	Bluish-white	0·5	None	12	8
	,,	0. 28. 35	J.	2	Bluish-white	1·0	Slight	20	9
	,,	0. 31. 8	J.	>1	White	0·5	Slight	10	10
	,,	0. 31. 45	D.	1	White	0·5	Slight	8	11
	,,	0. 33. 54	J.	2	Bluish-white	1·0	Slight	20	12
	,,	0. 41. 6	D.	>1	Bluish-white	3·0	Brilliant	25	13
	,,	0. 42. 1	D.	>1	White	1·0	Bright	15	14
	,,	0. 53. 0	J.	3	Bluish-white	1·0	Bright	25	15
	,,	0. 54. 4	D.	1	White	2·0	Brilliant	25	16
	,,	1. 1. 32	D.	1	Bluish-white	1·5	Slight	20	17
	,,	1. 3. 41	J.	3	Bluish-white	1·0	Bright	10	18
	,,	21. 55. 31	C.	3	Bluish-white	0·6	None	4	19
	,,	21. 56. 11	C.	2	Bluish-white	1·0	Long	10	20
	,,	21. 59. 0	J.	3	Bluish-white	1·0	Bright	5	21
	,,	22. 3. 8	C.	3	Bluish-white	0·5	Short	5	22
	,,	22. 4. 12	J.	4	Bluish-white	1·0	Brilliant, lasting 2^s	35	23
	,,	22. 8. 48	J.	2	Bluish-white	0·5	Slight	10	24
	,,	22. 10. 18	C.	1	Bluish-white	0·7	None	12	25
	,,	22. 16. 13	J.	1	Bluish-white	0·5	None	5	26
	,,	22. 16. 29	C.	2	Bluish-white	0·5	Brilliant	8	27
	,,	22. 19. 50	C.	1	Greenish-white	1·0	Long, lasting 5^s	15	28
	,,	22. 20. 58	J.	4	Bluish	2·0	Brilliant, 3^s	25	29
	,,	22. 35. 15	C.	1	Bluish-white	1·0	Bright	10	30
	,,	22. 38. 16	J.	2	Bluish-white	1·0	Bright	20	31
	,,	22. 41. 21	J.	3	Bluish-white	1·0	Brilliant, $1\frac{1}{2}^s$	40	32

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 θ Cephei to a point midway between Polaris and γ Cassiopeiæ.
2	From 68 Cygni passed across ϵ Cygni and disappeared a little below that star.
3	From β Lacertæ towards θ Pegasi.
4	From δ Persei moved towards Polaris and disappeared a little beyond that star.
5	From α Cephei towards α Cygni.
6	From a point near ξ Cephei to a point a little N. of δ Cygni.
7	From ϵ Cassiopeiæ towards α Cygni.
8	From α Lacertæ towards μ Cygni.
9	From θ Persei towards α Andromedæ.
10	From a point near γ Andromedæ to a point a little beyond β Andromedæ.
11	From a point midway between ω^3 and 32 Cygni towards 47 Cygni.
12	From ϕ Andromedæ towards η Pegasi.
13	From a point a little above ϵ Cygni towards α Aquilæ.
14	From β Capricorni fell vertically downwards.
15	From γ Persei towards P 21 Ursæ Minoris.
16	From δ Cygni towards χ Cygni.
17	Moved from a point near ϵ Pegasi and disappeared a little below β Aquarii.
18	From μ Herculis fell vertically downwards and disappeared near α Ophiuchi.
19	From ξ Boötis to a point about 2° below α Boötis.
20	From α Herculis passed across κ Ophiuchi.
21	From a point near η Persei towards μ Persei.
22	From λ Herculis towards α Herculis.
23	From α Draconis towards α Coronæ.
24	From γ Cassiopeiæ towards α Cygni.
25	From ϵ Ursæ Minoris to a point a little beyond γ Ursæ Minoris.
26	From η Piscium towards ζ Pegasi.
27	From υ Ursæ Majoris to β Ursæ Majoris.
28	From a point midway between ζ and β Herculis to α Ophiuchi.
29	From θ Andromedæ towards ϵ Pegasi.
30	From ϵ Pegasi towards a point midway between ϵ Aquarii and θ Aquilæ.
31	From ϵ Pegasi towards θ Capricorni.
32	From γ Persei towards ϵ Draconis.

Month and Day, 1899.		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	12	22. 46. 1	J.	2	Bluish-white	0·5	None	15	1
"		22. 49. 1	J.	3	Bluish-white	1·0	Bright	15	2
"		22. 52. 28	J.	>1	Bluish-white	0·5	Slight	10	3
"		23. 1. 44	C.	2	Bluish-white	1·0	Brilliant	15	4
"		23. 5. 4	J.	>1	White	0·5	Slight	15	5
"		23. 5. 43	C.	2	Bluish-white	0·5	Slight	5	6
"		23. 9. 31	J.	3	Bluish-white	1·0	Brilliant	20	7
"		23. 10. 15	C.	2	Bluish-white	0·5	Slight	5	8
"		23. 13. 44	C.	1	Bluish-white	1·0	Brilliant	10	9
"		23. 16. 11	J.	2	Bluish-white	0·3	Slight	5	10
"		23. 22. 49	J.	1	Bluish-white	0·3	None	5	11
"		23. 36. 24	J.	1	Bluish-white	0·5	Slight	15	12
"		23. 41. 6	J.	1	Bluish-white	0·5	None	10	13
"		23. 43. 18	C.	1	Bluish-white	1·5	Brilliant	15	14
"		23. 50. 44	C.	1	Bluish-white	1·0	Long	20	15
"		23. 56. 23	J.	3	Bluish-white	1·0	Brilliant, $1\frac{1}{2}^s$	10	16
"		23. 57. 17	C.	2	Bluish-white	1·0	Brilliant	20	17
August	13	0. 1. 4	C.	...	Bluish-white	0·5	Slight	10	18
"		0. 1. 28	J.	>	Bluish-white	3·0	Brilliant, 8^s	40	19
"		0. 7. 3	C.	3	Bluish-white	1·5	Brilliant, 1^s	25	20
"		0. 8. 37	J.	>1	Bluish-white	0·5	Slight	15	21
"		0. 17. 25	J.	1	Bluish-white	1·0	Slight	10	22
"		0. 17. 39	C.	2	Bluish-white	0·6	Slight	10	23
"		0. 17. 58	J.	2	Bluish-white	0·5	Bright	10	24
"		0. 19. 29	C.	1	Bluish-white	1·0	Brilliant	15	25
November	8	23. 18. 40	N.	>1	Bluish-white	2·0	Brilliant	7	26
November	16	4. 35.	F.&B.	2	Reddish	...	...	20	27
"		4. 38. 3	F.&B.	2	Bluish-white	...	...	15	28
"		5. 33. 31	F.&B.	1	Reddish	...	...	15	29
"		5. 36. 59	F. & J. E.	...	Bluish-white	0·5	None	15	30

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No. for Reference.	Path of Meteor through the Stars.
1	From ι Draconis towards ε Boötis.
2	From η Draconis moved towards a point midway between δ and ζ Herculis.
3	From α Equulei fell vertically downwards.
4	From γ Herculis to χ Serpentis.
5	From η Pegasi to κ Delphini.
6	From υ Ursæ Majoris towards a point midway between α and β Ursæ Majoris.
7	From θ Andromedæ towards α Equulei.
8	From α Delphini towards α Aquilæ.
9	From a point midway between ω Draconis and η Ursæ Minoris towards ι Draconis.
10	From a point between ψ and υ Pegasi fell vertically downwards.
11	From δ Ursæ Minoris towards ζ Draconis.
12	From β Lacertæ towards ι Pegasi.
13	From ζ Cephei towards γ Cephei.
14	From δ Delphini to 69 Aquilæ.
15	From ε Pegasi to η Aquilæ.
16	Fron β Cephei towards β Ursæ Minoris.
17	From ξ Draconis to μ Herculis.
18	From the centre of the Pleiades dropped vertically downwards.
19	From β Cephei towards α Ophiuchi.
20	From δ Cygni to a point near α Ophiuehi.
21	From ε Cygni towards α Delphini.
22	From ε Pegasi towards δ Capricorni.
23	From η to ρ Cassiopeiæ.
24	From γ Persei towards β Piscium.
25	From η to α Pegasi.
26	From α Persei moved slowly across Capella, the latter being near the centre of the meteor's path.
27	From β Leonis moved in a N.E. direction (seen through a break in the clouds).
28	From δ Leonis moved in a N.E. direction (seen through a break in the clouds); cloudy till 5^h 15^m.
29	From Arcturus towards β Herculis.
30	From P^1 Leonis towards b^3 Hydræ.

Month and Day, 1899.	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		°	
November 16	5. 44. 5	M.&C.	>1	Blue	...	Slight	10	1
,,	5. 45. 19	S. & J. E.	2	...	...	...	8	2
,,	5. 45. 19	S. & J. E.	2	...	...	...	8	3
,,	5. 51. 49	J. E.	3	...	...	None	8	4
,,	5. 53. 8	F. & B.	3	Bluish-white	...	...	5	5
,,	5. 55. 55	M.	2	...	...	None	6	6
,,	5. 56. 44	J. E., M., & S.	2	Yellow	...	None	8	7
,,	5. 56. 44	C.	3	Bluish-white	...	None	10	8
,,	5. 57. 8	F. & B.	3	Bluish-white	...	...	10	9
,,	6. 3. 48	M. & S.	1	Bluish-white	1·0	...	15	10
,,	6. 4. 3	F. & B.	3	Bluish-white	...	...	10	11
,,	6. 4. 43	F. & B.	3	Bluish-white	...	...	10	12
,,	6. 5. 4	J. E. & S.	3	Bluish-white	...	...	7	13
,,	6. 10. 48	M., J. E., & S.	>1	Blue	...	Fine, 1s	15	14
,,	6. 15. 4	J. E.	2	White	...	...	10	15
,,	6. 15. 29	C.	>1	Blue	1·5	Slight	15	16
November 26	18. 3. 32	C.	1	Bluish-white	...	Bright	20	17

The time is expressed in civil reckoning, commencing at midnight and counting from 0h. to 24h.

No. for Reference.	Path of Meteor through the Stars.
1	From η Ursæ Majoris towards ζ Herculis.
2	From a point midway between Castor and Pollux towards θ Aurigæ (observed through thin clouds).
3	From a point a little to the S. of Castor towards θ Geminorum (observed through clouds).
4	From a point a little to the N.W. of δ Crateris towards ξ Hydræ.
5	From η Virginis moved in a N.E. direction.
6	From 6 Boötis to a point near α Boötis.
7	From a point a little to the S.W. of 42 Leonis toward κ Leonis.
8	From a point near Pollux moved to a point midway δ and ϵ Geminorum.
9	From a point midway between α and γ Leonis moved in a S.W. direction.
10	From a point midway between 54 Leonis and γ Comæ towards 37 Comæ.
11	From β Leonis moved in a N.E. direction.
12	From Arcturus moved in a N.E. direction.
13	From a point a little to the N.W. of 54 Leonis towards Regulus.
14	From a point somewhat to the right of α Leonis towards a point to the right of α Hydræ.
15	From a point between ϕ and 61 Leonis moved towards γ Crateris and disappeared behind clouds.
16	From a point near 63 Aurigæ towards δ Persei.
17	From γ Pegasi towards ι Ceti.