RESULTS

OF THE

MAGNETICAL AND METEOROLOGICAL OBSERVATIONS

MADE AT

THE ROYAL OBSERVATORY, GREENWICH,

IN THE YEAR

1898:

UNDER THE DIRECTION OF

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ASTRONOMER ROYAL.

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GREENWICH MAGNETICAL AND METEOROLOGICAL OBSERVATIONS, 1898.

INTRODUCTION.

§ 1. *Personal Establishment and Arrangements.*

During the year 1898 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 during the year were:—Percival D. Beadle, Thomas Percy Marchant, Cedric A. F. Davies, and Charles William Jeffries.

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

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

The Basement is warmed, when necessary, by a gas stove (of copper), and ventilated by means of a large copper tube nearly two feet in diameter, which receives the flues from the stove and all gas-lights, and passes through the Upper Magnet Room to a revolving cowl above the roof. In January 1889 two additional gas stoves were provided, with the object of maintaining a higher temperature during the winter, and so rendering the Basement temperature more uniform throughout the year. One of these stoves is placed in the northern corner of the eastern arm, and the other in the middle of the western wall of the western arm. 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.

The Dip instrument and Deflexion apparatus,-until the end of 1898 September, were placed in the New Library. They were then removed and re-mounted in the new Magnetic Pavilion (see p. *vii*). Each instrument rests on a heavy slate slab supported by strong wooden frame-work rising from brick-work built into the ground.

To the south of the Magnet House, in what is known as the Magnet Ground, is an open shed, consisting principally of a roof supported on four posts, under which is placed the photographic dry-bulb and wet-bulb thermometer apparatus. On the roof of this shed there is fixed an ozone box and a rain gauge, and close to its north-western corner are placed the earth thermometers, the upper portions of which, projecting above the ground, are protected by a small wooden hut. About 13 feet to the north of the photographic thermometers is situated the revolving stand carrying the thermometers used for ordinary eye observations, and adjacent to the thermometer stand are three rain gauges and a Stevenson screen containing dry-bulb, wet-bulb, and maximum and minimum thermometers. South-east of the Magnet House are placed the thermometers for solar and terrestrial radiation; they are laid on short grass, and freely exposed to the sky. On 1898 November 4 the radiation thermometers were removed to the Magnetic Pavilion enclosure.

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 Physical 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 Physical 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 Physical 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 Physical 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 Building 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 (see p. *xiii*).

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 dip and horizontal force were then installed there. The greatest care was taken to exclude all iron in building the Magnetic Pavilion, and the site was selected so that there is no suspicion of magnetic disturbance from iron in the neighbourhood.

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* 1898.

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

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

§ 4. *Magnetic Instruments.*

UPPER DECLINATION MAGNET AND ITS THEODOLITE.—The upper declination magnet, employed solely for the determination of absolute declination, is by Meyerstein of Göttingen. It is a bar of hard steel, 2 feet long, $1\frac{1}{2}$ 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 10½ 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. Early in 1893 the theodolite was thoroughly repaired by Messrs. Troughton and Simms, and a new striding level was applied. The value of one division of this level is 1″·5. On 1898 November 8 this level was accidentally broken, and a new level was supplied by Messrs. Troughton and Simms. The value of one division of the new 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 1893 February 7 and March 28, after the above-mentioned repairs, and it was found that the correction required was $-4^{\text{div}}\cdot5$ equivalent to $-6''\cdot75$, with illuminated pivot west, the position for observation of a circumpolar star. This correction was used until 1898 November 8. After the renewal of the level the inequality of pivots was re-determined on 1898 November 25 and 1898 December 5, and the correction was then 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 by ten double observations on 1898 April 27 to be $100^{r}\cdot245$; on 1898 August 2, $100^{r}\cdot257$; on 1898 October 3, $100^{r}\cdot254$; on 1898 October 26, $100^{r}\cdot320$; on 1898 November 23, $100^{r}\cdot296$; and on 1898 December 1, $100^{r}\cdot282$. The value used till 1898 October 10 was $100^{r}\cdot252$, and from October 11 to December 20, $100^{r}\cdot299$.

The effect of the plane glass in front of the outer box of the declination magnet at that end of the box towards the theodolite was determined by ten double observations made on 1896 December 1, which showed that in the ordinary position of the glass the theodolite readings were diminished by $20''\cdot9$. Two other sets of observations, made on 1897 November 24 and 1898 December 1, gave $20''\cdot0$ and $21''\cdot4$ respectively. The mean of these, $20''\cdot8$, has been added to all readings throughout the year 1898.

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. The value used during the year 1898 till October 10 was $25'.51''\cdot1$, being the mean of determinations made on 1897 December 1 and 1898 November 25, giving respectively $25'.55''\cdot0$ and $25'.47''\cdot2$. From 1898 October 11 to December 20, the value used was $25'.46''\cdot1$, being the mean of the determinations made on 1898 November 25 and 1898 December 2, which were respectively $25'.47''\cdot2$ and $25'.45''\cdot0$. With the collimator in its usual position, above the magnet, the quantity $25'.51''\cdot1$ has been subtracted from all readings till 1898 October 10, and $25'.46''\cdot1$ from all readings between 1898 October 11 and December 20.

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 $\frac{1}{140}$ on 1896 December 2, $\frac{1}{142}$ on 1897 December 1, and $\frac{1}{148}$ on 1898 November 25. During the year 1898 the plane in which the suspension skein was free from torsion so nearly coincided with the magnetic meridian, that no correction of the absolute measures of magnetic declination for deviation of the plane of no torsion was required.

The time of vibration of the upper declination magnet under the influence of terrestrial magnetism was found on 1897 November 24 to be $30^{s}\cdot72$, and on 1898 December 2, $30^{s}\cdot69$.

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. The concluded mean reading of the circle for the south astronomical meridian (deduced entirely from the observations of the polar stars), used from January 1 to May 23, was 27°.2′.51″·0; from May 24 to October 10, 27°.2′.40″·5; from October 11 to November 4, 27°.0′.37″·6; from November 23 to December 5, 27°.1′.24″·2; and from December 9 to 20, 27°.2′.9″·0.

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

The results of the determinations of magnetic declination are, to a certain extent, affected by the iron in the new Physical Observatory and in the new Altazimuth Pavilion. To eliminate this effect as far as circumstances would allow, observations have been made 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.		Correction to the Dec. as determined at the Royal Observatory.
		In Greenwich Park.	At the Royal Observatory.	
	d h m	° ′	° ′	′
February	14. 12.18	16. 52·0	16. 56·0	− 4·0
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

The correction to the declination, as found in the Magnet House after the completion of the new Physical Observatory in 1898, is −10′·7, as deduced from the observations with the Elliott declinometer in September and October (given above), subsequently confirmed by observations with the new declinometer in the Magnetic Pavilion, the results found with the two instruments being precisely the same.

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, 1½ inches broad, and ¼ 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 $0^{\text{in}}\cdot 01$ wide, placed close to the light, is firmly supported on the pier which carries the magnet. It stands slightly out of the straight line joining the mirror of the magnet and the registering cylinder, and its distance from the mirror is about 25 inches. The distance of the axis of the registering cylinder from the mirror is 134·4 inches. Immediately above the cylinder, and parallel to its axis, are placed two long reflecting prisms (each 11 inches in length), extending from end to end of the cylinder, and facing opposite ways towards the mirrors carried by the declination and horizontal force magnets respectively. The front surface of each prism is convex, being a portion of a horizontal cylinder. The light of the declination lamp, after passing through the vertical slit, falls on the concave mirror, and is thence reflected as a converging beam to form an image of the slit on the convex surface of the reflecting prism, by the action of which it is reflected downwards to the paper on the cylinder as a small spot of light. The concave mirror can be so adjusted in azimuth on the magnet, that the spot shall fall, not at the centre of the cylinder, but rather towards its western side, in order that the declination trace shall not interfere with that of horizontal force, which is made to fall towards the eastern side of the cylinder. The special advantage of the arrangement here described is that the registers of both magnets are made at the same part of the circumference of the cylinder, a line joining the two spots being parallel to its axis, so that when the traces on the paper are developed, the parts of the two registers which appear in juxtaposition correspond to the same Greenwich time.

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

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

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

The scale for measurement of ordinates of the photographic curve is thus determined. The distance from the concave mirror carried by the magnet to the surface of the cylinder, in the actual path of the ray of light through the prism, is practically the same as the horizontal distance of the centre of the cylinder from the mirror, 134·4 inches. A movement of 1° of the mirror produces a movement of 2° in the reflected ray. From this it is found that 1° of movement of the mirror, representing a change of 1° of magnetic declination, is equal to 4·691 inches on the photographic paper. A small strip of cardboard is therefore prepared, graduated on this scale to degrees and minutes. The ordinates of the curve, as referred to the base line, being measured for the times at which absolute values of declination were determined by the upper declination magnet, usually four times daily, the apparent value of the base line, as inferred from each observation, is found. The process assumes that the movements of the upper and lower declination magnets are precisely similar. The separate base line values being divided into groups, usually monthly, a mean base line value is adopted for use through each group. This adopted base line value is written upon every sheet. Then, with the cardboard scale, there is laid down, conveniently near to the photographic trace, a new base line, whose ordinate represents some whole number of degrees or other convenient quantity. Thus every sheet carries its own scale of magnetic measure. From the new base line the hourly ordinates (see page *xxxv*) are measured.

HORIZONTAL FORCE MAGNET.—The horizontal force magnet, for measure of the variations of horizontal magnetic force, was made by Meyerstein of Göttingen, and like the two declination magnets, is 2 feet long, $1\frac{1}{2}$ inches broad, and about $\frac{1}{4}$ inch thick. For support of its suspension skein, the back and sides of its brick pier rise through the eastern arm of the Magnet Basement to the Upper Magnet Room, being there covered by a slate slab, to the top of which a brass plate is attached, carrying, immediately above the magnet, two brass pulleys, with their axes in the same east and west line; and at the back of the pier, and opposite to these pulleys, two others, with their axes similarly in an east and west line: these constitute the upper suspension piece, and support the upper portions of the two branches of the suspension skein. The two lower pulleys, having their axes in the same horizontal plane, and their grooves in the same vertical plane, are attached to a small horizontal bar which forms the upper portion of the torsion-circle: it carries the verniers for reading the torsion-circle, and can be turned independently of the lower and graduated portion of the torsion-circle, below which, and in rigid connexion with it, is the magnet carrier.

The suspension skein is led under the two pulleys carried by the upper portion of the torsion-circle; its two branches then rise up and pass over the front pulleys of the upper suspension piece, thence to and over the back pulleys, thence descending to a single pulley, round which the two branches are tied: from this pulley a cord goes to a small windlass fixed to the back of the pier. The effective length of each of the two branches of the suspension skein is about $7^{ft.}\ 6^{in.}$. The distance between the branches of the skein, where they pass over the upper pulleys, is $1^{in.}\cdot14$; at the lower pulleys the distance between the branches is $0^{in}\cdot80$. 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 1897 December 31 the following observations were made for determination of the angle of torsion :—

1897, Day.	The Marked End of the Magnet.							
	West.				East.			
	Torsion-Circle Reading.	Scale-Reading.	Difference of Scale-Readings for change of 1° of Torsion-Circle Reading.	Mean of the Times of Vibration.	Torsion-Circle Reading.	Scale-Reading.	Difference of Scale-Readings for change of 1° of Torsion-Circle Reading.	Mean of the Times of Vibration.
	°	div.	div.	s	°	div.	div.	s
Dec. 31	146	54·50		21·20	231	53·72		20·88
			7·80				7·82	
	147	62·30		21·04	232	61·54		20·96
			8·60				7·95	
	148	70·90		20·82	233	69·49		21·14

From these observations it appeared that the times of vibration and scale-readings were sensibly the same when the torsion-circle read 147°.9′, marked end west, and 232°.15′, marked end east, the difference being 85°.6′. Half this difference, or 42°.33′, is therefore the angle of torsion when the magnet is transverse to the meridian. Another determination, made on 1899 January 5, gave 42°.54′, the suspension thread apparently growing weaker throughout the year.

The value adopted in the reduction of the observations during the year 1898 was 42°.44′, being the mean of the determinations made on 1897 December 31 and 1899 January 5.

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 0·002316, which value has been used throughout the year 1898 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 $-0^\circ\cdot3$ has been applied to all readings.

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

The scale for measure of ordinates of the photographic curve is thus constructed. The distance from the concave mirror to the surface of the cylinder, in the actual path of the ray of light through the prism, is (as for declination) practically the same as the horizontal distance of the centre of the cylinder from the mirror, or 136·8 inches. But, because of the reflexion at the concave mirror, the double of this measure, or

273·6 inches, is the distance that determines the extent of motion on the cylinder of the spot of light, which, in inches, for a change of 0·01 part of the whole horizontal force, will therefore be 273·6 × tan angle of torsion × 0·01. Taking for angle of torsion 42°.44′, the movement of the spot of light on the cylinder for a change of 0·01 of horizontal force is thus found to be 2·529 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 *xxxv*) 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 $(t-32)\times\cdot0000986+(t-32)^2\times\cdot000002074$, in which t is the temperature in degrees

Fahrenheit. The decrease of horizontal force for an increase of 1° of temperature (Fahrenheit) would thus be ·00021 at 60°, ·00023 at 65°, and ·00025 at 70°.

VERTICAL FORCE MAGNET.—The vertical force magnet, for measure of the variations of vertical magnetic force, is by Troughton and Simms. It is 1 ft. 6 in. long and lozenge-shaped, being broad at the centre and pointed at the ends; it is mounted on a solid brick pier capped with stone, situated in the western arm of the Basement, its position being nearly symmetrical with that of the horizontal force magnet in the eastern arm. The supporting frame consists of two pillars, connected at their bases, on whose tops are the agate planes upon which rest the extreme parts of the continuous steel knife edge, attached to the magnet carrier by clamps and pinching screws. The knife edge, 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 68 observations made during the course of the year this was found to be $17^s \cdot 976$.

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 $16^s \cdot 509$. This value has been used throughout for the year 1898.

The length of the normal to the fixed vertical scale that meets the face of the plane mirror is 186·07 inches, and $30^{div} \cdot 85$ of the scale correspond to 12 inches. Consequently the angle which one division of the scale subtends, as seen from the mirror, is $7'.11'' \cdot 2$, or the angular movement of the normal to the mirror, corresponding to a change of one division of scale-reading, is $3'.35'' \cdot 6$.

But the angular movement of the normal to the mirror is equal to the angular movement of the magnet multiplied by the sine of the angle which the plane of the mirror makes with a vertical plane through the magnet. This angle, as already stated, is $52\frac{3}{4}°$. Therefore, dividing the result just obtained, $3'.35'' \cdot 6$, by sin $52\frac{3}{4}°$, the angular motion of the magnet corresponding to a change of one division of scale-reading is found to be $4'.30'' \cdot 9$.

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 $T' = 16^s \cdot 509$, $T = 17^s \cdot 976$, and dip $= 67°.12'$, the change of vertical force corresponding to change of one division of scale-reading was found to be 0·0004657, and this value has been used throughout the year 1898 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 *xxiv*), the movement of the spot of light on the cylinder for a change of 0·01 of vertical force is thus found to be 5·652 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 *xxxv*) 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 *xxii*), 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 until the end of September 1898 was mounted in the New Library on a slate slab supported by a braced wooden stand built up from the ground independently of the floor. It was then removed with its stand to the new Magnetic Pavilion and re-mounted. The plan of the instrument was arranged by the late Sir G. B. Airy so that the points of the needles should be viewed by microscopes, and, if necessary, observed whilst the needles were in a state of vibration; that there should be power of employing needles of different lengths; and that the field of view of each microscope should be illuminated from the side opposite to the observer, in such way that the needle point should form a dark image in the bright field.

The instrument is adapted to the observation of needles of 9 inches, 6 inches, and 3 inches in length. The main portion of the instrument, that in which the needle under observation is placed, consists of a square box made of gun metal (carefully selected to ensure freedom from iron), with back and front of glass. Six microscopes, so planted as to command the points of the three different lengths of needles, turn on a horizontal axis so as to follow the points of the needles in the different positions which in observation they take up. The needle pivots rest on agate bearings. The object-glasses and field-glasses of the microscopes are within the front glass plate, their eye-glasses being outside, and turning with them on the same axis. Upon the plane side of each field-glass (the side next the object-glass and on which the image of the needle point is formed) a scale is etched, by means of which the position of the needle points is noted. And on the inner side of the front glass plate is etched the graduated circle, $9\frac{3}{4}$ inches in diameter, divided to 10′, and read by two verniers to 10″. The verniers (thin plates of metal, with notches instead of lines, for use with transmitted light) are carried by the horizontal axis, inside the front glass plate, their reading lenses, attached to the same axis, being outside. A suitable clamp with slow motion is provided. The microscopes and verniers can be illuminated by one gas lamp, the light from which, falling on eight corresponding prisms, is thereby directed to each separate microscope and vernier. The prisms are carried behind the back glass plate on a circular frame in such a way that, on reversion of the instrument in azimuth, the whole set of prisms can at one motion of the frame be shifted so as to bring each one again opposite to its proper microscope or vernier.

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

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

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

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

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

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

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

Additional observations were also made in Greenwich Park and in the New Library alternately with a Kew Dip-Circle (Dover 74) kindly lent by Professor Rücker, in order to determine the correction to the dip due to the effect of the iron in the surrounding buildings. The results of these observations are given in the following table :—

RESULTS OF OBSERVATIONS OF MAGNETIC DIP WITH PROFESSOR RÜCKER'S DIP-CIRCLE (DOVER 74) IN GREENWICH PARK AND IN NEW LIBRARY IN THE YEARS 1897 AND 1898.

Date.		Needle, 3-inch.	Magnetic Dip.		Correction to Dip in New Library.
			In Greenwich Park.	In New Library.	
1897.			° ′	° ′	′
March	22	A1	67. 13·1	67. 7·6	+ 5·5
May	19	A2	67. 14·1	67. 7·9	+ 6·2
"	19	A1	67. 15·4	67. 8·4	+ 7·0
June	18	A2	67. 14·8	67. 8·5	+ 6·3
"	25	A2	67. 12·7	67. 6·8	+ 5·9
July	1	A2	67. 15·5	67. 8·2	+ 7·3
"	1	A1	67. 14·4	67. 8·6	+ 5·8
August	5	A1	67. 15·1	67. 9·0	+ 6·1
"	18	A2	67. 15·5	67. 8·4	+ 7·1
September	3	A1	67. 11·6	67. 6·0	+ 5·6
"	24	A2	67. 14·6	67. 7·5	+ 7·1
"	24	A1	67. 14·2	67. 8·1	+ 6·1
October	21	A1	67. 13·5	67. 7·4	+ 6·1
"	21	A1	67. 13·3	67. 7·5	+ 5·8
1898.					
January	26	A2	67. 12·0	67. 5·1	+ 6·9
February	24	A1	67. 15·6	67. 7·1	+ 8·5
June	7	A1	67. 13·2	67. 4·1	+ 9·1
"	7	A2	67. 14·3	67. 4·1	+10·2
"	16	A2	67. 10·1	67. 3·3	+ 6·8
"	20	A1	67. 11·1	67. 1·5	+ 9·6
Means...............		...	67. 13·7	67. 6·8	+ 6·9

From these observations it appears that the dip, as determined in the Library, requires to be increased by 6′·9.

DEFLEXION INSTRUMENTS.—The observations of deflexion of a magnet in combination with observations of vibration of the deflecting magnet, for determination of the absolute measure of horizontal magnetic force, are made with a *Unifilar Instrument*, Gibson No. 3, which, with the exception of some slight modification of the mechanical arrangements, is similar to those issued from the Kew Observatory. The instrument is adapted to the determination of horizontal force in British (foot-grain-second) measure. Until the end of 1898 September this instrument was mounted in the New Library on a slate slab in the same way as the Dip instrument. It was then removed to the new Magnetic Pavilion and re-mounted on the same stand.

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 $= c = 0·00013126$ $(t-35) + 0·000000259\ (t-35)^2$; t representing the temperature (in degrees Fahrenheit) at which the observation is made.

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

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

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

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

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

u_1, u_2 the observed angles of deflexion,

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

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

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

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

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

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

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

In calculating the value of P as well as the values of the four factors within brackets, the distances r_1 and r_2 are taken as being equal to 1·0 ft. and 1·3 ft. respectively. The expression for P is not convenient for logarithmic computation, and, in practice, its value for each observation has, since the year 1877, been calculated from the expression $\frac{\text{Log. } A_1 - \text{Log. } A_2}{\text{modulus}} \times \frac{r_1^2 \times r_2^2}{r_2^2 - r_1^2} = (\text{Log. } A_1 - \text{Log. } A_2) \times 5{\cdot}64.$

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 $\frac{H}{F} = \frac{\theta}{90° - \theta}$, 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.

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

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

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

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

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

A new determination of K was made in 1897, the value found for log. K at temperature 10° centigrade being 2·44215. This value has been used from 1896 June.

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

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

Additional observations were continued with both instruments until the month of September in Greenwich Park, in order to obtain determinations of Horizontal Magnetic Force sensibly free from any effect of the iron in the Observatory buildings.

In October the Gibson instrument was mounted in the new Magnetic Pavilion, and the use of the Elliott instrument was discontinued.

The results of these observations are printed on pages (xvii) and (xix). From these results it appears that the mean in metric measure for the months of January to August for the Gibson Instrument in Greenwich Park is 1·8383, and in the Library is 1·8432, showing a correction to the Library determinations in 1898 of −0·0049. For the Elliott Instrument the results are 1·8360 and 1·8485 respectively, and the correction to the Library determinations with this instrument in 1898 is therefore −0·0125.

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 2½ miles from the nearest earth plate (at the North Kent East Junction of the South-Eastern Railway), and about 4½ 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 2 days in the year 1898 which are classed as days of great disturbance, viz.: March 15–16, September 9–10. Other days of lesser disturbance are January 16–17, 17–18, 18–19; February 11–12, 12–13, 14–15; March 11–12, 14–15; April 12–13; August 16–17; September 2–3, 10–11; October 25–26; November 21–22. 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. The omissions made on account of disturbed days, in the formation of Tables I. and II. for declination, Tables III. to VI. for horizontal force, and in Tables VII. to X. for vertical force, are March 15, 16, September 9, 10: with the addition, from other causes, of July 28, 29, and August 14, in Tables I. and II.; and of December 30 and 31, in Tables VII. to X.

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 *xxii*), 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 *xxvi*). The corrections applied are founded on the daily and hourly values of temperature given in Tables IV., VI., VIII., and X.

In regard to the formation of the tables of temperature, the hourly readings of the Richard Thermograph were entered into a form having double arguments as for the magnets, the mean hourly values deduced therefrom giving for each month the variation through the day, and the mean daily values the variation through the month. To adapt these to represent the temperature within the horizontal and vertical force magnet boxes respectively, the monthly means of the thermograph-readings at 9^h, 10^h, 11^h, 12^h, 13^h, 14^h, 15^h, 16^h, and 21^h were compared with the corresponding means of the eye readings of the thermometers whose bulbs are within the respective magnet boxes, giving corrections to the thermograph-readings at these hours, which were very accordant, and from which, by interpolation, corrections were obtained for the remaining hours. The nine daily observations gave also the means of reducing the daily thermograph values to the temperature of the interior of the respective magnet boxes. The results are given in Tables IV., VI., VIII., and X.

In order to economise space, the daily values, as exhibited in Tables III. and VII., both uncorrected and corrected, have been diminished by constants. The division ═══════ in these Tables and in Table XI. indicates that the instrument has been disturbed for experiment or adjustment, or that for some reason the continuity of the values has been broken, the constants deducted being different before and after each break. In the interval between two breaks the values of u and c are each comparable throughout, remarking only that in certain cases it is to be understood that the values are to be taken 1000 greater or less for comparison with adjacent values. See, for example, c in Table III. on March 30, which should be taken as 1007 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

$$\text{H.F. in metrical measure} \times \sin 1' = 1{\cdot}8381 \times \sin 1' = 0{\cdot}0005347.$$

For variation of horizontal force, the factor is

$$\text{H.F. in metrical measure} = 1{\cdot}8381,$$

and for variation of vertical force

$$\text{V.F. in metrical measure} = \text{H.F. in metrical measure} \times \tan \text{dip},$$
$$= 1{\cdot}8381 \times \tan 67^\circ.12' = 4{\cdot}3727.$$

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 *xxxv*), 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.

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

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

$$12\,b_1 = 6-18+\{(5+7)-(17+19)\}\sin 75^\circ+\{(4+8)-(16+20)\}\sin 60^\circ$$
$$+\{(3+9)-(15+21)\}\sin 45^\circ+\{(2+10)-(14+22)\}\sin 30^\circ$$
$$+\{(1+11)-(13+23)\}\sin 15^\circ.$$
$$12\,a_2 = (0+12)-(6+18)+\{(1+11+13+23)-(5+7+17+19)\}\cos 30^\circ$$
$$+\{(2+10+14+22)-(4+8+16+20)\}\cos 60^\circ.$$
$$12\,b_2 = (3+15)-(9+21)+\{(2+4+14+16)-(8+10+20+22)\}\sin 60^\circ$$
$$+\{(1+5+13+17)-(7+11+19+23)\}\sin 30^\circ.$$
$$12\,a_3 = (0+8+16)-(4+12+20)+\{(1+7+9+15+17+23)-(3+5+11+13+19+21)\}\cos 45^\circ.$$
$$12\,b_3 = (2+10+18)-(6+14+22)+\{(1+3+9+11+17+19)-(5+7+13+15+21+23)\}\sin 45^\circ.$$
$$12\,a_4 = (0+6+12+18)-(3+9+15+21)$$
$$+\{(1+5+7+11+13+17+19+23)-(2+4+8+10+14+16+20+22)\}\cos 60^\circ.$$
$$12\,b_4 = \{(1+2+7+8+13+14+19+20)-(4+5+10+11+16+17+22+23)\}\sin 60^\circ.$$

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

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

Similarly for c_2, β, &c.

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

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

a mean value of h for the month being employed.

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

1898.	a_5.	b_5.
Declination	−0′·10	−0′·01
Horizontal Force	+1·1	−0·9
Vertical Force	+0·3	−0·4

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 1898.	Declination.	Horizontal Force.	Vertical Force.
Sums of Squares of Observed Values (Table XII.)	200·69	221961·8	15397·3
Sums of Squares of Residuals after the introduction of m	99·91	38981·0	4406·3
" " a_1 and b_1	32·63	8038·6	1664·3
" " a_2 and b_2	5·48	1891·2	197·3
" " a_3 and b_3	0·89	481·1	30·0
" " a_4 and b_4	0·13	39·1	7·1
" " a_5 and b_5	0·01	14·9	4·1

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

As regards Magnetic Dip, the result of each complete observation of dip with each of the six needles in ordinary use, and of the additional observations made with Professor Rücker's needles in Greenwich Park, is given in Table XVII.; and in Table XVIII., the concluded monthly and yearly values for each needle.

The results of the observations for Absolute Measure of Horizontal Force contained in Table XIX. require no special remark, the method of reduction and all necessary explanation having been given with the description of the instruments employed. The observed result in each month has been also given as reduced to the mean value for the month, by application of the difference between the horizontal force ordinate at the time of observation and the mean value for the month, as obtained from the photographic register.

In order to facilitate the comparison of the diurnal inequalities of magnetism at the different British and other magnetic observatories, an arrangement has been made with the Sub-Committee of the Kew Committee of the Royal Society, by which five quiet days are to be selected at Greenwich in each month of every year for adoption at all these observatories for determination of the monthly diurnal inequalities of declination, horizontal force, and vertical force, thus providing for further discussion results which should be strictly comparable. The particular days selected are given on page (xx), 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 great and of lesser disturbance mentioned on page *xxxv*.

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 1898, 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 (xxxvi).

An additional plate (VIII.) 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 *xxxvi*, 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	2·529	64·24	5·652	143·56
On the Plates -	2·580	65·53	1·391	35·33	3·109	78·96

The scales actually attached to the plates are, however, so arranged as to correspond with the tables of the magnetic section—that is to say, the units for horizontal force and vertical force are ·00001 of the whole horizontal and vertical forces respectively, the numbers being in some cases increased by 1000 to avoid negative quantities. At the foot of each plate equivalent scales, in C.G.S. measure, are given for each of the magnetic registers. (See page *xlii.*)

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°.12′]
= Horizontal Force × 2·3789 ;

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	2·53	64·2	2·38	60·3
On the Plates -	1·47	37·4	1·39	35·3	1·31	33·2

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 1898 = 3·9865
Millimètre-milligramme-second, or Metric unit, " " " = 1·8381
Centimètre-gramme-second, or C.G.S. unit, " " " = 0·18381

Dividing, therefore, the scale values last given by 3·9865, 1·8381, and 0·18381 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	17·1	0·37	9·4	0·63	16·1	0·35	8·9	0·60	15·1	0·33	8·3
Metric - -	1·46	37·0	0·80	20·4	1·38	34·9	0·76	19·2	1·29	32·8	0·71	18·1
C.G.S. - -	14·6	370	8·0	204	13·8	349	7·6	192	12·9	328	7·1	181

Slight interruptions in the traces on the plates are due to various causes. In the originals there are breaks at each hour for time scale, so slight, however, that in the copies the traces could usually be made continuous without fear of error: in a few cases, however, this could not be done. Further, to check the numeration of hours, the observer interrupts the register at definite times for about five minutes, usually at or near $9^h\ 30^m$, $13^h\ 30^m$, and $20^h\ 30^m$ Greenwich civil time, and at somewhat different times on Sundays. A weekly clearing of the gas pipes also causes a somewhat longer interruption, usually at about 10^h.

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 *lviii*) are measured as for the magnetic registers. As the diurnal change of temperature in the Basement is very small, no appreciable differential effect is produced on the photographic register by the expansion of the column of mercury.

DRY AND WET BULB THERMOMETERS.—The dry and wet bulb thermometers and maximum and minimum self-registering thermometers, both dry and wet, are mounted on a revolving frame planned by the late Sir G. B. Airy. A vertical axis, fixed in the ground in a position about 14 feet south of the southern arm of the Magnetic Observatory, carries the frame, which consists of a horizontal board as base, of a vertical board projecting upwards from it and connected with one edge of the horizontal board, and of two parallel inclined boards (separated about 3 inches) connected at the top with the vertical board and at the bottom with the other edge of the horizontal board: the outer inclined board is covered with zinc, and the air passes freely between all the boards. The dry and wet bulb thermometers are mounted near the centre of the vertical board, with their bulbs about 4 feet from the ground; the maximum and minimum thermometers for air temperature are placed towards one side of the vertical board, and those for evaporation temperature towards the other side, with their bulbs at about the same level as those of the dry and wet bulb thermometers. A small roof projecting from the frame protects the thermometers from rain. The frame is turned in azimuth several times during the day (whether cloudy or clear), so as to keep the inclined side always towards the sun. In 1878 September a circular board, 3 feet in diameter, was fixed, below the frame, round the supporting post, at a height of 2 feet 6 inches above the ground, with the object of protecting the thermometers from radiation from the ground. In the summer of 1886 experiments were made on days of extreme heat, with the view of determining the effect of the circular board in this respect, an account of which will be found at the end of the Introduction to the volume for the year 1887. The effect of radiation with the circular board removed was found to be insensible.

The corrections to be applied to the thermometers in ordinary use are determined, usually once each year for the whole extent of scale actually employed, by 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 6 feet to the eastward of the revolving frame carrying the ordinary dry-bulb and wet-bulb thermometers, and its internal dimensions are, length 18 inches, width 11 inches, and height 15 inches, the bulbs of the thermometers placed in it being at a height of about 4 feet above the ground. The dry-bulb thermometer is Hicks No. 262495, to the readings of which a correction of $-0^{\circ}\cdot2$ 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 $-0^{\circ}\cdot 3$ 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 $-0^{\circ}\cdot 5$ 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. This shed is open to the north, and is generally similar to that provided for the old apparatus, excepting that the roof inclines somewhat towards the south, and that the protecting boards (fixed as far as necessary on the eastern, southern, and western sides) are double, with spaces between to ensure a free circulation of air while screening the thermometers from the direct rays of the sun. The thermometers are further protected from sky and ground radiation by boards on the thermometer stand as described below. The photographic register is received on paper placed on a vertical ebonite cylinder $11\frac{1}{2}$ inches high and $14\frac{1}{4}$ inches in circumference, and I have arranged that the dry and wet bulb traces shall fall on the same part of the cylinder, as regards time scale, a long air-bubble in the wet-bulb thermometer column giving the means of registering the indications of the wet bulb (as well as of such degrees and decades of its scale as fall within the bubble), just below the trace of the dry-bulb thermometer, without any interference of the two records, an arrangement which admits of the time scale being made equal to that of all the other registers. The stems of the thermometers are placed close together, each being covered by a vertical metal plate having a fine vertical slit, so that light passes through only at such parts of the bore of the tube as do not contain mercury. Two gas lamps, each at a distance of 21 inches, are placed at such an angle that the light from each, after passing through its corresponding slit and thermometer tube, falls on the photographic paper in one and the same vertical line. Degree lines etched upon the thermometer stems, and painted, interrupt the light sufficiently to produce a clear and sharp indication on the photographic sheet, the line at each tenth degree being thicker than the others, as well as those at 32°, 52°, 72°, &c. The length of scale is from 0° to 120° for each thermometer, the length of 1° being about 0·1 inch, and the air-bubble in the wet-bulb thermometer is about 12° in length, so that it will always include one of the ten-degree lines. The bulbs, which are 2 inches long and of about $\frac{1}{2}$ an inch in internal bore, are separated horizontally by 5 inches, the tubes of the thermometers having a double bend above the bulbs, which are placed about 4 feet above the ground. The thermometers are carried by a vertical frame with independent vertical adjustment for each thermometer, so that the register in summer or winter can be brought to a convenient part of the photographic sheet. The revolving cylinder is driven by a pendulum clock contained within the brass case covering the whole apparatus, excepting the thermometer bulbs which project below. It makes one revolution in 26 hours, and the time scale is the same as that for all the other registers. As the cylinder revolves, the light passing through the portion of the thermometer tubes not occupied by mercury imprints on the paper a broad band of photographic trace, corresponding to the dry-bulb register, whose breadth in the vertical direction varies with the height of the mercury in the tube, and a narrower band below, corresponding to the wet bulb. When these are developed, the traces are seen to be crossed by thin white lines, the horizontal lines corresponding to degrees, and the vertical lines to hours, the lower boundary of each trace indicating the thermometric record corresponding to the upper surface of the thermometric column.

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

The bulbs of the thermometers were at first completely protected from radiation by vertical or inclined boards fixed to the thermometer stand, two on the south side, two on the north side, one at the east end, one at the west end, and one below, but with proper spaces for free circulation of air. Experiments made in the summer of the year 1886, an account of which is given at the end of the Introduction for 1887, showed that the north and south boards were unnecessary, and the two south boards and one north board were in consequence removed before commencing regular work with the instrument at the beginning of the year 1887.

For a description of the apparatus formerly employed, reference may be made to the Introduction for 1887 and previous years. A comparison of the results given by the old and new apparatus will be found at the end of the Introduction to the year 1887.

RADIATION THERMOMETERS.—These thermometers were placed in the Magnet Ground, south-east of the Magnet House, until 1898 November 4. They were then removed to a more open position in the Magnetic Pavilion enclosure. 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; they require no correction for index-error.

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

The thermometers are four in number, placed in one hole in the ground, the diameter of which in its upper half is 1 foot and in its lower half about 6 inches, each thermometer being attached in its whole length to a slender piece of wood. The thermometer No. 1 was dropped into the hole to such a depth that the centre of its bulb was 24 French feet (25·6 English feet) below the surface; then dry sand was poured in till the hole was filled to nearly half its height. Then No. 2 was dropped in till the centre of its bulb was 12 French feet below the surface; Nos. 3 and 4 till the centres of their bulbs were respectively 6 and 3 French feet below the surface; and the hole was then completely filled with dry sand. The upper parts of the tubes carrying the scales were left projecting above the surface; No. 1 by 27·5 inches, No. 2 by 28·0 inches, No. 3 by 30·0 inches, and No. 4 by 32·0 inches. Of these lengths, 8·5, 10·0, 11·0, and 14·5 inches respectively are in each case tube with narrow bore. The length of 1° on the scales is 1·9 inch, 1·1 inch, 0·9 inch, and 0·5 inch in each case respectively. The ranges of the scales are for No. 1, 46°·0 to 55°·5; No. 2, 43°·0 to 58°·0; No. 3, 44°·0 to 62°·0; and for No. 4, 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—no pressure greater than about 30 lbs. has been recorded, with the exception of those on 1893 December 12 and 1894 February 11.

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

A new sheet of paper is applied to the instrument every day at noon. The scale of time is ordinarily the same as that of the magnetic registers. On 1893 April 22 Mr. Kullberg applied a special gearing to the clock, which is so arranged that the table carrying the record can either be driven at the usual rate, or 12 times as fast, in order to give a largely increased time scale for the register of wind pressure during gales, the ordinary sheet thus giving a register for 2 hours instead of 24. This arrangement continued in use until 1894 July, when the gearing was again modified, so that the registering sheet could be carried at twenty-four times its usual rate instead of twelve times as at first arranged.

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 1898 eight rain gauges were employed, placed at different elevations above the ground, complete information in regard to which will be found at page (cii) 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.

Gauges Nos. 6, 7, and 8 are also 8-inch circular gauges, placed on the ground south of the Magnetic Observatory; No. 6 is the old daily gauge, No. 7 the old monthly gauge, and No. 8 an additional gauge brought into use in July 1881 as a check on the readings of Nos. 6 and 7, the monthly amounts collected by these gauges having occasionally shown greater differences than seemed proper. On 1894 November 6, gauge No. 8 was shifted 40 feet eastwards. 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.

The electrometer having been in use for ten years, it was removed by Messrs. Elliott on 1888 July 12 for thorough cleaning and repair. After return it was found that its indications were altogether changed. The instrument was not again brought into use during the year 1888, and it was finally sent to the maker, Mr. White, of Glasgow, who restored it to its normal state, excepting that the amplitude of motion of the spot of light is considerably increased. The instrument was brought into use again in October 1889.

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

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

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.

A comparison of the old and new glass balls was maintained throughout 1897, and the results for each month are exhibited in the following table:—

		New Ball.	Old Ball.	Excess with New Ball.
		h	h	h
1897	January - -	19·8	10·8	9·0
	February - -	34·1	24·2	9·9
	March - -	123·4	101·7	21·7
	April - -	144·7	124·8	19·9
	May - -	251·6	220·6	31·0
	June - -	178·3	145·8	32·5
	July - -	252·7	213·7	39·0
	August - -	219·8	183·9	35·9
	September -	114·5	90·8	23·7
	October - -	111·7	85·9	25·8
	November - -	41·7	29·7	12·0
	December - -	50·3	36·5	13·8
Totals for the year	-	h 1542·6	h 1268·4	h 274·2

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 *xxxv*), 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 (lxvii) and (lxviii)) have been calculated from the corresponding mean hourly values of air and evaporation temperatures (pages (lxvi) and (lxvii)).

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 (lxv) and (cii), 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 (xxxix) to (lxi), and in the abstract table, page (lxv), 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 (lxvi) and (lxvii), do not in some cases agree with the monthly means given in the daily results, pages (xxxviii) to (lx), and in the table on page (lxv), 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 (lxxxix), 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 (xcvi), 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 (c) and (ci) 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 1898 were Mr. Cowell, Mr. Hollis, Mr. Nash, Mr. Beadle, Mr. Marchant, Mr. Davies, Mr. Jeffries, Mr. P. Showell, and Mr. Turner. Their observations are distinguished by the initials C, H, N, B, M, D, J, S, and T respectively.

W. H. M. CHRISTIE.

ROYAL OBSERVATORY, GREENWICH,
1900, October 20.

ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

MAGNETICAL OBSERVATIONS,

1898.

The absolute values of the Magnetic Elements are to some extent affected by the masses of iron introduced in building the new Physical Observatory and the new Altazimuth Pavilion. *See* Introduction.

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

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

1898.

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	48·9	49·2	49·5	51·1	50·2	50·6	50·3	50·5	51·2	49·4	48·6	47·2
2	48·9	49·4	49·2	50·8	50·1	49·9	50·5	51·3	51·3	48·5	48·2	47·8
3	49·1	50·1	49·3	50·8	49·9	50·5	50·8	50·4	50·9	48·7	48·2	48·8
4	48·6	49·4	49·1	50·0	49·7	50·1	50·3	51·7	51·4	49·3	48·8	49·1
5	47·9	50·3	49·4	50·4	50·5	50·5	50·2	50·5	51·9	49·4	49·6	48·6
6	47·7	49·7	51·3	49·6	50·4	50·3	49·3	51·6	51·5	49·7	49·2	48·9
7	48·4	49·6	50·6	50·2	50·9	49·8	50·5	50·3	51·0	49·6	48·7	49·5
8	49·4	49·9	50·5	50·4	50·3	50·6	50·4	50·5	50·9	48·9	49·2	48·8
9	49·2	50·3	50·2	50·2	51·4	50·6	50·9	49·5	...	48·8	49·7	48·7
10	49·7	50·2	50·7	50·2	50·4	50·3	50·5	49·2	...	49·0	49·7	49·4
11	49·8	49·0	50·8	50·1	50·9	50·1	50·1	49·0	51·8	48·6	49·8	49·5
12	49·3	48·4	49·6	51·4	51·2	51·4	51·0	49·9	50·2	48·5	49·3	49·4
13	49·2	49·4	49·9	49·5	51·6	50·7	50·6	49·6	50·4	48·0	49·4	48·9
14	49·7	48·8	49·6	52·5	51·7	50·6	51·2	...	51·0	47·8	49·2	48·9
15	48·5	49·5	...	50·7	51·5	50·2	50·8	50·1	50·4	48·7	49·3	47·7
16	48·6	50·0	...	50·5	51·6	51·2	50·8	49·7	50·3	49·1	49·4	48·0
17	48·1	50·1	49·6	50·3	52·0	50·2	51·1	52·2	49·7	49·3	49·6	48·5
18	48·5	49·9	49·7	50·8	51·5	51·0	50·7	50·9	49·8	48·8	49·6	48·4
19	49·1	50·0	49·4	50·3	50·4	51·2	50·6	50·7	49·6	48·2	48·7	47·8
20	48·6	50·5	49·8	50·4	50·0	51·2	50·2	51·4	49·5	49·3	48·3	48·4
21	47·3	50·7	50·2	50·8	50·6	50·2	48·7	51·9	49·5	48·7	47·2	48·2
22	49·0	50·8	50·3	51·0	50·5	51·1	50·0	51·2	48·8	49·9	49·0	48·6
23	49·9	50·6	49·7	50·7	50·8	51·3	50·4	51·4	49·2	49·2	48·6	48·9
24	49·3	50·7	50·7	51·2	50·7	51·1	50·7	50·8	50·0	48·7	47·8	48·3
25	50·6	50·2	50·8	51·1	51·3	49·8	50·8	50·9	49·1	49·4	48·2	48·0
26	50·6	50·2	51·0	50·6	51·2	49·4	51·6	50·5	49·2	49·1	48·2	48·1
27	50·4	50·1	50·2	51·1	50·9	50·7	51·5	49·8	49·7	49·0	48·5	48·2
28	50·3	50·1	50·2	51·3	51·0	50·6	...	51·2	49·8	48·7	47·9	49·3
29	49·9		49·8	50·4	50·9	50·9	...	51·3	49·5	46·9	48·0	49·0
30	49·5		50·9	51·1	49·8	49·6	51·3	51·0	48·4	46·8	47·7	48·9
31	49·7		50·7		50·5		50·8	51·9		48·7		48·8

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

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

1898.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Midn.	0·8	0·0	1·2	1·1	2·7	3·6	2·7	1·8	0·5	0·5	0·5	0·3
1h	1·3	0·4	1·3	1·3	2·7	3·3	2·6	1·8	0·9	1·0	1·0	0·8
2	1·8	0·7	1·4	1·5	2·5	3·1	2·5	1·3	1·1	1·2	1·1	1·5
3	1·9	0·9	1·2	1·3	2·4	2·8	2·3	1·2	0·9	1·5	1·3	1·8
4	1·7	0·9	1·2	0·9	2·4	2·0	1·8	1·0	0·7	1·8	1·3	1·8
5	1·8	0·9	1·3	0·5	1·5	0·9	0·9	0·7	0·5	2·0	1·2	1·9
6	2·1	1·0	1·4	0·6	0·5	0·2	0·1	0·3	0·4	1·9	1·3	1·8
7	2·1	1·3	1·2	0·3	0·0	0·0	0·0	0·0	0·2	1·4	1·6	1·8
8	1·8	1·6	0·3	0·0	0·4	0·2	0·1	0·2	0·0	0·8	1·4	1·6
9	2·0	1·7	0·0	0·4	1·7	1·3	1·0	1·3	0·8	1·3	1·7	1·8
10	2·6	1·9	0·8	2·0	3·7	3·3	2·9	3·7	3·0	3·4	2·7	2·3
11	3·7	3·1	3·0	4·3	6·5	6·1	5·3	6·5	5·6	5·8	3·9	3·0
Noon.	4·6	4·5	5·6	6·7	8·5	8·5	7·9	8·8	7·7	7·1	4·8	3·9
13h	4·8	5·0	7·0	8·0	9·4	9·3	9·0	9·6	8·3	7·5	5·0	4·3
14	4·0	4·8	7·1	7·7	9·1	9·6	8·8	9·3	7·3	6·8	4·4	3·8
15	3·1	3·8	6·1	6·5	7·9	8·6	7·7	7·9	5·4	5·4	3·6	3·3
16	2·6	2·7	4·7	5·4	6·5	7·3	6·2	6·0	3·7	4·0	3·2	3·0
17	2·4	2·0	3·3	4·4	5·5	6·2	5·0	4·5	2·6	3·4	2·7	2·7
18	2·0	1·3	2·4	3·2	4·3	5·2	4·5	3·7	1·8	2·8	2·2	1·9
19	1·5	0·8	2·0	2·4	3·7	4·6	4·1	3·0	1·5	1·8	1·5	1·2
20	0·5	0·7	1·7	2·4	3·7	4·0	3·6	2·6	1·1	0·7	0·9	1·0
21	0·0	0·5	1·4	2·3	3·5	3·7	3·4	2·4	0·6	0·3	0·4	0·2
22	0·0	0·3	1·0	1·8	3·3	3·8	3·1	2·0	0·7	0·0	0·0	0·0
23	0·4	0·0	0·8	1·2	3·2	3·7	2·7	1·8	0·3	0·0	0·0	0·0
Means	2·06	1·70	2·39	2·76	3·98	4·22	3·68	3·39	2·32	2·60	1·99	1·90

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.)*

1898.

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	229	804	290	896	317	911	503	086	746	340	588	160	205	797	132	784	725	293	711	303	728	298	770	357
2	232	807	299	862	253	835	492	076	725	348	608	192	098	714	213	841	727	319	684	290	732	333	791	392
3	217	809	240	822	236	813	489	090	755	363	595	196	081	682	176	796	563	210	687	312	852	436	768	364
4	274	830	248	844	278	850	438	049	672	266	636	241	117	712	167	771	638	290	757	385	751	333	767	385
5	284	866	232	802	297	867	440	032	714	291	652	257	179	778	158	764	693	358	818	405	768	345	869	451
6	325	921	225	797	292	864	418	007	739	333	710	330	168	788	218	838	711	371	892	464	736	325	864	475
7	269	887	220	800	313	888	454	058	728	300	805	397	152	780	213	807	729	394	880	457	718	319	805	390
8	285	862	251	807	340	893	443	059	734	371	715	321	157	766	218	790	778	466	806	390	783	351	785	374
9	260	852	248	823	314	889	479	063	799	403	729	324	158	747	250	813	...	...	759	339	733	346	841	425
10	232	826	265	859	317	897	500	101	831	451	752	358	187	762	238	822	...	...	750	342	810	392	859	470
11	131	708	204	800	307	889	479	109	830	419	770	366	192	774	247	877	464	119	760	349	782	373	871	499
12	177	761	097	701	284	859	450	042	732	326	717	325	197	820	230	868	511	148	793	373	823	419	916	529
13	201	797	155	759	322	890	470	050	760	335	750	327	196	814	195	857	587	183	752	333	835	407	931	532
14	243	818	133	729	355	942	512	108	805	399	713	294	203	797	182	857	631	254	713	300	739	331	804	391
15	207	791	130	734	...	...	545	144	785	384	730	324	211	815	207	890	656	288	795	365	756	355	857	425
16	113	693	178	767	...	...	540	122	801	409	673	298	232	848	234	919	679	319	817	380	842	436	826	390
17	090	684	162	739	246	857	539	116	872	478	791	373	234	854	133	800	717	377	827	419	820	402	818	429
18	142	714	170	755	375	943	513	107	912	492	810	399	228	853	147	802	666	331	863	438	733	329	860	476
19	183	770	170	738	346	928	512	106	948	540	822	440	262	892	170	825	655	251	840	436	707	311	848	444
20	217	823	195	777	317	899	578	158	036	630	806	424	224	823	170	830	755	368	804	384	734	327	750	356
21	230	826	146	735	328	915	632	209	109	698	799	431	179	776	200	857	747	341	791	409	705	289	825	416
22	246	845	166	746	351	933	599	166	135	751	784	419	213	828	196	867	758	345	790	414	604	174	808	378
23	215	828	207	787	364	941	602	172	121	749	834	411	186	811	187	862	717	292	785	401	644	239	796	383
24	245	851	229	806	375	938	598	182	183	784	827	409	180	788	171	816	663	231	815	398	688	287	796	385
25	266	841	294	862	389	937	578	174	092	674	871	451	201	812	180	798	692	267	799	374	712	335	800	425
26	225	807	297	884	394	954	652	229	092	691	764	351	209	832	208	824	717	292	782	364	714	334	855	435
27	210	794	320	895	400	977	710	316	101	671	744	348	284	904	231	861	735	319	795	377	713	312	885	484
28	226	803	316	903	435	998	748	337	021	613	797	377	215	833	220	826	646	245	784	366	741	321	836	409
29	216	781			389	973	713	331	013	619	778	391	236	825	235	827	578	189	669	263	721	315	826	413
30	219	832			423	007	767	356	967	556	823	422	235	800	260	861	707	294	666	255	712	289	793	389
31	230	863			492	079			949	550			193	809	260	861			704	298			753	352

At the end of the months of May, June, August, and December, changes were made in the adjustment of the magnet, thus breaking the continuity of the series.

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

1898.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d 1	66°·7	68°·0	67°·5	67°·1	67°·5	66°·6	67°·4	69°·9	66°·4	67°·4	66°·5	67°·2
2	66·7	66·2	67·0	67·1	68·7	67·1	68·4	68·9	67·4	68·0	67·8	67·8
3	67·4	67·0	66·8	67·8	68·1	67·8	67·8	68·6	69·7	68·8	67·1	67·6
4	65·9	67·6	66·6	68·2	67·5	68·0	67·6	67·9	69·9	68·9	67·0	68·5
5	67·0	66·5	66·5	67·4	66·8	67·9	67·7	68·0	70·4	67·2	66·8	67·0
6	67·6	66·6	66·6	67·3	67·5	68·6	68·6	68·6	70·2	66·6	67·3	68·2
7	68·5	66·9	66·7	67·9	66·6	67·4	68·9	67·5	70·4	66·8	67·8	67·2
8	66·8	65·9	65·8	68·4	69·3	68·0	68·1	66·6	71·3	67·1	66·4	67·3
9	67·4	66·7	66·7	67·1	67·9	67·5	67·3	66·2	...	66·9	68·3	67·1
10	67·5	67·5	66·9	67·8	68·6	68·0	66·7	67·1	...	67·4	67·0	68·2
11	66·9	67·6	67·0	69·0	67·3	67·6	67·0	69·0	70·0	67·3	67·4	68·9
12	67·1	67·9	66·7	67·4	67·5	68·1	68·7	69·4	69·3	66·9	67·6	68·3
13	67·6	67·9	66·4	66·9	66·7	66·8	68·5	70·3	67·6	66·9	66·6	67·8
14	66·7	67·6	67·2	67·6	67·5	67·0	67·5	70·8	68·7	67·2	67·4	67·2
15	67·1	67·9	...	67·7	67·7	67·5	67·9	71·1	69·1	66·5	67·7	66·4
16	66·9	67·3	...	67·0	68·1	68·8	68·4	71·2	69·4	66·2	67·5	66·2
17	67·5	66·8	68·2	66·8	68·0	67·0	68·6	70·5	70·2	67·4	67·0	68·2
18	66·6	67·2	66·4	67·5	66·9	67·3	68·8	70·0	70·4	66·7	67·6	68·4
19	67·2	66·4	67·0	67·5	67·4	68·5	69·0	70·0	67·6	67·6	67·9	67·6
20	68·0	67·0	67·0	66·9	67·5	68·5	67·7	70·2	68·3	66·9	67·4	68·0
21	67·6	67·3	67·2	66·8	67·3	69·1	67·7	70·1	67·5	68·5	67·1	67·4
22	67·7	66·9	67·0	66·3	68·4	69·2	68·3	70·6	67·2	68·8	66·5	66·5
23	68·2	66·9	66·8	66·5	68·9	66·8	68·8	70·8	66·7	68·4	67·6	67·2
24	68·0	66·8	66·2	67·1	67·8	67·0	68·1	69·6	66·4	67·1	67·7	67·3
25	66·7	66·4	65·6	67·6	67·0	66·9	68·2	68·5	66·6	66·7	68·7	68·8
26	67·1	67·2	66·1	66·8	67·7	67·2	68·7	68·4	66·7	67·0	68·6	66·9
27	67·1	66·7	66·8	68·0	66·5	67·9	68·6	69·0	67·1	67·0	67·7	67·7
28	66·8	67·2	66·2	67·3	67·4	66·9	68·5	68·0	67·7	67·0	66·9	66·6
29	66·2		67·1	68·5	68·0	68·3	67·3	67·4	68·2	67·5	67·5	67·2
30	68·3		67·1	67·3	67·3	67·7	66·3	67·8	67·2	67·3	66·8	67·6
31	69·1		67·2		67·8		68·4	67·8		67·5		67·7
Means	67°·29	67°·07	66°·77	67°·42	67°·65	67°·70	68°·05	69°·03	68°·49	67°·34	67°·37	67°·55

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.)*

1898.

Hour, Greenwich Civil Time.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c	u	c
Midnight.	33	47	38	55	91	113	133	135	173	168	163	171	144	158	154	174	152	169	131	136	64	71	18	26
1h	33	45	35	49	93	113	124	126	157	155	161	169	138	150	157	174	155	170	121	126	65	72	12	20
2	29	38	32	42	83	98	117	117	145	143	147	155	136	148	151	166	153	165	112	115	65	69	15	20
3	33	38	31	38	82	90	105	105	140	138	139	144	138	147	138	150	145	155	113	116	69	71	20	23
4	49	51	37	39	89	92	108	105	136	134	138	141	134	141	137	147	139	147	116	116	77	79	27	30
5	69	69	45	45	95	95	111	106	125	123	124	127	122	129	124	132	135	140	125	125	84	86	38	41
6	75	75	54	52	101	99	105	100	99	97	97	100	89	94	100	105	106	109	121	121	89	91	44	47
7	71	71	64	62	105	103	93	88	62	60	68	68	55	57	61	66	84	87	109	109	85	87	43	48
8	53	55	53	51	89	87	59	56	23	23	32	32	30	32	25	28	56	56	74	74	63	65	31	36
9	34	36	31	29	53	51	19	16	0	0	7	7	10	12	4	7	21	19	21	21	29	31	10	15
10	15	15	12	12	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	8
11	0	0	0	0	0	0	5	5	16	14	15	15	18	18	18	21	16	16	13	13	0	0	0	0
Noon.	15	12	10	8	12	15	34	29	49	44	49	47	53	55	65	68	65	68	33	33	19	19	2	0
13h	46	43	22	20	34	39	72	67	79	72	86	86	85	90	100	108	107	112	61	64	38	38	25	23
14	56	53	31	31	56	64	101	94	114	107	136	139	129	136	124	134	132	142	88	91	50	50	37	35
15	49	46	20	22	74	82	115	108	160	150	167	170	167	176	136	148	134	149	103	106	54	54	39	35
16	39	36	10	10	94	99	132	122	188	176	183	188	176	188	150	165	148	163	103	106	58	55	33	26
17	40	37	9	7	97	100	159	147	212	198	210	215	197	209	170	185	157	172	104	107	68	63	35	26
18	50	50	26	21	105	103	175	158	229	212	228	233	212	224	181	196	166	181	115	115	79	71	37	28
19	44	44	51	49	112	110	182	163	233	214	238	241	213	225	188	203	177	192	118	118	91	83	39	30
20	45	45	61	59	118	116	178	156	228	206	232	232	203	215	191	206	173	188	114	112	104	94	41	29
21	45	45	57	55	132	132	176	154	211	187	216	216	184	196	186	201	176	193	114	112	99	87	34	22
22	27	29	51	53	121	126	169	154	195	176	192	195	166	180	171	186	180	197	118	116	80	72	23	16
23	23	35	46	58	102	119	155	152	189	177	175	180	153	170	160	177	174	191	131	134	69	71	14	17
Means corrected for Temperature.	42·3		36·1		86·1		102·6		123·9		136·3		131·3		131·1		132·5		95·2		61·7		25·0	

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

1898.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	67°·8	67°·7	67°·5	67°·8	67°·8	67°·9	68°·3	69°·4	68°·8	67°·5	67°·7	67°·9	68°·01
1h	67·7	67·6	67·4	67·8	67·9	67·9	68·2	69·3	68·7	67·5	67·7	67·9	67·97
2	67·6	67·4	67·2	67·7	67·9	67·9	68·2	69·2	68·6	67·4	67·6	67·8	67·88
3	67·4	67·3	66·9	67·7	67·9	67·8	68·1	69·1	68·5	67·4	67·5	67·7	67·77
4	67·3	67·1	66·7	67·6	67·9	67·7	68·0	69·0	68·4	67·3	67·5	67·7	67·68
5	67·2	67·0	66·6	67·5	67·9	67·7	68·0	68·9	68·3	67·3	67·5	67·7	67·63
6	67·2	66·9	66·5	67·5	67·9	67·7	67·9	68·8	68·2	67·3	67·5	67·7	67·59
7	67·2	66·9	66·5	67·5	67·9	67·6	67·8	68·8	68·2	67·3	67·5	67·8	67·58
8	67·3	66·9	66·5	67·6	68·0	67·6	67·8	68·7	68·1	67·3	67·5	67·8	67·59
9	67·3	66·9	66·5	67·6	68·0	67·6	67·8	68·7	68·0	67·3	67·5	67·8	67·58
10	67·2	67·0	66·6	67·7	68·0	67·6	67·7	68·6	68·1	67·3	67·4	67·7	67·57
11	67·2	67·0	66·6	67·7	67·9	67·6	67·7	68·7	68·1	67·3	67·4	67·6	67·57
Noon.	67·1	66·9	66·7	67·5	67·8	67·5	67·8	68·7	68·2	67·3	67·4	67·5	67·53
13h	67·1	66·9	66·8	67·5	67·7	67·6	67·9	68·9	68·3	67·4	67·4	67·5	67·58
14	67·1	67·0	66·9	67·4	67·7	67·7	68·0	69·0	68·5	67·4	67·4	67·5	67·63
15	67·1	67·1	66·9	67·4	67·6	67·7	68·1	69·1	68·7	67·4	67·4	67·4	67·66
16	67·1	67·0	66·8	67·3	67·5	67·8	68·2	69·2	68·7	67·4	67·3	67·3	67·63
17	67·1	66·9	66·7	67·2	67·4	67·8	68·2	69·2	68·7	67·4	67·2	67·2	67·58
18	67·2	66·8	66·5	67·0	67·3	67·8	68·2	69·2	68·7	67·3	67·1	67·2	67·53
19	67·2	66·9	66·5	66·9	67·2	67·7	68·2	69·2	68·7	67·3	67·1	67·2	67·51
20	67·2	66·9	66·5	66·8	67·1	67·6	68·2	69·2	68·7	67·2	67·0	67·1	67·46
21	67·2	66·9	66·6	66·8	67·0	67·6	68·2	69·2	68·8	67·2	66·9	67·1	67·46,
22	67·3	67·1	66·8	67·1	67·2	67·7	68·3	69·2	68·8	67·2	67·1	67·3	67·59
23	67·7	67·5	67·3	67·6	67·5	67·8	68·4	69·3	68·8	67·4	67·5	67·7	67·87

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.)*

1898.

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	190	456	106	348	999	253	982	234	012	266	997	259	060	331	085	290	866	145	812	066	810	076	683	937
2	190	433	065	338	995	253	989	249	036	262	972	230	068	307	077	310	861	117	830	067	816	057	695	928
3	205	444	066	321	008	268	996	229	047	295	985	232	081	343	080	319	867	070	832	056	800	056	708	945
4	136	402	066	308	990	261	019	252	034	292	997	242	062	316	072	331	916	117	840	066	789	039	727	945
5	153	409	039	301	984	252	990	244	029	297	990	229	055	307	065	304	935	129	819	084	790	048	720	963
6	168	421	028	282	990	250	990	235	039	286	015	246	054	291	078	315	946	143	813	090	786	027	732	967
7	200	414	030	294	978	239	014	243	017	290	013	271	064	299	070	338	953	149	824	095	795	051	733	970
8	174	434	012	299	956	233	016	247	064	282	029	272	083	333	050	321	969	146	835	097	761	019	732	984
9	159	415	004	264	968	228	010	264	048	295	035	299	058	322	027	306	...	...	825	079	786	019	712	968
10	169	421	025	269	970	230	004	243	026	267	052	297	048	325	032	287	...	...	823	075	773	031	718	947
11	156	412	051	304	983	237	030	253	038	300	047	294	040	296	056	280	997	202	811	065	778	025	726	938
12	130	384	053	290	969	229	048	302	032	294	058	305	064	301	074	281	973	195	794	056	775	020	722	946
13	109	350	048	279	957	215	997	253	002	264	042	304	061	294	102	292	928	182	799	057	770	036	710	945
14	087	351	060	307	987	232	018	251	007	267	023	279	055	309	163	344	927	153	812	066	769	031	708	960
15	102	347	062	314	...	...	022	269	004	253	025	272	059	309	179	356	934	152	791	062	760	005	689	943
16	113	367	064	316	...	...	007	263	010	257	040	277	064	307	196	373	944	156	787	055	755	003	680	946
17	096	336	050	325	061	294	990	248	003	253	008	274	070	307	183	375	952	144	794	041	759	017	690	925
18	088	352	038	304	047	312	993	236	988	254	013	273	083	316	176	379	982	176	796	058	774	024	698	923
19	087	351	018	286	050	308	009	252	981	233	047	282	095	332	169	370	939	193	798	043	760	995	698	939
20	104	347	035	272	053	315	002	252	982	232	068	309	092	356	172	375	915	154	805	065	752	999	682	917
21	109	359	045	286	053	309	005	269	982	238	082	306	086	336	183	390	904	154	825	054	738	988	665	918
22	130	384	035	293	038	300	992	260	007	229	085	324	076	318	191	382	899	149	839	059	743	008	638	900
23	135	370	017	271	021	286	985	244	032	265	050	327	092	325	179	369	878	136	850	076	732	971	640	887
24	123	368	020	276	005	282	993	236	033	289	045	309	098	348	156	370	871	129	840	098	719	960	620	865
25	096	356	999	249	981	254	999	246	013	284	040	306	103	350	121	356	856	114	841	107	727	951	642	866
26	091	346	010	257	990	256	984	248	018	284	038	289	099	338	100	337	842	101	810	070	735	949	627	882
27	087	339	004	262	983	230	998	237	987	251	073	323	108	347	092	316	828	086	813	069	749	967	613	867
28	074	334	988	231	984	251	014	270	000	254	044	310	115	358	090	342	845	088	828	085	720	972	615	881
29	064	332			992	252	043	277	016	270	053	292	102	377	072	332	852	082	839	082	704	954	614	875
30	081	307			992	248	019	277	985	241	040	302	064	347	060	310	814	076	849	107	685	930	...	...
31	114	326			993	251			008	249			063	298	070	320			840	098			...	...

At the end of August and also 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.

1898.

Day of Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d												
1	66°·6	67°·8	67°·2	67°·3	67°·2	66°·8	66°·4	69°·5	66°·0	67°·2	66°·6	67°·2
2	67·7	66·3	67·0	66·9	68·5	67·0	67·9	68·2	67·1	68·0	67·8	68·2
3	67·9	67·1	66·9	68·2	67·5	67·5	66·8	67·9	69·6	68·6	67·1	68·0
4	66·6	67·8	66·4	68·2	67·0	67·6	67·2	67·0	69·7	68·5	67·4	68·9
5	67·1	66·8	66·5	67·2	66·5	67·9	67·3	67·9	70·0	66·7	67·0	67·7
6	67·3	67·2	66·9	67·6	67·5	68·3	68·0	68·0	69·9	66·1	67·8	68·1
7	69·1	66·7	66·9	68·4	66·3	67·0	68·1	66·5	69·9	66·4	67·1	68·0
8	66·9	65·6	66·1	68·3	68·9	67·7	67·4	66·4	70·8	66·8	67·0	67·3
9	67·1	66·9	66·9	67·2	67·5	66·7	66·7	66·0	...	67·2	68·2	67·1
10	67·3	67·6	66·9	67·9	67·8	67·6	66·1	67·1	...	67·3	67·0	68·4
11	67·1	67·3	67·2	68·7	66·8	67·5	67·1	68·6	69·5	67·2	67·5	69·2
12	67·2	68·0	66·9	67·2	66·8	67·5	68·0	69·4	68·7	66·8	67·6	68·6
13	67·8	68·3	67·0	67·1	66·8	66·8	68·2	70·2	67·2	67·0	66·6	68·1
14	66·7	67·5	67·6	68·2	66·9	67·1	67·2	70·6	68·5	67·2	66·8	67·3
15	67·6	67·3	...	67·5	67·4	67·5	67·4	70·8	68·9	66·4	67·6	67·2
16	67·2	67·3	...	67·1	67·5	68·0	67·7	70·8	69·2	66·5	67·5	66·6
17	67·8	66·2	68·2	67·0	67·4	66·6	68·0	70·1	70·1	67·5	67·0	68·1
18	66·7	66·6	66·6	67·7	66·6	66·9	68·2	69·6	70·0	66·8	67·4	68·6
19	66·7	66·5	67·0	67·7	67·3	68·1	68·0	69·7	67·2	67·6	68·1	67·8
20	67·7	68·0	66·8	67·4	67·4	67·8	66·7	69·6	67·9	66·9	67·5	68·1
21	67·4	67·8	67·1	66·7	67·1	68·6	67·4	69·4	67·4	68·4	67·4	67·2
22	67·2	67·0	66·8	66·5	68·7	67·9	67·8	70·1	67·4	68·8	66·6	66·8
23	68·1	67·2	66·7	66·9	68·2	66·1	68·2	70·2	67·0	68·5	67·9	67·5
24	67·6	67·1	66·1	67·7	67·1	66·7	67·4	69·1	67·0	67·0	67·8	67·6
25	66·9	67·4	66·3	67·5	66·4	66·6	67·5	68·1	67·0	66·6	68·6	68·6
26	67·2	67·5	66·6	66·7	66·6	67·4	67·9	68·0	66·9	66·9	69·1	67·2
27	67·3	67·0	67·5	67·9	66·7	67·4	67·9	68·6	67·0	67·1	68·9	67·2
28	66·9	67·7	66·5	67·1	67·2	66·6	67·7	67·3	67·7	67·0	67·3	66·6
29	66·5		66·9	68·2	67·2	67·9	66·2	66·9	68·3	67·7	67·4	66·8
30	68·5		67·1	67·0	67·1	66·8	65·8	67·4	66·8	67·0	67·6	...
31	69·2		67·0		67·8		68·1	67·4		67·0		...
Means	67°·38	67°·20	66°·88	67°·50	67°·28	67°·33	67°·43	68°·59	68°·31	67°·25	67°·51	67°·72

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.*)

1898.

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

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

1898.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	68°·0	68°·0	67°·7	68°·1	67°·3	67°·5	67°·6	68°·9	68°·6	67°·4	67°·9	68°·1	67°·92
1h	67·9	67·9	67·6	68·0	67·4	67·5	67·6	68·8	68·5	67·4	67·9	68·1	67·88
2	67·7	67·7	67·3	67·9	67·4	67·5	67·5	68·7	68·4	67·4	67·8	68·0	67·78
3	67·6	67·5	67·1	67·8	67·4	67·4	67·4	68·6	68·3	67·3	67·7	67·8	67·66
4	67·4	67·3	66·9	67·7	67·5	67·3	67·3	68·5	68·2	67·3	67·7	67·8	67·58
5	67·3	67·1	66·7	67·6	67·5	67·3	67·3	68·4	68·1	67·2	67·6	67·8	67·49
6	67·2	67·0	66·5	67·6	67·6	67·3	67·2	68·3	68·0	67·2	67·6	67·8	67·44
7	67·2	67·0	66·5	67·6	67·7	67·2	67·2	68·2	67·9	67·2	67·7	67·9	67·44
8	67·2	66·9	66·5	67·6	67·7	67·2	67·1	68·2	67·9	67·2	67·7	67·9	67·42
9	67·2	66·9	66·5	67·6	67·8	67·2	67·1	68·1	67·8	67·2	67·6	67·8	67·40
10	67·1	66·9	66·5	67·6	67·7	67·1	67·0	68·1	67·8	67·2	67·5	67·7	67·35
11	67·1	67·0	66·7	67·5	67·5	67·1	67·1	68·2	67·9	67·2	67·4	67·6	67·36
Noon.	67·1	66·9	66·8	67·4	67·4	67·2	67·3	68·4	68·1	67·2	67·5	67·6	67·41
13h	67·1	67·0	66·9	67·4	67·5	67·3	67·4	68·6	68·3	67·3	67·6	67·7	67·51
14	67·1	67·1	66·9	67·3	67·3	67·4	67·5	68·7	68·4	67·3	67·5	67·6	67·51
15	67·1	67·1	66·9	67·3	67·2	67·4	67·6	68·8	68·5	67·3	67·4	67·5	67·51
16	67·1	67·0	66·8	67·2	67·1	67·4	67·6	68·9	68·5	67·3	67·3	67·5	67·48
17	67·2	66·9	66·7	67·2	67·0	67·4	67·6	68·9	68·6	67·2	67·3	67·4	67·45
18	67·3	67·0	66·6	67·1	66·8	67·4	67·6	68·9	68·6	67·2	67·2	67·4	67·42
19	67·4	67·1	66·7	67·1	66·7	67·3	67·6	68·8	68·6	67·2	67·2	67·4	67·43
20	67·5	67·2	66·8	67·1	66·5	67·3	67·6	68·8	68·6	67·1	67·1	67·3	67·41
21	67·5	67·3	67·0	67·2	66·4	67·2	67·6	68·8	68·6	67·1	67·1	67·3	67·42
22	67·6	67·4	67·1	67·4	66·5	67·3	67·7	68·8	68·6	67·1	67·2	67·5	67·52
23	68·0	67·8	67·6	67·8	66·9	67·4	67·7	68·8	68·6	67·3	67·6	67·9	67·78

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, 1898.	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° 49'·2	809	1377	2631	1487	6021
February	16. 49·9	801	1291	2668	1472	5645
March	16. 50·1	916	1259	2679	1684	5505
April	16. 50·7	1139	1253	2711	2094	5479
May	16. 50·8	1492	1268	2716	2742	5545
June	16. 50·5	1345	1285	2700	2472	5619
July	16. 50·6	1801	1324	2705	3310	5789
August	16. 50·7	1832	1335	2711	3367	5838
September	16. 50·2	1291	1137	2684	2373	4972
October	16. 48·8	1367	1073	2609	2513	4692
November	16. 48·8	1336	1008	2609	2456	4408
December	16. 48·6	1420	928	2599	2610	4058
Means	16° 49'·9	......	......	2668	......	......
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 1·8381 and 0·18381 respectively for the year, and of whole Vertical Force (applicable to column 6) are 4·3727 and 0·43727 respectively for the year.

HORIZONTAL FORCE.—At the end of the months of May, June, August, and December, changes were made in the adjustment of the magnet, thus breaking the continuity of the values.

VERTICAL FORCE.—At the end of August, and also 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 1898.

(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′·61	113·9	17·8	32·6	209·4	77·8
1ʰ	0·83	109·4	12·7	44·4	201·1	55·5
2	0·94	101·6	11·1	50·3	186·8	48·5
3	0·92	96·5	11·3	49·2	177·4	49·4
4	0·76	97·1	13·2	40·6	178·5	57·7
5	0·47	96·8	15·2	25·1	177·9	66·5
6	0·27	86·1	17·2	14·4	158·3	75·2
7	0·13	70·8	19·5	7·0	130·1	85·3
8	0·00	44·9	18·0	0·0	82·5	78·7
9	0·55	15·6	12·0	29·4	28·7	52·5
10	1·99	0·0	5·2	106·4	0·0	22·7
11	4·03	3·8	0·0	215·5	7·0	0·0
Noon.	5·85	28·5	0·6	312·8	52·4	2·6
13ʰ	6·57	58·8	7·4	351·3	108·1	32·4
14	6·19	85·0	21·4	331·0	156·2	93·6
15	5·08	99·1	31·6	271·6	182·2	138·2
16	3·91	106·5	38·9	209·1	195·8	170·1
17	3·03	117·5	43·2	162·0	216·0	188·9
18	2·24	128·0	44·8	119·8	235·3	195·9
19	1·64	134·6	43·2	87·7	247·4	188·9
20	1·21	133·5	40·2	64·7	245·4	175·8
21	0·86	128·6	35·2	46·0	236·4	153·9
22	0·63	120·3	30·1	33·7	221·1	131·6
23	0·47	118·7	23·8	25·1	218·2	104·1
Means . . .	2′·05	87·3	21·4	109·6	160·5	93·6
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 1·8381 and 0·18381 respectively, and of whole Vertical Force (applicable to column 6) are 4·3727 and 0·43727 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.)

1898.

Day of Month.	January.		February.		March.		April.		May.		June.	
	Dec.	H.F.	Dec.	H.F	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.
d												
1	8′·4	185	3′·3	94	4′·0	138	7′·6	82	13′·3	262	9′·8	345
2	4·5	133	3·9	140	7·8	234	8·7	109	7·9	198	10·4	243
3	3·3	125	4·7	64	5·1	97	9·7	224	11·5	186	10·6	289
4	2·7	36	3·7	73	6·4	144	11·1	293	14·5	330	9·1	254
5	4·1	68	3·8	221	6·5	171	11·9	199	12·9	368	11·2	291
6	3·2	78	3·3	211	8·6	144	13·4	228	12·9	242	10·0	277
7	2·8	66	2·9	45	6·8	108	15·4	424	13·6	290	16·6	329
8	3·2	68	2·8	90	7·9	93	9·4	191	10·3	246	8·7	367
9	3·2	78	4·2	108	9·9	196	9·0	216	12·9	286	7·5	370
10	9·5	334	3·7	63	11·0	229	8·3	212	10·1	174	9·3	325
11	5·7	253	16·9	418	16·6	271	9·1	250	13·0	175	7·2	227
12	6·4	126	12·3	264	10·0	197	14·4	297	8·8	279	7·4	214
13	3·7	102	7·8	152	5·6	147	16·9	281	6·2	230	6·5	150
14	4·3	93	12·5	257	7·8	280	11·8	263	6·7	228	7·5	156
15	10·7	205	8·6	351	...	...	7·5	171	6·8	315	11·3	190
16	12·4	333	8·1	202	...	...	7·9	176	10·0	206	7·8	304
17	12·9	168	7·7	247	7·0	336	7·1	160	5·7	165	7·7	207
18	11·1	177	6·0	43	8·5	140	7·8	173	8·4	217	12·5	267
19	7·6	321	7·9	122	15·8	286	6·5	212	7·9	251	15·7	267
20	7·7	185	10·1	167	8·1	217	7·6	240	11·1	366	8·0	227
21	9·0	114	10·4	189	7·3	173	8·6	168	11·6	261	10·4	192
22	2·7	104	7·7	118	6·1	167	7·7	233	10·7	308	12·3	363
23	3·1	100	5·4	126	7·6	229	9·6	212	10·7	278	15·0	321
24	3·1	80	5·8	255	10·0	189	9·4	222	10·7	132	12·0	343
25	6·5	71	6·2	154	7·1	194	7·1	221	13·5	287	10·4	257
26	9·4	142	6·0	162	9·0	204	7·4	220	7·4	212	12·7	469
27	7·2	132	4·5	47	6·4	210	8·5	323	8·5	357	11·1	355
28	6·9	173	4·9	78	10·4	231	10·0	250	10·9	214	9·4	375
29	7·6	96			10·3	222	8·9	236	13·2	322	11·5	293
30	4·8	135			10·5	199	11·5	213	17·0	678	10·4	265
31	4·9	130			7·5	146			7·9	311		
Means	6·2	142	6·6	159	8·5	193	9·7	223	10·5	270	10·3	284

Day of Month.	July.		August.		September.		October.		November.		December.	
	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H.F.	Dec.	H. F.
d												
1	9′·2	251	11′·0	252	13′·5	276	8′·7	278	5′·8	207	4′·6	88
2	8·9	193	11·8	230	15·9	282	8·3	173	7·2	211	5·5	98
3	11·2	217	17·6	242	16·2	410	9·2	258	10·6	111	5·2	158
4	11·3	322	9·3	251	10·2	323	8·5	269	8·3	162	4·9	116
5	6·1	223	10·3	384	11·3	310	9·7	248	5·9	108	7·8	130
6	10·4	413	11·6	277	9·4	202	9·5	183	5·6	125	2·5	122
7	10·8	329	11·4	233	10·5	263	9·3	127	6·5	110	5·9	209
8	8·1	305	10·9	290	11·3	272	5·2	192	5·9	137	4·7	69
9	11·4	302	9·7	322	...	...	8·2	222	6·6	159	4·1	97
10	8·7	207	7·9	220	...	...	7·5	128	5·3	115	4·2	92
11	8·4	271	10·0	200	8·5	172	5·8	115	7·3	115	4·0	56
12	9·2	252	9·3	194	8·8	200	6·1	113	7·3	165	3·9	52
13	9·1	198	14·9	232	8·9	257	9·4	177	5·6	84	4·8	161
14	6·5	192	...	150	9·4	190	10·2	169	4·8	140	14·2	219
15	8·0	247	9·2	244	6·7	132	10·5	113	6·0	82	8·9	155
16	9·9	219	17·1	386	10·0	282	7·9	164	8·0	147	12·1	145
17	12·4	147	13·3	408	11·2	215	7·0	158	8·7	243	5·8	133
18	10·8	205	10·6	280	8·8	180	6·5	122	6·1	252	6·1	61
19	11·1	342	11·2	290	7·6	252	10·0	156	3·9	112	10·4	266
20	10·2	299	13·4	380	7·4	222	8·2	265	7·1	154	8·9	96
21	12·6	409	10·4	270	9·0	224	9·2	270	12·1	248	9·1	111
22	11·7	359	11·2	338	9·2	232	11·4	258	10·4	389	4·2	90
23	13·4	347	8·4	352	9·0	317	6·7	219	3·2	157	3·2	80
24	8·4	350	9·3	227	11·7	299	8·0	135	5·7	71	4·3	83
25	11·7	359	8·2	189	10·6	202	19·2	298	2·8	96	4·8	39
26	9·6	223	12·5	204	6·5	267	8·8	322	5·2	184	3·0	35
27	10·5	287	15·4	264	8·4	193	6·9	144	4·8	192	6·8	193
28	...	265	10·7	324	11·5	351	15·8	270	2·8	81	4·2	129
29	...	185	11·0	208	15·5	513	18·0	350	4·4	158	5·3	133
30	12·3	331	10·2	213	8·1	262	14·1	268	3·5	122	6·0	133
31	9·3	177	9·1	227			7·1	221			4·2	69
Means	10·0	272	11·2	267	10·2	261	9·4	206	6·2	155	5·9	117

The mean of the twelve monthly values is, for Declination 8′·72, and for Horizontal Force 212·4.

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

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

Month, 1898.	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′·8	75	33	22′·9	295	216
February	5·0	62	42	28·4	403	274
March	7·1	132	54	40·2	664	293
April	8·0	163	64	48·6	935	399
May	9·4	214	80	51·8	1398	473
June	9·6	241	63	54·7	1491	337
July	9·0	225	52	51·0	1390	255
August	9·6	206	46	59·0	1293	261
September	8·3	197	42	50·0	1183	249
October	7·5	136	34	45·6	744	248
November	5·0	94	35	29·3	488	281
December	4·3	48	31	22·1	223	255
Means	7′·30	149·4	48·0	41′·97	875·6	295·1

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

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

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

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

Month, 1898.	m	a_1	b_1	a_2	b_2	a_3	b_3	a_4	b_4
				DECLINATION WEST.					
January	2·06	− 1·52	+ 0·10	+ 0·36	+ 0·73	− 0·27	+ 0·06	+ 0·33	+ 0·19
February	1·70	− 1·79	− 0·38	+ 0·51	+ 0·67	− 0·27	− 0·34	− 0·01	+ 0·25
March	2·39	− 1·72	− 1·35	+ 0·66	+ 1·50	− 0·38	− 0·82	+ 0·23	+ 0·43
April	2·76	− 2·04	− 1·94	+ 1·03	+ 1·35	− 0·57	− 0·56	+ 0·12	+ 0·22
May	3·98	− 2·05	− 2·23	+ 1·57	+ 1·34	− 0·77	− 0·38	+ 0·08	− 0·08
June	4·22	− 1·79	− 2·72	+ 1·59	+ 1·53	− 0·54	− 0·28	+ 0·12	+ 0·06
July	3·68	− 1·81	− 2·41	+ 1·43	+ 1·38	− 0·71	− 0·37	+ 0·09	+ 0·20
August	3·39	− 2·75	− 2·15	+ 1·65	+ 1·33	− 0·73	− 0·48	+ 0·23	+ 0·12
September	2·32	− 2·61	− 1·15	+ 1·52	+ 1·18	− 0·87	− 0·39	+ 0·32	+ 0·24
October	2·60	− 2·59	− 0·65	+ 0·82	+ 1·29	− 0·73	− 0·21	+ 0·49	+ 0·06
November	1·99	− 1·77	− 0·37	+ 0·42	+ 0·72	− 0·32	+ 0·04	+ 0·23	+ 0·14
December	1·90	− 1·44	− 0·07	+ 0·09	+ 0·79	− 0·27	0·00	+ 0·10	+ 0·09
For the Year	2·05	− 1·99	− 1·28	+ 0·97	+ 1·15	− 0·53	− 0·31	+ 0·19	+ 0·16
				HORIZONTAL FORCE.					
January	42·3	+ 6·2	+ 5·7	− 14·7	+ 4·5	+ 4·3	− 10·9	+ 2·5	+ 8·8
February	36·1	+ 19·2	+ 5·7	− 4·3	− 7·8	+ 2·0	− 10·4	− 1·0	+ 10·0
March	86·1	+ 40·0	− 12·2	− 19·6	0·0	+ 12·3	− 11·9	− 3·0	+ 5·7
April	102·6	+ 50·3	− 38·3	− 22·0	+ 10·4	+ 4·1	− 12·7	+ 5·3	+ 5·5
May	123·9	+ 63·3	− 63·5	− 25·6	+ 23·1	− 1·9	− 5·0	+ 5·8	− 1·3
June	136·3	+ 64·5	− 73·0	− 28·4	+ 23·3	− 3·6	− 7·1	+ 2·0	+ 4·4
July	131·3	+ 56·2	− 68·9	− 27·3	+ 27·5	− 4·6	− 6·5	+ 0·3	+ 1·3
August	131·1	+ 62·5	− 56·7	− 15·1	+ 26·9	− 7·9	− 10·7	+ 4·5	+ 5·2
September	132·5	+ 60·1	− 47·4	− 13·9	+ 24·9	− 2·4	− 17·2	+ 1·8	+ 6·2
October	95·2	+ 42·0	− 10·7	− 18·0	+ 18·5	+ 7·8	− 16·9	+ 6·9	+ 6·6
November	61·7	+ 26·2	− 1·8	− 20·2	+ 2·9	+ 0·7	− 12·1	+ 1·4	+ 9·4
December	25·0	+ 2·3	+ 2·5	− 12·0	+ 4·0	+ 3·7	− 7·7	+ 0·7	+ 5·6
For the Year	87·3	+ 41·1	− 29·9	− 18·4	+ 13·2	+ 1·2	− 10·8	+ 2·3	+ 5·6
				VERTICAL FORCE.					
January	15·7	− 5·5	− 12·6	− 4·5	− 1·1	+ 0·8	− 0·5	− 0·5	− 0·3
February	14·6	− 3·1	− 15·2	− 10·3	+ 0·3	+ 2·7	+ 1·1	− 0·5	− 0·5
March	29·5	+ 7·5	− 13·5	− 14·1	− 2·1	+ 4·8	+ 0·2	− 2·7	+ 0·6
April	30·6	+ 9·8	− 20·0	− 14·7	− 2·3	+ 4·8	− 0·8	− 2·0	+ 0·6
May	42·4	+ 18·4	− 22·2	− 17·1	− 1·6	+ 4·2	− 2·3	− 2·0	+ 0·5
June	33·0	+ 11·3	− 15·3	− 15·3	− 2·6	+ 4·1	− 0·8	− 0·9	+ 0·1
July	30·9	+ 9·8	− 8·1	− 14·1	+ 0·5	+ 4·2	− 1·3	− 1·0	− 0·3
August	24·9	+ 5·9	− 9·8	− 13·7	− 1·2	+ 4·5	− 1·7	− 0·8	+ 0·3
September	23·3	+ 3·2	− 9·8	− 12·1	− 2·6	+ 6·0	− 1·8	− 1·8	+ 1·2
October	17·1	+ 0·6	− 13·7	− 6·7	− 1·5	+ 2·6	− 3·1	− 2·1	+ 1·2
November	14·7	− 1·1	− 16·7	− 5·2	+ 0·1	+ 2·6	− 2·1	− 1·2	+ 0·1
December	12·5	+ 0·3	− 15·2	− 3·8	− 1·8	+ 0·9	− 1·7	− 0·9	− 0·3
For the Year	21·4	+ 4·8	− 14·3	− 11·0	− 1·3	+ 3·5	− 1·2	− 1·4	+ 0·3

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, 1898.	m	c_1	α	α'	c_2	β	β'	c_3	γ	γ'	c_4	δ	δ'
	DECLINATION WEST.												
January	2′·06	1′·52	273° 41′	276° 5′	0′·82	25° 56′	30° 44′	0′·28	282° 18′	289° 30′	0′·38	60° 39′	70° 15′
February	1·70	1·83	258.12	261.41	0·84	37.21	44. 19	0·43	218. 28	228. 55	0·25	357. 10	11. 6
March	2·39	2·19	231.46	233.55	1·64	23.43	28. 1	0·90	204. 50	211. 17	0·48	28. 17	36. 53
April	2·76	2·82	226.21	226.22	1·70	37.30	37. 32	0·80	225. 25	225. 28	0·25	28. 25	28. 29
May	3·98	3·03	222.35	221.43	2·06	49.27	47. 43	0·86	243. 56	241. 20	0·11	135. 0	131. 32
June	4·22	3·26	213.24	213.30	2·21	46.13	46. 25	0·60	242. 35	242. 53	0·14	65. 18	65. 42
July	3·68	3·01	216.57	218.19	1·99	45.51	48. 35	0·80	242. 13	246. 19	0·22	24. 27	29. 55
August	3·39	3·49	231.53	232.49	2·12	51.12	53. 4	0·87	236. 20	239. 8	0·25	62. 46	66. 30
September	2·32	2·85	246.17	245. 1	1·92	52. 6	49. 34	0·95	246. 2	242. 14	0·40	53. 24	48. 20
October	2·60	2·67	255.57	252.27	1·53	32.36	25. 36	0·77	253. 45	243. 15	0·49	83. 20	69. 20
November	1·99	1·81	258. 4	254.25	0·83	30.17	22. 59	0·32	277. 37	266. 40	0·27	59. 2	44. 26
December	1·90	1·44	267. 7	266. 8	0·79	6.13	4. 15	0·27	269. 17	266. 20	0·13	45. 30	41. 34
For the Year	2·05	2·37	237.18	237.18	1·50	40. 6	40. 6	0·62	239. 43	239. 43	0·25	50. 28	50. 28
	HORIZONTAL FORCE.												
January	42·3	8·4	47° 20′	49° 44′	15·4	287° 6′	291° 54′	11·7	158° 24′	165° 36′	9·2	15° 51′	25° 27′
February	36·1	20·1	73.22	76.51	8·9	208.50	215. 48	10·6	169. 3	179. 30	10·1	354. 33	8. 29
March	86·1	41·8	106.56	109. 5	19·6	270. 0	274. 18	17·2	133. 59	140. 26	6·5	331. 55	340. 31
April	102·6	63·2	127.15	127.16	24·3	295.12	295. 14	13·4	162. 10	162. 13	7·6	44. 12	44. 16
May	123·9	89·7	135. 6	134.14	34·4	312. 3	310. 19	5·4	200. 36	198. 0	6·0	102. 34	99. 6
June	136·3	97·4	138.31	138.37	36·7	309.20	309. 32	8·0	206. 44	207. 2	4·8	24. 0	24. 24
July	131·3	88·9	140.48	142.10	38·7	315.15	317. 59	8·0	215. 2	219. 8	1·3	14. 23	19. 51
August	131·1	84·4	132.13	133. 9	30·8	330.43	332. 35	13·3	216. 35	219. 23	6·9	40. 52	44. 36
September	132·5	76·5	128.16	127. 0	28·5	330.52	328. 20	17·4	188. 1	184. 13	6·5	16. 27	11. 23
October	95·2	43·3	104.17	100.47	25·9	315.50	308. 50	18·7	155. 13	144. 43	9·6	46. 10	32. 10
November	61·7	26·3	93.54	90.15	20·4	278. 3	270. 45	12·1	176. 46	165. 49	9·5	8. 17	353. 41
December	25·0	3·4	42.20	41.21	12·6	288.20	286. 22	8·6	154. 21	151. 24	5·6	7. 16	3. 20
For the Year	87·3	50·8	126. 3	126. 3	22·6	305.33	305. 33	10·8	173. 31	173. 31	6·1	22. 8	22. 8
	VERTICAL FORCE.												
January	15·7	13·8	203° 23′	205° 47′	4·6	255° 41′	260° 29′	0·9	119° 6′	126° 18′	0·6	239° 45′	249° 21′
February	14·6	15·5	191.29	194.58	10·3	271.48	278.46	2·9	68.21	78.48	0·7	222. 2	235. 58
March	29·5	15·4	150.55	153. 4	14·3	261.17	265.35	4·8	87. 37	94. 4	2·8	283. 30	292. 6
April	30·6	22·3	153.52	153.53	14·9	260.58	261. 0	4·9	99. 47	99. 50	2·1	288. 22	288. 26
May	42·4	28·8	140.27	139.35	17·2	264.35	262. 51	4·8	118. 24	115. 48	2·0	284. 33	281. 5
June	33·0	19·0	143.34	143.40	15·6	260.21	260. 33	4·2	100. 43	101. 1	0·9	274. 54	275. 18
July	30·9	12·7	129.33	130.55	14·1	272. 4	274. 48	4·4	106. 41	110. 47	1·0	253. 44	259. 12
August	24·9	11·4	148.46	149.42	13·8	265.11	267. 3	4·8	111. 3	113. 51	0·9	289. 17	293. 1
September	23·3	10·3	162. 5	160.49	12·4	257.49	255. 17	6·3	106. 43	102. 55	2·1	303. 30	298. 26
October	17·1	13·7	177.23	173.53	6·9	257.14	250. 14	4·0	140. 24	129. 54	2·5	299. 58	285. 58
November	14·7	16·8	183.52	180.13	5·2	271.18	264. 0	3·3	128. 55	117. 58	1·2	276. 55	262. 19
December	12·5	15·2	178.56	177.57	4·3	244.26	242. 28	1·9	151. 44	148. 47	1·0	252. 21	248. 25
For the Year	21·4	15·1	161.38	161.38	11·1	263. 4	263. 4	3·7	109. 24	109. 24	1·4	281. 45	281. 45

TABLE XVII.—RESULTS of OBSERVATIONS of MAGNETIC DIP made in the LIBRARY at the OBSERVATORY in the YEAR 1898.

Greenwich Civil Time, 1898.		Needle.	Magnetic Dip.	Observer.
	d h		° ′ ″	
Jan.	3. 15	C_1	67. 5. 52	N
	5. 13	D_1	67. 7. 56	N
	8. 11	D_2	67. 6. 56	N
	10. 15	C_2	67. 6. 23	N
	12. 13	B_1	67. 2. 39	N
	14. 15	B_2	67. 3. 33	N
	15. 12	B_1	67. 3. 4	N
	17. 15	B_2	67. 4. 47	E
	19. 12	B_1	67. 3. 42	E
	22. 13	C_2	67. 5. 4	N
	25. 16	D_2	67. 5. 34	N
	26. 15	D_1	67. 4. 57	N
	28. 12	C_1	67. 6. 36	N
Feb.	2. 15	C_2	67. 5. 23	E
	3. 15	B_2	67. 4. 35	E
	7. 16	B_1	67. 2. 9	N
	9. 11	C_1	67. 7. 14	E
	11. 15	D_2	67. 6. 33	E
	14. 15	D_1	67. 6. 22	E
	15. 15	D_1	67. 7. 10	N
	17. 15	D_2	67. 5. 37	N
	19. 11	C_1	67. 5. 45	N
	22. 15	B_1	67. 4. 51	N
	25. 16	B_2	67. 3. 14	N
	26. 12	C_2	67. 3. 18	N
Mar.	2. 12	B_1	67. 3. 31	E
	3. 11	B_2	67. 4. 44	E
	7. 14	C_2	67. 3. 38	E
	9. 11	D_1	67. 6. 29	E
	11. 15	D_2	67. 6. 32	E
	14. 12	C_1	67. 6. 46	E
	17. 15	C_1	67. 8. 9	N
	19. 11	D_2	67. 6. 36	N
	22. 15	D_1	67. 7. 25	N
	23. 15	C_1	67. 7. 12	N
	26. 11	C_2	67. 5. 41	N
	29. 16	B_2	67. 2. 36	N
	30. 13	B_1	67. 0. 21	N
	30. 14	B_1	67. 1. 4	N

Greenwich Civil Time, 1898.		Needle.	Magnetic Dip.	Observer.
	d h		° ′ ″	
Apr.	2. 12	C_1	67. 3. 13	N
	5. 16	D_1	67. 4. 5	N
	7. 12	D_2	67. 4. 47	N
	12. 16	C_2	67. 2. 36	N
	13. 15	B_1	67. 1. 57	N
	14. 15	B_2	67. 3. 28	N
	18. 16	B_2	67. 1. 35	N
	19. 15	B_1	66. 59. 6	N
	19. 16	C_2	66. 59. 58	N
	21. 16	D_2	67. 4. 39	N
	25. 16	D_1	67. 6. 7	N
	28. 16	C_1	67. 5. 15	N
May	2. 15	C_2	67. 3. 0	E
	3. 15	B_2	67. 2. 55	E
	9. 12	B_1	66. 59. 42	E
	9. 14	C_1	67. 3. 38	E
	11. 11	D_2	67. 4. 20	E
	14. 12	D_1	67. 5. 2	E
	17. 15	D_1	67. 5. 51	E
	19. 15	D_2	67. 2. 5	N
	20. 14	C_1	67. 0. 40	N
	24. 15	B_1	66. 59. 24	N
	26. 12	B_2	66. 58. 39	N
	27. 12	C_2	67. 0. 20	N
June	2. 15	B_1	66. 58. 13	E
	3. 10	B_2	67. 1. 47	E
	7. 15	C_2	67. 0. 9	E
	9. 15	D_1	67. 4. 3	E
	13. 15	D_2	67. 1. 46	E
	14. 15	C_1	67. 2. 22	E
	18. 11	C_1	67. 3. 15	N
	18. 12	D_2	67. 3. 9	N
	21. 16	D_1	67. 3. 51	N
	27. 12	C_2	67. 0. 2	N
	27. 14	B_2	66. 59. 18	N
	29. 16	B_1	66. 58. 2	N

Greenwich Civil Time, 1898.		Needle.	Magnetic Dip.	Observer.
	d h		° ′ ″	
July	1. 15	C_1	67. 2. 19	E
	4. 15	D_1	67. 3. 37	E
	6. 15	D_2	67. 1. 3	E
	7. 14	D_2	67. 0. 38	E
	11. 15	C_2	66. 58. 52	E
	13. 15	B_1	66. 57. 8	E
	14. 15	B_2	66. 59. 9	E
	19. 16	B_1	66. 55. 16	N
	21. 15	B_2	66. 57. 14	N
	22. 15	C_2	66. 57. 29	N
	22. 16	D_2	67. 1. 17	N
	29. 11	D_1	67. 3. 57	E
	30. 12	C_1	67. 1. 57	N
Aug.	2. 15	C_2	66. 59. 22	E
	3. 16	B_2	66. 58. 56	N
	6. 12	B_1	66. 57. 48	N
	9. 16	C_1	67. 3. 44	N
	12. 15	D_2	66. 59. 42	N
	12. 16	D_1	67. 1. 22	N
	17. 15	D_1	67. 0. 39	E
	19. 15	D_2	67. 1. 25	E
	22. 15	C_1	67. 0. 29	E
	24. 16	B_1	66. 56. 51	E
	29. 15	B_2	66. 59. 9	E
	30. 15	C_2	66. 57. 38	E
Sept.	3. 13	B_1	66. 59. 34	N
	7. 15	B_2	66. 55. 57	N
	8. 15	C_2	66. 58. 13	N
	8. 15	D_1	66. 59. 43	N
	13. 15	D_2	67. 2. 10	N
	13. 16	C_1	67. 0. 29	N
	17. 12	C_1	67. 1. 31	N
	21. 15	D_2	67. 1. 41	N
	21. 16	D_1	67. 1. 23	N
	22. 15	C_2	66. 57. 37	E
	23. 15	B_2	66. 58. 54	E
	28. 15	B_1	66. 57. 54	E

The needles B_1 and B_2 are 9 inches in length; C_1 and C_2, 6 inches; and D_1 and D_2, 3 inches.
The initials N and E are those of Mr Nash and Mr Edney.

TABLE XVII.—*continued.*—RESULTS of OBSERVATIONS of MAGNETIC DIP made in GREENWICH PARK and in the MAGNETIC PAVILION in the YEAR 1898.

Greenwich Civil Time, 1898.	Needle.	Magnetic Dip.	Observer.	Greenwich Civil Time, 1898.	Needle.	Magnetic Dip.	Observer.	Greenwich Civil Time, 1898.	Needle.	Magnetic Dip.	Observer.
d h		° ′ ″		d h		° ′ ″		d h		° ′ ″	
Jan. 26. 13	Dover A_2	67. 12. 0	N	Oct. 19. 14	D_1	67. 11. 0	N	Nov. 15. 14	D_2	67. 11. 7	N
				20. 12	C_2	67. 11. 48	N	19. 13	D_1	67. 10. 37	N
Feb. 24. 12	Dover A_1	67. 15. 36	N	20. 13	D_2	67. 12. 40	N	25. 15	D_2	67. 9. 54	N
				21. 13	C_1	67. 13. 57	N	29. 13	D_2	67. 10. 32	N
June 7. 12	Dover A_1	67. 13. 12	N	24. 13	D_1	67. 12. 33	N	29. 14	D_1	67. 9. 41	N
7. 13	Dover A_2	67. 14. 18	N	24. 14	D_2	67. 11. 21	N				
16. 13	Dover A_2	67. 10. 6	N	24. 15	C_2	67. 11. 22	N				
16. 15	Dover A_2	67. 9. 48	N	25. 12	B_1	67. 9. 43	N	Dec. 6. 12	D_1	67. 11. 32	N
20. 12	Dover A_1	67. 11. 6	N	25. 13	C_1	67. 12. 57	N	6. 13	D_2	67. 11. 3	N
				27. 15	D_2	67. 11. 30	N	8. 15	D_1	67. 10. 33	N
				28. 16	B_2	67. 11. 28	N	15. 15	D_2	67. 10. 18	N
								16. 15	D_1	67. 11. 40	N
								20. 14	D_2	67. 11. 8	N
Oct. 13. 13	D_1	67. 12. 44	N	Nov. 4. 15	D_1	67. 11. 31	N	21. 14	D_1	67. 11. 44	N
14. 13	D_1	67. 13. 35	N	7. 13	D_2	67. 10. 37	N	22. 14	D_2	67. 10. 34	N
17. 12	C_1	67. 11. 52	N	10. 16	D_2	67. 10. 4	N	29. 15	D_1	67. 10. 58	N
17. 13	D_2	67. 14. 27	N	11. 15	D_1	67. 11. 31	N				

The initial N is that of Mr Nash.
The observations in the months of January, February, and June were made with Professor Rücker's Dip Circle, Dover 74.
The needles B_1 and B_2 are 9 inches in length ; C_1 and C_2, 6 inches ; D_1 and D_2 and Dover A_1 and A_2, 3 inches.
The Mean result for 3-inch needles D_1 and D_2 in the months of October to December is 67°. 11′. 20″.

TABLE XVIII.—MONTHLY and YEARLY MEANS of MAGNETIC DIP from OBSERVATIONS made in the LIBRARY at the OBSERVATORY in the YEAR 1898.

Monthly Means of Magnetic Dip.

Month, 1898.	B_1, 9-inch Needle.	Number of Observations.	B_2, 9-inch Needle.	Number of Observations.	C_1, 6-inch Needle.	Number of Observations.	C_2, 6-inch Needle.	Number of Observations.	D_1, 3-inch Needle.	Number of Observations.	D_2, 3-inch Needle.	Number of Observations.
	° ′ ″		° ′ ″		° ′ ″		° ′ ″		° ′ ″		° ′ ″	
January ...	67. 3. 8	3	67. 4. 10	2	67. 6. 14	2	67. 5. 44	2	67. 6. 26	2	67. 6. 15	2
February ..	67. 3. 30	2	67. 3. 54	2	67. 6. 29	2	67. 4. 21	2	67. 6. 46	2	67. 6. 5	2
March	67. 1. 39	3	67. 3. 40	2	67. 7. 22	3	67. 4. 40	2	67. 6. 57	2	67. 6. 34	2
April	67. 0. 32	2	67. 2. 31	2	67. 4. 14	2	67. 1. 17	2	67. 5. 6	2	67. 4. 43	2
May	66. 59. 33	2	67. 0. 47	2	67. 2. 9	2	67. 1. 40	2	67. 5. 26	2	67. 3. 13	2
June	66. 58. 8	2	67. 0. 32	2	67. 2. 48	2	67. 0. 6	2	67. 3. 57	2	67. 2. 28	2
July	66. 56. 12	2	66. 58. 11	2	67. 2. 8	2	66. 58. 11	2	67. 3. 47	2	67. 0. 59	3
August	66. 57. 20	2	66. 59. 2	2	67. 2. 6	2	66. 58. 30	2	67. 1. 0	2	67. 0. 34	2
September.	66. 58. 44	2	66. 57. 26	2	67. 1. 0	2	66. 57. 55	2	67. 0. 33	2	67. 1. 55	2
Means	67. 0. 7	Sum 20	67. 1. 8	Sum 18	67. 4. 1	Sum 19	67. 1. 22	Sum 18	67. 4. 27	Sum 18	67. 3. 30	Sum 19

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 1898.

Lengths of the several Sets of Needles.	Needles.	Number of Observations with each Needle.	Mean Yearly Dip from Observations with each Needle.	Mean Yearly Dip from each Set of Needles.	Mean Yearly Dip from all the Sets of Needles.
			° ′ ″	° ′ ″	° ′ ″
9-inch Needles..............	B_1	20	67. 0. 7	67. 0. 37	67. 2. 25
	B_2	18	67. 1. 8		
6-inch Needles..............	C_1	19	67. 4. 1	67. 2. 41	
	C_2	18	67. 1. 22		
3-inch Needles..............	D_1	18	67. 4. 27	67. 3. 58	
	D_2	19	67. 3. 30		

TABLE XIX.—DETERMINATIONS of the ABSOLUTE VALUE of HORIZONTAL MAGNETIC FORCE in the YEAR 1898.

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

Greenwich Civil Time, 1898.	Place of Observation.	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 13. 15	Library	1·0 1·3	50·8	9. 50. 22 4. 28. 6	5·784 5·784	100 100	49·1 49·9	N
January 17. 14	Greenwich Park	1·0 1·3	36·0	9. 51. 34 4. 28. 45	5·787 5·779	100 100	36·0 35·4	N
February 10. 13	Greenwich Park	1·0 1·3	49·8	9. 50. 29 4. 28. 9	5·783 5·784	100 100	55·0 49·8	N
February 18. 15	Library	1·0 1·3	53·0	9. 49. 52 4. 27. 39	5·783 5·785	100 100	52·1 52·1	N
March 15. 14	Greenwich Park	1·0 1·3	52·1	9. 51. 11 4. 28. 40	5·779 5·787	100 100	54·0 52·9	N
March 18. 15	Library	1·0 1·3	56·3	9. 50. 16 4. 27. 52	5·788 5·791	100 100	55·5 55·4	N
April 15. 16	Library	1·0 1·3	54·4	9. 48. 50 4. 27. 18	5·782 5·779	100 100	54·5 54·9	N
April 26. 14	Greenwich Park	1·0 1·3	59·7	9. 47. 59 4. 26. 51	5·792 5·786	100 100	59·4 61·0	N
May 16. 16	Library	1·0 1·3	55·0	9. 48. 20 4. 27. 3	5·778 5·780	100 100	54·3 56·1	N
May 17. 15	Greenwich Park	1·0 1·3	54·7	9. 50. 1 4. 27. 46	5·790 5·788	100 100	58·6 52·9	N
June 8. 13	Library	1·0 1·3	64·0	9. 46. 52 4. 26. 26	5·788 5·785	100 100	64·1 64·1	N
June 13. 15	Greenwich Park	1·0 1·3	57·3	9. 49. 8 4. 27. 43	5·786 5·786	100 100	58·5 58·5	N
July 8. 16	Library	1·0 1·3	64·8	9. 45. 26 4. 25. 51	5·779 5·777	100 100	65·1 65·8	N
August 8. 16	Library	1·0 1·3	61·0	9. 45. 42 4. 25. 52	5·780 5·774	100 100	61·2 61·1	N
August 23. 14	Greenwich Park	1·0 1·3	74·4	9. 47. 6 4. 26. 29	5·800 5·798	100 100	77·5 75·4	N
September 9. 15	Greenwich Park	1·0 1·3	81·9	9. 46. 12 4. 26. 2	5·805 3·806	100 100	85·3 80·4	N
October 18. 15	Magnetic Pavilion	1·0 1·3	59·2	9. 48. 24 4. 27. 14	5·794 5·795	100 100	57·4 59·0	N
November 18. 15	Magnetic Pavilion	1·0 1·3	53·4	9. 49. 55 4. 27. 50	5·794 5·795	100 100	53·9 53·3	N
December 9. 15	Magnetic Pavilion	1·0 1·3	49·4	9. 48. 45 4. 27. 11	5·785 5·789	100 100	50·9 50·8	N
December 19. 14	Magnetic Pavilion	1·0 1·3	51·6	9. 49. 1 4. 27. 15	5·796 5·790	100 100	52·1 50·2	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 Library at the Observatory.

Greenwich Civil Time, 1898.	In English Measure.									In Metric Measure.	
	Apparent Value of A_1.	Apparent Value of A_2.	Apparent Value of P.	Mean Value of P.	Log $\frac{m}{X}$.	Corrected Time of Vibration of Deflecting Magnet.	Log. mX.	Value of m.	Value of Horizontal Force X.	Value of Horizontal Force as observed.	Value of Horizontal Force reduced to Mean of Month.
d h						s					
Jan. 13. 15	0·08566	0·08579	− 0·00378		8·93404	5·7887	0·13568	0·3427	3·9886	1·8391	1·8393
Feb. 18. 15	0·08562	0·08568	− 0·00158		8·93365	5·7883	0·13576	0·3425	3·9907	1·8401	1·8410
Mar. 18. 15	0·08573	0·08580	− 0·00203		8·93422	5·7918	0·13525	0·3426	3·9857	1·8378	1·8369
Apr. 15. 16	0·08549	0·08559	− 0·00276	− 0·00271	8·93309	5·7836	0·13648	0·3426	3·9966	1·8428	1·8435
May 16. 16	0·08543	0·08551	− 0·00248		8·93276	5·7819	0·13673	0·3426	3·9993	1·8440	1·8461
June 8. 13	0·08535	0·08545	− 0·00299		8·93240	5·7851	0·13631	0·3423	3·9990	1·8439	1·8453
July 8. 16	0·08515	0·08528	− 0·00350		8·93145	5·7818	0·13681	0·3421	4·0057	1·8470	1·8471
Aug. 8. 16	0·08514	0·08523	− 0·00259		8·93128	5·7839	0·13647	0·3419	4·0049	1·8466	1·8467
Means ...	...	...	...	...	...	...	...	...	3·9963	1·8427	1·8432

From Observations made with the Gibson Instrument on the Site of the Magnetic Pavilion in Greenwich Park until September, and in the Magnetic Pavilion afterwards.

Greenwich Civil Time, 1898.	Apparent Value of A_1.	Apparent Value of A_2.	Apparent Value of P.	Mean Value of P.	Log $\frac{m}{X}$.	Corrected Time of Vibration of Deflecting Magnet.	Log. mX.	Value of m.	Value of Horizontal Force X.	Value of Horizontal Force as observed.	Value of Horizontal Force reduced to Mean of Month.
d h						s					
Jan. 17. 14	0·08562	0·08579	− 0·00479		8·93411	5·7930	0·13495	0·3424	3·9849	1·8374	1·8403
Feb. 10. 13	0·08566	0·08579	− 0·00372		8·93424	5·7876	0·13585	0·3428	3·9884	1·8390	1·8373
Mar. 15. 14	0·08579	0·08599	− 0·00558		8·93507	5·7868	0·13599	0·3432	3·9853	1·8376	1·8356
Apr. 26. 14	0·08545	0·08552	− 0·00220		8·93301	5·7886	0·13576	0·3423	3·9936	1·8414	1·8396
May 17. 15	0·08567	0·08574	− 0·00214		8·93412	5·7919	0·13523	0·3425	3·9861	1·8379	1·8378
June 13. 15	0·08558	0·08576	− 0·00536	− 0·00325	8·93395	5·7866	0·13606	0·3428	3·9907	1·8401	1·8403
Aug. 23. 14	0·08554	0·08562	− 0·00243		8·93350	5·7980	0·13444	0·3420	3·9854	1·8376	1·8369
Sept. 9. 15	0·08553	0·08560	− 0·00203		8·93341	5·7959	0·13481	0·3421	3·9875	1·8386	1·8349
Oct. 18. 15	0·08550	0·08564	− 0·00395		8·93343	5·7954	0·13474	0·3420	3·9870	1·8384	1·8371
Nov. 18. 15	0·08563	0·08574	− 0·00316		8·93403	5·7972	0·13443	0·3422	3·9829	1·8365	1·8387
Dec. 9. 15	0·08541	0·08548	− 0·00203		8·93279	5·7900	0·13548	0·3421	3·9934	1·8413	1·8404
Dec. 19. 14	0·08548	0·08553	− 0·00158		8·93311	5·7959	0·13460	0·3419	3·9880	1·8388	1·8382
Means ...	...	...	...	...	...	...	...	...	3·9878	1·8387	1·8381

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

TABLE XIX.—*continued*—DETERMINATIONS of the ABSOLUTE VALUE of HORIZONTAL MAGNETIC FORCE in the YEAR 1898.

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

Greenwich Civil Time, 1898.		Place of Observation.	Distances of Centres of Magnets.	Temperature Centigrade.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature Centigrade.	Observer.
	d h		cms.	°	° ′ ″	s		°	
January	11. 14	Greenwich Park	30 40	8·1	19. 37. 5 8. 8. 10	4·226 4·226	100 100	8·7 9·1	N
January	21. 14	Library in usual position	30 40	11·2	19. 28. 7 8. 4. 32	4·216 4·221	100 100	11·1 11·6	N
February	9. 13	Greenwich Park	30 40	7·6	19. 37. 42 8. 8. 20	4·228 4·227	100 100	5·6 10·8	N
February	21. 16	Library in usual position	30 40	7·2	19. 29. 16 8. 5. 25	4·215 4·211	100 100	7·1 7·2	N
March	16. 15	Library in usual position	30 40	8·2	19. 30. 40 8. 6. 10	4·223 4·216	100 100	8·0 8·3	N
March	21. 14	Greenwich Park	30 40	11·1	19. 39. 1 8. 8. 53	4·236 4·240	100 100	13·7 12·3	N
April	20. 16	Library in usual position	30 40	12·1	19. 24. 44 8. 2. 59	4·228 4·224	100 100	12·4 12·1	N
April	22. 15	Greenwich Park	30 40	10·1	19. 31. 30 8. 5. 49	4·234 4·234	100 100	10·1 10·8	N
May	13. 13	Library in usual position	30 40	11·6	19. 26. 31 8. 3. 30	4·216 4·220	100 100	11·1 11·8	N
May	13. 15	Library on Gibson Pier	30 40	12·6	19. 30. 44 8. 4. 32	4·227 4·225	100 100	12·1 12·7	N
May	18. 14	Greenwich Park	30 40	12·9	19. 28. 47 8. 5. 6	4·239 4·234	100 100	13·7 13·8	N
June	6. 16	Library in usual position	30 40	18·3	19. 18. 24 8. 0. 13	4·219 4·221	100 100	18·4 18·3	N
June	15. 14	Library on Gibson Pier	30 40	14·3	19. 28. 10 8. 4. 6	4·224 4·225	100 100	13·6 14·8	N
June	22. 14	Greenwich Park	30 40	19·8	19. 26. 56 8. 4. 9	4·240 4·241	100 100	21·0 22·8	N
July	18. 15	Greenwich Park	30 40	24·7	19. 22. 17 8. 1. 59	4·245 4·244	100 100	25·6 23·7	N
July	29. 16	Library in usual position	30 40	17·3	19. 17. 14 7. 59. 54	4·226 4·222	100 100	16·9 17·6	N
August	10. 16	Library in usual position	30 40	16·7	19. 18. 12 8. 0. 35	4·221 4·218	100 100	16·8 16·6	N
August	11. 14	Greenwich Park	30 40	24·5	19. 24. 14 8. 2. 38	4·248 4·243	100 100	25·6 24·6	N
August	25. 16	Library on Gibson Pier	30 40	21·6	19. 22. 6 8. 1. 11	4·233 4·230	100 100	21·6 21·6	N
September	14. 14	Greenwich Park	30 40	25·0	19. 24. 1 8. 2. 5	4·246 4·248	100 100	24·1 25·6	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 0° Centigrade.

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

From Observations made with the Elliott Instrument in its usual position in the Library at the Observatory.

Greenwich Civil Time, 1898.	In C.G.S. 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.	Value of Horizontal Force reduced to Mean of Month.
d h						s					
Jan. 21. 14	4522·3	4518·2	+ 1·85		3·65442	4·2135	2·18670	832·8	0·18456	1·8456	1·8455
Feb. 21. 16	4517·3	4517·1	+ 0·09		3·65413	4·2128	2·18680	832·7	0·18464	1·8464	1·8463
Mar. 16. 15	4524·8	4526·4	− 0·71		3·65493	4·2179	2·18575	832·4	0·18425	1·8425	1·8459
Apr. 20. 16	4511·9	4506·0	+ 2·70		3·65333	4·2206	2·18526	830·4	0·18448	1·8448	1·8441
May 13. 13	4517·4	4509·6	+ 3·55	+ 1·97	3·65378	4·2137	2·18666	832·2	0·18469	1·8469	1·8522
June 6. 16	4503·0	4495·1	+ 3·60		3·65238	4·2080	2·18791	832·1	0·18525	1·8525	1·8511
July 29. 16	4496·1	4489·7	+ 2·94		3·65179	4·2137	2·18674	830·3	0·18513	1·8513	1·8501
Aug. 10. 16	4498·3	4494·5	+ 1·75		3·65212	4·2098	2·18753	831·4	0·18523	1·8523	1·8527
Means ...	...	...	...	...	...	...	...	...	0·18478	1·8478	1·8485

From Observations made with the Elliott Instrument on the Gibson Pier in the Library at the Observatory.

Greenwich Civil Time, 1898.	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.	as observed.	reduced to Mean of Month.
d h						s					
May 13. 15	4535·4	4521·5	+ 6·35		3·65393	4·2206	2·18526	831·0	0·18436	1·8436	1·8467
June 15. 14	4529·7	4521·4	+ 3·79	+ 5·34	3·65365	4·2176	2·18588	831·3	0·18455	1·8455	1·8459
Aug. 25. 16	4524·9	4512·0	+ 5·87		3·65297	4·2169	2·18612	830·9	0·18474	1·8474	1·8476
Means ...	...	...	...	...	...	...	...	...	0·18455	1·8455	1·8467

From Observations made with the Elliott Instrument on the Site of the Magnetic Pavilion in Greenwich Park.

Greenwich Civil Time, 1898.	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.	as observed.	reduced to Mean of Month.
d h						s					
Jan. 11. 14	4548·3	4544·5	+ 1·71		3·65678	4·2248	2·18435	832·9	0·18356	1·8356	1·8373
Feb. 9. 13	4549·6	4545·0	+ 2·08		3·65686	4·2254	2·18421	832·8	0·18352	1·8352	1·8359
Mar. 21. 14	4562·7	4558·3	+ 1·99		3·65812	4·2311	2·18310	832·9	0·18302	1·8302	1·8300
Apr. 22. 15	4532·3	4527·5	+ 2·18		3·65520	4·2307	2·18315	830·2	0·18365	1·8365	1·8368
May 18. 14	4528·8	4527·4	+ 0·62	+ 2·37	3·65502	4·2203	2·18533	832·1	0·18408	1·8408	1·8400
June 22. 14	4538·6	4535·2	+ 1·52		3·65587	4·2245	2·18455	832·2	0·18380	1·8380	1·8360
July 18. 15	4533·1	4527·1	+ 2·75		3·65522	4·2264	2·18419	831·2	0·18386	1·8386	1·8362
Aug. 11. 14	4539·9	4532·8	+ 3·22		3·65582	4·2269	2·18410	831·7	0·18371	1·8371	1·8361
Sept. 14. 14	4540·4	4528·8	+ 5·26		3·65565	4·2299	2·18348	830·9	0·18362	1·8362	1·8353
Means ...	...	...	...	...	...	...	...	...	0·18365	1·8365	1·8360

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 3, 4, 7, 9, 23, February 1, 3, 7, 26, 27, March 1, 3, 4, 24, 31, April 1, 9, 21, 22, 29, May 7, 19, 21, 23, 25, June 5, 13, 17, 20, 21, July 2, 10, 15, 16, 18, August 1, 8, 10, 15, 25, September 6, 7, 12, 21, 26, October 4, 8, 12, 16, 18, November 5, 10, 14, 29, 30, December 11, 12, 17, 23, 26.

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 ·18381 and 4·3727 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.*)

1898.

Hour, Greenwich Civil Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the Year.
Midnight.	0′·2	0′·6	1′·5	1′·7	4′·1	4′·0	3′·5	2′·9	2′·1	1′·5	0′·0	0′·0	1′·60
1h	0·6	0·7	1·4	1·8	4·4	4·0	3·1	3·0	2·0	1·6	0·3	0·9	1·74
2	0·9	0·8	1·6	1·8	4·3	3·8	2·9	2·6	1·6	1·5	0·7	1·6	1·77
3	1·0	0·8	1·4	1·6	4·0	3·8	2·5	1·8	1·5	1·6	1·1	1·7	1·66
4	0·8	0·8	1·3	1·6	3·5	2·6	2·0	1·4	0·8	1·5	1·0	1·5	1·33
5	0·6	0·7	1·7	1·5	2·2	1·1	0·8	0·9	0·5	1·4	1·0	1·3	0·90
6	0·5	0·4	1·5	1·4	1·0	0·3	0·0	0·5	0·2	1·2	0·9	1·1	0·51
7	0·4	0·4	1·1	0·7	0·0	0·1	0·0	0·0	0·0	0·4	1·0	0·8	0·17
8	0·1	0·2	0·4	0·0	0·1	0·0	0·1	0·3	0·0	0·0	0·9	0·8	0·00
9	0·3	0·1	0·0	0·0	1·3	0·5	1·1	1·6	0·7	0·3	1·0	1·1	0·43
10	0·6	0·6	0·9	1·1	4·3	2·4	3·0	3·7	2·6	2·4	2·0	1·7	1·87
11	1·9	1·9	3·0	3·1	7·8	5·6	5·5	5·9	5·0	4·8	3·5	2·2	3·94
Noon.	2·5	3·1	5·8	5·9	10·5	7·8	8·2	8·2	7·4	6·5	4·1	3·1	5·85
13h	2·5	3·5	6·3	7·6	11·1	8·4	8·8	9·2	8·5	6·8	4·3	3·3	6·45
14	1·7	3·3	6·0	7·4	10·4	8·0	8·0	9·1	7·3	6·2	3·8	2·8	5·93
15	1·3	2·8	4·8	6·2	8·5	6·8	7·0	7·8	5·3	5·0	2·9	2·3	4·82
16	1·3	2·0	3·9	5·0	6·7	5·8	5·6	6·1	3·5	3·5	2·5	2·1	3·76
17	1·0	1·5	3·1	4·0	5·1	5·1	4·6	4·7	2·6	3·4	2·4	1·8	3·04
18	0·8	1·2	2·8	3·1	4·3	4·5	4·3	4·0	2·5	3·2	1·6	1·4	2·57
19	0·4	0·9	2·6	2·5	4·5	4·2	4·1	3·6	2·5	2·8	1·3	1·1	2·30
20	0·1	0·7	2·5	2·6	4·8	3·7	4·2	3·4	2·1	2·3	1·2	1·0	2·14
21	0·0	0·5	2·0	2·5	5·0	4·0	4·1	3·3	1·6	2·0	0·9	0·8	1·98
22	0·1	0·2	1·7	2·2	4·8	4·1	3·6	3·0	1·8	1·4	0·4	0·6	1·75
23	0·2	0·2	1·6	1·8	4·4	4·1	3·5	2·9	2·0	1·3	0·3	0·6	1·67
24	0·4	0·0	1·5	1·9	3·9	3·9	3·5	2·7	1·7	1·2	0·4	0·4	1·55
Means 0h–23h	0′·82	1′·16	2′·45	2′·80	4′·88	3′·95	3′·77	3′·75	2′·67	2′·61	1′·63	1′·48	2′·42
Means 1h–24h	0′·83	1′·14	2′·45	2′·80	4′·87	3′·94	3′·77	3′·74	2′·65	2′·60	1′·65	1′·50	2′·42

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.*)

1898.

Iour, reen-wich Civil ime.	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*
Iidn.	44	81	44	81	82	151	122	224	185	340	128	235	134	246	168	309	161	296	126	232	90	165	21	39	102·3	188·0
1h	36	66	40	74	78	143	116	213	175	322	118	217	138	254	153	281	166	305	115	211	82	151	18	33	96·4	177·3
2	37	68	35	64	71	131	104	191	161	296	120	221	138	254	144	265	153	281	113	208	66	121	24	44	90·7	166·8
3	41	75	39	72	70	129	102	187	156	287	111	204	131	241	131	241	141	259	108	199	65	119	23	42	86·7	159·4
4	38	70	43	79	70	129	95	175	156	287	109	200	125	230	123	226	136	250	104	191	79	145	21	39	85·1	156·5
5	48	88	50	92	80	147	89	164	142	261	96	176	123	226	109	200	125	230	112	206	89	164	25	46	84·2	154·8
6	54	99	48	88	94	173	83	153	104	191	76	140	93	171	86	158	107	197	108	199	99	182	29	53	75·2	138·4
7	56	103	52	96	102	187	75	138	54	99	48	88	61	112	62	114	87	160	104	191	99	182	25	46	62·3	114·4
8	42	77	52	96	86	158	49	90	22	40	16	29	23	42	28	51	63	116	72	132	75	138	25	46	39·6	72·7
9	20	37	38	70	52	96	27	50	4	7	2	4	0	0	2	4	32	59	26	48	39	72	19	35	15·2	28·3
10	0	0	20	37	16	29	5	9	0	0	0	0	8	15	0	0	0	0	0	0	0	0	29	53	0·0	0·0
11	3	6	0	0	0	0	0	0	16	29	10	18	58	107	30	55	6	11	2	4	6	11	12	22	5·4	10·0
oon.	6	11	10	18	18	33	30	55	50	92	62	114	79	145	75	138	67	123	31	57	46	85	0	0	33·0	60·7
13h	32	59	40	74	29	53	72	132	102	187	95	175	91	167	83	153	111	204	75	138	75	138	34	62	63·4	116·6
14	44	81	54	99	54	99	95	175	136	250	134	246	107	197	88	162	126	232	113	208	91	167	40	74	83·7	153·9
15	37	68	49	90	80	147	107	197	167	307	148	272	135	248	121	222	137	252	121	222	97	178	39	72	96·7	177·7
16	29	53	39	72	97	178	125	230	191	351	160	294	135	248	137	252	155	285	121	222	102	187	39	72	104·3	191·8
17	39	72	42	77	90	165	153	281	217	399	183	336	149	274	167	307	173	318	129	237	107	197	49	90	118·3	217·5
18	50	92	51	94	93	171	176	323	234	430	182	334	167	307	191	351	191	351	136	250	121	222	66	121	131·7	241·9
19	52	96	61	112	108	199	171	314	250	460	198	364	172	316	210	386	212	390	144	265	123	226	59	108	140·2	257·8
20	50	92	63	116	121	222	165	303	254	467	188	346	162	298	224	412	207	380	142	261	120	221	59	108	139·7	256·9
21	40	74	65	119	114	210	148	272	246	452	170	312	160	294	222	408	219	403	146	268	110	202	43	79	133·8	245·8
22	41	75	58	107	106	195	131	241	235	432	149	274	155	285	204	375	201	369	132	243	94	173	52	96	123·3	226·9
23	42	77	55	101	115	211	132	243	237	436	148	272	143	263	201	369	189	347	135	248	89	164	46	85	121·2	222·8
24	42	77	63	116	120	221	138	254	228	419	140	257	135	248	195	358	181	333	127	233	90	165	49	90	119·2	219·0
eans —23h	36·7	67·5	43·7	80·3	76·1	139·8	98·8	181·7	145·6	267·6	110·5	203·0	112·0	205·8	123·3	226·6	131·9	242·4	100·6	185·0	81·8	150·4	33·2	61·0	84·7	155·7
—24h	36·6	67·3	44·5	81·8	77·7	142·8	99·5	182·9	147·4	270·9	111·0	203·9	112·0	205·9	124·4	228·7	132·7	244·0	100·7	185·0	81·8	150·4	34·4	63·2	85·4	157·0

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.)

1898.

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.	6	26	6	26	21	92	43	188	57	249	47	206	35	153	24	105	30	131	14	61	15	66	6	26	21·2	93·0
1^h	4	17	4	17	23	101	43	188	57	249	45	197	29	127	26	114	32	140	14	61	9	39	2	9	19·9	87·1
2	4	17	2	9	18	79	41	179	61	267	43	188	29	127	29	127	28	122	16	70	9	39	2	9	19·4	84·9
3	2	9	4	17	20	87	48	210	64	280	41	179	30	131	31	136	30	131	12	52	10	44	0	0	20·2	88·5
4	0	0	6	26	20	87	46	201	68	297	48	210	38	166	33	144	32	140	12	52	12	52	5	22	22·6	98·6
5	2	9	5	22	20	87	46	201	72	315	52	227	42	184	39	171	37	162	12	52	10	44	7	31	24·6	107·6
6	2	9	7	31	24	105	46	201	76	332	50	219	38	166	41	179	47	206	16	70	8	35	7	31	26·1	114·2
7	4	17	9	39	26	114	48	210	74	324	50	219	40	175	41	179	51	223	20	87	10	44	13	57	28·1	122·9
8	2	9	13	57	28	122	46	201	60	262	46	201	36	157	43	188	53	232	22	96	12	52	15	66	27·2	119·1
9	2	9	9	39	26	114	38	166	40	175	28	122	24	105	25	109	43	188	14	61	12	52	15	66	18·9	82·7
10	6	26	3	13	14	61	30	131	20	87	14	61	14	61	13	57	29	127	4	17	8	35	21	92	10·6	46·2
11	17	74	1	4	0	0	16	70	8	35	0	0	4	17	11	48	15	66	0	0	0	0	17	74	3·3	14·5
Noon.	11	48	7	31	0	0	6	26	0	0	0	0	0	0	1	4	5	22	4	17	2	9	13	57	0·0	0·0
13^h	15	66	9	39	0	0	0	0	16	70	9	39	5	22	0	0	0	0	10	44	2	9	31	136	4·0	17·6
14	21	92	11	48	12	52	30	131	40	175	25	109	19	83	12	52	20	87	14	61	12	52	35	153	16·8	73·4
15	21	92	21	92	22	96	42	184	56	245	33	144	33	144	22	96	28	122	20	87	18	79	33	144	25·0	109·3
16	19	83	25	109	30	131	50	219	66	289	43	188	41	179	32	140	38	166	24	105	18	79	33	144	30·8	134·9
17	18	79	25	109	34	149	56	245	74	324	47	206	45	197	38	166	40	175	22	96	22	96	33	144	33·7	147·7
18	14	61	25	109	33	144	60	262	74	324	47	206	45	197	30	131	38	166	24	105	26	114	29	127	33·0	144·4
19	12	52	23	101	37	162	58	254	72	315	51	223	41	179	32	140	38	166	24	105	24	105	33	144	33·0	144·4
20	10	44	19	83	36	157	54	236	68	297	51	223	43	188	30	131	36	157	22	96	20	87	29	127	30·7	134·4
21	8	35	15	66	34	149	54	236	68	297	47	206	35	153	30	131	34	149	22	96	20	87	19	83	28·1	122·9
22	6	26	9	39	30	131	52	227	64	280	45	197	37	162	30	131	28	122	20	87	18	79	12	52	25·1	110·0
23	2	9	8	35	26	114	50	219	57	249	37	162	37	162	24	105	26	114	28	122	16	70	8	35	22·5	98·5
24	4	17	0	0	16	70	41	179	51	223	37	162	35	153	24	105	22	96	16	70	5	22	2	9	17·0	74·4
Means 0^h–23^h	8·7	37·9	11·1	48·4	22·3	97·3	41·8	182·7	54·7	239·0	37·5	163·8	30·8	134·8	26·5	116·0	31·6	138·1	16·2	70·8	13·0	57·0	17·4	76·2	21·9	95·7
1^h–24^h	8·6	37·5	10·8	47·3	22·0	96·3	41·7	182·3	54·4	238·0	37·0	162·0	30·8	134·8	26·5	116·0	31·2	136·6	16·3	71·2	12·6	55·2	17·3	75·5	21·7	94·9

ROYAL OBSERVATORY, GREENWICH.

MAGNETIC DISTURBANCES

AND

EARTH CURRENTS.

1898.

MAGNETIC DISTURBANCES in DECLINATION, HORIZONTAL FORCE, and VERTICAL FORCE, recorded at the ROYAL OBSERVATORY, GREENWICH, in the Year 1898.

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).

1898.

January 1^d $4\frac{1}{2}^h$ to 7^h Shallow wave in Dec. (+ 6′), followed till 11^h by small fluctuations. 4^h to 12^h Fluctuations in H.F. $14\frac{1}{2}^h$ to 16^h Wave in Dec. (− 5′): in H.F. (− ·0016). $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 7′): in H.F. (+ ·0025).

2^d $0\frac{1}{2}^h$ to 2^h Wave in Dec. (+ 5′): decrease of V.F. (− ·0004). 17^h to 24^h Occasional fluctuations in Dec. and H.F., with wave in H.F. 21^h to $22\frac{1}{2}^h$ (+ ·0012).

5^d 3^h to $3\frac{1}{2}^h$ Very small wave in Dec. (+ 2′).

8^d 23^h to 24^h Small waves in Dec. and H.F. (+ 2′) and (+ ·0010).

10^d 14^h to 15^h Increase of Dec. (+ 4′). 15^h to 19^h Small fluctuations in Dec. and H.F. 19^h to 20^h Decrease of Dec. (− 7′): wave in H.F. (− ·0010). $20\frac{1}{2}^h$ to 21^h Decrease of Dec. (− 4′).

11^d $3\frac{1}{2}^h$ to 7^h Long shallow wave in Dec. (− 5′). 8^h to 11^h Two successive waves in H.F. (− ·0010) and (− ·0010): in Dec. small. 21^h to 24^h Small fluctuations in Dec.

12^d $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 4′). 20^h to 21^h Decrease of H.F. (− ·0010). $18\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Loss of V.F. register.

13^d $0\frac{1}{2}^h$ to 3^h Two successive waves in Dec. (+ 3′) and (+ 4′): in H.F. (− ·0010) and (− ·0014), followed by small fluctuations in Dec. and H.F. till 7^h.

14^d 0^h to $1\frac{1}{2}^h$ Wave in Dec. (+ 4′) followed by a smaller wave till 2^h. $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Small wave in Dec. (+ 2′).

15^d $19\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Sharp wave in Dec. (− 15′) steep at commencement: double wave in H.F. (− ·0020 to + ·0025): small double wave in V.F. (− ·0002 to + ·0003). 22^h to 24^h Double wave in Dec. (− 3′ to + 4′). 23^h to 24^h Wave in H.F. (+ ·0024).

16^d $0\frac{1}{2}^h$ to 1^h Decrease of V.F. (− ·0003). $2\frac{1}{2}^h$ to 5^h Double wave in Dec. (− 5′ to + 6′). 4^h to $4\frac{1}{2}^h$ Decrease of V.F. (− ·0004). 8^h to $9\frac{1}{2}^h$ Wave in Dec. (+ 4′): small fluctuations in Dec. and H.F. till 12^h. 11^h to 12^h Wave in Dec. (− 4′).

16^d 12^h to 19^d 12^h. See Plate I.

19^d $15\frac{1}{2}^h$ to 17^h Wave in Dec. (− 7′): in H.F. (− ·0022). 18^h to 19^h Wave in Dec. (− 4′): in H.F. small. 20^h to 21^h Wave in H.F. (− ·0010). 21^h to 24^h Small fluctuations in Dec. $22\frac{1}{2}^h$ to 23^h Double wave in H.F. (− ·0010 to + ·0010), followed till 24^h by two successive waves (+ ·0012) and (+ ·0008).

20^d 0^h to $1\frac{1}{2}^h$ Wave in Dec. (− 5′). 10^h to 12^h Wave in H.F. (− ·0018). 17^h to 18^h Sharp wave in Dec. (− 7′): in H.F. (− ·0014). $18\frac{1}{2}^h$ to 20^h Wave in H.F. (− ·0020). 19^h to 21^h Sharp wave in Dec. (− 14′). $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (− ·0014). 20^d 23^h to 21^d $0\frac{1}{2}^h$ Irregular wave in Dec. (+ 5′), followed by small fluctuations till 6^h. 20^d 23^h to 21^d 1^h Decrease of V.F. (− ·0005).

21^d 0^h to $1\frac{1}{2}^h$ Wave in H.F. (+ ·0018). 3^h to 4^h Increase of H.F. (+ ·0012). $17\frac{1}{2}^h$ to 19^h Double wave in H.F. (− ·0014 to + ·0010). 18^h to $20\frac{1}{2}^h$ Double wave in Dec. (− 4′ to + 4′), followed till $21\frac{1}{2}^h$ by a wave (+ 4′). 20^h to 21^h Wave in H.F. (+ ·0016).

1898.

January 26^d 12^h to $13\frac{1}{2}^h$ Small wave in Dec. (+ 3′). 16^h to 19^h Shallow wave in H.F. (− ·0015). $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Wave in Dec. (− 4′): in H.F. (+ ·0012).

28^d 5^h to $6\frac{1}{2}^h$ Wave in Dec. (+ 6′). 5^h to 8^h Two successive waves in H.F. (+ ·0018) and (+ ·0010). 21^h to 24^h Small fluctuations in Dec.

29^d $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 7′).

30^d $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. (+ ·0010).

31^d 0^h to 2^h Two successive small waves in Dec. (− 3′) and (− 4′): in H.F. (+ ·0012) and (+ ·0008). 0^h to $1\frac{1}{2}^h$ Decrease of V.F. (− ·0004).

February 3^d 18^h to 21^h Loss of V.F. register.

5^d 17^h to $18\frac{1}{2}^h$ Flat-crested wave in Dec. (− 5′). 17^h to 19^h Sharp wave in H.F. (− ·0036): in V.F. (+·0003).

6^d $1\frac{1}{2}^h$ to $2\frac{1}{2}^h$ Wave in Dec. (+ 3′), followed till 5^h by a double wave (+ 3′ to − 4′). 3^h to 5^h Wave in H.F. (+ ·0016), followed by a gradual increase till $6\frac{1}{2}^h$ (+ ·0012). $14\frac{1}{2}^h$ to $15\frac{1}{2}^h$ and $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Small waves in Dec. (− 3′) and (− 3′). 15^h to 20^h Prolonged wave in H.F. (− ·0015).

8^d $18\frac{1}{2}^h$ to $19\frac{1}{4}^h$ Wave in H.F. (− ·0010): in Dec. and V.F. small.

9^d 1^h to 3^h Double wave in Dec. (+ 3′ to − 3′). $1\frac{1}{2}^h$ to $2\frac{1}{2}^h$ Wave in H.F. (+ ·0010). 9^h to 12^h Small fluctuations in Dec.

11^d 5^h to 12^d 5^h. See Plate II.

12^d 5^h to 12^h Small fluctuations in Dec., H.F., and V.F.

12^d 12^h to 13^d 12^h. See Plate II.

13^d 14^h to 17^h Wave in Dec. (− 6′). 15^h to 20^h Long double wave in H.F. (− ·0010 to + ·0010), with superposed fluctuations. 18^h to 20^h Serrated wave in Dec. (− 6′). 21^h to 22^h Sharp wave in Dec. (− 8′), and small double wave in H.F.

14^d 0^h to 2^h Two successive waves in H.F. (+ ·0010) and (+ ·0032). 0^h to 4^h Waves in Dec. (− 7′) and (− 8′). 1^h to 2^h Decrease of V.F. (− ·0008). 6^h to $7\frac{1}{4}^h$ Wave in Dec. (+ 5′). $7\frac{1}{2}^h$ to $8\frac{1}{2}^h$ Wave in H.F. (+ ·0015). $8\frac{1}{2}^h$ to $9\frac{1}{2}^h$ Wave in Dec. (+ 5′), followed by fluctuations in Dec., H.F., and V.F. till 12^h.

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

15^d 12^h to 22^h Small fluctuations in V.F. 14^h to $18\frac{1}{2}^h$ Two successive waves in Dec. (− 7′) and (− 7′): in H.F. (− ·0016) and (− ·0014). $19\frac{1}{2}^h$ to 21^h Sharp wave in Dec. (− 8′): in H.F. (+ ·0030), followed by fluctuations till 22^h.

16^d 0^h to 1^h Wave in Dec. (+ 5′): in H.F. (+ ·0020): decrease of V.F. (− ·0005). 2^h to 4^h Wave in Dec. (− 5′). 3^h to 4^h Wave in H.F. (− ·0015). $6\frac{1}{2}^h$ to 8^h Wave in H.F. (+ ·0012), followed by fluctuations in Dec., H.F., and V.F. till 14^h. 14^h to $15\frac{1}{2}^h$ Wave in H.F. (− ·0014). $15\frac{1}{2}^h$ to 16^h Sharp double wave in H.F. (− ·0016 to + ·0014). $15\frac{1}{2}^h$ to 17^h Wave in Dec. (− 9′), steep at commencement. 14^h to 18^h Long shallow wave in V.F. (+ ·0008). 19^h to 22^h Two successive waves in Dec. (− 3′) and (− 4′).

17^d 0^h to 9^h Fluctuations in Dec. and H.F., with wave 2^h to $3\frac{1}{2}^h$ in Dec. (+ 5′). 12^h to 14^h Wave in H.F. (− ·0016). 15^h to 17^h Wave in Dec. (− 8′): in H.F. (− ·0030): and in V.F. (+ ·0005). 21^h to $22\frac{3}{4}^h$ Double wave in H.F. (− ·0010 to + ·0020). $21\frac{1}{2}^h$ to 23^h Wave in Dec. (− 5′), followed by a smaller wave till 24^h (− 3′).

18^d 2^h to $3\frac{1}{2}^h$ Wave in Dec. (+ 3′): small fluctuations in H.F. 20^h to 22^h Wave in Dec. (− 6′): in H.F. (− ·0010). 18^d $23\frac{1}{2}^h$ to 19^d $0\frac{1}{2}^h$ Wave in H.F. (+ ·0014).

19^d 5^h to 17^h Small fluctuations in Dec., H.F., and V.F.

20^d 6^h to 14^h Fluctuations in Dec. and H.F. 16^h to $17\frac{1}{2}^h$ Wave in H.F. (− ·0016). 22^h to $23\frac{1}{2}^h$ Wave in Dec. (− 7′): in H.F. (+ ·0030): decrease of V.F. (− ·0005).

21^d 0^h to 12^h Small fluctuations in Dec. and H.F., with wave $3\frac{1}{2}^h$ to 5^h in Dec. (+ 6′), and $7\frac{1}{4}^h$ to 9^h in H.F. (− ·0016). 13^h to 15^h Wave in H.F. (− ·0020). 17^h to $18\frac{1}{2}^h$ Double-crested wave in Dec. (− 12′). 17^h to 20^h Serrated wave in H.F. (− ·0026): in V.F. (+ ·0005). $22\frac{1}{2}^h$ to 24^h Wave in H.F. (+ ·0016). 21^d 23^h to 22^d $0\frac{1}{2}^h$ Wave in Dec. (− 4′).

22^d 14^h to $15\frac{1}{2}^h$ Wave in H.F. (− ·0016): in Dec. small, followed by occasional fluctuations till 18^h. 22^h to 24^h Wave in Dec. (− 4′).

24^d 2^h to 4^h Wave in Dec. (+ 5′). 24^d 23^h to 25^d 1^h Wave in H.F. (+ ·0014): in Dec. small.

25^d 0^h to 4^h Small fluctuations in Dec.

28^d $1\frac{1}{2}^h$ to 2^h Small wave in Dec. (+ 2′): in H.F. (+ ·0008).

1898.

March 1^d 21^h to 24^h Fluctuations in H.F.

2^d 1^h to 6^h Fluctuations in Dec. and H.F. 6^h to $9\frac{1}{2}^h$ Wave in Dec. (+ 15′), and double wave in H.F. (− ·0012 to + ·0012), with superposed fluctuations: small fluctuations in V.F.

4^d $20\frac{3}{4}^h$ to $21\frac{3}{4}^h$ Wave in Dec. (− 5′): in H.F. small.

5^d 16^h to 18^h Wave in H.F. (− ·0020): small fluctuations in Dec. 20^h to 21^h Small wave in Dec. (− 3′).

6^d $8\frac{1}{2}^h$ to $9\frac{1}{2}^h$ Wave in Dec. (+ 4′): in H.F. (− ·0010). 12^h to $14\frac{1}{2}^h$ Double wave in H.F. (− ·0010 to + ·0010), followed by two small waves till $17\frac{1}{2}^h$ (+ ·0010) and (+ ·0008), and by fluctuations till 24^h: small fluctuations throughout in Dec.

7^d 0^h to 1^h Wave in H.F. (+ ·0010): in Dec. small.

8^d $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0022): in V.F. (− ·0003). 8^d 22^h to 9^d $0\frac{1}{2}^h$ Two successive waves in Dec. (+ 4′) and (+ 5′).

9^d 21^h to 23^h Double wave in H.F. (− ·0008 to + ·0010). $21\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in Dec. (− 6′).

10^d 1^h to 2^h Wave in Dec. (+ 5′). $17\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Serrated wave in H.F. (− ·0010): in Dec. small.

11^d 0^h to 12^h Fluctuations in Dec. and H.F., with wave 7^h to $8\frac{1}{2}^h$ in H.F. (− ·0020).

11^d 12^h to 12^d 12^h. See Plate III.

12^d 12^h to 15^h Fluctuations in Dec. and H.F. $19\frac{3}{4}^h$ to 21^h Sharp wave in H.F. (+ ·0034). 20^h to $20\frac{1}{2}^h$ Wave in Dec. (− 5′).

13^d $3\frac{1}{2}^h$ to $5\frac{1}{4}^h$ Wave in Dec. (+ 6′). $3\frac{1}{2}^h$ to 6^h Wave in H.F. (+ ·0010), followed by a double wave till 12^h (+ ·0008 to − ·0010). 5^h to 6^h Decrease of V.F. (− ·0004). 19^h to 20^h Small double-crested wave in Dec. (− 3′).

14^d 20^h to 15^d 20^h. See Plate III.

15^d 20^h to 16^d 20^h. See Plate IV.

16^d 21^h to $22\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. small.

17^d $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Wave in Dec. (+ 3′). $16\frac{1}{2}^h$ to 18^h Double wave in H.F. (+ ·0020 to − ·0010), the first part double-crested. 20^h to 22^h Double-crested wave in H.F. (+ ·0040). $20\frac{1}{2}^h$ to 21^h Small wave in Dec. (− 3′), followed till $23\frac{1}{2}^h$ by a double wave (+ 8′ to − 5′). 22^h to 23^h Wave in V.F. (− ·0005).

18^d $15\frac{1}{2}^h$ to 18^h Serrated wave in H.F. (− ·0036), very steep at commencement, followed till 19^h by a smaller wave (− ·0020). $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Decrease of Dec. (− 5′). 18^h to 21^h Three successive waves in Dec. (− 4′), (− 3′), and (− 6′): small fluctuations in V.F.

19^d $11\frac{1}{2}^h$ to 13^h Wave in H.F. (− ·0016), followed till $15\frac{1}{2}^h$ by another wave (− ·0015). 20^h to 24^h Sharp wave in Dec. (− 18′): two small waves in H.F. (− ·0016) and (− ·0010). $21\frac{1}{2}^h$ to $22\frac{1}{4}^h$ Wave in V.F. (− ·0003).

20^d 0^h to 7^h Fluctuations in Dec. and H.F., with wave 4^h to $7\frac{1}{2}^h$ in Dec. (+ 7′). 10^h to 14^h Two successive waves in H.F. (− ·0018) and (− ·0020), followed by fluctuations till 19^h. 16^h to 19^h Wave in Dec. (− 5′). $16\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Wave in H.F. (− ·0010).

21^d 0^h to 21^h Fluctuations in Dec., H.F., and V.F., with wave 19^h to 20^h in Dec. (− 4′).

22^d 2^h to $3\frac{1}{2}^h$ Wave in Dec. (+ 3′): in H.F. small. $5\frac{1}{2}^h$ to 7^h Wave in Dec. (+ 3′). 22^d $23\frac{1}{2}^h$ to 23^d 1^h Two small waves in Dec. (+ 2′) and (+ 2′), with double-crested wave in H.F. (+ ·0014): decrease of V.F. (− ·0004).

23^d 7^h to 16^h Small fluctuations in H.F. and V.F. 17^h to 19^h Double-crested wave in Dec. (− 4′). 22^h to 24^h Small fluctuations in Dec. and H.F.

24^d 9^h to $11\frac{1}{2}^h$ Wave in H.F. (− ·0010).

25^d 2^h to 8^h Small fluctuations in Dec. and H.F.

26^d 1^h to 2^h Small wave in Dec. (+ 4′). 14^h to 15^h Increase of V.F. (+ ·0004).

27^d 4^h to 7^h Small fluctuations in H.F. 6^h to 8^h Wave in Dec. (+ 3′). 27^d 23^h to 28^d 1^h Wave in Dec. (+ 5′): in H.F. (+ ·0020): decrease of V.F. (− 0003).

28^d 20^h to 21^h Wave in Dec. (− 4′).

29^d 12^h to 17^h Small fluctuations in H.F.

30^d 0^h to 1^h Wave in Dec. (+ 3′): in H.F. small. 4^h to 6^h Shallow wave in Dec. (+ 3′): in H.F. small.

31^d 4^h to 6^h Wave in Dec. (+ 3′). 14^h to 23^h Small fluctuations in H.F.

April 1^d 4^h to 6^h Small double wave in Dec.

2^d 16^h to 18^h Wave in H.F. (− ·0010).

3^d 16^h to 23^h Fluctuations in Dec. and H.F.

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April 4d 2^h to 8^h Small fluctuations in Dec. and H.F. $15\frac{1}{2}^h$ to $17\frac{1}{2}^h$ Wave in H.F. (− ·0020), steep at commencement. 18^h to 20^h Double-crested wave in Dec. (− 8′): two successive waves in H.F. (− ·0016) and (− ·0010). 21^h to 22^h Small wave in Dec. (− 3′).

5d 0^h to 1^h Decrease of V.F. (− ·0005). 0^h to 3^h Two successive waves in Dec. (+ 5′) and (+ 5′), the latter double-crested: in H.F. (+ ·0012) and (+ ·0016). 18^h to $19\frac{1}{2}^h$ Wave in Dec. (− 4′): in H.F. small.

6d $18\frac{1}{2}^h$ to 20^h Two successive waves in Dec. (− 5′) and (− 2′): in H.F. (+ ·0010) and (+ ·0008).

7d 1^h to 3^h Two successive waves in Dec. (+ 3′) and (+ 7′). 2^h to 3^h Decrease of V.F. (− ·0005). 2^h to 7^h Two successive waves in H.F. (+ ·0015) and (+ ·0018). $5\frac{1}{2}^h$ to $6\frac{1}{2}^h$ Wave in Dec. (+ 5′), with superposed fluctuations. $6\frac{1}{2}^h$ to 11^h Fluctuations in Dec. and H.F. 13^h to $14\frac{1}{2}^h$ Double wave in Dec. (− 4′ to + 3′). 14^h to $14\frac{1}{2}^h$ Wave in H.F. (+ ·0020), followed till 17^h by a small double wave (− ·0010 to + ·0010). 15^h to 17^h Small fluctuations in Dec. (± 2′), with wave $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ (− 5′). 13^h to 22^h Long wave in V.F. (+ ·0011). 21^h to 23^h Wave in H.F. (+ ·0026), steep at commencement. 21^h to 22^h Wave in Dec. (− 5′). 23^h to 24^h Shallow wave in Dec. (+ 3′): small in H.F.

8d 0^h to $1\frac{1}{2}^h$ Wave in Dec. (− 4′): in H.F. (− ·0010). 6^h to 9^h Small fluctuations in Dec. and H.F. 14^h to 15^h Decrease of Dec. (− 3′). 17^h to $18\frac{1}{2}^h$ Wave in Dec. (− 7′): in H.F. (− ·0016). $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Wave in H.F. (+ ·0010): in Dec. small. $21\frac{1}{2}^h$ to 23^h Double wave in Dec. (+ 3′ to − 5′): small wave in V.F. (− ·0003). 22^h to $23\frac{1}{2}^h$ Double wave in H.F. (+ ·0010 to − ·0010).

9d 0^h to 1^h Increase of Dec. (+ 4′). 23^h to 24^h Small wave in H.F. (− ·0008).

10d 0^h to 3^h Double wave in Dec. (+ 4′ to − 3′): double wave in H.F. (− ·0008 to + ·0014).

11d 0^h to 2^h Wave in Dec. (− 3′). 3^h to 5^h Wave in Dec. (+ 5′): in H.F. (+ ·0010).

12d $2\frac{1}{2}^h$ to $3\frac{1}{2}^h$ Small wave in Dec. (+ 2′). 5^h to $8\frac{1}{2}^h$ Two successive waves in H.F. (+ ·0010) and (+ ·0010).

12d 12^h to 13d 12^h. See Plate IV.

13d 13^h to 16^h Small fluctuations in H.F. $22\frac{1}{2}^h$ to 24^h Wave in Dec. (− 3′).

14d 2^h to $3\frac{1}{2}^h$ Wave in Dec. (+ 7′). 2^h to 6^h Long double-crested wave in H.F. (+ ·0014), followed by another wave till 7^h (+ ·0010). 2^h to 6^h Wave in V.F. (− ·0006). 4^h to $8\frac{1}{2}^h$ Double wave in Dec. (− 5′ to + 3′). $11\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Two successive waves in H.F. (− ·0016) and (− ·0012). 12^h to 13^h Wave in Dec. (+ 3′).

15d $1\frac{1}{2}^h$ to 5^h Double wave in Dec. (− 5′ to + 9′): in H.F. (+ ·0010 to − ·0012). 1^h to $2\frac{1}{2}^h$ Wave in V.F. (− ·0003). $13\frac{1}{2}^h$ to $14\frac{1}{2}^h$ Wave in Dec. (+ 3′). 14^h to 16^h Two successive waves in H.F. (− ·0016) and (− ·0010), followed till 17^h by a small double wave. 13^h to 17^h Loss of V.F. register. $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in H.F. (+ ·0016), followed by small fluctuations till 21^h. $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Wave in Dec. (− 3′), followed by small fluctuations till 23^h. 21^h to 22^h Wave in H.F. (+ ·0014). 21^h to 23^h Wave in V.F. (− ·0003).

16d 2^h to 3^h Sharp wave in Dec. (+ 7′). $2\frac{1}{2}^h$ to $3\frac{1}{2}^h$ Wave in V.F. (− ·0003). 4^h to 6^h Wave in H.F. (+ ·0014). 20^h to 22^h Wave in H.F. (+ ·0010). $22\frac{1}{2}^h$ to 24^h Double wave in Dec. (+ 3′ to − 2′).

17d 0^h to 1^h Wave in H.F. (+ ·0010). $16\frac{1}{2}^h$ to 17^h Small wave in H.F. (− ·0010). $17\frac{1}{2}^h$ to 19^h Shallow wave in Dec. (− 3′). $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 4′): double-crested wave in H.F. (+ ·0012).

18d 0^h to 3^h Small fluctuations in Dec. (± 2′). 2^h to 3^h Wave in H.F. (+ ·0010): small double wave in Dec. 1^h to 4^h Wave in V.F. (− ·0004). $15\frac{3}{4}^h$ to $16\frac{3}{4}^h$ Wave in Dec. (− 5′): double wave in H.F. (− ·0012 to + ·0012). $18\frac{1}{2}^h$ to 20^h Wave in Dec. (− 9′): in H.F. (+ ·0018). $23\frac{1}{2}^h$ to 24^h Wave in Dec. (+ 3′): in H.F. small.

20d 0^h to 2^h Fluctuations in Dec. 2^h to 4^h Wave in Dec. (+ 4′).

23d 12^h to 13^h Wave in H.F. (− ·0010). 15^h to 16^h and 19^h to $19\frac{1}{2}^h$ Small waves in H.F. 22^h to 23^h Decrease of Dec. (− 3′).

24d 22^h to 24^h Wave in H.F. (+ ·0016). $22\frac{1}{2}^h$ to 23^h Small double wave in Dec.

25d $19\frac{1}{2}^h$ to 21^h Wave in Dec. (− 3′).

26d $20\frac{1}{4}^h$ to 21^h Wave in Dec. (− 3′) : in H.F. small.

27d 17^h to 28d 2^h Fluctuations in H.F.

30d 23^h to 24^h Decrease of Dec. (− 3′).

May 1d 0^h to $1\frac{1}{2}^h$ Wave in H.F. (+ ·0014) : decrease of V.F. (− ·0003). 0^h to 3^h Double wave in Dec. (+ 2′ to − 3′). 5^h to 8^h Small fluctuations in Dec. and H.F. 14^h to $15\frac{1}{4}^h$ Wave in H.F. (+ ·0014), followed by fluctuations in Dec. and H.F. till 18^h. 18^h to 20^h Wave in Dec. (− 3′). 22^h to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0018). 22^h to 23^h Decrease of V.F. (− ·0003). 23^h to 24^h Wave in Dec. (− 3′).

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May 2^d 12^h to 17^h Loss of Dec. register. $21\frac{3}{4}^h$ to 23^h Wave in Dec. (+ 3′) : in H.F. (+ ·0010) : in V.F. small.

3^d 13^h to $13\frac{1}{2}^h$ Wave in Dec. (− 3′) : in H.F. (− ·0012). $15\frac{1}{2}^h$ to $17\frac{1}{2}^h$ Serrated wave in H.F. (+ ·0010). $20\frac{1}{2}^h$ to 23^h Wave in Dec. (− 7′) : double wave in H.F. (+ ·0010 to − ·0008).

4^d 1^h to 3^h Wave in Dec. (+ 11′) : in H.F. (+ ·0024) : in V.F. (− ·0006). 4^h to 8^h Two successive double waves in H.F. (+ ·0012 to − ·0012) and (− ·0012 to + ·0010). 5^h to 8^h Two successive waves in Dec., with superposed fluctuations (− 3′) and (− 5′). 12^h to 13^h Wave in Dec. (+ 3′) : in H.F. (+ ·0018), followed by fluctuations in H.F. till 16^h. 16^h to 17^h Wave in H.F. (+ ·0018), followed by a small double wave till $18\frac{1}{2}^h$ (+ ·0008 to − ·0008). $16\frac{1}{2}^h$ to $17\frac{1}{2}^h$ Wave in Dec. (− 3′). 17^h to 20^h Double-crested wave in Dec. (− 4′), followed till 21^h by a double wave (− 3′ to + 4′). 20^h to 21^h Sharp wave in H.F. (+ ·0026) : in V.F. small.

5^d 3^h to $6\frac{1}{2}^h$ Wave in Dec. (+ 5′) : small double wave in H.F. (− ·0008 to + ·0008) : wave in V.F. (− ·0005). $13\frac{1}{2}^h$ to $14\frac{1}{2}^h$ Double-crested wave in H.F. (− ·0012). 15^h to 17^h Wave in Dec. (− 4′). $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in H.F. (+ ·0014). 18^h to 19^h Wave in Dec. (− 5′) : in H.F. (+ ·0010). $21\frac{1}{2}^h$ to 23^h Wave in Dec. (− 4′) : in H.F. (+ ·0010).

6^d 23^h to 7^d $0\frac{1}{2}^h$ Wave in H.F. (+ ·0010) : small double wave in Dec.

8^d 0^h to $1\frac{1}{2}^h$ Two successive waves in Dec. (+ 3′) and (+ 3′), followed by a double wave till $3\frac{1}{2}^h$ (+ 2′ to − 3′). $1\frac{1}{2}^h$ to 3^h Wave in H.F. (+ ·0014) : in V.F. small.

9^d 18^h to $19\frac{1}{2}^h$ Wave in Dec. (− 3′) : in H.F. small. 21^h to 22^h Wave in Dec. (− 3′) : in H.F. small. 9^d $23\frac{1}{2}^h$ to 10^d 1^h Wave in H.F. (+ ·0012). 9^d $23\frac{1}{2}^h$ to 10^d 2^h Double wave in Dec. (+ 3′ to − 4′).

10^d 0^h to 1^h Decrease of V.F. (− ·0004).

11^d 8^h to 9^h Wave in H.F. (− ·0010) : in Dec. small, followed by fluctuations in H.F. till 15^h. 15^h to $16\frac{1}{2}^h$ Serrated wave in H.F. (− ·0026), followed by fluctuations till $18\frac{1}{2}^h$. 19^h to 21^h Sharp wave in Dec. (− 12′) : wave in H.F. (− ·0015). 20^h to 21^h Decrease of V.F. (− ·0005). 21^h to 22^h Wave in H.F. (− ·0018). 22^h to 23^h Small wave in Dec. (− 3′).

12^d 4^h to 14^h Small fluctuations in Dec., H.F., and V.F. $14\frac{1}{2}^h$ to 16^h Wave in H.F. (− ·0020), followed till 18^h by a double wave (+ ·0016 to − ·0018). 17^h to 19^h Wave in Dec. (− 10′). 20^h to $20\frac{1}{2}^h$ Sharp double wave in Dec. (− 7′ to + 4′) : wave in V.F. (− ·0003). 20^h to $21\frac{1}{2}^h$ Double wave in H.F. (+ ·0018 to − ·0012). 21^h to 22^h Wave in Dec. (− 5′).

13^d 0^h to 2^h Double wave in H.F. (− ·0010 to + ·0008). 0^h to 3^h Irregular double wave in Dec. (+ 4′ to − 4′). 3^h to 4^h Wave in H.F. (− ·0010). 12^h to $13\frac{1}{2}^h$ Wave in H.F. (− ·0016). 14^h to 15^h Small wave in H.F. (− ·0010). 18^h to 21^h Fluctuations in H.F.

14^d $7\frac{1}{2}^h$ to $9\frac{1}{2}^h$ Loss of Dec. and H.F. registers. 12^h to 17^h Small fluctuations in H.F. 19^h to $20\frac{1}{2}^h$ Double wave in H.F. (− ·0008 to + ·0010). 19^h to 22^h Shallow double-crested wave in Dec. (− 3′).

15^d 6^h to 9^h Wave in H.F. (− ·0020). 8^h to 10^h Wave in Dec. (+ 5′). $12\frac{1}{2}^h$ to 14^h Wave in H.F. (− ·0010), followed by small fluctuations till 19^h. 15^d 22^h to 16^d 1^h Wave in Dec. (− 5′).

16^d 15^h to 16^h Wave in H.F. (− ·0010), followed by small fluctuations till 20^h.

17^d 3^h to 5^h Shallow wave in Dec. (+ 3′), followed by small fluctuations in Dec. and H.F. till 8^h. 14^h to 16^h Small fluctuations in H.F.

18^d 12^h to 18^h Small fluctuations in H.F.

20^d 14^h to 20^h Fluctuations in H.F. 23^h to 24^h Wave in Dec. (− 3′).

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

26^d 15^h to 18^h Small fluctuations in H.F.

27^d 10^h to 16^h Loss of Dec., H.F., and V.F. registers. $19\frac{1}{2}^h$ to 22^h Fluctuations in H.F. (± ·0010). 22^h to 24^h Wave in H.F. (− ·0012).

28^d 0^h to 1^h Decrease of V.F. (− ·0003). 0^h to 2^h Wave in Dec. (− 3′). 0^h to 3^h Wave in H.F. (− ·0015). 3^h to 4^h Small wave in Dec. (− 3′). $12\frac{1}{2}^h$ to 14^h Wave in H.F. (− ·0012). 22^h to 23^h Decrease of V.F. (− ·0004). 22^h to 24^h Double wave in Dec. (+ 3′ to − 4′): in H.F. (+ ·0020 to − ·0010).

29^d 11^h to 15^h Fluctuations in H.F. (± ·0010): in Dec. and V.F. small. $15\frac{1}{2}^h$ to $17\frac{1}{2}^h$ Wave in H.F. (− ·0026). $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Wave in H.F. (− ·0010). 18^h to 19^h Wave in Dec. (− 5′): in V.F. small. $21\frac{3}{4}^h$ to $23\frac{3}{4}^h$ Double wave in Dec. (− 3′ to + 3′): in H.F. (+ ·0007 to − ·0008): wave in V.F. (+ ·0003).

30^d 0^h to 2^h Wave in Dec. (− 5′): in V.F. (− ·0003). 1^h to $4\frac{1}{2}^h$ Two successive waves in H.F. (− ·0020) and (− ·0022). $2\frac{1}{2}^h$ to 5^h Double wave in Dec. (− 4′ to + 12′). $3\frac{1}{2}^h$ to $5\frac{1}{2}^h$ Wave in V.F. (− ·0005), followed by sharp fluctuations in Dec., H.F., and V.F., with waves $5\frac{1}{2}^h$ to 6^h and $7\frac{1}{2}^h$ to 8^h in Dec. (− 6′) and (− 5′). 11^h to 14^h Fluctuations in Dec., H.F., and V.F. 14^h to 16^h Two successive waves in H.F. (− ·0020) and (− ·0016). 15^h to 17^h Wave in Dec. (− 6′). 18^h to $19\frac{1}{2}^h$ Double wave in H.F.

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(− ·0010 to + ·0026), followed by fluctuations till $21\frac{1}{2}^h$. 18^h to 22^h Two successive waves in Dec. (− 10′) and (− 5′), followed till 31^d $0\frac{1}{2}^h$ by two smaller waves (− 4′) and (− 4′). $21\frac{1}{2}^h$ to 23^h Two successive waves in H.F. (− ·0020) and (− ·0012).

May 31^d $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ Double wave in Dec. (− 5′ to + 3′): Decrease of H.F. (− ·0012). 14^h to $14\frac{1}{2}^h$ Small wave in H.F. (− ·0010). 21^h to $23\frac{1}{2}^h$ Wave in Dec. (− 4′).

June 1^d 1^h to 3^h Wave in Dec. (− 3′). 1^h to $4\frac{1}{2}^h$ Wave in H.F. (− ·0014). $14\frac{1}{2}^h$ to 16^h Wave in H.F. (− ·0030), followed by small fluctuations till 22^h. $21\frac{1}{2}^h$ to 23^h Serrated wave in Dec. (− 5′). 22^h to $23\frac{1}{2}^h$ Wave in H.F. (− ·0010).

2^d 2^h to 3^h Wave in H.F. (+ ·0012): in Dec. small. $3\frac{1}{2}^h$ to 5^h Wave in Dec. (+ 4′). 4^h to 6^h Wave in H.F. (+ ·0010), followed by small fluctuations till 19^h. 22^h to 24^h Small double wave in H.F. 23^h to 24^h Wave in Dec. (+ 3′): decrease of V.F. (− ·0003).

3^d 21^h to 22^h Wave in H.F. (+ ·0012): in Dec. small.

4^d 10^h to 18^h Loss of Dec., H.F., and V.F. registers.

7^d 0^h to $1\frac{1}{2}^h$ Wave in H.F. (+ ·0014) : in Dec. small. 6^h to 10^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0010): in V.F (± ·0002). 12^h to $13\frac{1}{2}^h$ Two successive waves in H.F. (+ ·0014) and (+ ·0020). 14^h to 15^h Serrated wave in H.F. (+ ·0030) : fluctuations in Dec. and V.F. 15^h to $19\frac{1}{2}^h$ Three successive waves in H.F. (+ ·0030), (+ ·0036), and (+ ·0030): in Dec. and V.F. small. 20^h to 22^h Serrated double wave in Dec. (− 5′ to + 4′). 20^h to 21^h Double-crested wave in H.F. (+ ·0018), followed by a smaller wave till 22^h: fluctuations throughout in V.F.

8^d 5^h to 11^h Small fluctuations in Dec., H.F., and V.F. 12^h to 18^h Loss of Dec., H.F., and V.F. registers.

9^d 1^h to 3^h Wave in Dec. (+ 3′), followed by small fluctuations till 10^h. 5^h to 21^h Fluctuations throughout in H.F.

10^d $14\frac{1}{2}^h$ to $15\frac{1}{2}^h$ Wave in H.F. (− ·0014), followed till 19^h by a long double wave (− ·0016 to + ·0018): in Dec. small. 22^h to 23^h Wave in H.F. (+ ·0010): decrease of Dec. (− 3′).

11^d 1^h to 4^h Wave in Dec. (+ 6′). 15^h to 17^h Wave in H.F. (− ·0010), and 18^h to 19^h (− ·0010). 11^d 13^h to 12^d 11^h Loss of V.F. register.

14^d 0^h to 1^h Small double wave in Dec., and small wave in H.F. $1\frac{1}{2}^h$ to 3^h Wave in Dec. (+ 4′): in H.F. (+ ·0008).

15^d 3^h to 7^h Long wave in H.F. (+ ·0014). $12\frac{1}{2}^h$ to 14^h Double-crested wave in H.F. (− ·0026), followed till 16^h by a wave (− ·0016) : in Dec. small.

19^d $0\frac{1}{2}^h$ to 2^h Small wave in H.F. (+ ·0010). $2\frac{3}{4}^h$ to 3^h Sharp wave in H.F. (+ ·0010) : in Dec. (+ 3′) : in V.F. small. 6^h to 8^h Small fluctuations in Dec. and H.F. 20^h to 21^h Wave in Dec. (− 3′).

22^d 16^h to 23^h Small fluctuations in H.F. and V.F fluctuations in Dec. from 20^h to 23^h.

23^d 0^h to 4^h Fluctuations in H.F. (± ·0008). $0\frac{1}{2}^h$ to 2^h Small fluctuations in Dec., followed by a wave 2^h to $2\frac{1}{2}^h$ (− 3′). $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in H.F. (− ·0010). 23^d 23^h to 24^d 2^h Long wave in Dec. (− 4′).

24^d 14^h to 21^h Fluctuations in H.F. 19^h to 21^h Wave in Dec. (− 4′) : in H.F. small.

25^d 0^h to 2^h Wave in H.F. (+ ·0010). $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Small wave in H.F. (+ ·0010). 17^h to 18^h Two successive small waves in H.F. (+ ·0014) and (+ ·0015), followed by small fluctuations till 19^h. $20\frac{1}{2}^h$ to 23^h Irregular wave in Dec. (− 10′): double wave in H.F. (+ ·0010 to − ·0010) : small fluctuations in V.F.

26^d 0^h to 1^h Decrease of V.F. (− ·0004). 0^h to 3^h Double wave in Dec. (+ 6′ to − 5′), followed till 4^h by a wave (+ 4′). 0^h to 4^h Double wave in H.F. (+ ·0022 to − ·0020). 4^h to 16^h Fluctuations in Dec., H.F., and V.F., with wave $12\frac{1}{2}^h$ to $13\frac{1}{2}^h$ in Dec. (− 3′). 16^h to 17^h Wave in H.F. (+ ·0012). $17\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Two successive waves in H.F. (+ ·0027) and (+ ·0014), the former very sharp. $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Small wave in Dec.: in H.F. (+ ·0010), followed by fluctuations till 24^h. $20\frac{1}{2}^h$ to 21^h Wave in Dec. (+ 3′). $21\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Two successive waves in Dec. (+ 7′) and (+ 4′).

27^d 0^h to $1\frac{1}{2}^h$ Wave in Dec. (+ 5′): in H.F. (+ ·0014). 5^h to 7^h Wave in Dec. (+ 3′): in HF. (− 0014). 9^h to 11^h Wave in H.F. (− ·0016). $14\frac{1}{2}^h$ to $15\frac{1}{2}^h$ Sharp wave in H.F. (− 0020): in Dec. small, followed by fluctuations in H.F. till 18^h.

28^d 12^h to 18^h Loss of Dec., H.F., and V.F. registers.

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June 29^d $1\frac{1}{2}^h$ to 3^h Wave in Dec. (+ 3′). 6^h to 18^h Fluctuations in H.F. 19^h to 21^h Wave in Dec. (− 4′): in H.F. (+ ·0010), followed by fluctuations in H.F. till 23^h. 29^d 23^h to 30^d 2^h Wave in Dec. (− 6′).

30^d 0^h to 7^h Three successive waves in H.F. (− ·0018), (− ·0018), and (− ·0016). 2^h to $3\frac{1}{2}^h$ Wave in Dec. (− 6′). 12^h to 21^h Small fluctuations in H.F.

July 1^d 4^h to 5^h Wave in Dec. (+ 3′): in H.F. small. 17^h to 21^h Two successive shallow waves in H.F. (+ ·0010) and (+ ·0010). $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Small wave in Dec. (− 2′).

3^d 6^h to 9^h Fluctuations in Dec. $7\frac{1}{2}^h$ to $8\frac{1}{2}^h$ Small wave in H.F. (+ ·0010). 13^h to 20^h Small fluctuations in H.F.

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

5^d 13^h to 17^h Small fluctuations in H.F. 17^h to 19^h Wave in H.F. (+ ·0016). 5^d $23\frac{1}{2}^h$ to 6^d $0\frac{1}{2}^h$ Wave in Dec. (− 3′) : in H.F. small.

6^d 2^h to 8^h Small fluctuations in Dec. and H.F. $14\frac{1}{2}^h$ to $15\frac{1}{2}^h$ Wave in H.F. (+ ·0010). 16^h to 17^h Wave in H.F. (+ ·0014). $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Wave in H.F. (+ ·0010). 22^h to 23^h Wave in Dec. (− 6′), followed by a smaller wave till 24^h (− 3′).

7^d 3^h to 5^h Wave in H.F. (+ ·0012) : double wave in Dec. (+ 3′ to − 3′). $3\frac{1}{2}^h$ to 6^h Wave in V.F. (− ·0003). 14^h to 15^h Wave in H.F. (+ ·0014), followed by fluctuations till 19^h. $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Wave in Dec. (− 4′) : in H.F. small.

8^d 14^h to 17^h Loss of Dec., H.F., and V.F. registers. 17^h to 19^h Double wave in H.F. (+ ·0010 to − ·0008).

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

10^d 15^h to $16\frac{1}{2}^h$ Small double-crested wave in H.F. (− ·0008). 21^h to 22^h Wave in Dec. (− 2′).

11^d 19^h to 23^h Small fluctuations in H.F.

12^d 12^h to 19^h Small fluctuations in H.F. and V.F. 19^h to 20^h Wave in H.F. (+ ·0010). $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in Dec. (+ 2′) : in H.F. small.

13^d $5\frac{1}{2}^h$ to $6\frac{1}{2}^h$ Wave in Dec. (− 3′). 14^h to 16^h Double wave in H.F. (+ ·0012 to − ·0012), followed till $17\frac{1}{4}^h$ by a double-crested wave (− ·0014) : in Dec. small. $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Wave in Dec. (− 3′): in H.F. (− ·0010).

19^d 20^h to 22^h Double wave in Dec. (− 5′ to + 3′) : two small waves in H.F. (+ ·0010) and (+ ·0010).

20^d $3\frac{1}{2}^h$ to 7^h Serrated wave in Dec. (+ 13′) : double wave in H.F. (− ·0020 to + ·0018). 4^h to 6^h Decrease of V.F. (− ·0008). 13^h to 20^h Occasional fluctuations in H.F. $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Small wave in Dec. (− 3′). $19\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Sharp wave in H.F. (+ ·0010). 20^h to $20\frac{1}{2}^h$ Decrease of Dec. (− 4′).

21^d 0^h to $1\frac{1}{2}^h$ Double wave in Dec. (+ 2′ to − 3′) : in H.F. small. 2^h to $4\frac{1}{2}^h$ Shallow wave in Dec. (+ 3′). 6^h to 9^h Wave in H.F. (− ·0020). $6\frac{1}{2}^h$ to $8\frac{1}{2}^h$ Wave in Dec. (+ 4′). 14^h to $15\frac{1}{4}^h$ Wave in H.F. (+ ·0010). 17^h to 18^h Wave in H.F. (+ ·0010). 19^h to 21^h Wave in Dec. (− 4′). $19\frac{1}{2}^h$ to 20^h Decrease of H.F. (− ·0013). 22^h to $22\frac{1}{2}^h$ Sharp wave in Dec. (− 6′), followed till $23\frac{1}{2}^h$ by a smaller wave (− 4′). 22^h to $23\frac{1}{2}^h$ Double wave in H.F. (− ·0012 to + ·0010). 22^h to $22\frac{1}{2}^h$ Wave in V.F. (− ·0003).

22^d 5^h to 6^h Wave in Dec. (+ 4′) : in H.F. (− ·0016). 7^h to 10^h Small fluctuations in Dec., H.F., and V.F. $11\frac{1}{2}^h$ to 13^h Wave in H.F. (− ·0022). 14^h to 15^h Wave in H.F. (− ·0015), followed by fluctuations till 16^h. 16^h to 18^h Two successive waves in H.F. (+ ·0014) and (+ ·0012), followed till 20^h by a double wave (+ ·0010 to − ·0012). 13^h to 19^h Small fluctuations in Dec. and V.F. 19^h to $21\frac{1}{2}^h$ Wave in Dec. (− 12′), followed till $23\frac{1}{2}^h$ by a double-crested wave (− 5′). 21^h to $23\frac{1}{2}^h$ Double wave in H.F. (− ·0010 to + ·0020). 21^h to 23^h Decrease of V.F. (− ·0005).

23^d $1\frac{1}{2}^h$ to 3^h Small double wave in Dec. (+ 3′ to − 2′). 5^h to 9^h Small fluctuations in Dec. $14\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Two successive double waves in H.F. (+ ·0010 to − ·0007) and (− ·0013 to + ·0009) : in Dec. and V.F. small. 18^h to 19^h Shallow wave in Dec. (+ 3′) : in H.F. (+ ·0012). 19^h to $21\frac{1}{2}^h$ Two successive waves in H.F. (+ ·0020) and (+ ·0012) : in Dec. small. 23^d $22\frac{1}{2}^h$ to 24^d $0\frac{1}{4}^h$ Double wave in Dec. (− 5′ to + 7′) : in H.F. (+ ·0007 to − ·0016) : small double wave in V.F.

24^d 14^h to $15\frac{1}{2}^h$ Wave in H.F. (+ ·0010). 17^h to 19^h Wave in Dec. (− 4′) : in H.F. (+ ·0010). $21\frac{1}{4}^h$ to $22\frac{1}{4}^h$ Small wave in Dec. (− 3′) : in H.F. (+ ·0010).

25^d 8^h to 9^h Decrease of H.F. (− ·0016). $12\frac{1}{2}^h$ to $13\frac{1}{2}^h$ Wave in Dec. (+ 4′). $12\frac{1}{2}^h$ to $14\frac{1}{2}^h$ Double wave in H.F. (+ ·0014 to − ·0012). $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in Dec. (− 3′) : in V.F. (− ·0003). $15\frac{1}{2}^h$ to 18^h Double wave in H.F. (+ ·0020 to − ·0014). 22^h to $23\frac{1}{2}^h$ Wave in H.F. (− ·0010).

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July 26d $0\frac{1}{2}^h$ to 3^h Two successive waves in Dec. (+ 6′) and (+ 3′): in H.F. and V.F. small. 5^h to $7\frac{1}{2}^h$ Wave in H.F. (− ·0020). 19^h to 21^h Shallow wave in Dec. (− 3′).

27d $11\frac{1}{2}^h$ to $12\frac{1}{2}^h$ Wave in H.F. (+ ·0014): in Dec. small. $13\frac{1}{2}^h$ to 15^h Two successive waves in Dec. (+ 3′) and (+ 2′): in H.F. (+ ·0020) and (+ ·0014): in V.F. small. 16^h to 17^h Decrease of Dec. (− 6′). 16^h to $17\frac{1}{2}^h$ Double wave in H.F. (− ·0010 to + ·0020), followed by small fluctuations till 19^h. 16^h to 20^h Long wave in V.F. (+ ·0005). $18\frac{1}{2}^h$ to 19^h Decrease of Dec. (− 5′): register lost afterwards, owing to suspension skein giving way. 19^h to 20^h Double-crested wave in H.F. (+ ·0020), followed by a decrease till $20\frac{1}{2}^h$ (− ·0011). 22^h to 24^h Double wave in H.F. (− ·0012 to + ·0010).

27d 19^h to 29d 14^h Loss of Dec. register.

28d 21^h to $22\frac{1}{2}^h$ Wave in H.F. (+ ·0010).

30d 18^h to 19^h Wave in H.F. (− ·0014). 21^h to $21\frac{1}{2}^h$ Sharp wave in H.F. (− ·0010).

31d 14^h to $14\frac{1}{2}^h$ Decrease of H F. (− ·0010). 21^h to 22^h Small wave in Dec.

August 1d 1^h to 2^h Wave in Dec. (+ 3′): in H.F. small.

2d 4^h to $5\frac{1}{2}^h$ Wave in Dec. (− 3′), followed by small fluctuations in Dec. and H.F. till 11^h. 23^h to 24^h Wave in H.F. (+ ·0010): decrease of Dec. (− 4′).

3d 2^h to 3^h Decrease of V.F. (− ·0003). 2^h to 4^h Double wave in Dec. (+ 5′ to − 7′): shallow wave in H.F. (+ ·0008). 15^h to 16^h Wave in Dec. (− 3′), followed by a decrease till 17^h (− 4′). 15^h to $17\frac{1}{2}^h$ Three successive waves in H.F. (− ·0012), (− ·0010), and (− ·0016). $18\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Wave in Dec. (− 9′): double wave in H.F. (− ·0022 to + ·0016). 19^h to 20^h Wave in V.F. (+ ·0003). $22\frac{1}{4}^h$ to $22\frac{3}{4}^h$ Sharp wave in Dec. (− 5′): in H.F. small.

4d 0^h to 1^h Wave in Dec. (+ 3′). $0\frac{1}{2}^h$ to 2^h Wave in H.F. (+ ·0014). 4^h to 7^h Long wave in Dec. (+ 6′): two successive waves in H.F. (+ ·0010) and (+ ·0010).

5d $12\frac{1}{2}^h$ to $13\frac{1}{2}^h$ Wave in H.F. (− ·0012): in Dec. small, followed by small fluctuations in H.F. till 22^h: and in Dec. from 19^h to 22^h.

6d $17\frac{1}{2}^h$ to 19^h Wave in Dec. (− 4′). $17\frac{1}{2}^h$ to 20^h Two successive waves in H.F. (+ ·0012) and (+ ·0016).

7d 0^h to 6^h Occasional fluctuations in Dec. and H.F.

8d $16\frac{1}{2}^h$ to 17^h Small wave in H.F. (+ ·0010).

9d 16^h to 17^h Wave in H.F. (− ·0010), followed by small fluctuations till 20^h. $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 3′): in H.F. small.

10d $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in H.F. (− ·0010).

11d 3^h to 5^h Wave in Dec. (+ 3′): in H.F. small. 21^h to $23\frac{1}{2}^h$ Occasional small fluctuations in Dec.

12d 21^h to 23^h Wave in Dec. (− 4′).

13d 2^h to 3^h Wave in Dec. (+ 3′): in H.F. small. 4^h to 6^h Wave in Dec. (+ 3′): in H.F. (+ ·0010).

13d 19^h to 14d 11^h Loss of Dec. register.

15d $13\frac{1}{2}^h$ to 15^h Wave in H.F. (− ·0014): small decrease of Dec.

16d 5^h to 8^h Small fluctuations in Dec. and H.F. 11^h to $11\frac{1}{2}^h$ Sharp wave in H.F. (− ·0010).

16d 12^h to 17d 12^h. See Plate V.

17d 17^h to 18^h Wave in H.F. (− ·0010), followed till $19\frac{1}{2}^h$ by a double wave (− ·0010 to + ·0026). $18\frac{1}{2}^h$ to 20^h Two small waves in Dec. (+ 3′) and (+ 3′). 19^h to $19\frac{1}{2}^h$ Small wave in V.F. 22^h to 23^h Increase of Dec. (+ 5′).

18d $3\frac{1}{2}^h$ to $4\frac{1}{2}^h$ Wave in Dec. (− 3′). 6^h to 9^h Prolonged wave in H.F. (− ·0010). $9\frac{1}{2}^h$ to 11^h Two successive waves in H.F. (− ·0020) and (− ·0014). $14\frac{1}{2}^h$ to 17^h Two successive waves in H.F. (− ·0012) and (− ·0020), followed till $17\frac{1}{2}^h$ by a smaller wave (− ·0008). 16^h to $17\frac{1}{2}^h$ Two successive waves in Dec. (− 3′) and (− 3′). 21^h to 23^h Double wave in Dec. (+ 3′ to − 3′): two successive waves in H.F. (+ ·0018) and (+ ·0015). 18d 23^h to 19d 2^h Double wave in Dec. (− 4′ to + 3′): double wave in H.F. (− ·0013 to + ·0010).

19d 1^h to 2^h Wave in V.F. (− ·0003). 15^h to 16^h Wave in H.F. (+ ·0010). 19d 23^h to 20d 2^h Double wave in Dec. (+ 7′ to − 3′).

20d 0^h to 2^h Wave in H.F. (+ ·0018). 0^h to 4^h Shallow wave in V.F. (− ·0005). 6^h to 9^h Small fluctuations in Dec., H.F., and V.F. 8^h to 10^h Wave in H.F. (− ·0020). 15^h to 23^h Fluctuations in H.F.

21d 6^h to 10^h Two successive waves in H.F. (− ·0014) and (− ·0014): small fluctuations in Dec. $20\frac{1}{2}^h$ to 21^h Decrease of Dec. (− 4′). 21^h to $22\frac{1}{2}^h$ Wave in H.F. (+ ·0010). 21d 23^h to 22d $0\frac{1}{2}^h$ Wave in Dec. (− 3′).

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August 22^d 0^h to 1^h Wave in H.F. (+ ·0010). 4^h to 5^h Wave in Dec. (+ 3′) : in H.F. (+ ·0010). 14½^h to 18^h Three successive waves in H.F. (+ ·0016), (+ ·0015), and (+ ·0030). 16½^h to 17½^h Wave in Dec. (− 7′) : wave in V.F. (+ ·0003). 20½^h to 22^h Two successive waves in Dec. (− 5′) and (− 3′) : wave in H.F. (+ ·0020). 22^d 23^h to 23^d 0½^h Wave in H.F. (+ ·0014) : in Dec. (+ 4′) : in V.F. (− ·0004).

23^d 18½^h to 19^h Wave in H.F. (− ·0010), followed by a double wave till 21^h (− ·0008 to + ·0008). 18¾^h to 19^h Decrease of Dec. (− 3′), followed till 21^h by a wave (− 3′). 22^h to 24^h Double wave in Dec. (− 2′ to + 3′) : wave in H.F. (+ ·0010). 23^h to 24^h Decrease of V.F. (− ·0003).

24^d 3^h to 7^h Shallow wave in Dec. (+ 3′).

26^d 16^h to 18^h Wave in H.F. (+ ·0013), followed till 19½^h by a double wave (+ ·0010 to − ·0007), and by fluctuations till 22^h. 18^h to 19^h Wave in Dec. (− 3′). 22½^h Decrease of Dec. (− 5′). 22¾^h to 24^h Wave in Dec. (− 5′) : in H.F. (+ ·0020).

27^d 0^h to 2^h Wave in H.F. (− ·0010). 1½^h to 4^h Double wave in Dec. (− 3′ to + 10′) : wave in V.F. (+ ·0003). 2^h to 5^h Double wave in H.F. (− ·0015 to + ·0010). 14^h to 23^h Occasional fluctuations in H.F. 19^h to 23^h Small fluctuations in Dec.

28^d 1^h to 2^h Double wave in Dec. (+ 3′ to − 3′). 1^h to 3^h Wave in H.F. (+ ·0012) : decrease of V.F. (− ·0004). 6^h to 9^h Wave in Dec. (+ 10′) : in H.F. (− ·0040) : in V.F. small. 11^h to 12½^h Wave in H.F. (− ·0010), followed by small fluctuations till 20^h.

29^d 17½^h to 19^h Wave in H.F. (+ ·0008). 19^h to 21^h Loss of Dec. and H.F. registers.

31^d 13^h to 23^h Small fluctuations in H.F.

September 1^d 7^h to 11^h Small fluctuations in Dec. and H.F. 17^h to 19^h Wave in Dec. (− 3′). 1^d 22^h to 2^d 2^h Wave in Dec. (− 7′) : small fluctuations in H.F.

2^d 12^h to 3^d 12^h. See Plate V.

3^d 12^h to 13½^h Wave in Dec. (− 3′) : double wave in H.F. (− ·0014 to + ·0016). 13½^h to 15½^h Two successive waves in H.F. (− ·0014) and (− ·0024), followed by small fluctuations till 21^h. 21^h to 23^h Fluctuations in Dec (± 2′). 21½^h to 23^h Wave in H.F. (+ ·0020).

4^d 18^h to 19^h Wave in Dec. (− 3′) : in H.F. small.

5^d 0^h to 2^h Irregular double wave in Dec. (− 3′ to + 3′) : in H.F. small. 19½^h to 21^h Two successive waves in Dec. (− 3′) and (− 6′). 20½^h to 22^h Wave in H.F. (+ ·0022) : in V.F. small.

8^d 16^h to 20^h Double wave in H.F. (+ ·0016 to − ·0016). 20^h to 24^h Two successive waves in Dec. (− 7′) and (− 6′): in H.F. small.

9^d 12^h to 10^d 12^h. See Plate VI.

10^d 12^h to 11^d 12^h. See Plate VII.

12^d 18^h to 22^h Small fluctuations in Dec. and H.F.

13^d 22^h to 23½^h Wave in H.F. (+ ·0014): in Dec. small.

14^d 15^h to 18^h Fluctuations in H.F., followed by a wave 18½^h to 19½^h (− ·0010). 19^h to 20^h Wave in Dec. (+ 3′).

15^d 6^h to 7^h Wave in H.F. (− ·0010): in Dec. small. 19^h to 20^h Wave in H.F. (− ·0010): in Dec. small.

16^d 19^h to 20^h Wave in H.F. (− ·0010). 19^h to 21^h Wave in Dec. (− 5′).

17^d 1^h to 3^h Double wave in Dec. (− 3′ to + 6′): two successive waves in H.F. (+ ·0010) and (+ ·0008): decrease of V.F. (− ·0005). 16^h to 18½^h Wave in H.F. (− ·0015). 19^h to 19½^h Wave in H.F. (− ·0014). 19^h to 20^h Sharp wave in Dec. (− 13′). 19½^h to 20½^h Wave in V.F. (+ ·0004). 20^h to 21^h Wave in H.F. (+ ·0016). 21½^h to 23½^h Wave in Dec. (+ 7′). 22^h to 24^h Wave in H.F. (+ ·0024): in V.F. (− ·0003).

18^d 0½^h to 1½^h Wave in H.F. (− ·0010). 0½^h to 2½^h Wave in Dec. (+ 7′).

19^d 21^h to 20^d 9^h Loss of Dec. and H.F. registers.

20^d 10^h to 11^h Small Wave in H.F. (− ·0010). 20^h to 21^h Wave in Dec. (− 4′): in H.F. (− ·0010).

21^d 0^h to 2^h Shallow wave in Dec. (+ 3′): in H.F. (+ ·0007).

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

23^d 0^h to 2^h Wave in Dec. (+ 6′): in H.F. (+ ·0012): decrease of V.F. (− ·0004). 18½^h to 20^h Wave in Dec. (− 7′): double wave in H.F. (− ·0007 to + ·0010).

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September 24d 17½h to 19½h Double-crested wave in Dec. (− 9′): two small waves in H.F. (− ·0010) and (− ·0010).
21h to 23h Double wave in Dec. (− 6′ to + 8′): wave in H.F. (+ ·0010): decrease of V.F. (− ·0004).

25d 2h to 4h Wave in Dec. (+ 7′). 17h to 19h Wave in Dec. (− 12′): in H.F. (− ·0012).

27d 3h to 4½h Wave in Dec. (+ 3′).

28d 0½h to 3½h Two successive waves in Dec. (+ 3′) and (+ 4′): in H.F. small. 12h to 19h Small fluctuations in Dec. and H.F., with two successive waves 16h to 18h and 18h to 19h in Dec. (− 3′) and (− 4′), followed by fluctuations till 21h. 19h to 20h Wave in H.F. (− ·0010). 21h to 22h Wave in Dec. (− 4′): in H.F. (− ·0010).

29d 0h to 2½h Double wave in H.F. (− ·0016 to + ·0019): two successive waves in Dec. (+ 6′) and (+ 7′), and two successive waves in V.F. (− ·0003) and (− ·0004). 3h to 7h Small fluctuations in Dec. and H.F. 8h to 10½h Wave in H.F. (− ·0026). 14¾h to 16½h Wave in Dec. (− 9′): in H.F. (− ·0038). 15½h to 17h Wave in V.F. (+ ·0007). 16h to 20h Fluctuations in Dec. and H.F.

30d 0h to 2h Double wave in Dec. (+ 4′ to − 4′). 1h to 3h Wave in H.F. (+ ·0017). 2h to 6h Double wave in Dec. (− 4′ to + 4′). 18h to 24h Small fluctuations in Dec. and H.F.

October 1d 0h to 2h Double wave in Dec. (+ 3′ to − 3′): wave in H.F. (+ ·0022): wave in V.F. (− ·0003). 4h to 5h Increase of Dec. (+ 4′): wave in H.F. (+ ·0008). 8h to 9h Wave in H.F. (+ ·0020), with small double wave in Dec. 22h to 23h Wave in H.F. (+ ·0010): in Dec. small.

2d 18½h to 19h Sharp wave in Dec. (− 5′). 18½h to 20h Wave in H.F. (+ ·0024).

3d 19h to 20h Wave in Dec. (− 3′): in H.F. small.

7d 11h to 15h Fluctuations in Dec. and H.F. 15h to 17h Wave in H.F. (− ·0012). 20h to 22h Double wave in Dec. (+ 3′ to − 3′): in H.F. (+ ·0008 to − ·0008).

13d 19h to 14d 2h Fluctuations in Dec. and H.F.

14d 22½h to 24h Wave in Dec. (− 8′): in H.F. small.

15d 0h to 1h Wave in H.F. (+ ·0010). 1h to 2h Wave in Dec. (− 3′). 19h to 21h Wave in Dec. (− 12′): in H.F. (− ·0016).

17d 0½h to 2h Wave in H.F. (+ ·0010): small double wave in Dec.

19d 19½h to 21h Wave in H.F. (− ·0014), followed by a small double wave till 22h. 20h to 20½h Wave in Dec. (− 5′), followed till 22½h by a double wave (− 6′ to + 3′): two successive waves in V.F. (+ ·0003) and (+ ·0003).

20d 18h to 20h Wave in Dec. (− 3′): in H.F. (− ·0020). 22½h to 23½h Double wave in Dec. (− 2′ to + 3′): wave in H.F. (− ·0017): decrease of V.F. (− ·0003).

21d 21h to 22h Wave in Dec. (− 4′): in H.F. (+ ·0027).

22d 0½h to 2½h Wave in Dec. (+ 9′): in H.F. small. 1h to 1½h Decrease of V.F. (− ·0004). 5h to 7h Wave in Dec. (+ 4′): in H.F. (+ ·0014). 8½h to 9½h Wave in H.F. (− ·0017). 15h to 17h Wave in Dec. (− 12′). 17½h to 18h Decrease of Dec. (− 5′), followed till 19h by a sharp wave (− 9′). 18h to 19½h Wave in H.F. (+ ·0030). 19½h to 20½h Wave in Dec. (− 3′).

23d 19h to 20h Wave in Dec. (− 4′).

24d 1½h to 2½h Wave in Dec. (+ 3′). 20h to 23h Double-crested wave in Dec. (− 4′): small fluctuations in H.F.

25d 2h to 4h Double wave in Dec. (− 2′ to + 3′). 3h to 5h Double wave in H.F. (+ ·0070 to − ·0070). 8½h to 10½h Wave in H.F. (− ·0015).

25d 12h to 26d 12h. See Plate VII.

26d 15h to 16h Wave in Dec. (− 3′): in H.F. (− ·0010). 21h to 22h Wave in Dec. (− 3′): in H.F. small.

27d 1½h to 3h Wave in Dec. (+ 4′), sharp at commencement. 17½h to 19h Sharp wave in Dec. (− 13′): double wave in H.F. (− ·0015 to + ·0010). 27d 23½h to 28d 1½h Wave in Dec. (+ 3′): in H.F. (+ ·0013).

28d 3½h to 5h Wave in Dec. (+ 3′). 13h to 14½h Wave in Dec. (+ 3′): in H.F. (− ·0014). 16h to 20h Fluctuations in Dec. and H.F. 20h to 21h Wave in Dec. (− 8′). 21h to 21½h Wave in H.F. (− ·0016). 22½h to 24h Two successive waves in Dec. (− 4′) and (− 20′): two successive waves in H.F. (+ ·0018) and (+ ·0050): decrease of V.F. (− ·0008), followed by a double wave (+ ·0003 to − ·0003).

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October 29^d 0^h to 9^h Fluctuations in Dec., H.F., and V.F., with waves in H.F. $0\frac{1}{2}^h$ to $1\frac{1}{2}^h$ (+ ·0018), and $3\frac{1}{2}^h$ to $4\frac{1}{2}^h$ (+ ·0014). 9^h to $10\frac{1}{2}^h$ Wave in Dec. (+ 3′) : in H.F. (− ·0018). 13^h to 16^h Fluctuations in Dec. and H.F. $16\frac{1}{2}^h$ to 18^h Wave in H.F. (− ·0044), followed immediately by a sharp decrease (− ·0040) : two successive waves in Dec. (− 18′) and (− 6′) : wave in V.F. (+ ·0004). 19^h to 21^h Fluctuations in Dec. (± 3′) : in H.F. (± ·0010). $20\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Two successive waves in H.F. (− ·0014) and (− ·0020). $21\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Double-crested wave in Dec. (− 7′). 29^d $23\frac{1}{2}^h$ to 30^d 1^h Wave in Dec. (− 5′) : small fluctuations in V.F.

30^d 14^h to 18^h Small fluctuations in H.F. $16\frac{1}{2}^h$ to $17\frac{1}{2}^h$ Wave in Dec. (− 4′). 19^h to 20^h Wave in Dec. (− 17′) : in H.F. (− ·0034) : in V.F. (+ ·0003). 20^h to 24^h Long wave in Dec. (− 10′), with superposed fluctuations. 20^h to 23^h Fluctuations in H.F. (± ·0010).

31^d 0^h to 1^h Wave in H.F. (+ ·0016). 0^h to 2^h Double wave in Dec. (+ 8′ to − 3′) : wave in V.F. (− ·0005). 31^d $22\frac{1}{2}^h$ to Nov. 1^d 1^h Shallow wave in H.F. (+ ·0010).

November 2^d 21^h to 22^h Wave in Dec. (− 4′). $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (− ·0010).

3^d $0\frac{1}{2}^h$ to 2^h Wave in Dec. (− 4′). 2^h to 3^h Wave in H.F. (+ ·0016) : in V.F. (− ·0003), followed by fluctuations in Dec. and H.F. till 5^h. 8^h to $9\frac{1}{2}^h$ Wave in Dec. (− 4′). 20^h to $23\frac{1}{2}^h$ Wave in Dec. (− 6′).

4^d 0^h to 4^h Double wave in Dec. (+ 5′ to − 5′). $0\frac{1}{2}^h$ to 3^h Wave in V.F. (− ·0005). $21\frac{1}{2}^h$ to $22\frac{1}{2}^h$ Small double waves in Dec. and H.F.

6^d 22^h to 23^h Wave in Dec. (− 3′).

7^d 0^h to 1^h Wave in H.F. (+ ·0011). 0^h to $1\frac{1}{2}^h$ Wave in Dec. (− 3′) : decrease of V.F. (− ·0003). 17^h to 18^h Wave in Dec. (− 5′) : in H.F. (− ·0016) : in V.F. small.

8^d $11\frac{1}{2}^h$ to $12\frac{1}{2}^h$ Wave in Dec. (+ 4′). $17\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 3′) : small fluctuations in H.F.

9^d $2\frac{1}{2}^h$ to 4^h Wave in H.F. (+ ·0010). $3\frac{1}{2}^h$ to $4\frac{1}{2}^h$ Wave in Dec. (− 3′). 12^h to 17^h Small fluctuations in Dec. and H.F. 9^d 23^h to 10^d 1^h Double wave in Dec. (+ 4′ to − 3′).

11^d $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in Dec. (− 3′).

12^d 2^h to 6^h Two successive shallow waves in Dec. (+ 3′) and (+ 3′) : in H.F. (+ ·0008) and (+ ·0010). $21\frac{1}{2}^h$ to $22\frac{1}{4}^h$ Wave in Dec. (− 3′) : in H.F. (− ·0010).

15^d 22^h to $23\frac{1}{4}^h$ Wave in Dec. (− 4′) : in H.F. small.

16^d 4^h to 9^h Small fluctuations in Dec. and H.F. $20\frac{1}{2}^h$ to 21^h Decrease of Dec. (− 3′). $22\frac{1}{2}^h$ to 24^h Wave in Dec. (− 4′).

17^d 0^h to 4^h Small fluctuations in Dec. and H.F. 6^h to 8^h Wave in Dec. (+ 3′). $6\frac{1}{2}^h$ to 9^h Wave in H.F. (+ ·0015). 14^h to 17^h Small fluctuations in Dec. and H.F. 17^h to $18\frac{1}{2}^h$ Wave in H.F. (+ ·0010). $18\frac{1}{2}^h$ to 21^h Two successive waves in Dec. (− 4′) and (− 7′) : wave in H.F. (+ ·0014), with superposed fluctuations. $19\frac{1}{2}^h$ to 20^h Decrease of V.F. (− ·0003).

18^d $1\frac{1}{2}^h$ to 3^h Wave in Dec. (− 3′). 8^h to 9^h Decrease of H.F. (− ·0020). 9^h to 11^h Wave in Dec. (+ 4′). 16^h to $16\frac{1}{2}^h$ Wave in Dec. (+ 3′) : in H.F. small. 20^h to $21\frac{1}{2}^h$ Wave in Dec. (+ 3′) : in H.F. small. 22^h to 23^h Wave in Dec. (+ 3′) : in H.F. (+ ·0010).

19^d 19^h to 20^h Wave in Dec. (− 5′).

20^d 1^h to 2^h Wave in Dec. (+ 4′) : in H.F. (+ ·0012). $1\frac{1}{2}^h$ to 2^h Decrease of V.F. (− ·0003). $18\frac{1}{2}^h$ to 21^h Double wave in H.F. (− ·0018 to + ·0020). $18\frac{1}{2}^h$ to 19^h Decrease of Dec. (− 8′). 19^h to 20^h Wave in V.F. (+ ·0003). $19\frac{1}{2}^h$ to 21^h Two successive waves in Dec. (− 5′) and (− 4′). 22^h to 24^h Wave in Dec. (− 3′). $22\frac{1}{2}^h$ to 24^h Wave in H.F. (+ ·0023). 23^h to 24^h Decrease of V.F. (− ·0003).

21^d $2\frac{1}{2}^h$ to 4^h Wave in Dec. (+ 3′), followed by fluctuations in Dec. (± 2′) : in H.F. (± ·0008).

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

22^d 12^h to 14^h Fluctuations in Dec. and H.F. 14^h to $14\frac{1}{2}^h$ Wave in Dec. (+ 5′), followed by a double wave (+ 6′ to − 15′). 14^h to $15\frac{1}{2}^h$ Three successive waves in H.F. (− ·0018), (− ·0027), and (− ·0012). $14\frac{1}{2}^h$ to 16^h Wave in V.F. (+ ·0006). 16^h to $17\frac{1}{2}^h$ Wave in H.F. (− ·0025) : small fluctuations in Dec. 17^h to 18^h Wave in Dec. (+ 4′). 17^h to 22^h Fluctuations in V.F. $18\frac{1}{2}^h$ to $20\frac{1}{2}^h$ Three successive waves in H.F. (+ ·0028), (+ ·0012), and (+ ·0026). $18\frac{1}{2}^h$ to 21^h Two successive double waves in Dec. (− 6′ to + 3′) and (− 5′ to + 4′), followed by fluctuations in Dec. and H.F. till 23^h.

23^d 0^h to $1\frac{1}{2}^h$ Two successive waves in Dec. (+ 5′) and (+ 4′) : double wave in H.F. (+ ·0010 to − ·0007). $2\frac{1}{2}^h$ to 4^h Wave in H.F. (− ·0010).

1898.

November 24^d 20^h to $21\frac{1}{2}^h$ Wave in Dec. (− 7′): in H.F. (+ ·0013).

25^d 19^h to 20^h Wave in Dec. (− 3′): in H.F. (+ ·0012).

26^d 14^h to $15\frac{1}{2}^h$ Wave in H.F. (− ·0016): in V.F. (+ ·0003). 14^h to 16^h Double wave in Dec. (− 4′ to + 2′), followed by small fluctuations in Dec. and H.F. till $21\frac{1}{2}^h$.

27^d 14^h to 21^h Small fluctuations in Dec. and H.F.

28^d 3^h to 4^h Small waves in Dec. and H.F. 17^h to 18^h Wave in H.F. (− ·0008): in Dec. small.

December 1^d 19^h to 21^h Wave in Dec. (− 5′).

2^d $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Wave in Dec. (− 5′): in H.F. (+ ·0018).

3^d $18\frac{1}{2}^h$ to 20^h Wave in Dec. (− 5′): in H.F. (+ ·0015).

5^d 17^h to $23\frac{1}{2}^h$ Rapid fluctuations in H.F. (± ·0010), and small fluctuations in Dec. and V.F. $20\frac{1}{2}^h$ to $21\frac{1}{2}^h$ Double wave in H.F. (− ·0015 to + ·0016): wave in Dec. (− 19′), and double wave in V.F. (− ·0003 to + ·0003).

6^d 13^h to 22^h Small fluctuations in H.F. and Dec.

7^d $8\frac{1}{2}^h$ to 11^h Wave in H.F. (− ·0016). $15\frac{1}{2}^h$ to $16\frac{1}{2}^h$ Wave in H.F. (− ·0016). 16^h to 17^h Wave in Dec. (− 6′).

8^d 22^h to 23^h Wave in Dec. (+ 3′): in H.F. (+ ·0020): in V.F. small.

9^d $5\frac{1}{2}^h$ to 7^h Wave in Dec. (+ 3′). 21^h to 24^h Small fluctuations in Dec. and H.F.

13^d 23^h to 24^h Wave in Dec. (− 3′): in H.F. (+ ·0007).

14^d $2\frac{1}{2}^h$ to $4\frac{1}{2}^h$ Wave in Dec. (− 5′). 5^h to $8\frac{1}{2}^h$ Two successive waves in H.F. (− ·0018) and (− ·0014). 6^h to 8^h Wave in Dec. (+ 7′). 17^h to 20^h Irregular wave in Dec. (− 12′). 12^h to 20^h Fluctuations in H.F.

15^d 14^h to 15^h Wave in H.F. (− ·0010). $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Wave in H.F. (− ·0020). 18^h to 20^h Wave in Dec. (− 17′). $20\frac{1}{2}^h$ to 22^h Wave in Dec. (− 10′): in H.F. (+ ·0030).

16^d 16^h to 17^h Wave in Dec. (+ 3′). 17^h to $18\frac{1}{2}^h$ Wave in H.F. (+ ·0012). $18\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 10′). 19^h to 20^h Wave in H.F. (+ ·0020): in V.F. small. 22^h to 24^h Wave in Dec. (− 15′). $22\frac{1}{2}^h$ to $23\frac{1}{2}^h$ Wave in H.F. (+ ·0032).

18^d 23^h to 19^d 1^h Wave in Dec. (− 8′). 18^d $23\frac{1}{2}^h$ to 19^d $0\frac{1}{2}^h$ Wave in H.F. (+ ·0012).

19^d $3\frac{1}{2}^h$ to $4\frac{1}{2}^h$ Wave in Dec. (+ 4′): in H.F. (+ ·0010). $17\frac{1}{2}^h$ to $18\frac{1}{2}^h$ Wave in H.F. (− ·0022). $17\frac{1}{2}^h$ to $19\frac{1}{2}^h$ Wave in Dec. (− 10′). 18^h to 20^h Wave in V.F. (+ ·0004). 20^h to 21^h Wave in Dec. (− 5′). $22\frac{1}{2}^h$ to 24^h Two successive waves in Dec. (− 7′) and (− 4′). 19^d 22^h to 20^d $0\frac{1}{2}^h$ Double wave in H.F. (+ ·0038 to − ·0012): wave in V.F. (− ·0004).

20^d 0^h to $1\frac{1}{2}^h$ Two successive waves in Dec. (− 9′) and (− 3′). 5^h to 7^h Shallow wave in H.F. (+ ·0012). 20^d $23\frac{1}{2}^h$ to 21^d 1^h Irregular wave in Dec. (+ 4′): wave in H.F. (+ ·0012).

21^d 20^h to 22^h Wave in Dec. (− 13′): two successive waves in H.F. (+ ·0024) and (+ ·0020).

22^d 2^h to 4^h Wave in Dec. (+ 5′). 22^h to $23\frac{1}{2}^h$ Double wave in Dec. (− 3′ to + 3′): wave in H.F. (+ ·0018).

27^d 20^h to 23^h Small fluctuations in Dec., with wave 21^h to 22^h (− 4′). 20^h to $23\frac{3}{4}^h$ Long irregular wave in H.F. (− ·0020).

28^d $0\frac{1}{2}^h$ to 3^h Double wave in Dec. (− 3′ to + 3′). 16^h to 17^h Wave in H.F. (− ·0016).

30^d 23^h to $23\frac{3}{4}^h$ Wave in Dec. (− 3′).

31^d 16^h to 18^h Two very small waves in Dec.

EXPLANATION OF THE PLATES.

The magnetic motions figured on the Plates are—

(1.) Those for days of great disturbance—March 15, 16, September 9, 10.

(2.) Those for days of lesser disturbance—January 16–17, 17–18, 18–19, February 11–12, 12–13, 14–15, March 11–12, 14 (part of), April 12–13, August 16–17, September 2–3, 11 (part of), October 25–26, November 21–22.

(3.) Those for four quiet days—January 23, April 21, July 2, November 14, which are given as types of the ordinary diurnal movement at four seasons of the year.

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

The magnetic declination, horizontal force, and vertical force are indicated by the letters D., H., and V. respectively; the declination (west) is expressed in minutes of arc, the units for horizontal and vertical force are ·00001 of the whole horizontal and vertical forces respectively, the corresponding scales being given on the sides of each diagram. Equal changes of amplitude in the several registers correspond nearly to equal changes of absolute magnetic force, 0·001 of a C.G.S. unit being represented by $0^{in}\cdot80 = \overset{mm.}{20\cdot4}$ in the declination curve, by $0^{in}\cdot76 = \overset{mm.}{19\cdot2}$ in the horizontal force curve, and by $0^{in}\cdot71 = \overset{mm.}{18\cdot1}$ in the vertical force curve.

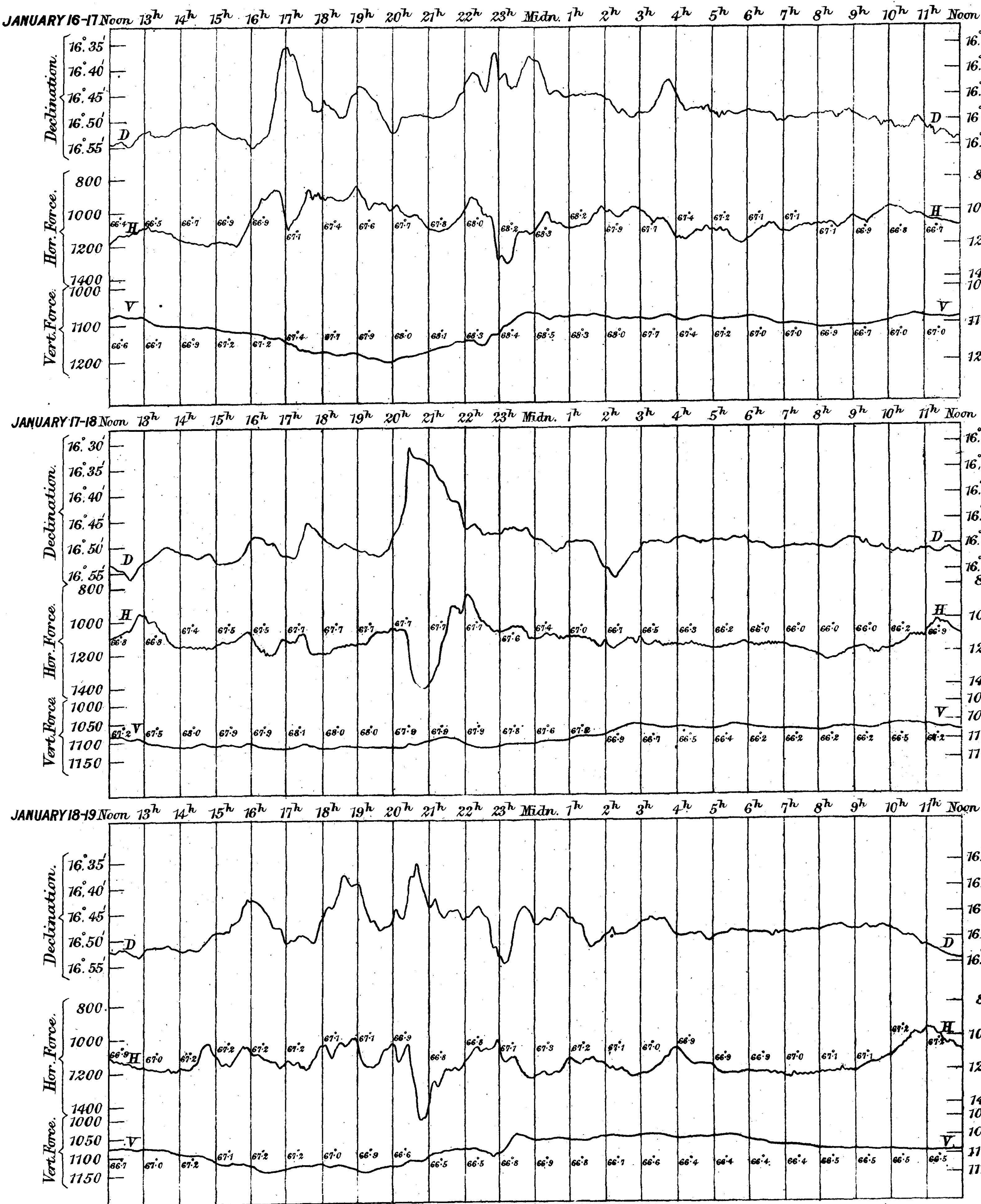
Downward motion indicates increase of declination and of horizontal and vertical force.

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

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

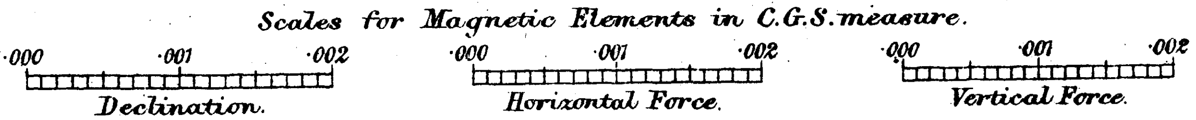
The temperatures (Fahrenheit) of the horizontal and vertical force magnets at each hour are given in small figures on the Diagrams.

Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1898.

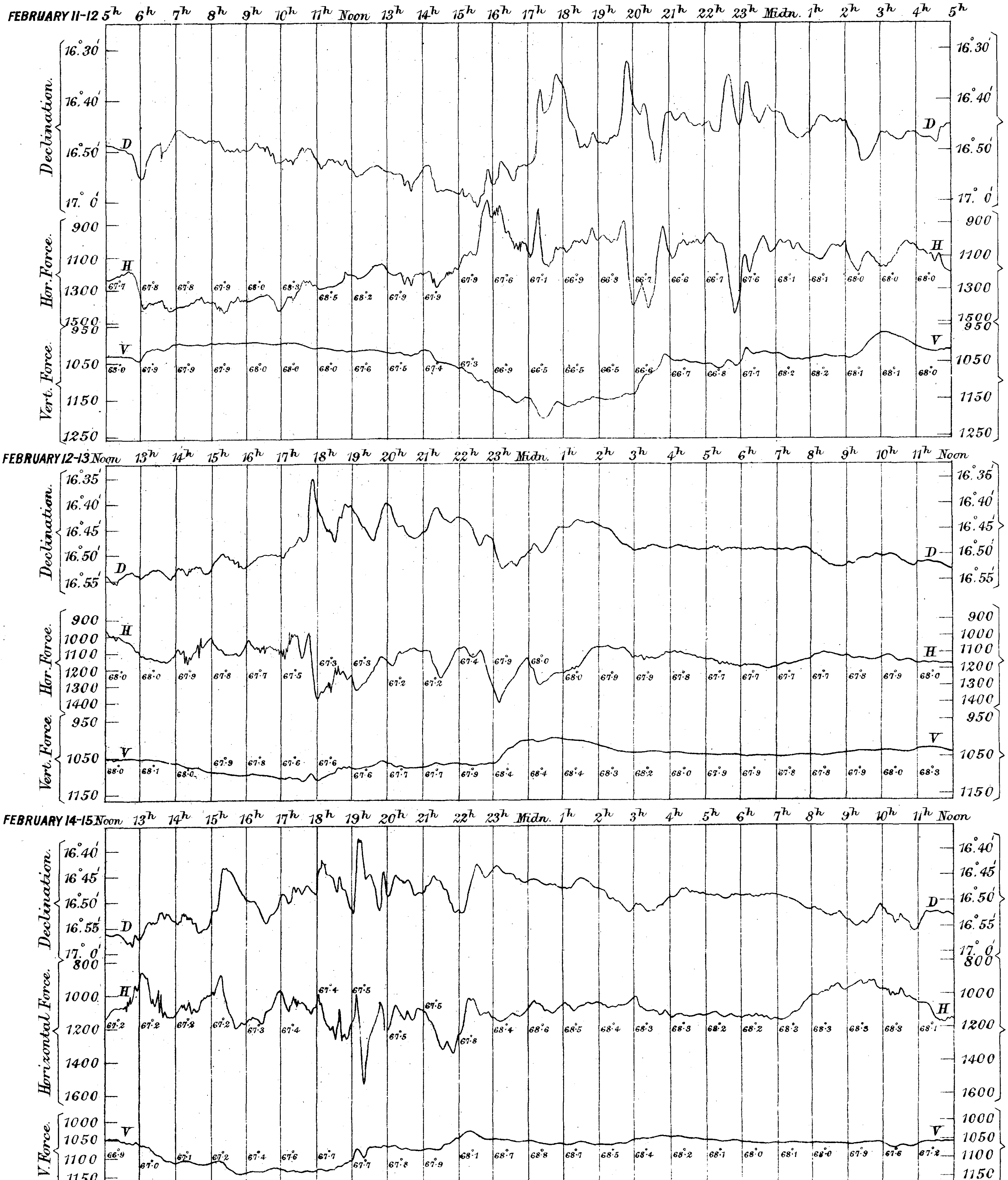


E. Weller & Grahams Ltd. Litho London.

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



Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1898.



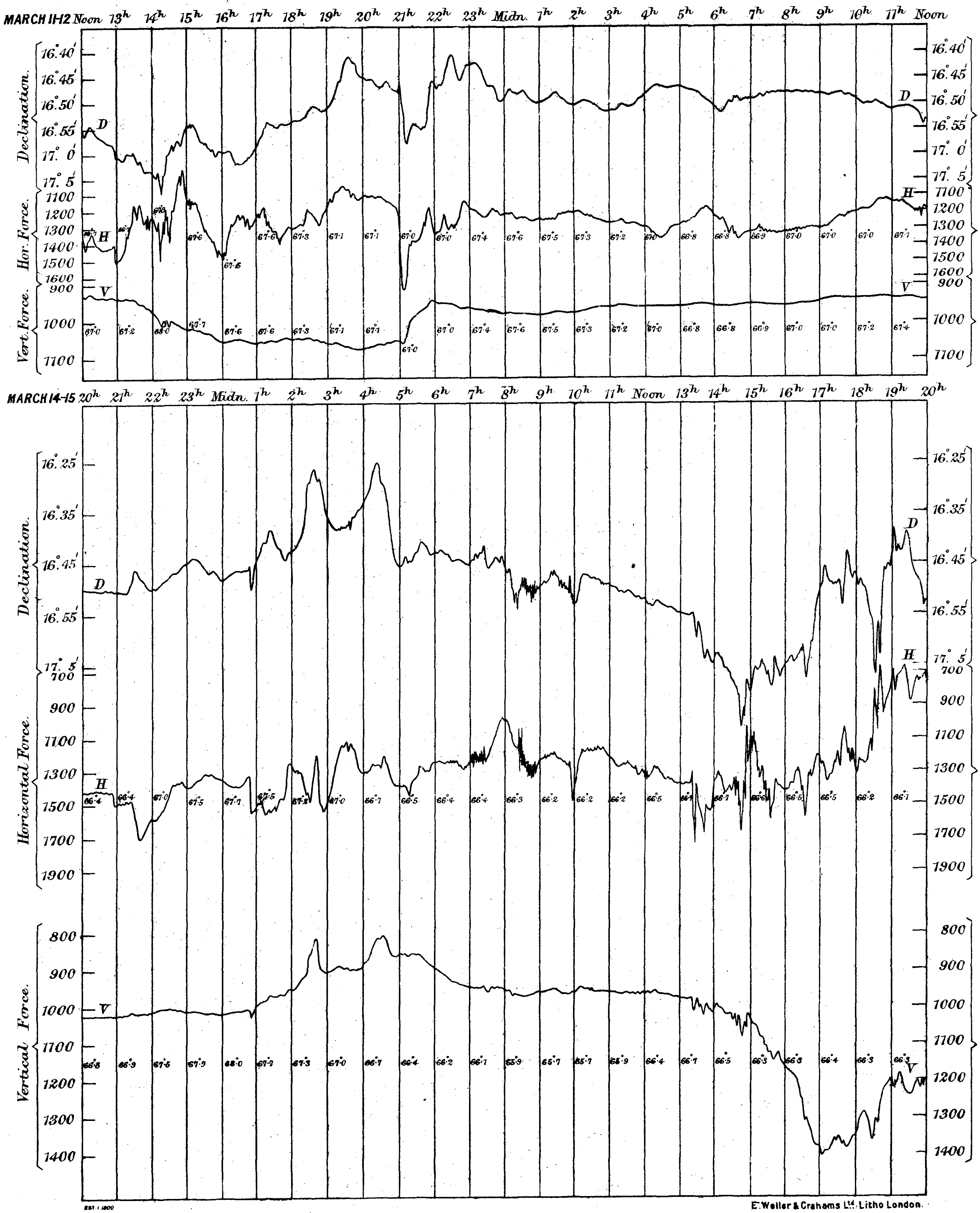
Scales for Magnetic Elements in C.G.S. measure.

·000 ·001 ·002 Declination.

·000 ·001 ·002 Horizontal Force.

·000 ·001 ·002 Vertical Force.

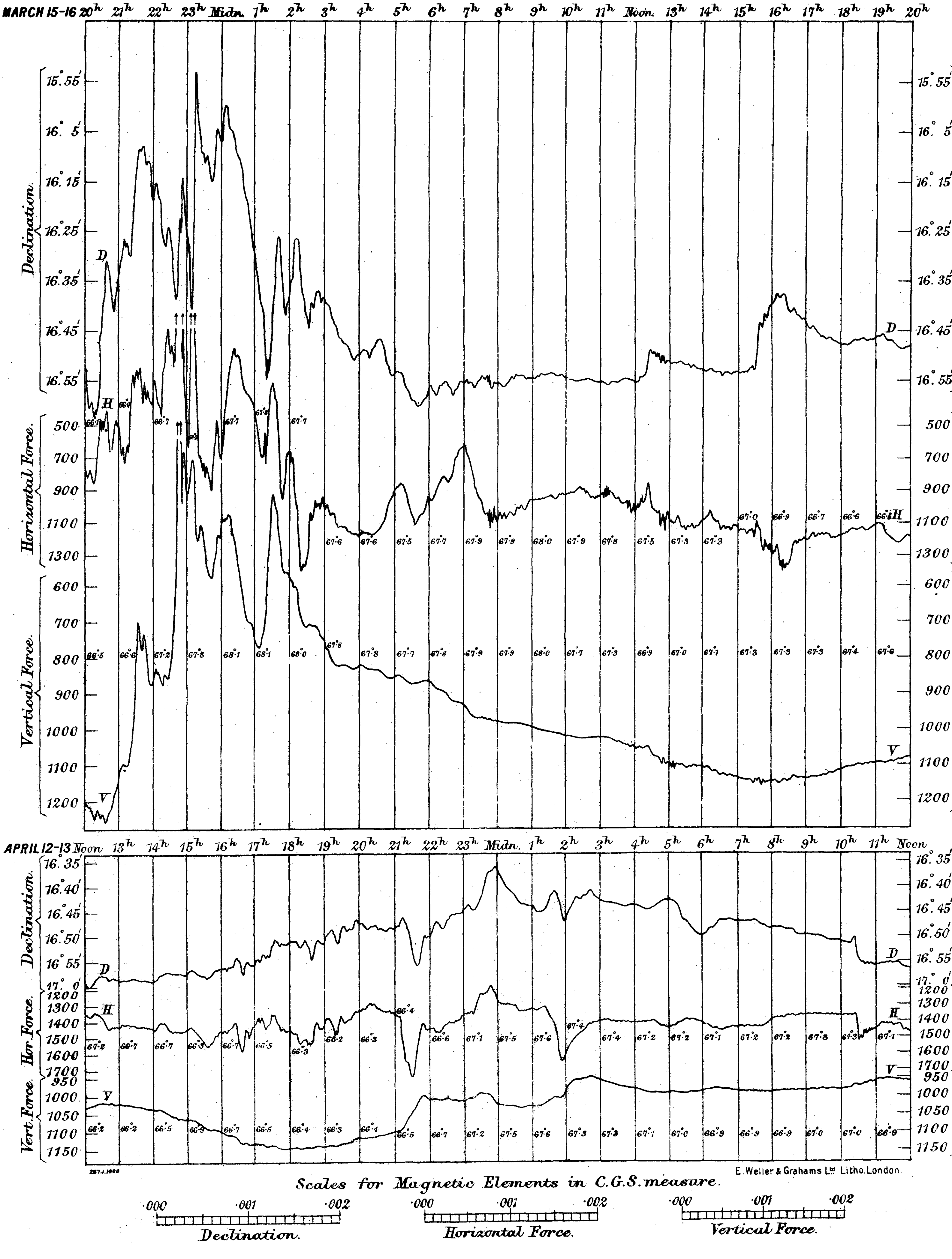
Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1898.



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

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

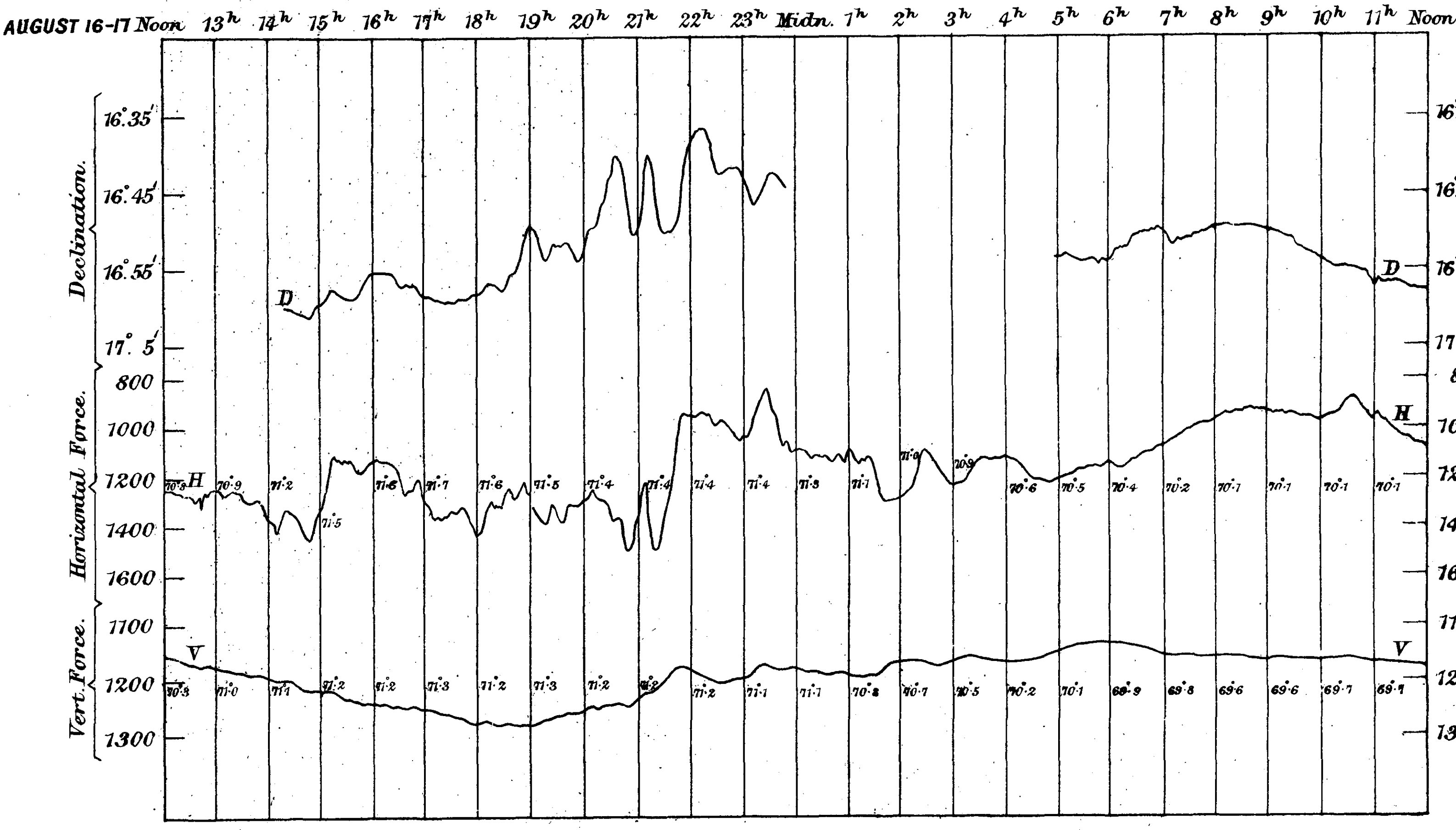
Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1898.

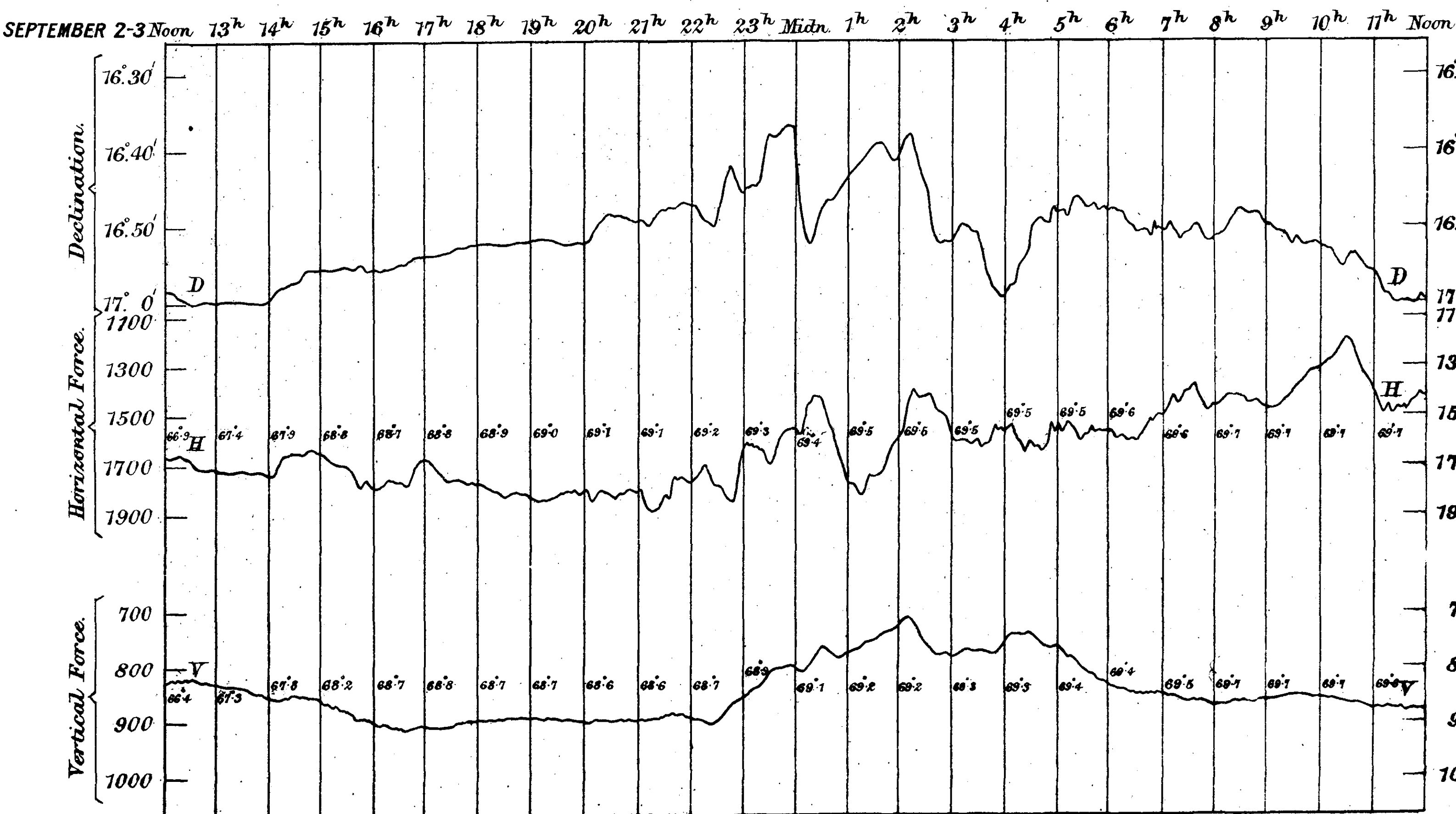


Scales for Magnetic Elements in C.G.S. measure.

Declination. Horizontal Force. Vertical Force.

Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1898.





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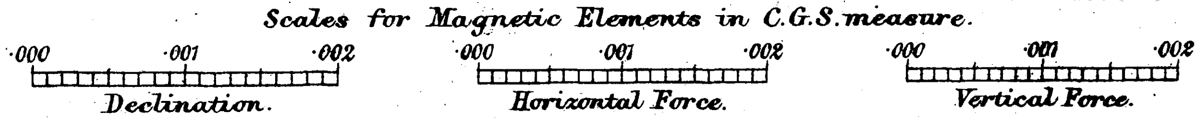
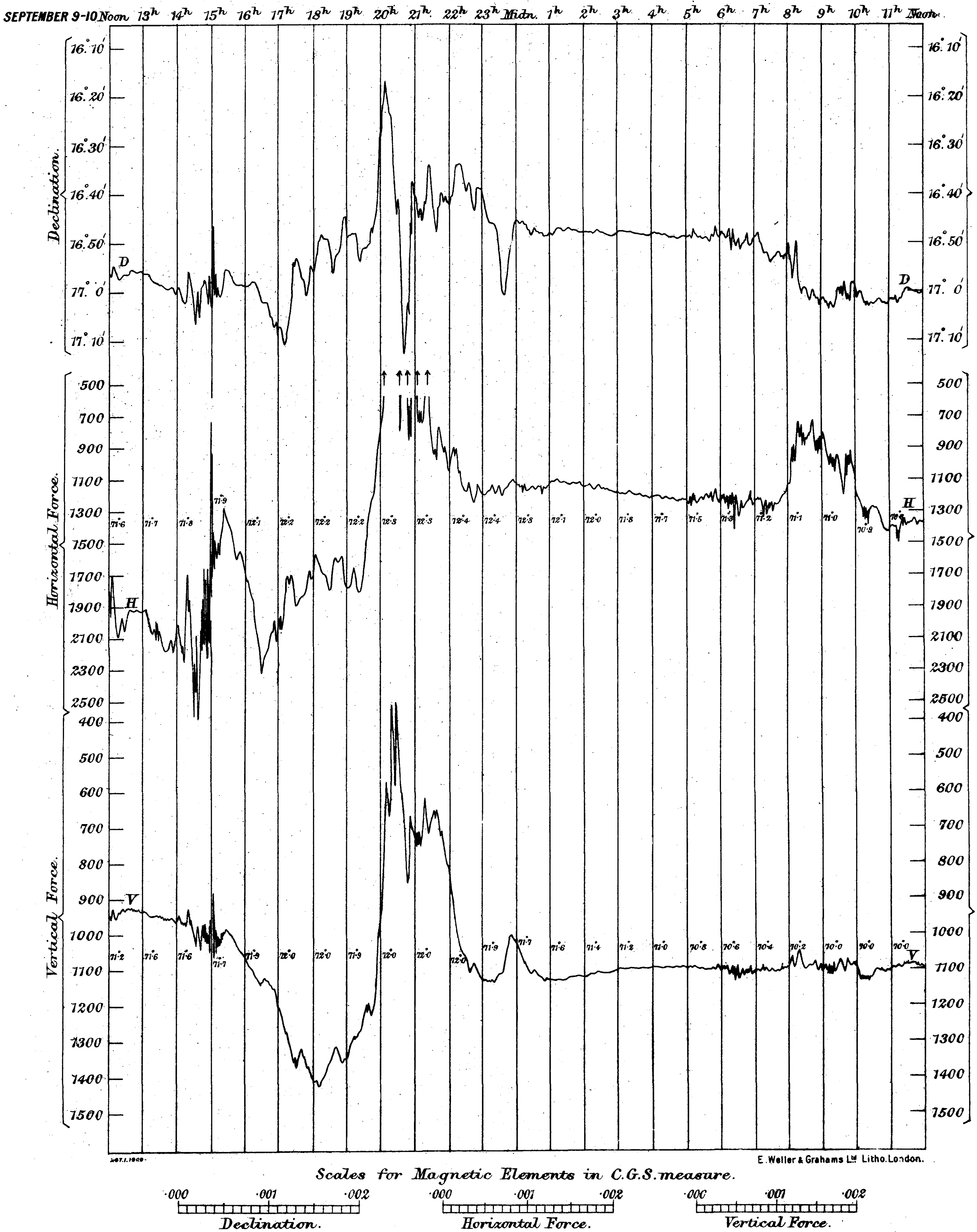
E. Weller & Graham Ltd. Litho. London.

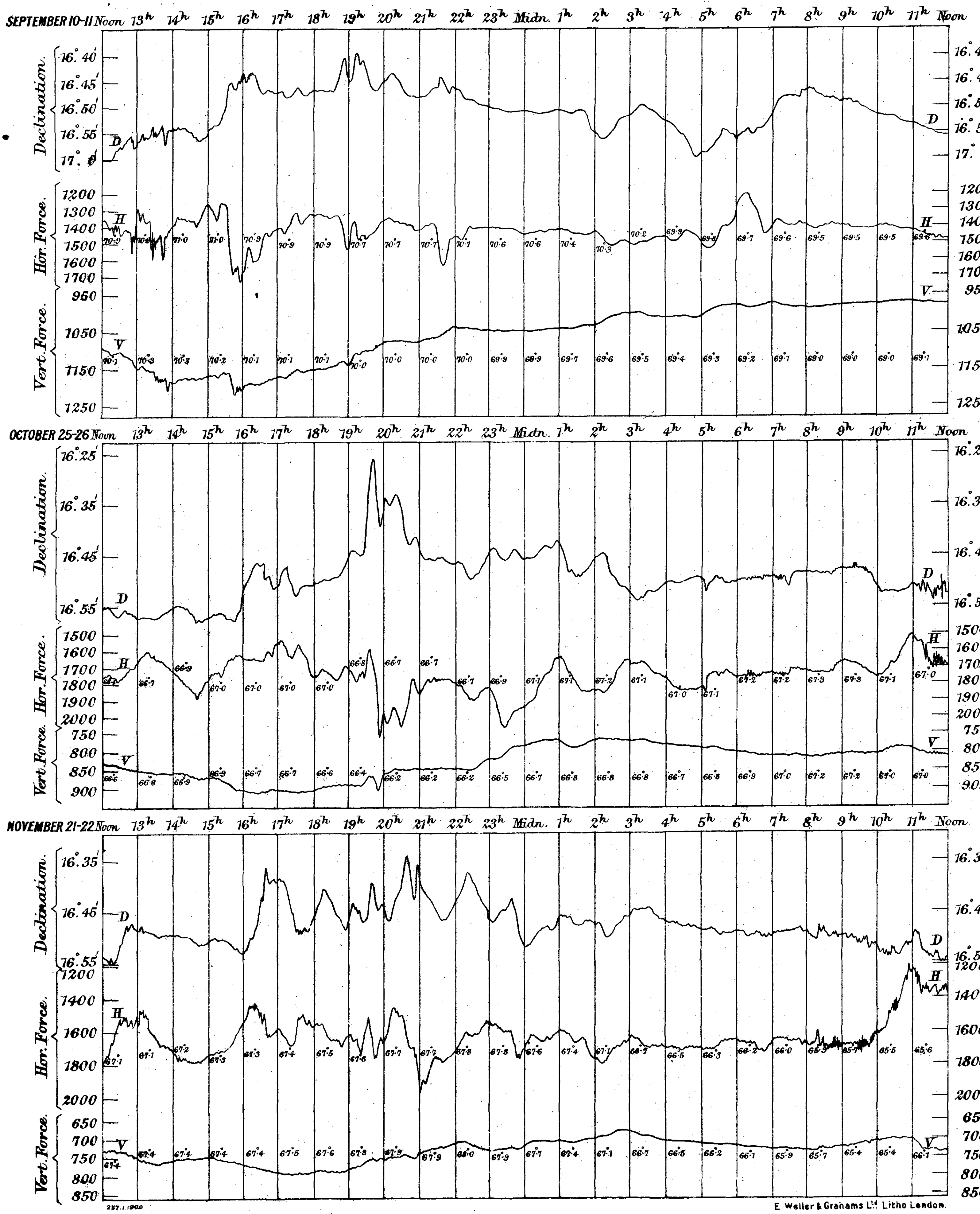
Scales for Magnetic Elements in C.G.S. measure.



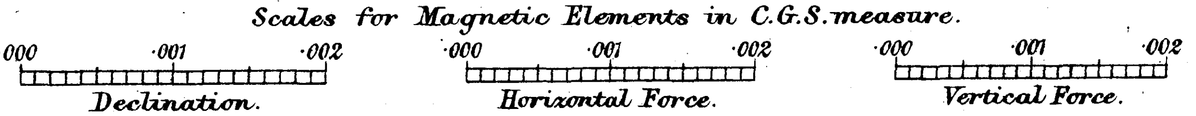
Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1898.



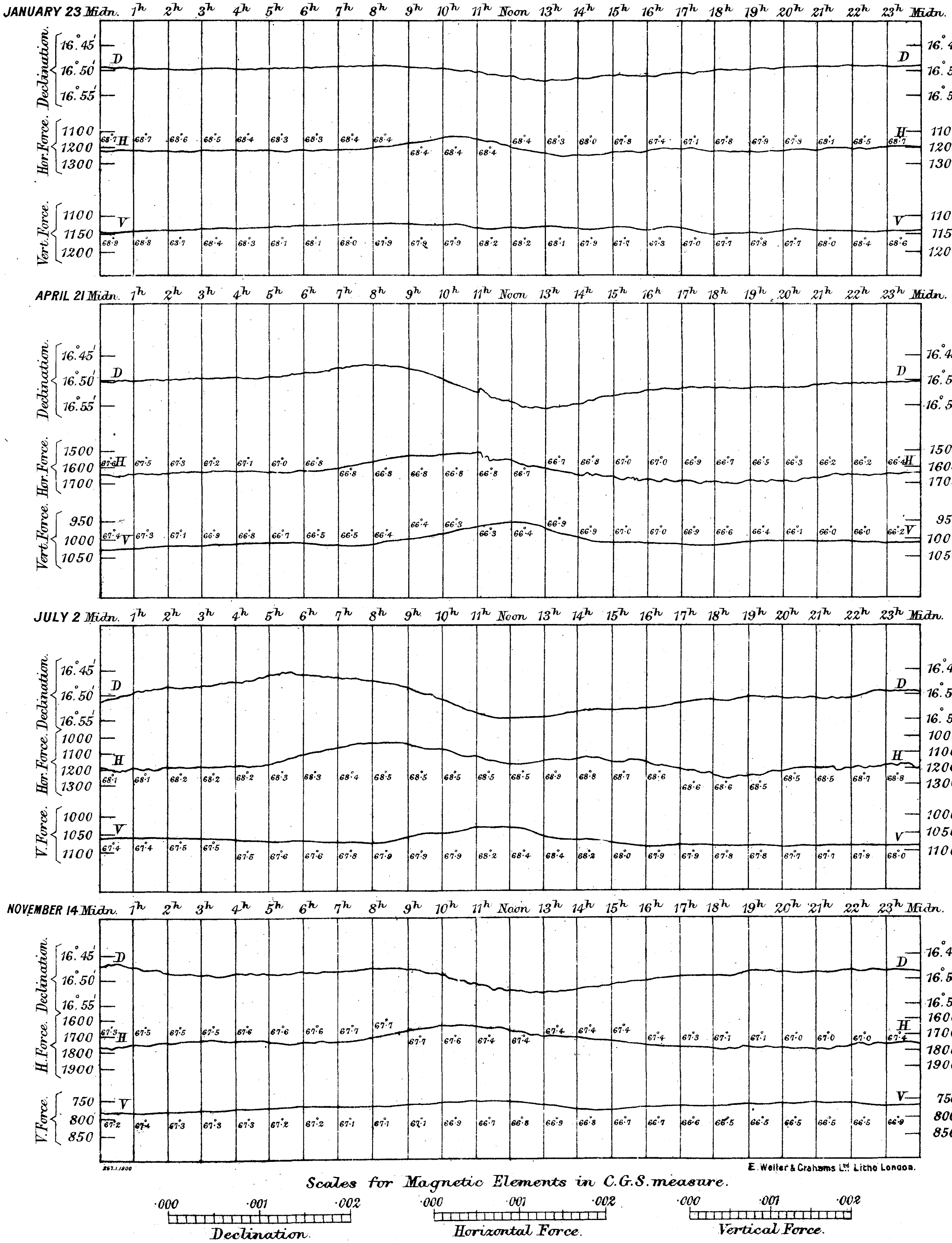
Magnetic Disturbances recorded at the Royal Observatory, Greenwich, 1898.



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, 1898.



ROYAL OBSERVATORY, GREENWICH.

RESULTS

OF

METEOROLOGICAL OBSERVATIONS.

1898.

MONTH and DAY, 1898.	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.		
Jan. 1	...	29·169	44·7	40·3	4·4	42·5	+ 4·0	41·6	40·5	2·0	3·5	0·9	93	56·2	36·3	0·016	0·0	... : wP
2	...	29·537	45·1	37·8	7·3	41·7	+ 3·2	41·0	40·2	1·5	4·8	0·2	94	62·0	31·5	0·055	0·0	wN, wP : wP : mP
3	...	30·045	49·1	31·1	18·0	38·8	+ 0·3	38·0	37·0	1·8	7·8	0·0	94	79·3	28·9	0·007*	0·0	wP : wP : mP
4	Apogee	30·038	47·8	30·3	17·5	40·3	+ 1·9	39·4	38·3	2·0	4·4	0·0	93	54·0	28·2	0·004*	0·0	mP : wP
5	Greatest Declination N.	29·802	52·2	47·1	5·1	49·1	+10·8	48·1	47·0	2·1	3·6	1·2	93	52·2	44·0	0·331	0·0	wwP : ...
6	...	29·760	53·7	45·8	7·9	50·6	+12·4	48·9	47·1	3·5	6·6	1·0	89	79·2	43·0	0·010	0·0	... : wP
7	...	29·858	49·0	34·4	14·6	44·5	+ 6·4	42·5	40·2	4·3	10·5	0·4	85	64·3	29·4	0·079	0·0	wwP : mP
8	Full	29·857	45·1	33·5	11·6	39·4	+ 1·4	38·1	36·4	3·0	5·3	1·0	90	68·8	28·7	0·000	0·0	mP
9	...	29·756	40·8	37·3	3·5	39·9	+ 2·0	39·2	38·3	1·6	2·5	0·7	94	46·8	35·0	0·000	0·0	wP : mP
10	...	30·053	41·5	32·0	9·5	37·9	0·0	36·7	35·1	2·8	5·5	1·1	90	55·4	27·8	0·003*	0·0	mP : sP
11	...	30·277	46·1	32·0	14·1	40·3	+ 2·4	37·9	33·9	6·4	8·6	1·4	81	59·0	27·5	0·000	0·0	mP
12	...	30·407	49·2	41·1	8·1	45·6	+ 7·7	43·7	41·5	4·1	5·9	2·3	86	53·9	35·0	0·000	0·0	wP : mP
13	In Equator	30·429	47·3	41·9	5·4	45·5	+ 7·5	44·5	43·3	2·2	4·0	0·9	92	49·1	38·3	0·000	0·0	mP
14	...	30·316	43·4	41·2	2·2	42·7	+ 4·5	40·7	38·3	4·4	6·4	1·8	85	46·4	38·7	0·000	0·0	wP : wP : mP
15	Last Quarter	30·419	44·2	37·7	6·5	41·2	+ 2·9	39·0	36·3	4·9	7·9	2·3	83	71·5	33·1	0·000	0·0	wP : mP : mP
16	...	30·413	38·3	34·2	4·1	36·7	− 1·8	36·3	35·8	0·9	2·6	0·0	96	44·5	34·0	0·000	0·0	mP : sP
17	...	30·297	35·8	30·0	5·8	33·2	− 5·3	33·0	32·6	0·6	2·0	0·0	98	49·8	30·0	0·004*	0·0	sP
18	...	30·214	50·8	35·0	15·8	44·7	+ 6·2	43·6	42·3	2·4	6·5	0·0	92	74·1	32·7	0·003*	0·2	wP
19	Greatest Declination S.	30·165	52·2	47·6	4·6	49·9	+11·4	47·7	45·4	4·5	6·5	2·3	86	59·9	43·0	0·002*	0·8	wwP : wP
20	Perigee	30·197	53·0	48·7	4·3	51·1	+12·7	49·7	48·3	2·8	5·5	1·6	90	55·7	43·9	0·065	0·0	wwP, wwN : wwP
21	...	30·292	53·0	49·5	3·5	51·3	+13·0	50·3	49·3	2·0	3·6	0·6	93	57·1	44·2	0·049	0·0	wwP, wwN : wP
22	New	30·300	53·8	41·2	12·6	49·5	+11·2	46·9	44·1	5·4	11·8	1·7	82	79·1	36·5	0·000	0·0	wP : mP
23	...	30·434	45·5	32·7	12·8	40·2	+ 1·8	39·2	37·9	2·3	6·8	0·0	92	65·3	29·1	0·000	0·0	mP
24	...	30·370	46·4	44·0	2·4	45·7	+ 7·2	42·7	39·3	6·4	9·2	1·9	79	51·0	42·0	0·000	0·0	wP : mP : vP
25	In Equator	30·317	44·0	41·7	2·3	42·8	+ 4·0	39·7	36·0	6·8	8·1	5·9	77	44·7	40·0	0·002	0·0	mP : sP : ssP
26	...	30·243	45·0	41·3	3·7	43·4	+ 4·4	40·4	36·8	6·6	7·5	5·3	78	48·5	40·0	0·000	0·0	mP : sP
27	...	30·283	45·6	41·5	4·1	43·2	+ 3·9	40·1	36·4	6·8	10·1	5·1	77	48·1	40·0	0·000	0·0	mP : sP : sP
28	...	30·449	43·0	40·3	2·7	41·6	+ 2·1	38·2	34·0	7·6	8·8	6·0	75	45·3	38·9	0·000	0·2	mP : sP
29	First Quarter	30·455	46·8	37·3	9·5	41·2	+ 1·5	38·5	35·1	6·1	7·7	5·1	79	46·8	37·1	0·000	1·0	mP : sP : vP
30	...	30·155	54·5	46·8	7·7	51·2	+11·4	49·3	47·4	3·8	5·0	1·9	87	57·0	44·0	0·024	0·8	wwP
31	...	30·161	54·4	44·3	10·1	49·6	+ 9·8	45·1	40·3	9·3	12·8	4·8	71	63·8	38·0	0·000	0·0	wwP : vP : mP
Means	...	30·144	47·1	39·3	7·8	43·7	+ 5·2	41·9	39·8	3·9	6·5	1·9	86·9	57·7	36·1	Sum 0·654	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.

* Rainfall (Column 16). Amounts entered on January 3, 4, 10, 17, 18, and 19 are derived from fog, frost, or dew.

The mean reading of the *Barometer* for the month was 30in·144, being 0in·366 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 54°·5 on January 30; the lowest in the month was 30°·0 on January 17; and the range was 24°·5.
The mean of all the highest daily readings in the month was 47°·1, being 4°·0 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 39°·3, being 5°·7 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 7°·8, being 1°·7 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 43°·7, being 5°·2 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	0·2	7·8	SSE : SE : E	E : ENE : NNE	0·8	0·0	0·00	166	p.-cl : 8, th.-cl	10 : 10, slt.-r : 10, th.-r, f
2	0·8	7·9	N : NNW : W	WSW : S	1·3	0·0	0·03	183	10, slt.-r : 10	2, li.-cl : 0 : 0, f, lu.-ha
3	2·3	7·9	S ; Variable	S : SSE : Variable	0·3	0·0	0·00	102	tk.-f, ho.-fr : tk.-f, p.-cl	1, li.-cl : 1, li.-cl : 0, f
4	0·0	7·9	SW : WSW	WSW : SW	2·2	0·0	0·13	280	10, f : 10, f	10 : 10
5	0·0	8·0	SW : WSW	SW	2·8	0·0	0·31	356	10 : 10, r : 10, c.-r	10, c.-r : 10, c.-r : 10, oc.-slt.-r
6	1·5	8·0	SW : WSW	WSW : SSW	3·9	0·0	0·28	332	10, li.-shs : 8	7, li.-cl : 9, li.-cl : 10, th.-cl, lu.-ha
7	2·7	8·0	SSW : WNW : NNW	NNW : Variable : S	3·9	0·0	0·17	246	10, r : v	1, li.-cl : 0 : 0, slt.-f, ho.-fr
8	3·8	8·1	S : SSE	SE	0·4	0·0	0·00	166	0, ho.-fr : 5, ci.-cu, li.-cl	9 : 10
9	0·0	8·1	ESE : N	NNE : N	0·2	0·0	0·00	102	10 : 10, glm	10 : 10 : 8, th.-cl, lu.-co
10	0·5	8·1	NNE : N	NNE : WSW : SW	0·6	0·0	0·00	151	10 : 10 : 5, li.-cl, so.-ha	2, th.-cl, slt.-f : 0, slt.-f, ho.-fr : 0, slt.-f, ho.-fr
11	0·6	8·2	WSW : SW	WSW : SW	2·0	0·0	0·06	241	p.-cl : 10	8, ci.-cu, li.-cl : 10 : 10
12	0·0	8·2	SW	WSW : SW	2·0	0·0	0·10	255	9 : 9	10 : 10
13	0·0	8·2	WSW	SE : ESE : E	0·3	0·0	0·00	97	10 : 10, f	10 : 10
14	0·0	8·3	ESE : S : SE	ENE : SE	0·2	0·0	0·00	69	10 : 10	10 : 10
15	2·4	8·3	SE : ESE	SE	0·2	0·0	0·00	96	10 : 9	0 : 0 : 10
16	0·0	8·3	SE	SE	0·5	0·0	0·00	114	10, f : 10, slt.-f	10, slt.-f : 10, slt.-f
17	0·0	8·4	SE : SSW : SW	WSW : SW : S	0·1	0·0	0·00	81	10, f : 10, slt.-f	8, f : 10, f : 10, f
18	1·1	8·4	SSW : SW	SW : SSW	2·5	0·0	0·23	331	10 : 7, ci.-s, li.-cl	10, th.-cl : 10
19	0·0	8·5	SW : WSW	SW : WSW	4·6	0·0	0·65	444	10 : p.-cl : 9	8, ci.-s, li.-sc : p.-cl : p.-cl
20	0·0	8·5	SW : WSW	WSW	3·3	0·0	0·36	381	9 : 10, r : 10, oc.-r	10, fq.-r : 10
21	0·0	8·6	WSW	WSW	2·2	0·0	0·06	277	10 : 10, slt.-r	8 : 10 : 10
22	2·3	8·6	WSW : W	W : NW : NE	5·2	0·0	0·62	381	10, th.-r : v : 3, ci.-s, th.-cl	5, th.-cl : v, th.-cl
23	2·2	8·7	Calm : SW	WSW	0·1	0·0	0·00	129	0 : tk.-f : 0, tk.-f	p.-cl, slt.-f : 0 : 10
24	0·0	8·7	W : NW : WNW	WNW : NNW	1·0	0·0	0·08	252	10 : 10, slt.-f : 10	10 : 10
25	0·0	8·7	WNW : SW	SW	0·2	0·0	0·00	175	10 : 10, glm	10 : 10
26	0·0	8·8	SW	SW	0·5	0·0	0·02	209	10 : 10	10 : 10
27	0·0	8·8	WSW	WSW	1·0	0·0	0·01	197	10 : 10	10 : 10
28	0·0	8·9	WSW	WSW	0·9	0·0	0·01	173	10 : 10	10 : 10
29	0·0	8·9	WSW : SW	WSW : SW	4·2	0·0	0·33	334	10 : 10	10 : 9 : 9, sc, w
30	0·0	9·0	SW : WSW	SW : WSW	13·4	0·0	1·98	726	10, w : 10, oc.-slt.-r, w	10, w : 10, w
31	2·6	9·0	WSW : NW	W : SW	17·5	0·0	1·34	523	9, st.-w : p.-cl : 1, th.-cl	3, li.-cl : p.-cl : 9, slt.-sh
Means	0·7	8·4	...	...	...	...	0·22	244		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 41°·9, being 4°·7 *higher* than
The mean *Temperature of the Dew Point* for the month was 39°·8, being 4°·4 *higher* than
The mean *Degree of Humidity* for the month was 86·9, being 1·9 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·245, being 0in·038 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·8, being 0gr·4 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 555 grains, being 1 grain *greater* than
} the average for the 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 8·1.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·089. The maximum daily amount of *Sunshine* was 3·8 hours on January 8.

The highest reading of the *Solar Radiation Thermometer* was 79°·3 on January 3; and the lowest reading of the *Terrestrial Radiation Thermometer* was 27°·5 on January 11.

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 0·0.

The *Proportions of Wind* referred to the cardinal points were N. 3, E. 4, S. 11, W. 13.

The *Greatest Pressure of the Wind* in the month was 17·5 lbs. on the square foot on January 31. The mean daily *Horizontal Movement of the Air* for the month was 244 miles; the greatest daily value was 726 miles on January 30; and the least daily value was 69 miles on January 14.

Rain fell on 8 days in the month, amounting to 0in·654, as measured by gauge No. 6 partly sunk below the ground; being 1in·335 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	Apogee	30·010	55·8	46·1	9·7	52·0	+12·3	50·5	49·0	3·0	5·9	1·0	89	62·0	42·1	0·062	0·2	wP
2	Greatest Declination N.	29·649	51·4	39·2	12·2	45·3	+ 5·6	40·9	35·9	9·4	14·5	0·2	70	75·0	36·5	0·000	0·8	wwP : mP : sP
3	...	29·696	46·3	36·7	9·6	42·1	+ 2·4	39·3	35·8	6·3	9·2	2·9	79	50·1	31·9	0·120	0·0	sP : vP : vN, vP
4	...	29·264	44·1	32·4	11·7	38·3	− 1·5	35·8	32·5	5·8	8·6	1·8	80	46·3	28·0	0·083	0·0	mP : ssN, sP : ssP
5	...	29·696	39·2	31·4	7·8	34·9	− 4·9	31·8	26·8	8·1	10·3	5·6	72	61·1	26·9	0·000	0·0	sP : ssP : ssP
6	Full	29·637	46·1	33·8	12·3	40·3	+ 0·6	38·1	35·3	5·0	10·6	0·9	83	51·0	29·7	0·177	0·0	vP : mP, mN : sP
7	...	29·683	44·4	34·3	10·1	38·3	− 1·1	35·5	31·7	6·6	11·7	3·6	77	66·1	29·0	0·004	0·0	mP : sP : ssP
8	...	29·878	48·0	33·6	14·4	39·8	+ 0·7	37·6	34·7	5·1	10·1	2·2	82	65·4	28·5	0·013	0·0	sP : sP, ssN : sP
9	In Equator	30·061	47·0	32·1	14·9	39·7	+ 1·0	38·0	35·8	3·9	8·0	0·8	86	67·8	26·9	0·000	0·0	sP
10	...	30·128	51·3	44·0	7·3	45·8	+ 7·4	43·1	40·0	5·8	12·2	1·8	81	78·9	40·0	0·000	0·0	mP : mP : sP
11	...	30·152	48·9	43·4	5·5	45·7	+ 7·4	42·7	39·3	6·4	10·7	2·2	79	59·0	39·2	0·000	0·0	mP : mP : sP
12	...	30·126	52·1	43·6	8·5	47·0	+ 8·5	44·6	41·9	5·1	12·2	0·7	83	66·2	40·6	0·007	1·2	mP
13	...	29·964	47·3	40·1	7·2	44·6	+ 5·8	42·3	39·6	5·0	9·5	0·9	83	51·2	35·4	0·153	3·8	wP : mN, mP : sP
14	Last Quarter	30·066	51·4	38·9	12·5	44·5	+ 5·3	41·6	38·2	6·3	12·4	2·6	78	71·2	34·3	0·000	0·8	mP
15	Greatest Declination S.	30·053	53·6	41·9	11·7	49·1	+ 9·5	46·7	44·1	5·0	7·4	2·6	83	62·8	36·2	0·000	3·0	wP
16	...	29·945	52·1	42·4	9·7	47·9	+ 8·1	43·3	38·2	9·7	14·8	4·0	70	78·9	38·1	0·000	2·2	mP : vP
17	Perigee	29·918	46·1	40·3	5·8	43·5	+ 3·7	39·8	35·4	8·1	12·8	1·8	74	61·9	34·8	0·000	0·0	sP : vP, wN
18	...	29·689	42·2	34·2	8·0	38·4	− 1·3	37·7	36·8	1·6	4·1	0·7	94	44·5	28·2	0·198	0·0	vP, ssN : vP, ssN : ssP
19	...	29·689	40·4	30·2	10·2	35·3	− 4·3	32·7	28·7	6·6	11·5	2·6	76	60·8	25·8	0·000	0·0	sP
20	New	29·177	45·3	32·4	12·9	39·1	− 0·4	36·6	33·3	5·8	10·6	3·2	80	65·3	28·0	0·082	0·0	mP, wwN : vP, ssN
21	...	29·062	42·2	26·1	16·1	33·0	− 6·5	31·2	27·6	5·4	10·8	0·0	80	76·8	22·4	0·003	0·0	sP
22	In Equator	29·236	42·9	31·9	11·0	36·2	− 3·4	33·9	30·5	5·7	8·8	3·3	80	72·8	26·9	0·000	0·0	sP
23	...	29·606	44·9	32·9	12·0	37·2	− 2·6	35·3	32·7	4·5	11·2	1·4	84	76·0	29·1	0·018	0·2	sP : vP, ssN
24	...	29·933	42·0	32·1	9·9	36·7	− 3·2	34·1	30·3	6·4	12·2	2·0	78	67·3	26·2	0·000	0·8	mP : vP : ssP
25	...	29·921	48·0	29·4	18·6	38·7	− 1·3	35·7	31·7	7·0	11·8	2·9	76	76·1	24·6	0·000	0·5	sP : mP
26	...	29·862	48·2	35·0	13·2	41·4	+ 1·3	37·9	33·5	7·9	15·3	2·5	74	87·9	30·3	0·108	2·0	vN, mP : vP : sP
27	...	29·794	47·2	36·4	10·8	41·2	+ 1·1	39·4	37·1	4·1	6·5	3·0	86	74·0	31·0	0·157	1·5	mP : ssN, ssP : sP
28	First Quarter	29·802	46·2	34·3	11·9	40·6	+ 0·4	38·0	34·7	5·9	11·8	1·3	80	66·9	29·6	0·000	0·0	mP : vP
Means	...	29·775	46·9	36·0	10·9	41·3	+ 1·8	38·7	35·4	5·9	10·6	2·1	79·9	65·8	31·4	Sum 1·185	0·6	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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·775, being 0in·024 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 55°·8 on February 1; the lowest in the month was 26°·1 on February 21; and the range was 29°·7.
The mean of all the highest daily readings in the month was 46°·9, being 1°·6 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 36°·0, being 1°·7 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 10°·9, being 0°·1 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 41°·3, being 1°·8 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	0.1	9.1	SW : WSW : W	WSW : SW	5.9	0.0	0.97	541	10, shs.-r : 10, shs.-r : 10	10 : 10 : 10, sc, w, slt.-r
2	5.4	9.2	WSW : W	WSW : W : WNW	18.5	0.0	2.33	830	p.-cl, st.-w : 2, li.-cl, w : p.-cl, w	p.-cl, w : 9, sc, w, lu.-ha
3	0.0	9.2	WNW : WSW	WSW : NW	7.9	0.0	1.16	604	p.-cl, w : p.-cl, w : 10, slt.-sh	9, oc.-slt.-r, w : 10, fq.-slt.-r, w : 10, hy.-sh
4	0.0	9.3	NW : WNW : N	N	4.1	0.0	0.56	386	10 : 10, r, sl, sn	9, sn : 2, li.-cl : 0
5	2.1	9.3	N : NNW	N : NNW : WSW	5.5	0.0	0.57	347	0, ho.-fr : 1 : p.-cl	9 : 9, slt.-f
6	0.0	9.4	WSW : SW : SSW	WNW : W : WSW	5.6	0.0	0.42	404	10 : 10, r : 10, th.-r, gt.-glm	9 : 1, th.-cl, lu.-ha
7	4.5	9.5	WSW : W	WNW : NW : WSW	10.9	0.0	0.97	499	0, ho.-fr : p.-cl, w	v, r, hl, slt.-sn, w : 0, slt.-f : 0
8	0.8	9.6	WSW	W : WNW : NW	8.0	0.0	0.34	388	p.-cl, ho.-fr : 4, th.-cl	9, shs.-r : 1, li.-cl : 0
9	0.4	9.6	WNW : WSW : SW	WSW : SW	1.0	0.0	0.01	197	p.-cl, ho.-fr : 8, th.-cl, so.-ha, m	9 : 9, th.-cl
10	1.0	9.6	SW : WSW	WSW : SW	2.5	0.0	0.08	269	9 : 9	10 : 10
11	0.0	9.7	SW : SSW	SW	2.5	0.0	0.15	296	9 : 10	10 : 10
12	0.3	9.8	SW	SW	5.6	0.0	0.45	350	10, th.-r : 10	10, w : 10 : 10, slt.-r
13	0.0	9.8	SW : WSW : NNE	N : NW : WSW	2.3	0.0	0.16	272	10 : 10, c.-r, glm	10, slt.-r : 10 : 10
14	1.9	9.9	WSW : W	WNW : W : WSW	2.9	0.0	0.35	362	10 : 2, li.-cl : p.-cl	9, cu : 0
15	0.0	9.9	WSW	WSW	6.8	0.0	1.19	559	10 : 10, slt.-r, w	10, w : 10, w
16	5.2	10.0	W	W : WNW	11.9	0.0	1.37	595	v, w : 2, li.-cl, w	6, cu, w : p.-cl : 10
17	0.2	10.1	NW : WNW	NW : W : SW	5.3	0.0	0.39	340	10, slt.-r : 9 : 10, slt.-r	9 : 9, slt.-r : 10, slt.-r
18	0.0	10.1	ENE : NE	NE : N	1.2	0.0	0.07	219	10, r : 10, c.-r	10, r, slt.-sn : v
19	2.1	10.2	N : W	W : WSW	3.4	0.0	0.28	299	v, ho.-fr : 2, li.-cl, fr : p.-cl, f, glm	9 : 10
20	0.7	10.3	WSW : W	W : WNW : WSW	6.9	0.0	0.72	407	10, slt.-r : 10 : v, fq.-hy.-r, hl, glm	v, oc.-shs : v, oc.-shs : v, oc.-shs, sn
21	3.0	10.4	SSW : NE : ESE	ESE : E	0.1	0.0	0.00	116	0, ho.-fr : tk.-f : 10, slt.-f	p.-cl : 10, slt.-f
22	1.4	10.4	E : ENE : NE	ENE : NNE	2.6	0.0	0.18	303	9 : 9, slt.-sn : 9	p.-cl : p.-cl
23	4.2	10.5	N	N : NNW	5.5	0.0	0.59	371	v : p.-cl : 8, cu	9, cu : 10, shs.-r : 9
24	3.8	10.5	NNW	N : NNE	3.1	0.0	0.19	270	p.-cl : p.-cl	p.-cl : 5
25	3.9	10.6	WSW : SW	WSW : SW : SSW	13.8	0.0	0.33	317	v, ho.-fr : 1, th.-cl, slt.-f : 5, ci.-cu	9, th.-cl, so.-ha : 10, slt.-r, w
26	8.8	10.6	SSW : WSW : W	W : WSW : SW	6.5	0.0	0.61	437	10, slt.-r, w : 0 : 0	0 : 0
27	1.6	10.7	SW	WSW : WNW	5.8	0.0	0.42	395	0 : 0 : 10, oc.-slt.-r	10, c.-r : v, sh.-r, t, slt.-f : 0
28	3.2	10.8	WSW : WNW	WNW : WSW	3.5	0.0	0.35	376	0, ho.-fr : p.-cl	10 : 10, slt.-r
Means	1.9	9.9	...	...	...	...	0.54	384		
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°.7, being 0°.9 *higher* than the average for the 50 years, 1841–1890.
The mean *Temperature of the Dew Point* for the month was 35°.4, being 0°.2 *lower* than the average for the 50 years, 1841–1890.
The mean *Degree of Humidity* for the month was 79.9, being 6.1 *less* than the average for the 50 years, 1841–1890.
The mean *Elastic Force of Vapour* for the month was $0^{in}.207$, being $0^{in}.001$ *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 $2^{grs}.4$ 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 551 grains, being 2 grains *less* than the average for the 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7.2.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0.196. The maximum daily amount of *Sunshine* was 8.8 hours on February 26.

The highest reading of the *Solar Radiation Thermometer* was 87°.9 on February 26; and the lowest reading of the *Terrestrial Radiation Thermometer* was 22°.4 on February 21.

The mean daily distribution of *Ozone* for the 12 hours ending 9^h was 0.6; for the 6 hours ending 15^h was 0.0; and for the 6 hours ending 21^h was 0.0.

The *Proportions of Wind* referred to the cardinal points were N. 6, E. 1, S. 5, W. 16.

The *Greatest Pressure of the Wind* in the month was 18.5 lbs. on the square foot on February 2. The mean daily *Horizontal Movement of the Air* for the month was 384 miles; the greatest daily value was 830 miles on February 2; and the least daily value was 116 miles on February 21.

Rain fell on 12 days in the month, amounting to $1^{in}.185$, as measured by gauge No. 6 partly sunk below the ground; being $0^{in}.299$ *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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.		
Mar. 1	Apogee: Greatest Declination N.	29·545	52·9	35·7	17·2	42·7	+ 2·5	39·8	36·3	6·4	12·0	3·3	79	93·0	31·0	0·103	0·0	wP : vP, ssN : sP
2	...	29·528	47·2	34·6	12·6	39·4	− 1·0	36·0	31·5	7·9	13·4	4·8	74	80·0	29·5	0·003	0·0	mP : sP, ssN : sP
3	...	29·601	43·2	30·9	12·3	35·7	− 4·8	33·8	30·9	4·8	10·6	0·6	82	63·0	26·6	0·324	0·0	sP : vP, ssN
4	...	29·654	44·3	32·2	12·1	36·6	− 4·1	35·1	33·0	3·6	11·0	0·8	87	81·5	29·3	0·009	0·0	mP : vP : ssP
5	...	29·652	42·7	30·7	12·0	36·5	− 4·4	34·5	31·6	4·9	10·1	0·7	83	73·5	24·6	0·002	0·0	sP : ssP
6	...	29·602	44·1	29·5	14·6	35·6	− 5·5	32·7	28·3	7·3	13·0	3·3	75	94·5	23·8	0·003	0·2	wP : mP : sP
7	...	29·826	45·0	30·2	14·8	35·8	− 5·2	32·8	28·3	7·5	15·2	1·9	73	96·7	23·9	0·008	0·8	sP : sP : ssN, ssP
8	Full: In Equator	29·849	39·4	32·5	6·9	36·4	− 4·5	33·4	29·0	7·4	9·7	6·9	75	44·7	29·2	0·000	0·0	sP
9	...	29·950	43·8	36·2	7·6	39·6	− 1·2	36·1	31·5	8·1	11·9	5·8	74	55·8	33·8	0·000	0·0	mP : sP
10	...	30·047	47·0	32·6	14·4	38·8	− 1·9	35·9	32·1	6·7	11·8	2·2	77	90·3	28·0	0·000	0·0	sP
11	...	30·016	45·7	32·4	13·3	37·7	− 2·9	35·7	33·0	4·7	11·4	1·7	84	74·0	26·0	0·000	0·0	sP
12	...	29·873	42·2	32·4	9·8	38·4	− 2·3	36·3	33·5	4·9	8·6	1·9	83	49·4	26·3	0·000	0·0	sP
13	...	29·884	43·8	27·2	16·6	37·1	− 3·8	35·3	32·8	4·3	8·1	2·0	85	50·3	22·4	0·002	1·0	vP
14	Perigee	29·811	47·3	35·5	11·8	42·9	+ 1·7	40·4	37·4	5·5	10·3	2·0	81	64·8	27·1	0·027	3·0	mP : vP, ssN : sP
15	Greatest Dec. S: Last Quarter.	29·833	53·1	30·6	22·5	42·5	+ 1·1	38·2	33·0	9·5	18·3	2·9	70	95·3	22·2	0·007	0·2	sP : mP
16	...	29·815	53·0	44·7	8·3	48·9	+ 7·4	45·8	42·5	6·4	11·8	2·1	79	65·4	37·0	0·003	0·8	wP : mP : sP
17	...	29·852	55·2	44·0	11·2	49·2	+ 7·6	46·4	43·4	5·8	10·6	3·5	81	75·5	37·5	0·000	1·2	mP
18	...	29·792	60·0	48·4	11·6	52·8	+11·2	49·7	46·6	6·2	12·0	2·7	80	103·3	44·9	0·000	2·5	wP
19	...	29·743	55·6	39·6	16·0	49·3	+ 7·8	46·2	42·9	6·4	11·4	0·4	79	70·9	38·6	0·207	5·3	wP : vP, ssN
20	...	29·954	49·0	33·8	15·2	41·5	+ 0·1	39·0	35·9	5·6	12·2	1·3	81	81·0	30·6	0·005	0·0	mP
21	In Equator	30·036	52·1	28·0	24·1	38·9	− 2·5	36·0	32·1	6·8	16·4	0·0	78	97·0	25·9	0·000	0·0	mP : sP : ssP
22	New	29·971	50·0	30·2	19·8	40·7	− 0·8	37·5	33·5	7·2	14·3	2·3	76	78·8	26·9	0·002	0·0	vP
23	...	29·662	48·3	33·0	15·3	39·6	− 2·2	37·5	34·8	4·8	7·9	2·6	83	54·8	29·2	0·047	0·0	mP : vP, ssN : sP
24	...	29·620	40·9	29·1	11·8	35·1	− 7·0	33·1	29·9	5·2	10·3	2·0	80	81·0	28·2	0·113	0·0	mP : sN : ssP, ssN
25	...	29·675	35·0	32·2	2·8	33·8	− 8·6	32·7	30·7	3·1	5·2	1·4	88	40·9	30·9	0·251	0·0	vP, vN
26	...	29·335	38·1	34·3	3·8	36·1	− 6·8	34·7	32·6	3·5	5·5	1·5	88	46·1	33·2	0·136	3·0	mP, sN : vN, vP
27	...	29·236	41·7	35·4	6·3	37·7	− 5·6	36·7	35·4	2·3	4·4	1·2	92	60·9	34·5	0·114	0·0	wN, wP : vN, mP
28	Greatest Declination N.	29·265	38·2	34·3	3·9	36·7	− 7·0	35·6	34·1	2·6	3·8	1·2	91	44·1	32·7	0·037	0·0	mP, wN : mP
29	Apogee	29·307	48·8	34·8	14·0	40·4	− 3·7	37·5	33·8	6·6	13·0	2·5	78	90·2	30·0	0·000	0·0	mP : mP : sP
30	First Quarter	29·382	53·4	30·7	22·7	40·7	− 3·9	37·4	33·2	7·5	16·6	0·9	75	104·0	26·0	0·000	0·0	sP : mP
31	...	29·573	50·3	36·8	13·5	43·1	− 1·9	39·5	35·2	7·9	18·1	1·7	74	100·2	33·0	0·000	0·0	mP
Means	...	29·706	46·8	34·0	12·9	40·0	− 1·7	37·5	34·2	5·9	11·3	2·2	80·2	74·2	29·8	Sum 1·403	0·6	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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·706, being 0in·047 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 60°·0 on March 18; the lowest in the month was 27°·2 on March 13; and the range was 32°·8.
The mean of all the highest daily readings in the month was 46°·8, being 2°·9 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 34°·0, being 1°·0 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 12°·9, being 1°·8 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 40°·0, being 1°·7 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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.		
Mar. 1	1·9	10·8	WSW	W : NW	11·0	0·0	1·21	600	9 : p.-cl : 9, w	v, r, hl, w : p.-cl : 0
2	1·4	10·9	W : WSW : NW	NW : WNW : W	12·0	0·0	0·94	540	9 : 9, w	v, r, hl, w : 0 : 0
3	0·5	11·0	W : WSW : NNW	NNW : Variable : W	1·3	0·0	0·04	233	li.-cl, ho.-fr : p.-cl	9, cu.-s, sh.-r : 10, r, sn
4	3·4	11·0	NE	NE : ENE : NNE	2·3	0·0	0·09	236	10, oc.-sn : 10 : 8, cu, cu.-s	p.-cl, oc.-sn : p.-cl
5	3·1	11·1	NNE : NE : N	N : NE : S	1·6	0·0	0·05	186	9 : 9, ci.-cu, cu.-s	p.-cl : p.-cl, slt.-r : 2, li.-cl, ho.-fr
6	6·2	11·1	S : SSE : SE	S : SSE : ESE	1·8	0·0	0·06	201	2, li.-cl, ho.-fr : 2, li.-cl	p.-cl : 1, li.-cl, ho.-fr
7	6·0	11·2	E : ENE : NE	ENE : NE	4·9	0·0	0·47	370	9, slt.-sn : p.-cl : 2, cu, cu.-s	9, oc.-sn : 10
8	0·0	11·3	NNE : NE	NE : NNE	10·0	0·0	1·38	616	10, w : 10, w	10, sc, w : 10, w
9	0·0	11·3	NNE : NE	NE	5·9	0·0	0·52	401	10 : 10	10 : 10
10	5·3	11·4	NNE : NE	NE : SE : E	2·2	0·0	0·13	247	9 : p.-cl : 2, li.-cl	p.-cl : 7, th.-cl, h, lu.-ha, ho.-fr
11	0·5	11·5	NE : ENE	ENE : ESE : NE	2·3	0·0	0·15	258	10, ho.-fr : 10	p.-cl : 1, li.-cl : p.-cl
12	0·0	11·6	NE : NNE	NNE	1·3	0·0	0·04	213	10 : 10	10 : 0, slt.-f, ho.-fr
13	0·0	11·6	N : WSW	SSW : WSW	0·5	0·0	0·00	131	0, f, ho.-fr: 10, f, glm : 10, f, glm	9, f : 9 : 10
14	0·1	11·7	WSW : SW	Variable : N	2·1	0·0	0·12	225	10 : 10 : 10, shs.-r	10, oc.-slt.-r, glm : 9 : 9, slt.-f
15	8·4	11·8	NNW : W : WSW	WSW : SW	3·2	0·0	0·25	287	li.-cl, ho.-fr : 0, slt.-f, so.-ha	2, th.-cl, so.-ha : 9, fq.-slt.-r
16	0·3	11·8	WSW : W	WNW : NW : SW	2·5	0·0	0·13	278	10, oc.-r : 10 : 10, glm	10, gt.-glm : p.-cl, slt.-f : 9, slt.-f
17	0·2	11·9	SW : WSW	W : WSW	5·7	0·0	0·65	433	10 : 10	p.-cl, w : p.-cl, w
18	4·3	12·0	W	W : WSW : SW	12·0	0·0	1·09	558	9 : 10, w : 8, ci.-cu, cu.-s, w	9, cu.-s, w : 9, w
19	0·0	12·0	WSW	W : NE : ENE	4·7	0·0	0·72	451	10 : 10, w	10, r, gt.-glm : 10, c.-r
20	5·6	12·1	ENE : NNE : NE	ENE : SE	1·3	0·0	0·02	166	9, r : li.-cl : 5, cu.-s	p.-cl : 0
21	5·5	12·2	WNW : WSW : Variable	ENE : NE	0·9	0·0	0·00	115	0, ho.-fr, slt.-f : 1, li.-cl, slt.-f	li.-cl : 0, slt.-f
22	2·2	12·2	Variable : Calm : E	E : SSE : SW	0·2	0·0	0·00	109	0, ho.-fr : 0, slt.-f	2, th.-cl, h, so.-ha : th.-cl, slt.-f : v
23	0·0	12·3	WSW	W : N : NNW	13·0	0·0	0·82	429	9, f : 9 : 10, r	10, shs.-r, w : p.-cl, w : 9, sh.-r, w
24	3·2	12·4	NNW : N	N : NNE	26·0	0·0	1·64	601	v, shs.-r, w : 9, sl, w : vv, fq.-sqs, fq.-sn	v, sc, g, fq.-sn : 10, sn, st.-w
25	0·0	12·5	NNE : NE	NNE : NE	14·0	0·0	2·50	803	10, w, sn : 10, w, sn	10, sn, w : 10, st.-w, sl : 10, st.-w
26	0·0	12·5	NNE	NNE	15·0	0·0	2·41	766	10, w, r : 10, sc, st.-w, fq.-th.-r	10, st.-w, sl, sn : 10, c.-r, sl, w
27	0·1	12·6	NNE : ENE : NE	NE : NNE : N	3·0	0·0	0·31	335	10, shs.-r : 10, r	10, fq.-r : 10, fq.-r
28	0·0	12·6	N	S : SSW : SW	0·9	0·0	0·02	163	10, shs.-r : 10, slt.-r, gt.-glm	10, gt.-glm, slt.-r : 10, glm : 10
29	3·1	12·7	SSW : SW	WSW : SW	1·3	0·0	0·02	160	10 : p.-cl : p.-cl	9, slt.-r : 1, th.-cl, lu.-ha
30	8·4	12·7	SW : Calm : Variable	SE : ESE	0·6	0·0	0·01	144	0, ho.-fr : tk.-f : 2, tk.-f	2, ci.-cu, li.-cl : 2, li.-cl : 5, lu.-ha
31	9·6	12·8	ESE : E	ESE : E : ENE	5·9	0·0	0·30	292	10 : 2, li.-cl, so.-ha	1, ci.-cu, li.-cl : 1, li.-cl, lu.-co
Means	2·6	11·8	...	...	...	...	0·52	340		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 37°·5, being 1°·8 *lower* than
The mean *Temperature of the Dew Point* for the month was 34°·2, being 2°·1 *lower* than
The mean *Degree of Humidity* for the month was 80·2, being 0·9 *less* than
The mean *Elastic Force of Vapour* for the month was 0^{in}·197, being 0^{in}·017 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2^{grs}·3, being 0^{gr}·2 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 551 grains, being 1 grain *greater* than
} the average for the 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 6·8.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·216. The maximum daily amount of *Sunshine* was 9·6 hours on March 31.

The highest reading of the *Solar Radiation Thermometer* was 104°·0 on March 30; and the lowest reading of the *Terrestrial Radiation Thermometer* was 22°·2 on March 15.

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

The *Proportions of Wind* referred to the cardinal points were N. 9, E. 8, S. 5, and W. 9.

The *Greatest Pressure of the Wind* in the month was 26·0 lbs. on the square foot on March 24. The mean daily *Horizontal Movement of the Air* for the month was 340 miles; the greatest daily value was 803 miles on March 25; and the least daily value was 109 miles on March 22.

Rain fell on 14 days in the month, amounting to 1^{in}·403, as measured by gauge No. 6 partly sunk below the ground; being 0^{in}·058 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	...	29·708	50·8	33·2	17·6	41·2	− 4·2	39·0	36·3	4·9	13·0	0·3	83	88·5	28·2	0·000	0·0	sP
2	...	29·629	55·0	35·3	19·7	44·8	− 0·9	41·0	36·6	8·2	14·8	1·7	72	96·0	30·0	0·000	0·0	vP : sP
3	...	29·665	57·2	43·2	14·0	48·4	+ 2·4	43·2	37·5	10·9	17·6	4·4	66	93·4	40·2	0·000	0·2	mP : mP : mP, ssN
4	In Equator	29·732	54·2	37·8	16·4	46·4	+ 0·2	41·8	36·6	9·8	19·4	3·7	70	96·6	31·0	0·030	0·8	vP, ssN : sP
5	...	30·003	53·3	32·6	20·7	41·9	− 4·3	37·5	32·1	9·8	17·8	2·5	69	102·7	26·3	0·000	0·0	sP : mP
6	Full	29·979	61·2	33·6	27·6	47·5	+ 1·3	42·5	37·0	10·5	19·8	3·8	67	114·4	26·9	0·000	0·2	mP : wP : mP
7	...	30·037	60·1	46·9	13·2	52·5	+ 6·4	49·8	47·1	5·4	11·2	2·1	82	103·5	42·2	0·000	0·8	wP : mP : sP
8	...	30·027	67·2	42·2	25·0	54·7	+ 8·8	47·6	40·7	14·0	26·6	2·7	59	125·0	37·6	0·000	1·2	sP : mP : mP
9	Perigee	29·757	61·8	47·8	14·0	53·7	+ 8·1	48·5	43·4	10·3	17·7	3·2	68	112·8	44·8	0·097	4·6	wP, ssN : vP, ssN : sP
10	...	29·594	57·4	47·9	9·5	52·5	+ 7·0	50·1	47·7	4·8	10·8	2·2	84	85·5	44·0	0·031	2·2	wwP : wP, wN
11	Greatest Declination S.	29·498	58·6	44·5	14·1	51·3	+ 5·8	47·0	42·5	8·8	16·0	4·4	73	107·2	42·5	0·000	0·0	wP : mP, wN
12	...	29·481	55·0	42·0	13·0	48·0	+ 2·3	43·4	38·3	9·7	19·2	1·3	69	93·8	38·0	0·134	0·0	vP, vN : sP : ssP
13	Last Quarter	29·854	58·1	37·2	20·9	47·6	+ 1·6	43·9	39·8	7·8	15·6	0·7	75	113·2	32·9	0·000	0·0	sP : mP : sP
14	...	29·678	60·5	43·2	17·3	51·4	+ 5·0	45·8	40·0	11·4	22·4	2·1	65	100·0	37·8	0·059	0·2	mP, ssN : mP, vN
15	...	29·625	59·6	43·8	15·8	50·4	+ 3·5	46·3	42·0	8·4	18·6	1·3	74	111·4	38·0	0·091	0·8	vN, vP : vP
16	...	29·840	52·5	37·0	15·5	46·1	− 1·2	42·8	39·1	7·0	12·2	2·2	77	62·2	31·6	0·000	0·0	sP : mP : vP, mN
17	In Equator	29·786	64·1	36·0	28·1	48·8	+ 1·1	43·6	38·0	10·8	22·6	1·2	67	120·2	30·3	0·000	1·2	mP : wP : vP
18	...	29·630	54·3	39·0	15·3	46·0	− 2·1	42·9	39·4	6·6	13·0	0·7	78	110·9	32·1	0·000	4·6	wP : mP
19	...	29·747	54·6	39·8	14·8	46·1	− 2·2	42·9	39·3	6·8	12·4	2·0	78	114·4	35·3	0·000	2·2	mP
20	New	29·874	59·9	41·3	18·6	48·7	+ 0·2	45·9	42·9	5·8	13·9	2·5	81	112·5	38·0	0·000	0·0	mP
21	...	30·016	57·1	37·8	19·3	48·1	− 0·4	44·5	40·6	7·5	13·5	2·0	75	115·2	34·0	0·000	0·0	mP : wP : mP
22	...	29·934	51·0	35·9	15·1	42·2	− 6·3	38·6	34·2	8·0	13·4	3·7	74	105·0	31·5	0·000	0·0	sP
23	...	29·917	56·3	33·1	23·2	43·8	− 4·6	39·8	35·1	8·7	17·0	2·0	72	118·5	28·7	0·000	0·0	sP : mP : sP
24	Greatest Declination N.	30·009	56·0	29·7	26·3	44·0	− 4·4	40·2	35·7	8·3	16·4	0·7	72	119·4	25·4	0·000	0·0	sP : mP
25	Apogee	29·953	54·0	35·1	18·9	45·1	− 3·3	41·6	37·5	7·6	14·0	2·2	75	99·5	28·7	0·000	0·0	mP
26	...	29·640	59·1	41·8	17·3	48·6	+ 0·2	46·5	44·3	4·3	10·4	0·8	85	114·7	37·0	0·137	0·0	mP : vP, ssN
27	...	29·407	60·3	45·6	14·7	52·4	+ 3·9	49·7	47·0	5·4	13·1	1·3	82	96·0	38·3	0·000	0·0	wP : wP : mP
28	...	29·423	56·5	45·0	11·5	50·1	+ 1·5	49·1	48·0	2·1	5·6	0·8	93	68·3	38·0	0·296	1·0	vP, ssN : mP : mP
29	First Quarter	29·419	60·9	44·1	16·8	51·5	+ 2·7	48·8	46·1	5·4	13·1	1·3	82	114·5	41·0	0·010	3·2	wP : wP, mN : wP
30	...	29·466	56·0	41·7	14·3	49·0	0·0	46·0	42·8	6·2	12·6	1·5	79	99·7	37·7	0·043	0·8	mP : vN, wP : mP
Means	...	29·744	57·4	39·8	17·6	48·1	+ 0·9	44·3	40·3	7·8	15·5	2·0	74·9	103·8	34·9	Sum 0·928	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.

The mean reading of the *Barometer* for the month was 29in·744, being 0in·003 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 67°·2 on April 8 ; the lowest in the month was 29°·7 on April 24 ; and the range was 37°·5.
The mean of all the highest daily readings in the month was 57°·4, 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 39°·8, being 0°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 17°·6, being 0°·7 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 48°·1, being 0°·9 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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.		
Apr. 1	4·5	12·9	ENE : NE : NNE	ENE	0·2	0·0	0·00	106	0, d, ho.-fr : 0, tk.-f : 0, f	1, li.-cl, h : 0, slt.-f
2	3·2	12·9	N : Variable : NNE	NNW : NW : WNW	2·8	0·0	0·09	201	p.-cl : p.-cl, slt.-f	9 : 10
3	4·9	13·0	W : WNW	W	2·5	0·0	0·20	316	9 : 9, cu	5, cu : 9
4	4·7	13·1	WSW : W : NW	NW : N : NNE	5·3	0·0	0·40	345	9, shs.-r : 9 : 9, hy.-sh	p.-cl : p.-cl : 0
5	9·2	13·2	N : NE : E	ESE : SE : SSE	0·8	0·0	0·01	138	0, ho.-fr : 1, cu.-s, li.-cl	1, ci.-cu, li.-cl : 0
6	8·7	13·2	SSE : S : SW	WSW : SW	4·4	0·0	0·32	329	0, ho.-fr : 1, ci.-s, li.-cl	3, ci.-s, so.-ha : 1, li.-cl
7	2·0	13·3	WSW	WSW : SW	3·5	0·0	0·42	373	p.-cl : 10 : 10	9 : 1, li.-cl : 1, li.-cl, lu.-ha
8	12·3	13·4	WSW : SW : SSW	SSW : SW : S	3·8	0·0	0·22	265	1, th.-cl : 0	0 : 0
9	6·0	13·4	SSW : SW : WSW	W : SW	16·0	0·0	1·13	539	8 : 10, hy.-sh : 9, n, li.-shs, w	v, t, oc.-r : 9, slt.-r
10	1·5	13·5	SW	SW : WSW	9·6	0·0	1·29	583	10 : 10, sc, w	10, shs.-r : p.-cl : 9, w
11	4·4	13·6	WSW	SW : SSW	6·8	0·0	1·04	504	9 : 9, cu.-s, w	p.-cl : p.-cl : 10, oc.-r
12	3·0	13·6	WNW : NW	NW : NNW : WNW	17·0	0·0	1·58	657	10, r : 10, w : 10, slt.-r, w	p.-cl, so.-ha, w : 0, d
13	8·8	13·6	WSW : SW	SW : S : SSE	3·0	0·0	0·20	263	0, d : th.-cl, f : 5, cu.-s, th.-cl	5, cu.-s : 3, th.-cl, prh : th.-cl
14	0·5	13·7	SSE : SSW	S : SSE	3·8	0·0	0·34	282	9 : 10, slt.-r	p.-cl, so.-ha : 10 : 10, c.-r
15	5·4	13·8	SSE : WSW : W	NW : W	2·0	0·0	0·12	231	10, r : 9, cu.-s	4, cu, li.-cl : p.-cl, slt.-f
16	2·2	13·9	WSW : Calm : NE	SE : SSW	0·1	0·0	0·00	144	0, ho.-fr : 0 : 9, f, glm	8, glm, slt.-f : p.-cl : 0
17	8·0	13·9	Calm : SSW	S : SW : SSE	1·3	0·0	0·01	136	v, ho.-fr : 2, cu, li.-cl	v : 0, d
18	8·5	14·0	E : ESE	E : ESE	2·6	0·0	0·20	242	10 : 10 : p.-cl	0 : 0
19	6·0	14·0	E : ENE : ESE	E : ESE	2·5	0·0	0·19	265	10 : 9	2, cu, li.-cl : 1, li.-cl
20	2·3	14·1	ENE : NE : E	ESE : E	0·5	0·0	0·00	157	10 : 8, ci.-cu	p.-cl : 10, oc.-slt.-r : 10
21	8·0	14·2	ENE : E	E : ENE	2·3	0·0	0·21	244	10 : 5	1, li.-cl : 0 : 0
22	2·7	14·3	NE : ENE	ENE : E	2·8	0·0	0·26	288	5 : 10 : 10	9 : 1, li.-cl : 0
23	10·9	14·3	NE : NNE : ENE	NE : E : ESE	0·8	0·0	0·02	164	0, ho.-fr : 4, cu, li.-cl	1, th.-cl : 0
24	10·4	14·4	ENE : Calm : E	E : NE	2·0	0·0	0·14	198	0, ho.-fr : 0 : p.-cl	p.-cl : 1, li.-cl : 0
25	1·8	14·4	NNE : N : E	E : ENE	2·0	0·0	0·20	247	p.-cl : p.-cl	9 : v, th.-cl
26	2·4	14·5	NE	E : ENE	2·3	0·0	0·13	254	10 : 10	p.-cl : 10, r : 10, fq.-r
27	2·4	14·5	ESE : SSE	S : E	0·6	0·0	0·02	136	10, m : 10	9, so.-ha : p.-cl : v, th.-cl
28	0·1	14·6	Variable : NNW	NW : SW : S	1·2	0·0	0·01	135	10, hy.-r : 10, c.-r	10, oc.-slt.-r : p.-cl : 9, f
29	2·5	14·7	S : SSW	SSW : S : SW	2·2	0·0	0·17	237	9 : 8 : 8, cu.-s	7, cu, cu.-s : 9, oc.-slt.-r : 9
30	4·3	14·7	SSW : SSE	S : SW	17·9	0·0	1·22	457	p.-cl : p.-cl : 9, r, w	9, fq.-r, st.-w : 0
Means	5·1	13·8	...	...	...	...	0·34	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 44°·3, being 0°·4 *higher* than
The mean *Temperature of the Dew Point* for the month was 40°·3, being 0°·1 *higher* than
The mean *Degree of Humidity* for the month was 74·9, being 1·7 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·250, being 0in·001 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·8, being 0gr·1 *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 543 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 5·7.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·366. The maximum daily amount of *Sunshine* was 12·3 hours on April 8.

The highest reading of the *Solar Radiation Thermometer* was 125°·0 on April 8; and the lowest reading of the *Terrestrial Radiation Thermometer* was 25°·4 on April 24.

The mean daily distribution of *Ozone* for the 12 hours ending 9^h was 0·8; 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. 9, S. 9, and W. 8.

The *Greatest Pressure of the Wind* in the month was 17·9 lbs. on the square foot on April 30. The mean daily *Horizontal Movement of the Air* for the month was 281 miles; the greatest daily value was 657 miles on April 12; and the least daily value was 106 miles on April 1.

Rain fell on 10 days in the month, amounting to 0in·928, as measured by gauge No. 6 partly sunk below the ground; being 0in·733 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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.		
May 1	...	29·643	53·0	41·3	11·7	48·5	− 0·7	46·9	45·2	3·3	9·6	0·0	89	68·9	37·0	0·217	0·0	mP : vP, vN : sN, mP
2	In Equator	29·402	68·0	46·9	21·1	54·7	+ 5·3	51·7	48·8	5·9	14·9	0·0	80	114·7	44·4	0·037	0·0	mP, mN : wP, wN : wP
3	...	29·384	60·8	47·4	13·4	53·9	+ 4·2	49·0	44·2	9·7	15·4	4·2	69	120·0	42·2	0·000	0·0	wwP : wP : mP
4	...	29·427	57·8	46·2	11·6	51·3	+ 1·3	47·8	44·2	7·1	14·2	2·5	77	105·0	42·7	0·143	0·0	wwP, vN : mP
5	...	29·634	55·6	44·0	11·6	50·4	+ 0·1	48·4	46·3	4·1	9·0	0·8	86	79·3	42·1	0·173	0·0	mP : wP : mP
6	Full	29·798	62·1	46·2	15·9	51·9	+ 1·3	47·9	43·9	8·0	16·5	1·0	75	113·6	42·0	0·011	0·0	wP, mN : mP, mN : sP
7	Perigee	30·143	62·1	41·9	20·2	52·2	+ 1·4	47·7	43·1	9·1	13·9	3·5	71	109·0	37·0	0·000	0·0	mP
8	Greatest Declination S.	29·988	55·0	47·9	7·1	51·6	+ 0·6	49·9	48·2	3·4	6·1	0·6	89	74·7	46·0	0·040	0·0	wP
9	...	29·865	60·5	50·1	10·4	55·0	+ 3·8	50·5	46·2	8·8	14·1	1·2	72	89·0	44·5	0·000	0·0	mP : sP
10	...	29·668	60·8	48·7	12·1	54·9	+ 3·4	52·2	49·6	5·3	11·6	1·5	82	85·2	46·1	0·061	0·0	vP : wP : wP, wwN
11	...	29·123	59·7	46·1	13·6	52·6	+ 0·9	47·3	42·0	10·6	20·3	1·8	68	122·9	42·3	0·116	0·0	wwP, mN : mP, wN : vP, vN
12	Last Quarter	29·163	55·2	40·2	15·0	47·0	− 5·0	44·0	40·6	6·4	12·2	2·8	79	105·2	34·6	0·032	0·0	mP : mN, vP : ssN, vP
13	...	29·509	60·0	36·0	24·0	46·7	− 5·6	42·3	37·4	9·3	19·0	2·9	71	118·5	32·0	0·019	0·0	sP : vP, sN
14	In Equator	29·552	61·6	44·2	17·4	50·8	− 1·8	46·6	42·2	8·6	16·3	1·8	74	109·1	40·4	0·270	0·0	vP, vN : sP
15	...	29·700	56·5	42·8	13·7	49·6	− 3·2	47·4	45·0	4·6	9·1	1·0	85	73·0	39·1	0·066	0·0	wP, mN : wP, wN : mP, ssN
16	...	29·948	59·0	42·5	16·5	49·3	− 3·8	44·4	39·1	10·2	19·2	2·4	68	121·0	38·0	0·028	0·0	ssN, vP : mP : vP
17	...	30·005	60·0	38·1	21·9	48·2	− 5·1	44·0	39·4	8·8	19·6	1·2	72	115·6	34·2	0·000	0·0	mP : vP : mP
18	...	30·009	57·3	40·0	17·3	48·5	− 5·1	43·7	38·5	10·0	17·8	2·3	69	124·0	36·2	0·000	0·0	mP : vP
19	...	29·717	50·0	39·0	11·0	46·2	− 7·7	45·0	43·7	2·5	5·7	0·0	92	63·2	34·9	0·469	0·0	mP : vP, ssN : wP
20	New	29·529	51·9	48·8	3·1	50·4	− 3·8	50·1	49·8	0·6	1·9	0·0	98	55·1	45·3	0·157	0·0	wwP : wP, wN
21	...	29·589	61·9	48·2	13·7	54·3	− 0·3	51·9	49·5	4·8	11·0	0·0	84	102·2	43·6	0·054	0·0	wwP
22	Greatest Declination N.	29·620	69·0	46·1	22·9	56·9	+ 1·9	53·4	50·2	6·7	16·2	1·0	78	123·7	42·3	0·010	0·0	wwP : wwP, sN : wP
23	Apogee	29·569	75·0	46·9	28·1	60·2	+ 4·9	56·1	52·5	7·7	18·0	0·8	76	135·0	43·8	0·004	0·8	wP : wP : vN, vP
24	...	29·630	67·9	51·6	16·3	57·6	+ 2·0	54·4	51·5	6·1	13·1	2·2	80	133·2	49·1	0·347	2·2	wP, vN : wP
25	...	29·623	60·0	46·8	13·2	52·2	− 3·5	49·3	46·3	5·9	11·0	2·2	81	102·0	46·4	0·000	0·0	wP : mP
26	...	29·643	56·8	44·2	12·6	50·5	− 5·4	46·2	41·7	8·8	14·0	4·0	73	96·3	41·8	0·000	0·0	wP : sP : mP
27	...	29·787	64·9	45·1	19·8	53·7	− 2·3	48·8	44·0	9·7	17·1	2·1	69	120·1	44·0	0·000	0·0	wP
28	First Quarter	29·881	60·3	46·1	14·2	52·7	− 3·3	48·7	44·7	8·0	13·3	1·9	75	98·7	43·3	0·037	0·2	vN, vP : mP : mP
29	In Equator	29·896	61·2	46·9	14·3	54·4	− 1·8	49·5	44·7	9·7	14·1	4·2	69	83·8	42·0	0·016	0·8	mP
30	...	29·710	59·9	49·3	10·6	53·7	− 2·8	50·5	47·4	6·3	15·6	1·2	79	115·0	48·3	0·167	0·0	wN, wP : vP
31	...	29·439	62·0	41·7	20·3	52·2	− 4·6	49·6	47·0	5·2	8·6	2·2	83	104·0	39·0	0·166	0·2	wP : ssN, ssP : mP
Means	...	29·664	60·2	44·9	15·3	52·0	− 1·1	48·6	45·1	6·9	13·5	1·7	77·8	102·6	41·4	Sum 2·640	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·664, being 0in·122 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 75°·0 on May 23; the lowest in the month was 36°·0 on May 13; and the range was 39°·0.
The mean of all the highest daily readings in the month was 60°·2, being 3°·9 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 44°·9, being 1°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 15°·3, being 5°·1 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 52°·0, being 1°·1 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	0·8	14·8	SSW : S : SSE	E : ENE : SE	1·2	0·0	0·04	189	p.-cl : 10 : 10, slt.-r	10, hy.-r : 10, r : 10
2	2·2	14·9	SE : NE : E	SSE : SW : SSW	5·3	0·0	0·51	311	10, f : p.-cl, slt.-r	10 : 10 : p.-cl, slt.-sh
3	10·6	14·9	SSW : S	SSW : S	8·5	0·0	0·83	422	p.-cl : p.-cl, w	p.-cl, w : p.-cl, slt.-sh
4	3·9	15·0	S : SW : WSW	WSW : SW	13·6	0·0	1·15	525	9, shs.-r : 10, oc.-r, w	8, cu, st.-w, hy.-sh : p.-cl, slt.-sh : p.-cl
5	0·0	15·0	SW : SSW : S	S : SW : WSW	2·7	0·0	0·17	267	10 : 10, slt.-r	10 : 10, r : 10, r
6	8·5	15·1	W : N : NNW	NNW : N	5·2	0·0	0·57	365	v : 0 : v, slt.-sh	7, cu, sh.-r : p.-cl, oc.-slt.-r : p.-cl
7	10·6	15·1	NNW : N	N : SE : SSE	1·1	0·0	0·07	209	p.-cl : p.-cl	v, li.-cl : 5, li.-cl : 9, th.-cl
8	0·0	15·2	S : SW	SW : WSW : NW	2·1	0·0	0·07	225	10, slt.-r : 10 : 10	10, slt.-r : 10, oc.-slt.-r
9	3·4	15·2	NW : W : NNW	NW : WNW : N	2·8	0·0	0·14	241	v : 10	9 : p.-cl
10	0·2	15·3	SW : SSE : WSW	WSW : SW	3·7	0·0	0·28	234	10 : 10, r : 10, glm, slt.-r	10 : 10, oc.-shs
11	9·2	15·3	SW : WSW	WSW : SW	18·6	0·0	1·85	687	10, fq.-shs, w : 10, oc.-shs, st.-w : 5, cu.-s, st.-w	2, cu, li.-cl, w : 9, hy.-sh : v, oc.-shs
12	1·2	15·4	SW : N	N	5·8	0·0	0·20	240	10 : 10, glm, slt.-sh : 10	9, cu : v, r, w : v
13	10·0	15·4	W : WSW	WSW : SW	3·5	0·0	0·27	317	0 : 5, cu, li.-cl	8, slt.-sh : v, hy.-sh : 10, r
14	6·8	15·5	SW : WSW : W	NNW : N : SE	2·2	0·0	0·12	229	10, fq.-hy.-shs : 5, cu, li.-cl	v : v : 1, li.-cl, slt.-f
15	1·5	15·5	ENE : ESE	Variable : SW	0·6	0·0	0·00	148	10, r : 10, shs.-r	10, shs.-r : p.-cl, m : 10
16	11·4	15·6	N	N : NE : SE	2·1	0·0	0·25	252	10, r : p.-cl : 5, cu.-s	6, cu, cu.-s, li.-cl : v, th.-cl
17	4·9	15·6	SSW : N	SW : SSW : SE	0·6	0·0	0·01	139	10 : 9, th.-cl, glm	10, glm : 10 : 10, slt.-r
18	12·0	15·6	ESE : NE : ENE	ENE : NE	7·6	0·0	0·95	461	10 : v, cu, cu.-s	5, cu.-s, w : v, w : 0
19	0·0	15·7	NNE	NE	6·0	0·0	0·80	440	p.-cl : 10, sc, li.-shs, w : 10, sc, oc.-slt.-shs, w	10, sc, r, w : 10, c.-r
20	0·0	15·7	NNE : N	N : NNE	2·7	0·0	0·30	303	10, oc.-r : 10, slt.-r	10, slt.-f, c.-r : 10, m, c.-r
21	2·4	15·8	N : SW : SSW	S : SE	2·0	0·0	0·10	169	10, m, c.-r : 10, oc.-slt.-r	10 : 2, th.-cl
22	7·7	15·8	SE : ESE : E	E : Variable : ENE	3·0	0·0	0·09	183	p.-cl : 9, hy.-sh	v, p.-cl : v : 0
23	10·6	15·9	NE : ENE	ESE : E	3·2	0·0	0·15	186	1, li.-cl, d : 1, li.-cl	2, li.-cl : 10, oc.-shs, t : 10, oc.-shs
24	7·7	16·0	E : ENE	ESE	2·0	0·0	0·18	248	10 : 10, hy.-r : p.-cl	p.-cl : 1, ci.-cu, li.-cl : 9
25	0·9	16·0	NNE : NE	N : NNE : NE	1·2	0·0	0·05	195	10 : 10	10 : 10
26	0·9	16·0	NE : NNE : N	N : SW : WSW	0·1	0·0	0·00	129	10 : 10	10 : p.-cl : 10
27	5·8	16·1	SW : E : ENE	SE : SSE	0·8	0·0	0·02	142	10 : 3, li.-cl : 2, li.-cl	9, slt.-r : 9 : 10
28	3·4	16·1	W : S : N	N : NNE	1·5	0·0	0·05	167	10, slt.-r : 10, slt.-shs : 9, ci.-cu, cu.-s	8 : 6, ci.-cu : 10
29	1·9	16·2	NNE : NNW	NW : WNW : WSW	1·2	0·0	0·08	214	10 : 10	9, th.-cl, s : 10, oc.-r
30	3·3	16·2	WSW : NNW	NW : W : WSW	3·4	0·0	0·34	332	10, slt.-r : 9	10, oc.-slt.-r : 10, oc.-slt.-r
31	0·9	16·2	W : WSW	WSW : W : WNW	12·5	0·0	0·67	412	10, shs.-r : 10, shs.-r	10, fq.-shs, l, t, w : 10, c.-r, gt.-glm, l, t : 0
Means	4·6	15·6	...	...	...	...	0·33	277		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 48°·6, being 0°·6 *lower* than
The mean *Temperature of the Dew Point* for the month was 45°·1, being 0°·2 *lower* than
The mean *Degree of Humidity* for the month was 77·8, being 2·8 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·301, being 0in·002 *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·4, being *the same as*
The mean *Weight of a Cubic Foot of Air* for the month was 537 grains, being 1 grain *less* than
} the average for the 50 years, 1841–1890.

The mean amount of *Cloud* for the month (a clear sky being represented by 0 and an overcast sky by 10) was 7·3.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·296. The maximum daily amount of *Sunshine* was 12·0 hours on May 18.

The highest reading of the *Solar Radiation Thermometer* was 135°·0 on May 23; and the lowest reading of the *Terrestrial Radiation Thermometer* was 32°·0 on May 13.

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 0·0.

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

The *Greatest Pressure of the Wind* in the month was 18·6 lbs. on the square foot on May 11. The mean daily *Horizontal Movement of the Air* for the month was 277 miles; the greatest daily value was 687 miles on May 11; and the least daily value was 129 miles on May 26.

Rain fell on 22 days in the month, amounting to 2in·640, as measured by gauge No. 6 partly sunk below the ground; being 0in·637 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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.		
June 1	...	29·437	57·8	40·0	17·8	47·9	− 9·3	44·5	40·8	7·1	13·0	3·1	77	109·5	37·0	0·232	1·3	vP, vN : vP, ssN
2	...	29·578	59·1	44·8	14·3	50·3	− 7·4	46·4	42·3	8·0	14·4	3·5	75	112·2	42·1	0·020	1·5	wP, mN : vP, vN
3	...	29·812	65·6	42·2	23·4	53·2	− 4·8	48·0	42·8	10·4	19·2	2·4	68	123·8	39·0	0·000	0·8	mP : wP, wN : mP
4	Full : Greatest Declination S.	29·775	63·0	47·0	16·0	54·1	− 4·1	50·6	47·2	6·9	11·6	2·5	77	112·8	45·0	0·000	2·2	wP : ... : mP
5	Perigee	29·684	75·4	47·2	28·2	60·1	+ 1·8	54·1	48·8	11·3	21·6	2·9	66	136·3	44·4	0·000	0·2	wP
6	...	29·673	71·0	50·9	20·1	61·5	+ 3·2	57·9	54·8	6·7	13·9	2·5	79	122·5	46·7	0·098	0·8	wP : vP, vN : wP
7	...	29·838	73·9	51·7	22·2	61·8	+ 3·6	56·0	51·1	10·7	20·9	1·8	68	136·5	48·3	0·000	0·0	wP
8	...	29·912	70·0	48·3	21·7	60·8	+ 2·6	55·8	51·5	9·3	16·9	1·7	71	101·8	46·0	0·000	0·0	mP : ... : mP
9	...	29·925	66·0	55·4	10·6	60·2	+ 2·0	56·2	52·7	7·5	10·8	4·4	76	85·5	53·9	0·006	0·0	mP : mP, wN : mP
10	...	29·901	62·0	53·5	8·5	57·6	− 0·6	56·0	54·6	3·0	6·3	1·3	89	91·0	48·5	0·213	0·0	wP, wN : wP
11	In Equator : Last Quarter.	29·975	76·0	48·9	27·1	61·2	+ 2·8	56·4	52·3	8·9	18·5	1·7	73	134·4	44·4	0·000	0·0	wP : wwP : wP
12	...	30·068	55·5	49·8	5·7	53·3	− 5·3	51·0	48·7	4·6	6·1	2·3	84	67·3	49·0	0·000	0·0	wP : mP
13	...	30·078	56·1	47·1	9·0	51·7	− 7·1	48·6	45·5	6·2	10·4	1·5	79	86·3	47·1	0·003	0·0	wP : mP
14	...	30·089	56·8	48·0	8·8	51·6	− 7·3	47·6	43·5	8·1	12·6	5·2	75	90·0	47·7	0·000	0·0	mP
15	...	30·071	61·9	46·8	15·1	52·5	− 6·5	47·3	42·0	10·5	16·1	5·7	68	125·7	42·5	0·000	0·0	mP
16	...	30·064	63·6	46·7	16·9	54·1	− 4·9	49·8	45·6	8·5	16·0	2·4	72	131·5	42·3	0·000	0·0	mP
17	...	30·078	72·5	47·0	25·5	59·1	0·0	54·8	50·9	8·2	18·0	1·3	74	125·9	44·8	0·000	0·0	mP : wP
18	Greatest Declination N.	29·994	78·4	52·7	25·7	65·0	+ 5·8	58·5	53·2	11·8	24·6	1·6	66	135·0	48·0	0·014	0·0	wP : wP, wwN : wP
19	New : Apogee	29·935	74·1	59·6	14·5	64·9	+ 5·4	59·8	55·6	9·3	16·2	3·2	72	116·9	55·4	0·000	0·0	wP : mP
20	...	29·879	74·6	53·0	21·6	64·1	+ 4·2	59·7	56·0	8·1	14·8	2·0	75	127·9	49·0	0·000	0·0	wP
21	...	29·742	77·7	56·5	21·2	66·0	+ 5·7	61·2	57·4	8·6	16·3	3·8	74	135·0	53·1	0·000	0·0	wP
22	...	29·635	72·0	52·4	19·6	61·1	+ 0·4	54·8	49·3	11·8	22·9	1·9	66	127·8	47·1	0·000	0·0	wP : mP : vP, mN
23	...	29·751	69·1	48·0	21·1	57·5	− 3·5	50·9	44·9	12·6	21·4	4·2	63	125·2	44·8	0·000	0·0	mP : vP : wN, wP
24	...	29·541	60·9	52·3	8·6	56·7	− 4·5	54·8	53·1	3·6	6·8	2·3	88	87·9	50·8	0·172	1·5	wP, wN
25	In Equator	29·342	64·8	49·8	15·0	56·2	− 5·1	52·6	49·2	7·0	14·4	2·0	78	129·9	46·5	0·298	4·5	wP : vP, ssN : wP, vN
26	...	29·409	62·2	46·9	15·3	54·2	− 7·2	51·4	48·7	5·5	11·4	1·1	81	126·3	43·8	0·134	0·0	wP : vP, vN : wP, wN
27	First Quarter	29·631	62·2	49·3	12·9	54·8	− 6·6	52·9	51·1	3·7	8·0	1·2	87	102·5	46·0	0·524	0·0	wP, wwN : vP, vN : mP
28	...	29·828	67·0	50·0	17·0	57·0	− 4·3	53·5	50·2	6·8	14·0	1·0	78	124·3	48·7	0·000	0·0	wP
29	...	29·865	75·3	51·0	24·3	62·0	+ 0·8	56·0	50·8	11·2	22·6	2·4	67	141·4	47·7	0·000	0·0	wP
30	...	29·913	74·2	56·0	18·2	63·2	+ 2·0	59·9	57·1	6·1	11·9	1·3	81	128·2	54·4	0·034	0·0	wP
Means	...	29·814	67·3	49·8	17·5	57·8	− 1·6	53·6	49·7	8·1	15·1	2·5	74·9	116·7	46·8	Sum 1·748	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.

The mean reading of the *Barometer* for the month was $29^{\text{in}}\cdot814$, being $0^{\text{in}}\cdot003$ *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 78°·4 on June 18 ; the lowest in the month was 40°·0 on June 1 ; and the range was 38°·4.
The mean of all the highest daily readings in the month was 67°·3, being 3°·6 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 49°·8, being 0°·1 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 17°·5, being 3°·5 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 57°·8, being 1°·6 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	6·6	16·3	WSW : WNW : W	W : WSW	9·6	0·0	0·68	427	10, oc.-shs : 10 : vv, shs.-r, hl	v, r, t : p.-cl
2	2·8	16·3	WSW : SW	N : NNE : WNW	2·4	0·0	0·16	245	10 : 10, shs.-r : 10, oc.-shs	9, n, shs.-r, t : p.-cl, t : 9, t
3	9·1	16·3	WSW : SW	WSW : SW	5·3	0·0	0·41	313	p.-cl : 0 : v, cu, cu.-s	p.-cl, slt.-r : 2, slt.-sh : p.-cl
4	1·8	16·3	SW	SW : SSW : S	2·8	0·0	...	268	p.-cl : 9, slt.-sh	p.-cl, so.-ha : p.-cl
5	7·0	16·4	Variable : NE : SE	SE : SSE : S	1·5	0·0	...	179	9 : 9, sh.-r	v, li.-cl : 1, li.-cl, s
6	6·5	16·4	SSE : SE	SSW	2·5	0·0	...	226	1, li.-cl : 1, li.-cl : 10, fq.-r	10, oc.-r : v : 1, li.-cl, d
7	12·7	16·4	SW : WSW	WSW : SW : SSW	0·8	0·0	...	201	p.-cl : 1, li.-cl	4, cu, li.-cl : 1, li.-cl, d
8	0·5	16·4	SSW : E : ENE	ENE : NE : NNE	2·7	0·0	...	131	1, li.-cl : 10, m : 10, slt.-r	10, slt.-r, t : 10
9	0·0	16·5	NNE : N	N : NNW	3·5	0·0	...	321	10 : 10 : 10, slt.-r	10, slt.-r : 10 : 5
10	0·3	16·5	NNW : NW : N	N : NNW	2·1	0·0	...	300	10 : 10, r	10 : 8 : 1, th.-cl, m
11	14·1	16·5	NNW : N : NNE	NE : NNE	2·9	0·0	...	320	1, m, d : 0 : 1, li.-cl	2, cu, li.-cl : 5, cu, li.-cl
12	0·0	16·5	NNE : N	NNE : NE : ENE	1·1	0·0	0·09	225	10 : 10	10 : 10
13	0·0	16·5	ENE : NE	NE	2·8	0·0	0·35	329	10 : 10	10 : 10
14	0·0	16·5	NE : NNE	NNE : NE	2·7	0·0	0·47	361	10 : 10	10 : 10
15	6·2	16·5	NNE	NNE : N	2·5	0·0	0·28	313	10 : 10	6, cu.-s, li.-cl : p.-cl
16	4·6	16·5	NNE	NE : NNE : SE	2·5	0·0	0·08	223	v : 9	8, cu, li.-cl : v, li.-cl : 1, li.-cl
17	8·9	16·6	Calm : WSW	WSW : SW	1·6	0·0	0·06	170	10 : p.-cl : p.-cl	8, cu.-s, li.-cl : 1, li.-cl : 0
18	12·6	16·6	SW : WSW	WSW : W	4·2	0·0	0·53	366	10 : p.-cl : 1, li.-cl	3, li.-cl : 10, r
19	3·2	16·6	W : NW	NNW : NW	3·0	0·0	0·18	248	10 : 10	p.-cl : p.-cl : 1, li.-cl
20	3·5	16·6	WSW : SW	W : WSW	2·9	0·0	0·26	303	v, d : 9	9, cu.-s : 9 : v
21	5·9	16·6	WSW : SW	SW : WSW	3·6	0·0	0·33	320	10 : p.-cl : p.-cl	5, cu : 1, li.-cl : 0
22	6·5	16·6	WSW : W : WNW	WNW : W : WSW	4·5	0·0	0·25	246	10 : 9	7, cu : p.-cl : 0
23	10·0	16·6	WSW : W : WNW	W : WSW : SW	3·5	0·0	0·38	340	p.-cl : 6, cu, cu.-s	8, cu : p.-cl
24	0·0	16·5	SW : SSW	SSW	4·7	0·0	0·85	453	10, fq.-r : 10, fq.-r	10, oc.-slt.-r : 10, li.-shs
25	10·2	16·5	SSW : SW	SW : WSW : SSW	11·5	0·0	0·52	332	v, shs.-r : v, fq.-hy.-shs, hl, t, w	v, shs.-r, w : v : v, shs.-r
26	4·6	16·5	S : SW : SSE	SSE : SE : Variable	1·4	0·0	0·01	142	p.-cl : v, shs.-r, t	v, oc.-hy.-shs : 2, li.-cl : v, hy.-sh, l, t
27	1·0	16·5	N : NNW	N	8·0	0·0	0·48	323	10, li.-shs : 10, fq.-r	10, fq.-r, hl, l, t : v, shs.-r : v
28	4·9	16·5	N : NNW	N : S	2·0	0·0	0·08	208	p.-cl : p.-cl	p.-cl : p.-cl : 0
29	13·1	16·5	SW : WSW	WSW : SW	2·8	0·0	0·22	279	p.-cl : v : 3, cu	3, cu, ci.-s : p.-cl : p.-cl
30	2·6	16·5	SW	WSW : SW : N	3·4	0·0	0·09	249	10, slt.-r : 10 : 10	p.-cl : 2, li.-cl : 9, oc.-r
Means	5·3	16·5	...	...	...	...	(22 days) 0·31	279		
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°·6, being 1°·4 *lower* than the average for the 50 years, 1841–1890.
The mean *Temperature of the Dew Point* for the month was 49°·7, being 1°·4 *lower* than the average for the 50 years, 1841–1890.
The mean *Degree of Humidity* for the month was 74·9, being 0·9 *greater* than the average for the 50 years, 1841–1890.
The mean *Elastic Force of Vapour* for the month was 0^{in}·357, being 0^{in}·018 *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 4^{grs}·0, being 0^{gr}·2 *less* than the average for the 50 years, 1841–1890.
The mean *Weight of a Cubic Foot of Air* for the month was 533 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 7·0.
The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·322. The maximum daily amount of *Sunshine* was 14·1 hours on June 11.
The highest reading of the *Solar Radiation Thermometer* was 141°·4 on June 29; and the lowest reading of the *Terrestrial Radiation Thermometer* was 37°·0 on June 1.
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. 10, E. 3, S. 7, W. 10.
The *Greatest Pressure of the Wind* in the month was 11·5 lbs. on the square foot on June 25. The mean daily *Horizontal Movement of the Air* for the month was 279 miles; the greatest daily value was 453 miles on June 24; and the least daily value was 131 miles on June 8.
Rain fell on 11 days in the month amounting to 1^{in}·748, as measured by gauge No. 6 partly sunk below the ground; being 0^{in}·274 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY 1898.	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.		
July 1	...	29·999	71·6	53·7	17·9	61·5	+ 0·2	55·2	49·8	11·7	20·3	1·1	66	125·4	49·6	0·031	0·0	mP
2	Greatest Declination S.	29·845	72·3	54·6	17·7	63·4	+ 2·0	58·0	53·5	9·9	20·0	0·9	70	131·5	51·5	0·125	0·2	wwP : mP : wP
3	Perigee: Full.	29·829	70·8	49·2	21·6	59·1	− 2·6	52·3	46·3	12·8	22·0	1·9	62	121·2	46·0	0·003	0·8	wP : wP : mP
4	...	29·930	68·0	50·6	17·4	57·9	− 4·0	51·8	46·3	11·6	17·5	4·2	65	133·2	46·9	0·000	0·0	mP
5	...	30·107	69·3	47·0	22·3	58·7	− 3·4	52·8	47·6	11·1	18·5	2·3	67	112·0	43·0	0·000	0·0	wP : vP : mP
6	...	30·112	76·2	57·8	18·4	65·3	+ 3·1	58·6	53·1	12·2	18·2	7·7	65	128·0	55·6	0·000	0·0	mP
7	...	30·048	74·8	56·0	18·8	65·5	+ 3·4	59·9	55·3	10·2	16·6	2·7	70	115·0	50·5	0·000	0·0	mP
8	In Equator	30·035	69·4	52·9	16·5	60·7	− 1·3	55·8	51·6	9·1	16·0	4·2	71	118·6	46·7	0·000	0·0	mP
9	...	30·115	62·0	50·8	11·2	55·9	− 6·1	51·8	47·9	8·0	12·2	5·0	75	91·0	45·1	0·000	0·0	mP
10	Last Quarter	30·170	58·1	48·2	9·9	54·4	− 7·7	51·8	49·3	5·1	8·7	3·0	82	73·9	40·7	0·000	0·0	wP : wP : mP
11	...	30·170	71·1	46·5	24·6	58·3	− 4·0	54·0	50·1	8·2	17·1	1·1	75	122·5	39·1	0·000	0·0	mP
12	...	29·991	76·2	51·3	24·9	63·5	+ 0·9	58·2	53·8	9·7	16·1	2·4	71	120·5	48·2	0·000	0·0	mP
13	...	29·757	68·5	51·8	16·7	60·5	− 2·4	54·5	49·2	11·3	18·5	5·7	67	118·0	45·2	0·015	0·0	mP : vP, wN : mP
14	...	29·888	77·1	47·0	30·1	62·9	− 0·2	54·8	47·9	15·0	26·5	3·8	58	138·5	41·8	0·000	0·0	mP : wP : vP
15	Greatest Declination N.	29·968	81·1	54·8	26·3	67·6	+ 4·4	61·0	55·8	11·8	23·8	2·7	65	129·0	48·9	0·000	0·0	mP
16	Apogee	29·956	82·0	57·0	25·0	69·5	+ 6·3	61·7	55·6	13·9	23·5	1·9	61	125·0	51·3	0·000	0·0	wP
17	...	29·982	76·0	58·1	17·9	67·4	+ 4·3	60·1	54·3	13·1	19·0	6·8	63	127·6	48·9	0·000	0·0	mP
18	New	29·811	81·0	56·3	24·7	68·0	+ 5·0	62·1	57·5	10·5	19·9	3·0	69	141·1	50·7	0·000	0·0	wP : wwP, wwN : wP
19	...	29·770	70·2	56·1	14·1	62·4	− 0·6	59·4	56·8	5·6	9·7	2·8	82	107·4	55·9	0·059	0·0	wP, wwN : mP : wP
20	...	29·940	68·0	48·1	19·9	58·1	− 4·9	53·1	48·6	9·5	17·5	3·6	71	134·2	43·5	0·000	0·0	mP
21	...	29·976	75·9	44·6	31·3	59·8	− 3·2	53·8	48·5	11·3	22·1	1·9	67	139·6	42·9	0·000	0·0	mP : wP
22	...	29·689	75·1	58·3	16·8	63·7	+ 0·8	60·3	57·5	6·2	14·0	0·9	80	132·9	56·5	0·356	0·0	wP : vP, ssN : wP, wN
23	In Equator	29·579	73·3	57·8	15·5	64·0	+ 1·2	59·6	55·9	8·1	16·9	2·3	75	122·1	55·3	0·033	0·0	wwP : wP : wP
24	...	29·799	75·3	52·0	23·3	62·5	− 0·1	55·5	49·5	13·0	22·9	5·2	63	130·2	46·3	0·000	0·0	wP
25	...	29·901	74·3	53·0	21·3	63·7	+ 1·3	59·2	55·4	8·3	17·2	2·3	75	105·6	47·2	0·000	0·0	mP : wP, wwN
26	First Quarter	29·937	72·6	59·7	12·9	65·2	+ 2·9	62·5	60·3	4·9	9·9	1·3	84	112·5	58·0	0·002	0·0	wP
27	...	29·898	79·0	58·5	20·5	65·5	+ 3·2	61·7	58·6	6·9	18·5	1·1	79	133·2	56·2	0·438	0·0	wP : wP : vP, ssN
28	...	29·784	69·9	54·3	15·6	61·5	− 0·8	58·5	55·9	5·6	14·2	1·0	82	90·9	51·7	0·261	0·0	wP : mP, mN : vP, ssN
29	Greatest Declination S.	29·862	59·1	51·7	7·4	55·4	− 6·9	52·3	49·3	6·1	8·4	3·6	81	84·8	49·5	0·016	0·0	wP
30	...	30·064	62·3	49·3	13·0	55·2	− 7·1	50·2	45·4	9·8	14·8	4·2	70	94·9	45·3	0·000	0·0	mP
31	Perigee	30·024	79·4	47·4	32·0	61·9	− 0·4	54·3	47·7	14·2	28·1	2·3	60	125·0	44·0	0·000	0·0	wP
Means	...	29·933	72·3	52·7	19·5	61·9	− 0·5	56·6	52·1	9·8	17·7	3·0	70·7	118·9	48·4	Sum 1·339	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·933, being 0in·140 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 82°·0 on July 16; the lowest in the month was 44°·6 on July 21; and the range was 37°·4.
The mean of all the highest daily readings in the month was 72°·3, being 1°·7 *lower* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 52°·7, being 0°·4 *lower* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 19°·5, being 1°·4 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 61°·9, being 0°·5 *lower* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	9·2	16·5	NNW : W	W : SW : SSW	2·9	0·0	0·20	270	10, shs.-r : li.-cl : p.-cl, h	8, cu.-s, li.-cl : 10, slt.-r : 10, slt.-r
2	10·2	16·5	SW : WSW : NNW	NNW : WNW : WSW	4·7	0·0	0·32	319	10, r : v, li.-shs	2, cu.-s, th.-cl : 2, th.-cl
3	11·5	16·5	WSW : W	W : WNW : NW	2·7	0·0	0·33	322	p.-cl : p.-cl	5, th.-cl : 9, th.-cl
4	10·7	16·5	NNW : N	N : NW : SSE	2·9	0·0	0·29	283	p.-cl : 5, cu, cu.-s	9 : 0
5	2·8	16·4	Calm : Variable	NW : NNW : N	1·7	0·0	0·06	171	9 : 10, m : p.-cl, slt.-f	p.-cl : 10
6	3·1	16·4	N : NW : W	NNW : N	1·8	0·0	0·13	238	10 : 10 : p.-cl	9 : 9
7	4·7	16·4	WSW : W : WNW	WNW : NW : NNW	3·0	0·0	0·21	258	9 : 9	9 : 9 : 0
8	7·3	16·3	NNW : N	NE : NNE	1·7	0·0	0·14	243	0 : 0 : 1, li.-cl	10 : 3, li.-cl : 1, li.-cl
9	0·3	16·3	N	N : NNE	1·5	0·0	0·17	260	10 : 10	9 : 9 : 10, m.-r
10	1·0	16·3	NNE : N	N : NNE	1·5	0·0	0·14	257	10 : 10, fq.-m.-r : 10, oc.-m.-r	10 : 0, d
11	3·8	16·3	N : NNE	NNE : NE : Variable	2·5	0·0	0·12	217	p.-cl : 10, oc.-m.-r : 10, m.-r	p.-cl : p.-cl
12	6·2	16·2	SW : WSW : NNW	NNW : NW : W	1·5	0·0	0·07	205	9 : v : 10, th.-cl	10 : 9, th.-cl : 10
13	6·8	16·2	W : NNW : NW	N : NNE : NE	4·0	0·0	0·45	347	10 : 9, r	p.-cl : 0 : 3, li.-cl
14	12·3	16·1	N : SW : WSW	WSW : W : WNW	2·5	0·0	0·20	260	p.-cl : 0	0 : p.-cl : p.-cl
15	11·6	16·1	WSW : W : WNW	NNW : N : SW	0·7	0·0	0·01	150	0 : 2, li.-cl, m	0 : 0 : 1, li.-cl
16	10·3	16·1	Calm : WSW : N	NNE : N : NNW	1·7	0·0	0·05	159	1, th.-cl : 1, th.-cl	2, cu.-s, li.-cl : 0
17	6·5	16·0	N : NNW	NNW : NW : SW	1·0	0·0	0·04	183	p.-cl : 8	10, li.-cl : 2, li.-cl
18	11·6	16·0	SW	WSW	5·7	0·0	0·68	410	1, li.-cl : 1, li.-cl	4, li.-cl : p.-cl, slt.-r : v
19	0·6	15·9	WSW : W : WNW	NE : SE : E	2·0	0·0	0·08	195	10 : 10, slt.-r : 10	10, n, slt.-r : 10
20	4·1	15·9	ENE : NE : E	E : ESE	1·7	0·0	0·12	223	10 : 10	9 : 9 : 0
21	7·0	15·9	ESE : ENE : SE	S : SSE : ENE	1·7	0·0	0·03	134	0 : 10, f : 5, ci.-cu	5, ci.-cu, li.-cl : 10
22	1·7	15·8	ESE : SSE : SSW	SW : SSW	2·3	0·0	0·16	234	10 : 10 : 9	10, r : 10, sc, fq.-r : 1, li.-cl
23	4·6	15·8	SW : WSW : W	W	5·9	0·0	0·71	437	9 : 9	p.-cl : 10 : 10, r
24	13·5	15·7	NNW : WNW : W	W : N : Variable	1·5	0·0	0·05	188	p.-cl : 0, slt.-h	0 : 0
25	0·8	15·7	NNE : SE : SW	WSW : SW : NE	0·5	0·0	0·00	111	1, li.-cl : 10 : 9, th.-cl	10 : 10
26	1·8	15·7	ENE : NE	NE : ENE : E	0·7	0·0	0·01	132	10 : 10	10, sh.-r : 9 : 9
27	6·3	15·6	E : NE	ENE : E : ESE	1·0	0·0	0·03	118	10 : 10 : 4, th.-cl	2, cu, li.-cl : 10, l, t, hy.-r : 10
28	0·1	15·6	Variable : SW : NNE	WNW : NW : WSW	2·8	0·0	0·12	181	10 : 10	10, sh.-r : 10, r : v
29	0·6	15·5	NW : NNW : N	N : NNW	7·2	0·0	0·83	439	10, shs.-r : 10, fq.-m.-r, w	10, w : 10
30	2·5	15·5	NNW	N : ENE : S	2·5	0·0	0·14	241	10 : 9	9 : 0
31	13·5	15·4	SW : WSW : W	WSW : W : WNW	1·2	0·0	0·05	208	p.-cl : 3, th.-cl	1, li.-cl : 0
Means	6·0	16·0	...	...	...	...	0·19	238		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 56°·6, being 1°·2 *lower* than
The mean *Temperature of the Dew Point* for the month was 52°·1, being 1°·8 *lower* than
The mean *Degree of Humidity* for the month was 70·7, being 3·1 *less* than
The mean *Elastic Force of Vapour* for the month was $0^{in}\cdot389$, being $0^{in}\cdot027$ *less* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was $4^{grs}\cdot3$, being $0^{gr}\cdot3$ *less* than
The mean *Weight of a Cubic Foot of Air* for the month was 530 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 6·5.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·376. The maximum daily amount of *Sunshine* was 13·5 hours on July 24 and 31.

The highest reading of the *Solar Radiation Thermometer* was 141°·1 on July 18; and the lowest reading of the *Terrestrial Radiation Thermometer* was 39°·1 on July 11.

The mean daily distribution of *Ozone* for the 12 hours ending 9^h was 0·0; 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. 12, E. 4, S. 4, W. 10. One day was calm.

The *Greatest Pressure of the Wind* in the month was 7·2 lbs. on the square foot on July 29. The mean daily *Horizontal Movement of the Air* for the month was 238 miles; the greatest daily value was 439 miles on July 29; and the least daily value was 111 miles on July 25.

Rain fell on 9 days in the month, amounting to $1^{in}\cdot339$, as measured by gauge No. 6 partly sunk below the ground; being $1^{in}\cdot131$ *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Lowest.	Daily Range.	Mean of 24 Hourly Values.	Excess above Average of 50 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Lowest on the Grass.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Aug. 1	...	29·927	79·0	50·3	28·7	65·2	+ 3·0	58·5	53·0	12·2	20·2	2·4	65	129·7	47·2	0·000	0·5	mP : wP : mP
2	Full	29·839	79·2	53·2	26·0	65·8	+ 3·7	59·3	54·0	11·8	21·8	3·0	66	135·0	49·7	0·000	1·5	mP : wP
3	...	29·721	76·3	56·1	20·2	65·4	+ 3·3	59·5	54·7	10·7	20·1	1·7	69	136·6	51·8	0·018	0·0	wP : wP, wwN
4	In Equator	29·844	73·0	51·2	21·8	61·9	− 0·3	54·8	48·7	13·2	23·4	3·0	62	126·9	48·0	0·000	0·0	mP
5	...	29·822	75·7	54·2	21·5	63·9	+ 1·6	58·6	54·2	9·7	17·5	3·6	71	135·0	49·5	0·007	0·0	wP : wwP, wwN : wP
6	...	29·617	68·4	56·4	12·0	65·2	+ 2·8	62·1	59·5	5·7	9·4	2·3	83	92·3	53·8	0·027	0·0	wP
7	...	29·614	56·5	49·2	7·3	54·4	− 8·1	53·0	51·6	2·8	5·5	0·8	90	65·0	46·6	0·506	0·0	wP : wP, vN : wP
8	...	29·601	60·1	48·0	12·1	54·0	− 8·5	51·4	48·9	5·1	9·7	0·6	82	97·2	45·1	0·047	0·0	wP
9	Last Quarter	29·893	67·8	50·0	17·8	58·0	− 4·5	53·2	48·9	9·1	15·8	3·0	72	116·7	46·0	0·000	0·2	wP : mP
10	...	29·984	68·0	50·7	17·3	59·8	− 2·7	56·4	53·4	6·4	11·5	2·4	80	122·0	47·0	0·000	0·8	wP
11	Greatest Declination N.	30·023	80·8	57·5	23·3	66·9	+ 4·4	60·4	55·2	11·7	25·2	2·7	66	134·1	54·7	0·000	0·0	wP
12	...	29·875	84·5	55·8	28·7	70·8	+ 8·3	62·6	56·3	14·5	27·7	4·4	60	136·6	51·9	0·000	0·0	wP
13	Apogee	29·804	87·5	64·2	23·3	73·4	+ 11·0	66·3	61·1	12·3	20·6	2·3	66	142·9	59·1	0·000	0·0	wP
14	...	29·834	87·9	60·2	27·7	72·9	+ 10·6	66·2	61·2	11·7	24·0	1·1	66	141·3	58·0	0·000	0·0	wP
15	...	29·825	86·0	64·3	21·7	73·8	+ 11·7	66·7	61·5	12·3	22·4	4·3	66	137·0	60·8	0·000	0·0	wP
16	...	29·782	82·1	61·2	20·9	69·8	+ 7·8	65·0	61·3	8·5	18·5	2·8	74	134·7	58·5	0·019	1·0	vP, ssN : wP : mP
17	New	29·922	77·0	57·8	19·2	65·9	+ 4·1	61·5	57·9	8·0	17·5	2·5	76	129·0	53·8	0·000	0·0	wP
18	...	29·950	78·3	55·8	22·5	65·9	+ 4·3	58·7	52·8	13·1	26·2	2·3	63	134·3	52·3	0·015	0·0	wP : vN : vP, vN
19	In Equator	29·895	81·1	57·9	23·2	68·8	+ 7·4	65·0	62·0	6·8	15·6	2·3	79	137·2	57·9	0·000	0·0	vP, ssN : wP : wP
20	...	29·951	82·1	58·2	23·9	68·4	+ 7·1	63·2	59·1	9·3	20·7	1·7	72	136·5	53·8	0·000	0·0	wP
21	...	29·941	81·8	59·4	22·4	67·9	+ 6·8	63·4	59·9	8·0	20·9	0·9	76	138·2	54·3	0·000	0·0	wP
22	...	29·829	90·0	60·4	29·6	71·6	+ 10·6	65·2	60·3	11·3	28·8	1·1	67	143·0	57·0	0·027	0·0	wP, wN : vP, vN : wP, sN
23	...	29·864	78·5	59·4	19·1	67·0	+ 6·1	62·3	58·5	8·5	17·9	1·7	74	135·5	55·5	0·000	0·0	wP
24	First Quarter	29·992	72·8	54·4	18·4	63·4	+ 2·6	55·6	49·1	14·3	23·4	3·8	60	125·8	51·0	0·000	0·0	wP : mP : vP
25	...	30·054	73·2	51·4	21·8	60·6	− 0·2	54·6	49·4	11·2	23·2	3·8	67	137·9	47·1	0·000	0·0	mP : wP
26	Greatest Declination S.	29·900	73·5	50·0	23·5	62·3	+ 1·5	57·9	54·2	8·1	18·4	1·8	75	128·3	44·9	0·000	0·0	wP : mP
27	...	29·689	67·9	55·7	12·2	63·2	+ 2·5	61·1	59·3	3·9	5·6	2·5	88	85·3	50·8	0·111	0·0	wP : wP : wP, mN
28	...	29·780	73·1	50·9	22·2	59·7	− 0·9	53·6	48·2	11·5	26·3	2·8	66	137·0	45·5	0·034	0·0	wP : wP : mP, vN
29	Perigee	29·816	65·5	48·3	17·2	57·3	− 3·0	53·6	50·2	7·1	16·7	1·3	77	120·3	44·3	0·053	0·0	wP : ... : mP
30	...	29·687	76·7	56·7	20·0	65·7	+ 5·6	60·3	55·9	9·8	20·6	1·7	71	130·0	51·9	0·000	0·0	wP
31	Full	29·903	68·0	51·8	16·2	60·7	+ 0·8	54·1	48·3	12·4	20·3	4·8	64	111·8	44·0	0·000	0·0	mP : vP
Means	...	29·844	75·9	55·2	20·7	64·8	+ 3·2	59·5	55·1	9·7	19·2	2·4	71·4	126·2	51·3	Sum 0·864	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 $29^{in}\cdot844$, being $0^{in}\cdot062$ *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 90°·0 on August 22; the lowest in the month was 48°·0 on August 8; and the range was 42°·0.
The mean of all the highest daily readings in the month was 75°·9, being 3°·1 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 55°·2, being 2°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 20°·7, being 0°·9 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 64°·8, being 3°·2 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	10·4	15·3	WSW : W	W : NW : WSW	1·2	0·0	0·04	186	1, li.-cl : 0 : 4, th.-cl	p.-cl : 0 : 0
2	11·7	15·3	WSW : SW	WSW	3·1	0·0	0·28	287	0 : 2, li.-cl	1, ci.-s, li.-cl : 1, li.-cl
3	8·6	15·2	SW	SW	5·8	0·0	0·84	443	0 : p.-cl : p.-cl	p.-cl, w : 2, li.-cl, w : 10, li.-shs, w
4	9·6	15·2	NW : W : WSW	W : WNW : WSW	4·2	0·0	0·41	347	p.-cl : 1 : p.-cl	5, cu.-s, li.-cl : 2 : 10, th.-cl, w
5	4·5	15·1	SW : SSW	SW	9·0	0·0	0·98	495	10 : 10, slt.-sh : p.-cl, w	5, ci.-cu, li.-cl, w : 9, w : 10, w
6	0·1	15·1	SW : SSW	SSW : SW : WNW	6·9	0·0	0·78	435	10, w : 10, shs.-r : 10, fq.-th.-r	10, oc.-slt.-r : 10, shs.-r, w
7	0·2	15·0	NNW : W : NE	NNE : N : NNW	2·6	0·0	0·11	185	10 : 10 : 10, r	10, c.-r : p.-cl
8	0·2	15·0	NE	NNE : N : NNW	4·4	0·0	0·45	324	10 : 10, r : 10, slt.-r	10 : 10
9	3·2	14·9	NW	N : NW : WSW	1·7	0·0	0·07	209	10 : 10 : p.-cl	p.-cl, slt.-r : p.-cl
10	0·4	14·9	SW : SSW	SW : WSW	5·5	0·0	0·55	356	10 : 10, oc.-slt.-r, w	9 : 9 : v
11	11·4	14·8	SW : WSW	SW : SSW	2·1	0·0	0·13	262	9 : 5	0 : 0
12	12·2	14·8	SE : SSE : S	S : SSE	3·3	0·0	0·27	231	0 : 0	v, li.-cl : p.-cl : 9
13	8·0	14·7	S : SSW : WSW	WSW : SW	0·9	0·0	0·02	176	p.-cl : 2, ci.-cu, li.-cl	p.-cl : 0
14	11·2	14·7	SSW : SW : WSW	WSW : N	0·5	0·0	0·00	140	li.-cl, h : 1, ci.-cu, li.-cl	p.-cl : p.-cl
15	8·2	14·6	N : NE : ENE	ENE : E : NE	1·0	0·0	0·08	203	p.-cl : p.-cl	p.-cl : p.-cl : 0, l
16	8·2	14·5	NE : E	E : N : NNE	3·4	0·0	0·25	265	9, l, t, sh.-r : 10, oc.-slt.-r : 4, ci.-cu, li.-cl	0 : 0, h
17	6·8	14·4	N : NNE	NNE : ENE : E	1·6	0·0	0·09	229	10 : 8, cu.-s	1, th.-cl : 1, li.-cl
18	10·7	14·4	ENE : E	E : ENE	8·2	0·0	0·85	385	p.-cl : 10 : 0, w	0, w : 0 : 10, shs.-r, l
19	5·9	14·3	E	E : ESE : SW	12·0	0·0	0·38	270	10, slt.-shs : p.-cl : 3, ci.-cu, li.-cl	v, li.-cl : 1, li.-cl, l, d
20	10·0	14·3	SW : WSW	W : NE : ENE	0·8	0·0	0·01	150	0, d : 0, m : 2, th.-cl	1, li.-cl, h : 1, li.-cl, h : 0, slt.-f
21	9·9	14·2	ENE : E	ESE : E : ENE	2·5	0·0	0·20	216	0 : p.-cl : 3, li.-cl	0 : 10, l
22	5·6	14·1	E : Variable	SW	3·3	0·0	0·12	209	10 : 9, sh.-r	6, li.-cl : p.-cl : v, sh.-r, l, t
23	4·5	14·0	SW : WSW	WSW : SW	2·6	0·0	0·20	256	8 : 6, cu.-s	p.-cl : v, li.-cl
24	10·4	14·0	NNW : N	N : NNE	2·2	0·0	0·21	242	10 : 10 : p.-cl	0 : 0
25	11·2	13·9	Variable : NNE : NE	NE : ESE : SE	1·3	0·0	0·03	138	p.-cl : 0 : p.-cl	3, cu.-s, li.-cl : v, li.-cl
26	3·5	13·9	SE : SSW	SSW : SW	2·8	0·0	0·27	257	p.-cl : p.-cl	10 : 10
27	0·0	13·8	SW : SSW	SW : WSW	9·0	0·0	0·76	421	10 : 10, oc.-shs, w	10, fq.-m.-r, w : 10, fq.-r : 0, d
28	11·9	13·8	WSW	WSW	10·0	0·0	0·82	403	1, li.-cl : 0 : 3, cu.-s, li.-cl, w	p.-cl, w : 10, r, l
29	2·6	13·7	WSW : SW	SSW	7·0	0·0	0·59	362	p.-cl : p.-cl	10 : 10, r, w : 10, r, w
30	9·6	13·7	WSW	WSW : SW	7·7	0·0	1·52	522	p.-cl : 0 : 5, cu, w	3, ci.-cu, li.-cl, w : 9 : v, oc.-slt.-r, w
31	7·9	13·6	W : NW	NNW	9·1	0·0	0·90	408	10, w : p.-cl : 9, cu	6, cu, cu.-s : 0
Means	7·1	14·5	...	...	...	...	0·39	291		
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°·5, being 1°·9 *higher* than
The mean *Temperature of the Dew Point* for the month was 55°·1, being 0°·9 *higher* than
The mean *Degree of Humidity* for the month was 71·4, being 5·4 *less* than
The mean *Elastic Force of Vapour* for the month was $0^{in}\cdot434$, being $0^{in}\cdot013$ *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was $4^{grs}\cdot8$, being $0^{gr}\cdot1$ *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 4·9.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·487. The maximum daily amount of *Sunshine* was 12·2 hours on August 12.

The highest reading of the *Solar Radiation Thermometer* was 143°·0 on August 22; and the lowest reading of the *Terrestrial Radiation Thermometer* was 44°·0 on August 31.

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. 6, E. 6, S. 8, W. 11.

The *Greatest Pressure of the Wind* in the month was 12·0 lbs. on the square foot on August 19. The mean daily *Horizontal Movement of the Air* for the month was 291 miles; the greatest daily value was 522 miles on August 30; and the least daily value was 138 miles on August 25.

Rain fell on 11 days in the month, amounting to $0^{in}\cdot864$, as measured by gauge No. 6 partly sunk below the ground; being $1^{in}\cdot486$ *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898.	Phases of the Moon.	BAROMETER. Mean of 24 Hourly Values (corrected and reduced to 32° Fahrenheit).	TEMPERATURE. Of the Air. Highest.	Lowest.	Daily Range.	Mean of 24 Hourly Values.	Excess above Average of 50 Years.	Of Evaporation. Mean of 24 Hourly Values.	Of the Dew Point. Deduced Mean Daily Value.	Difference between the Air Temperature and Dew Point Temperature. Mean.	Greatest.	Least.	Degree of Humidity (Saturation = 100).	TEMPERATURE. Of Radiation. Highest in Sun's Rays.	Lowest on the Grass.	Rain collected in Gauge No. 6, whose receiving surface is 5 inches above the Ground.	Daily Amount of Ozone.	Electricity.
		in.	°	°	°	°	°	°	°	°	°	°		°	°	in.		
Sept. 1	In Equator	30·172	70·0	44·0	26·0	57·2	− 2·5	50·9	45·1	12·1	21·6	2·9	64	114·9	37·9	0·000	0·0	mP : vP
2	...	30·173	76·0	46·6	29·4	61·4	+ 1·7	54·5	48·5	12·9	22·4	4·2	63	133·3	42·2	0·000	0·0	mP : wP : mP
3	...	30·202	82·9	55·3	27·6	68·3	+ 8·7	61·7	56·5	11·8	22·4	2·7	66	133·5	50·8	0·000	0·0	mP
4	...	30·211	82·5	56·1	26·4	69·0	+ 9·6	63·7	59·6	9·4	21·4	1·9	71	135·3	50·7	0·000	0·0	wP
5	...	30·142	79·0	59·2	19·8	66·0	+ 6·7	63·4	61·3	4·7	13·6	0·9	85	133·0	53·7	0·000	0·0	wwP
6	...	29·997	80·1	60·9	19·2	66·7	+ 7·6	63·8	61·5	5·2	15·8	0·5	83	133·3	60·9	0·000	0·0	wwP : wP
7	Last Quarter	29·890	84·8	59·1	25·7	70·1	+11·2	65·4	61·8	8·3	17·7	1·1	75	135·6	59·1	0·000	0·0	wP
8	Greatest Declination N.	29·837	92·1	62·0	30·1	75·3	+16·6	66·5	60·2	15·1	32·5	3·6	59	145·9	55·5	0·000	0·0	wP
9	Apogee	29·743	89·8	64·0	25·8	74·4	+15·9	65·4	58·9	15·5	32·6	5·6	58	140·4	55·4	0·000	0·0	wP
10	...	29·857	77·2	58·9	18·3	66·3	+ 8·0	58·5	52·2	14·1	27·2	3·2	61	131·3	53·9	0·000	0·0	wP : mP : vP
11	...	29·830	79·0	53·4	25·6	64·1	+ 6·0	58·3	53·5	10·6	23·5	2·8	68	140·0	48·0	0·000	0·0	mP : wP
12	...	29·852	71·3	54·4	16·9	61·6	+ 3·6	55·3	49·9	11·7	22·5	3·0	66	123·0	48·5	0·018	0·0	mP : mP : sP
13	...	29·952	70·6	48·6	22·0	59·6	+ 1·7	54·3	49·6	10·0	17·6	3·0	70	117·9	42·5	0·000	0·0	mP
14	...	30·050	80·1	59·2	20·9	67·2	+ 9·4	62·1	58·0	9·2	21·6	2·7	73	133·1	53·0	0·000	0·0	wP : mP
15	In Equator	30·173	82·0	55·0	27·0	66·4	+ 8·7	61·1	56·9	9·5	22·6	1·5	72	140·3	48·1	0·000	0·0	wP
16	New	30·028	83·9	55·9	28·0	68·1	+10·6	61·8	56·9	11·2	29·7	0·6	67	142·6	48·9	0·000	0·0	mP : wP : mP
17	...	29·807	89·9	59·0	30·9	73·0	+15·7	63·8	57·0	16·0	30·4	5·1	57	137·8	51·0	0·000	0·0	wP : wwP : mP
18	...	29·795	69·4	49·2	20·2	62·4	+ 5·5	57·8	53·9	8·5	14·8	3·8	74	103·6	43·5	0·081	0·0	wP : vN, mP : sP
19	...	30·018	66·0	42·1	23·9	55·7	− 0·8	51·8	48·1	7·6	15·7	2·9	76	108·8	36·9	0·038	0·0	mP : wP, wN : wP
20	...	29·942	74·6	54·7	19·9	63·1	+ 7·0	58·6	54·8	8·3	18·7	1·9	75	123·0	47·6	0·000	0·0	wP
21	...	29·877	73·8	50·2	23·6	60·1	+ 4·4	55·3	51·1	9·0	18·9	3·2	72	122·1	42·9	0·000	0·0	mP
22	Greatest Declination S.	29·932	69·9	48·6	21·3	58·7	+ 3·3	54·7	51·1	7·6	14·2	1·8	76	113·4	43·9	0·000	0·0	mP
23	First Quarter	30·050	66·7	44·8	21·9	55·0	− 0·2	49·4	44·0	11·0	19·1	5·2	67	125·4	38·5	0·000	0·0	wP : wP : mP
24	...	29·971	60·7	40·0	20·7	51·7	− 3·4	47·1	42·4	9·3	16·2	2·4	71	119·7	34·4	0·000	0·0	mP
25	Perigee	29·896	62·1	45·6	16·5	54·1	− 0·9	48·6	43·2	10·9	18·6	4·8	67	123·0	39·3	0·000	0·0	mP : vP
26	...	29·854	66·1	39·9	26·2	51·9	− 3·0	47·6	43·2	8·7	18·0	2·2	73	132·5	33·3	0·000	0·0	wP : wP : mP
27	...	29·624	65·7	41·2	24·5	54·4	− 0·5	49·9	45·5	8·9	19·4	1·1	71	119·2	35·0	0·004	0·0	mP
28	In Equator	29·759	64·5	43·7	20·8	52·6	− 2·2	46·9	41·2	11·4	22·2	3·1	66	116·1	35·7	0·000	0·0	mP : vP
29	Full	29·739	65·3	40·2	25·1	53·1	− 1·5	48·7	44·3	8·8	17·6	2·4	72	121·6	32·8	0·024	1·2	mP : wP, wwN
30	...	29·626	57·7	46·2	11·5	53·9	− 0·5	51·4	49·0	4·9	11·0	1·8	83	77·3	40·0	0·140	3·8	wP, wN : wP : mP
Means	...	29·933	74·5	51·3	23·2	62·0	+ 4·9	56·6	52·0	10·1	20·1	2·7	70·0	125·9	45·5	Sum 0·305	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·933, being 0in·127 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 92°·1 on September 8; the lowest in the month was 39°·9 on September 26; and the range was 52°·2.
The mean of all the highest daily readings in the month was 74°·5, being 7°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 51°·3, being 2°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 23°·2, being 5°·0 *greater* than the average for the 50 years, 1841–1890.
The mean for the month was 62°·0, being 4°·9 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Sept. 1	8·3	13·5	SW : N	N : NW : SW	0·9	0·0	0·02	133	2, li.-cl : p.-cl	6, ci.-cu, li.-cl : p.-cl
2	10·8	13·5	SSW : SW	WSW	2·2	0·0	0·10	255	p.-cl : 5, li.-cl	1, th.-cl : 0
3	9·6	13·4	WSW	W : NNW : NE	1·5	0·0	0·03	193	p.-cl, m : p.-cl, m : 0	0 : 0, m
4	11·6	13·4	NE : E	E : ESE	1·7	0·0	0·03	131	0, m : 0	0 : 0, m
5	7·0	13·3	ESE : E	E : ESE	2·7	0·0	0·14	203	10, m : 10, m : 8, ci.-cu	0 : 10, m.-r
6	8·3	13·2	ESE	ESE : E	2·2	0·0	0·11	220	10, m : 10 : 3, th.-cl	0 : 10, f
7	3·9	13·1	E : Calm	Calm : S : SE	0·0	0·0	0·00	71	10, f : 10, f : p.-cl, slt.-f	7, ci.-cu, slt.-f, slt.-glm : v, th.-cl
8	9·3	13·1	SE : S	S : SSW	2·8	0·0	0·10	200	p.-cl : 2, th.-cl, so.-ha	0 : 0
9	9·7	13·0	SSE : SW	WSW	2·0	0·0	0·11	215	0 : 0	1, th.-cl, so.-ha : 0, d
10	9·9	13·0	W : NW	WSW : W	2·1	0·0	0·11	270	li.-cl : 1, li.-cl	0 : 0 : p.-cl
11	8·6	12·9	SW	SW	2·8	0·0	0·13	253	p.-cl : 1, li.-cl	0 : 0 : p.-cl
12	6·1	12·8	SW : NNW	N	1·7	0·0	0·07	211	p.-cl : v, slt.-r	5, cu : p.-cl
13	3·9	12·8	SW : WSW	SW	3·0	0·0	0·08	206	v : 1, li.-cl : 10	8, slt.-r : 9 : 10
14	7·8	12·7	WSW	W : WSW	1·5	0·0	0·06	238	10 : 10 : p.-cl	0 : 0
15	9·1	12·6	WSW : Calm : SW	SSE : SE	0·6	0·0	0·00	134	0, d : 0, slt.-f	0 : 0
16	10·3	12·6	ESE : SE	ESE	3·2	0·0	0·11	182	0, f : 0, f : 0	0 : 0
17	11·0	12·5	SE : S	S : SW	3·3	0·0	0·16	222	0 : 0	0 : 0
18	1·1	12·4	S : SSW : SW	SW : W : WNW	3·1	0·0	0·30	309	0 : 0 : 10, r	10 : p.-cl : 0
19	3·5	12·4	SW : SSW : S	SSW : SW	4·3	0·0	0·33	320	0, d : 1, li.-cl : p.-cl	10, fq.-shs : 10 : 10
20	6·6	12·3	SW	WSW : SW	1·9	0·0	0·14	259	10 : 10 : 9	5, cu.-s : 1, li.-cl : 0
21	4·9	12·2	SW : W	WSW : W : Calm	0·6	0·0	0·01	120	0, d : p.-cl : 5, th.-cl, so.-ha, slt.-f	3, th.-cl : 0 : 0, slt.-f
22	3·6	12·2	Calm : NNE : NE	NNE : NE	2·6	0·0	0·09	157	0, d, slt.-f : 0, slt.-f, h : p.-cl	3, li.-cl : v
23	9·8	12·1	NE	E : ENE : NE	2·3	0·0	0·12	236	0, d : 0	0 : 0
24	4·3	12·0	NE : NNE : NNW	NNE : NE	1·3	0·0	0·04	165	0, d, f : 2, li.-cl : p.-cl	1, li.-cl : p.-cl : 10
25	7·4	12·0	NNE : NE	NE : ENE	1·4	0·0	0·03	177	10 : 9 : p.-cl	1, li.-cl : 0
26	8·8	11·9	ENE : Calm	E : ESE	3·1	0·0	0·10	149	0 : 1, li.-cl : p.-cl	3, cu.-s, li.-cl : 0 : 0
27	2·9	11·8	ENE : ESE : SE	S : SW : NW	3·6	0·0	0·12	189	p.-cl, f : 2, li.-cl, slt.-f : v, li.-cl, so.-ha	p.-cl, so.-ha : 10, oc.-slt.-r : p.-cl
28	9·1	11·8	NW : W : WSW	NW : W : SW	2·4	0·0	0·14	279	0, d : 0	3, cu : 0 : 0
29	6·3	11·7	SW : SSW : S	SSW : S : SSE	4·2	0·0	0·39	294	0, d : 1, li.-cl	p.-cl : 10, slt.-r : 10, th.-r
30	0·0	11·6	SSE : SE : E	E : NE : NNE	3·7	0·0	0·44	273	10, fq.-shs : 10, oc.-m.-r	10 : 0
Means	7·1	12·6	...	...	...	...	0·12	209		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 56°·6, being 2°·4 *higher* than
The mean *Temperature of the Dew Point* for the month was 52°·0, being 0°·6 *higher* than
The mean *Degree of Humidity* for the month was 70·0, being 10·8 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·388, being 0in·009 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 4grs·3, being 0gr·1 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 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 3·3.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·565. The maximum daily amount of *Sunshine* was 11·6 hours on September 4.

The highest reading of the *Solar Radiation Thermometer* was 145°·9 on September 8; and the lowest reading of the *Terrestrial Radiation Thermometer* was 32°·8 on September 29.

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. 5, E. 7, S. 9, W. 8. One day was calm.

The *Greatest Pressure of the Wind* in the month was 4·3 lbs. on the square foot on September 19. The mean daily *Horizontal Movement of the Air* for the month was 209 miles; the greatest daily value was 320 miles on September 19; and the least daily value was 71 miles on September 7.

Rain fell on 5 days in the month, amounting to 0in·305, as measured by gauge No. 6 partly sunk below the ground; being 1in·946 *less* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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.		
Oct. 1	...	30·079	65·0	40·8	24·2	52·4	− 1·7	49·0	45·5	6·9	17·6	0·4	78	114·0	34·9	0·000	0·0	mP
2	...	30·154	65·9	37·9	28·0	52·2	− 1·6	49·0	45·7	6·5	16·2	0·2	79	120·9	35·2	0·000	0·0	mP
3	...	30·129	69·2	42·3	26·9	56·8	+ 3·3	52·8	49·2	7·6	22·3	0·0	76	130·2	38·0	0·000	0·0	mP
4	...	30·143	61·3	57·1	4·2	59·1	+ 5·9	57·0	55·1	4·0	6·5	1·5	87	72·0	54·2	0·000	0·0	wwP : wP
5	Greatest Declination N.	30·057	59·6	56·9	2·7	58·3	+ 5·3	56·6	55·1	3·2	5·1	1·7	89	65·3	56·0	0·000	0·0	wP
6	...	29·931	61·2	54·4	6·8	58·2	+ 5·5	56·8	55·5	2·7	6·3	1·1	91	74·0	54·0	0·010	0·0	wP
7	Apogee: Last Quarter	29·838	59·9	53·4	6·5	56·0	+ 3·5	53·8	51·7	4·3	8·0	0·8	86	78·1	53·2	0·013	0·0	wP
8	...	29·786	59·7	48·7	11·0	54·3	+ 2·2	50·2	46·2	8·1	13·9	4·4	74	91·0	42·7	0·000	0·0	wP : wP : mP
9	...	29·849	60·5	45·8	14·7	52·0	+ 0·3	48·9	45·7	6·3	16·5	0·6	79	115·3	40·5	0·163	0·0	wP : wP, wN
10	...	29·914	53·0	44·9	8·1	49·9	− 1·4	49·0	48·0	1·9	4·8	0·0	94	60·2	40·8	0·000	0·0	wP, wwN : mP : wP
11	...	29·843	52·0	43·0	9·0	47·8	− 3·2	46·7	45·5	2·3	4·6	0·0	92	66·7	40·1	0·022	0·0	wP : wP : vP, ssN
12	...	29·789	56·9	43·3	13·6	49·7	− 0·9	46·4	42·9	6·8	13·9	2·2	78	95·1	38·9	0·000	0·0	wP : mP
13	In Equator	29·705	54·0	42·0	12·0	47·2	− 3·1	46·1	44·9	2·3	5·6	0·4	92	94·5	34·9	0·000	0·0	mP
14	...	29·480	58·3	43·7	14·6	50·7	+ 0·6	48·1	45·4	5·3	12·3	0·4	83	110·9	36·9	0·020	0·2	wwP : wP : wP, wN
15	New	29·042	51·1	48·7	2·4	50·1	+ 0·2	49·0	47·8	2·3	5·0	0·0	92	57·1	47·5	0·223	0·8	mN, wP : ... : wP
16	...	28·866	53·2	48·0	5·2	50·9	+ 1·1	49·8	48·7	2·2	4·8	0·4	92	65·2	47·8	0·376	0·0	wwP : wP, vN
17	...	28·765	63·1	51·3	11·8	56·0	+ 6·4	54·0	52·1	3·9	10·5	1·0	87	101·2	47·5	0·092	0·0	... : wP, wN
18	...	28·798	60·0	49·7	10·3	54·5	+ 5·0	52·5	50·5	4·0	8·4	0·8	86	93·7	45·8	0·519	1·5	wN, wwP : wP
19	Greatest Declination S.	29·267	56·7	49·1	7·6	52·5	+ 3·2	50·7	48·9	3·6	7·2	2·0	88	69·7	45·0	0·096	4·5	wwP, wwN : wwP
20	Perigee	29·572	57·8	47·0	10·8	53·0	+ 4·0	51·0	49·0	4·0	9·5	1·4	86	72·7	42·5	0·026	0·2	wP
21	...	29·554	64·8	52·2	12·6	59·2	+10·4	58·0	56·9	2·3	5·0	0·2	93	75·8	51·8	0·269	0·8	wwP, wwN : ...
22	First Quarter	29·753	64·1	58·0	6·1	61·3	+12·8	59·3	57·6	3·7	7·2	1·1	88	74·0	56·2	0·032	0·0	...
23	...	29·938	64·0	51·1	12·9	57·0	+ 8·8	54·6	52·4	4·6	12·4	1·2	85	93·7	47·7	0·000	0·0	wwP
24	...	29·880	61·1	49·7	11·4	54·0	+ 6·1	51·0	48·1	5·9	16·3	0·4	80	107·7	46·1	0·020	0·0	wwP : wP, wN
25	In Equator	29·849	58·0	45·4	12·6	53·2	+ 5·6	50·3	47·4	5·8	8·0	3·8	81	71·1	41·9	0·003	3·5	wP
26	...	29·884	61·0	54·0	7·0	56·8	+ 9·4	53·8	51·0	5·8	8·7	3·8	81	78·2	50·1	0·000	1·8	wwP : wP
27	...	29·877	61·0	52·9	8·1	56·3	+ 9·0	53·2	50·3	6·0	11·6	2·4	80	74·0	48·2	0·000	0·7	wwP : wP
28	...	29·762	61·3	49·2	12·1	54·1	+ 6·9	51·3	48·6	5·5	11·0	2·0	81	104·7	42·8	0·007	0·0	wwP : wP : vP, vN
29	Full	29·481	60·5	51·8	8·7	56·2	+ 9·2	55·2	54·3	1·9	4·4	0·8	93	69·7	45·0	0·999	0·0	wwP : wwP, wN : vP, vN
30	...	29·186	56·0	47·7	8·3	52·0	+ 5·0	49·5	46·9	5·1	12·8	1·0	83	77·2	44·8	0·262	0·2	... : wP, wN
31	...	29·479	56·9	40·7	16·2	49·1	+ 2·3	45·4	41·4	7·7	13·4	3·1	75	98·7	35·5	0·000	0·8	wP : mP
Means	...	29·666	59·6	48·4	11·2	53·9	+ 3·9	51·6	49·3	4·6	10·0	1·3	84·8	86·2	44·7	Sum 3·152	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 29in·666, being 0in·050 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 69°·2 on October 3; the lowest in the month was 37°·9 on October 2; and the range was 31°·3.
The mean of all the highest daily readings in the month was 59°·6, being 1°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 48°·4, being 5°·1 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 11°·2, being 3°·2 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 53°·9, being 3°·9 *higher* than the average for the 50 years, 1841–1890.

Month and Day, 1898.	Daily Duration of Sunshine.	Sun above Horizon.	Wind as deduced from Self-registering Anemometers. Osler's. General Direction. A.M.	P.M.	Pressure on the Square Foot. Greatest.	Least.	Mean of 24 Hourly Measures.	Robinson's. Horizontal Movement of the Air.	Clouds and Weather. A.M.	P.M.
	hours.	hours.			lbs.	lbs.	lbs.	miles.		
Oct. 1	7·9	11·6	NNE : N	NE : SE	1·3	0·0	0·02	120	0, f, hy.-d : 0, slt.-f	1, li.-cl : 0, slt.-f, d, lu.-ha
2	8·5	11·5	Calm : ENE	E : ENE : NE	1·0	0·0	0·03	127	0, f : 0, slt.-f	0 : 0, d
3	8·7	11·4	NE : ENE	E : ENE	3·0	0·0	0·30	261	0, f, d : 2, cu, li.-cl	0 : p.-cl : 10
4	0·1	11·4	ENE	ENE	3·6	0·0	0·38	352	10, m.-r : 10 : 10, m.-r	10 : 10 : 10, m.-r
5	0·0	11·3	ENE	E : ENE	2·8	0·0	0·20	282	10, m.-r : 10, m.-r	10 : 10
6	0·0	11·2	ENE : E	ENE : E	1·2	0·0	0·07	231	10 : 10, th.-r	10, fq.-th.-r : 10, fq.-slt.-r
7	0·0	11·2	ENE : NE	ESE : E	1·1	0·0	0·02	163	10, th.-r : 10	10 : 10 ...
8	1·0	11·1	ESE : E	E : ENE : NE	2·8	0·0	0·08	192	10 : 10	8, cu.-s : p.-cl : v, li.-cl
9	3·8	11·0	NE : ENE : ESE	SE : ENE	0·7	0·0	0·01	103	9 : p.-cl	10, fq.-shs : 10, fq.-shs : 10
10	0·0	11·0	Calm : W	N : WSW : SW	0·3	0·0	0·00	94	10, f : 9, slt.-f, glm	9, slt.-f : p.-cl, slt.-f : 10, tk.-f
11	0·0	10·9	SW : N	N : NNW	1·2	0·0	0·03	147	10, f : 10, f, glm, slt.-r	6, ci.-cu, slt.-f : v, sh.-r : 0, l
12	5·8	10·8	NNW : NW	NNW	2·0	0·0	0·12	239	0, d : 1, ci.-cu, li.-cl	7, ci.-cu, cu.-s : 8, ci.-cu, cu.-s : 0
13	0·9	10·8	NNW : N	SW : SSW : SE	0·1	0·0	0·00	104	p.-cl, f : p.-cl, slt.-f	p.-cl, slt.-f : p.-cl, slt.-f
14	2·0	10·7	E : ESE	SE : ESE : E	3·9	0·0	0·33	252	p.-cl : 10 : p.-cl	9, so.-ha : 10 : 10, shs.-r
15	0·0	10·6	E : ENE	ENE : NE : NNE	3·7	0·0	0·38	300	10, fq.-r : 10 : 10, r	10, r : 10, c.-r
16	0·0	10·6	NE	ENE : ESE : SE	1·3	0·0	0·01	147	10 : 10	10, fq.-r : 9, hy.-shs
17	5·7	10·5	S : SSE	SSE : SE : ESE	2·8	0·0	0·18	244	v, shs.-r : 2, li.-cl : p.-cl	9, r : v
18	1·8	10·5	E : S : SSW	SSW : S	7·7	0·0	0·80	426	10, fq.-r : 10, hy.-r, w, sc	v, slt.-r, w : p.-cl : li.-cl
19	0·3	10·4	S	SSW : S	2·3	0·0	0·23	278	v, shs.-r : 9 : 10, fq.-shs	10, shs.-r : 10, shs.-r : v
20	2·4	10·3	SW	SW : S : SSE	1·8	0·0	0·02	186	9 : li.-cl : p.-cl, so.-ha	10 : 10, oc.-r
21	0·3	10·3	SSW : SW : WSW	WSW : SW	1·8	0·0	0·12	247	10, r : 10, r : 10	10 : 10
22	0·4	10·2	SW	SW	8·0	0·0	0·81	433	10 : p.-cl : 10, oc.-slt.-r	10, w : 10, oc.-th.-r
23	8·4	10·1	WSW : SW	SW : SSW	0·9	0·0	0·03	212	9 : p.-cl : 1, li.-cl, so.-ha	p.-cl : v, li.-cl, d, lu.-ha
24	5·4	10·1	SSW : SW	SW : WSW	6·4	0·0	0·44	361	0, d : 0 : p.-cl	p.-cl : v, shs.-r : v, slt.-sh
25	0·0	10·0	WSW	SW : WSW	5·5	0·0	0·58	435	9 : 10	10 : 9, sc, slt.-sh, w
26	0·7	10·0	WSW : SW	SW	4·3	0·0	0·63	428	9 : 9, cu, cu.-s	10 : 9, li.-sc
27	1·2	9·9	SW	SW : SSW	2·9	0·0	0·13	256	9 : 9	9 : 10
28	6·4	9·9	SSW	S : SSE	1·3	0·0	0·02	163	p.-cl : 2, ci.-cu, li.-cl	1, ci.-s, li.-cl : 9, fq.-shs : li.-cl, lu.-ha
29	0·1	9·8	SSE : SSW	S : SSE	2·4	0·0	0·12	249	0 : 10, shs.-r : 10, shs.-r	10, r : 9, hy.-shs : 10, fq.-hy.-r
30	4·7	9·7	SSW : SW : WSW	SSW : SW	10·5	0·0	1·07	510	10, r, w : 0, w : 2, li.-cl, so.-ha, w	10, fq.-r, w : 0, w
31	6·6	9·7	SW : WSW	WSW : SW	3·9	0·0	0·47	363	0, d : 1, li.-cl	p.-cl, slt.-r : 0 : 0, d
Means	2·7	10·6	...	...	...	...	0·25	255		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 51°·6, being 3°·6 *higher* than the average for the 50 years, 1841–1890.
The mean *Temperature of the Dew Point* for the month was 49°·3, being 3°·4 *higher* than the average for the 50 years, 1841–1890.
The mean *Degree of Humidity* for the month was 84·8, being 0·8 *less* than the average for the 50 years, 1841–1890.
The mean *Elastic Force of Vapour* for the month was 0in·352, being 0in·043 *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 4grs·0, being 0gr·5 *greater* than the average for the 50 years, 1841–1890.
The mean *Weight of a Cubic Foot of Air* for the month was 534 grains, being 5 grains *less* than the average for the 50 years, 1841–1890.

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

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·253. The maximum daily amount of *Sunshine* was 8·7 hours on October 3.

The highest reading of the *Solar Radiation Thermometer* was 130°·2 on October 3; and the lowest reading of the *Terrestrial Radiation Thermometer* was 34°·9 on October 1 and 13.

The mean daily distribution of *Ozone* for the 12 hours ending 9^h was 0·4; for the 6 hours ending 15^h was 0·1; 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. 10, W. 7.

The *Greatest Pressure of the Wind* in the month was 10·5 lbs. on the square foot on October 30. The mean daily *Horizontal Movement of the Air* for the month was 255 miles; the greatest daily value was 510 miles on October 30; and the least daily value was 94 miles on October 10.

Rain fell on 17 days in the month amounting to 3in·152, as measured by gauge No. 6 partly sunk below the ground; being 0in·341 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	Greatest Declination N.	29·812	53·4	38·0	15·4	44·6	− 2·1	42·1	39·2	5·4	11·6	0·9	81	81·7	34·0	0·000	0·0	mP : wP
2	...	29·707	56·9	44·4	12·5	51·9	+ 5·4	50·0	48·1	3·8	7·0	2·3	87	58·9	38·3	0·175	2·5	wwP : ...
3	...	29·552	60·3	45·1	15·2	55·5	+ 9·2	53·1	50·8	4·7	8·4	1·9	85	66·2	39·2	0·080	1·7	... : wP
4	Apogee	29·734	55·1	40·4	14·7	47·5	+ 1·4	43·6	39·3	8·2	14·6	3·9	74	91·7	34·6	0·000	0·8	wP : wP : mP
5	...	29·661	57·0	44·5	12·5	50·3	+ 4·4	47·3	44·1	6·2	11·2	1·3	80	100·6	36·0	0·000	0·0	wP : mP
6	Last Quarter	29·932	57·1	39·1	18·0	46·9	+ 1·4	45·1	43·1	3·8	12·3	0·2	87	104·1	27·8	0·000	0·0	wP
7	...	29·868	54·3	43·2	11·1	47·5	+ 2·4	45·7	43·7	3·8	8·6	0·2	88	111·3	31·0	0·005*	0·0	wP
8	...	29·851	56·1	41·8	14·3	48·5	+ 3·9	47·0	45·4	3·1	7·4	0·9	90	93·0	30·8	0·003*	0·0	wP : wP : wP, wN
9	In Equator	29·987	58·6	47·7	10·9	51·9	+ 7·9	51·1	50·3	1·6	4·6	0·2	94	82·3	45·6	0·000	0·0	wP
10	...	29·902	56·4	47·2	9·2	51·5	+ 7·9	50·9	50·3	1·2	3·8	0·0	96	71·4	33·3	0·000	0·0	wwP
11	...	29·854	56·1	45·5	10·6	49·0	+ 5·8	48·5	47·9	1·1	4·4	0·0	97	83·2	32·0	0·009*	0·0	wP
12	...	29·612	53·5	43·4	10·1	49·0	+ 6·1	48·5	48·0	1·0	3·0	0·2	96	74·2	43·0	0·023	0·0	mP : wP : wP, wN
13	...	29·734	55·0	41·2	13·8	49·5	+ 6·7	47·9	46·2	3·3	9·6	1·0	89	78·3	29·1	0·000	0·0	wwP : mP
14	New	30·113	50·1	35·6	14·5	43·1	+ 0·5	42·3	41·3	1·8	5·3	0·0	94	80·6	29·0	0·002*	0·0	wP
15	Greatest Declination S.	30·133	52·5	41·4	11·1	48·7	+ 6·2	47·2	45·6	3·1	6·4	0·9	90	64·4	33·1	0·009	0·2	wP : mP
16	Perigee	30·073	55·8	50·0	5·8	52·9	+10·5	52·0	51·1	1·8	3·4	0·6	94	61·7	45·5	0·015	0·8	wwP : wP
17	...	30·126	54·3	48·7	5·6	52·6	+10·3	51·6	50·6	2·0	3·4	0·8	94	58·9	40·2	0·002*	0·0	wwP
18		30·160	52·1	43·5	8·6	48·0	+ 5·8	45·9	43·6	4·4	9·6	2·0	85	92·5	39·5	0·000	0·0	wP
19	...	30·052	47·5	41·1	6·4	45·5	+ 3·3	43·4	41·0	4·5	6·9	2·5	85	78·7	27·9	0·000	0·0	wP : wP : mP
20	First Quarter	29·984	49·1	42·9	6·2	45·9	+ 3·8	44·0	41·8	4·1	7·1	1·7	86	56·9	34·8	0·000	0·0	wP : mP
21	...	29·875	46·3	39·3	7·0	44·9	+ 2·8	43·8	42·6	2·3	5·5	0·8	92	49·0	35·8	0·537	0·0	wP, wN : wN, wP
22	In Equator	29·844	39·4	29·2	10·2	36·1	− 6·1	34·1	31·1	5·0	7·8	3·7	82	61·1	18·6	0·000	0·2	wP, wwN : mP : sP
23	...	29·226	40·6	29·0	11·6	36·5	− 5·6	35·4	33·8	2·7	4·9	2·1	91	45·2	18·1	0·122	0·8	vP, vN : vN
24	...	28·776	45·0	35·9	9·1	41·0	− 1·1	39·9	38·5	2·5	3·1	1·1	91	47·9	35·0	0·184	0·5	vN, wwP
25	...	28·690	51·0	42·8	8·2	45·7	+ 3·7	44·4	42·9	2·8	5·9	1·1	90	88·5	34·0	0·526	1·5	vP, vN : wP, wN
26	...	28·842	44·8	41·7	3·1	43·8	+ 1·9	43·1	42·3	1·5	3·1	0·7	94	45·2	32·0	0·510	0·0	wP, wN
27	...	29·010	44·9	37·0	7·9	42·6	+ 1·0	40·9	38·9	3·7	5·5	1·8	87	52·9	26·9	0·000	0·0	wP : mP
28	Full	29·185	41·0	33·6	7·4	36·6	− 4·7	35·6	34·2	2·4	4·1	1·7	92	42·8	24·3	0·120	0·0	wP : wP, wN
29	Greatest Declination N.	29·409	40·1	31·5	8·6	36·3	− 4·7	34·8	32·6	3·7	5·3	2·2	87	51·9	24·4	0·029	0·0	wP : mP
30	...	29·654	46·4	30·0	16·4	38·9	− 1·8	37·3	35·2	3·7	6·8	2·2	87	69·0	23·7	0·056	0·0	mP
Means	...	29·679	51·0	40·5	10·5	46·1	+ 2·9	44·5	42·8	3·3	6·7	1·3	88·8	71·5	32·6	Sum 2·407	0·3	...
Number of Column for Reference.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

The results apply to the civil day.

The mean reading of the Barometer (Column 2) and the mean temperatures of the Air and Evaporation (Columns 6 and 8) are deduced from the photographic records. The average temperature (Column 7) is 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 November 7, 8, 11, 14, and 17 are derived from dew or fog.

The mean reading of the *Barometer* for the month was 29in·679, being 0in·065 *lower* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 60°·3 on November 3; the lowest in the month was 29°·0 on November 23; and the range was 31°·3.
The mean of all the highest daily readings in the month was 51°·0, being 2°·2 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 40°·5, being 2°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 10°·5, being 0°·8 *less* than the average for the 50 years, 1841–1890.
The mean for the month was 46°·1, being 2°·9 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	7·3	9·6	SW	WSW : SSW : S	0·9	0·0	0·01	224	0, ho.-fr : 2, li.-cl, slt.-h	0 : 0, d
2	0·0	9·5	S : SSW	SSW	13·5	0·0	1·55	625	0 : 0 : 10, w, r	10, fq.-r, st.-w, sc : 10, slt.-r, st.-w, sc : 10, oc.-slt.-r, st.-w
3	0·0	9·5	SW	WSW : SW	7·0	0·0	...	519	10, oc.-shs, st.-w : 10, fq.-r, w	10, slt.-r : 1, li.-cl : 1, li.-cl
4	5·9	9·4	SW : WSW	SW	3·3	0·0	...	332	0, d : 0	8 : 9
5	4·2	9·4	SW : WSW	WSW : SW	3·2	0·0	0·28	314	10 : 9 : 5, cu, li.-cl	p.-cl : 0, d
6	7·4	9·3	SW	SSW : SSE	0·2	0·0	0·00	150	0, d : 0, tk.-f : 0, so.-ha	0 : 0, m
7	7·4	9·2	SSE : SE	SE : SSE	1·6	0·0	0·07	181	0, d, f : 5, th.-cl	1, li.-cl : 10
8	5·7	9·2	SSE : SE	ESE : E : ENE	0·6	0·0	0·00	144	p.-cl, d : 6, ci.-cu, li.-cl	0 : 10, slt.-r
9	1·4	9·1	ENE : E	ENE : E	0·8	0·0	0·02	177	10, tk.-f : 10, f	p.-cl : 10 : 10, slt.-f
10	1·3	9·1	ENE : E : ESE	ENE : E	0·5	0·0	0·01	151	10, f : 10, slt.-f	0 : 0, slt.-f
11	3·7	9·0	E	E : ESE	0·2	0·0	0·00	91	tk.-f : 0, f	0 : 10, f
12	0·3	9·0	E : ESE	SE : SSE	1·1	0·0	0·01	110	10, f : 10, f	10, slt.-r : 10
13	1·6	8·9	WSW	WSW : NE : S	0·5	0·0	0·00	171	10 : 9	p.-cl : 0 : 0, f
14	1·8	8·9	SW : Calm : S	W : SSW	0·2	0·0	0·00	105	tk.-f : tk.-f : 3, th.-cl, f	5, th.-cl, slt.-f, glm : v, f
15	0·0	8·8	SSW : SW : WSW	SW : SSW	0·9	0·0	0·01	189	10, f : 10, slt.-f, slt.-r	10, slt.-r : v, li.-sh
16	0·1	8·8	SSW : SW : WSW	WSW : SW : S	0·7	0·0	0·02	170	10, shs.-r : 10	p.-cl : 10, slt.-f : 10, slt.-f
17	0·0	8·7	SW : Calm : Variable	NE : ENE : E	0·6	0·0	0·00	107	10, f, glm : 10, f, glm	10 : 9
18	5·5	8·7	ESE : E : ENE	E : ENE : NE	3·4	0·0	0·24	272	10 : 10 : p.-cl	3, cu.-s, li.-cl : li.-cl : 10
19	1·8	8·6	E : ENE : NE	E	4·3	0·0	0·16	191	10 : 10 : 8	1, li.-cl : 10 : 10
20	0·0	8·6	N : S	SSW : SSE : WSW	0·1	0·0	0·00	119	10 : 10, slt.-sh	10 : 10 : v
21	0·0	8·5	Variable : N	N : NNW	5·2	0·0	0·23	223	10, fq.-r : 10, c.-r, f, glm	10, c.-r : 10 : 9
22	5·2	8·5	NNW	N : NNW	6·8	0·0	0·87	374	v : p.-cl : 2, ci.-cu, li.-cl, w	2, ci.-cu, th.-cl, w : 2, th.-cl, lu.-ha, ho.-fr
23	0·0	8·4	S : SSE	SSE : SE	6·0	0·0	0·65	357	10 : 10, r, sl, w	10, slt.-r : 10, fq.-slt.-r
24	0·0	8·4	SE : ESE	ESE : SE	4·7	0·0	0·49	322	10, th.-r : 10, fq.-th.-r	10, fq.-slt.-r : 10, fq.-slt.-r : v
25	1·8	8·3	ESE : SE : SSE	S : SE	3·2	0·0	0·16	230	v, hy.-r : 10, c.-r	v, shs.-r : v, lu.-ha, r
26	0·0	8·3	SSE : ENE : Calm	NW : WNW : WSW	1·4	0·0	0·02	156	10, r : 10, hy.-r : 10, r, gt.-glm	10, th.-r, glm : 10, th.-r, lu.-ha
27	0·0	8·3	WNW : NW : W	WSW : NNW : NE	0·9	0·0	0·02	167	10, oc.-li.-shs : tk.-f : li.-cl, slt.-f, glm	1, li.-cl : p.-cl : v, slt.-f, ho.-fr
28	0·0	8·2	NE : NNE	NNE : N : NNW	6·4	0·0	0·67	377	v, ho.-fr : 10	10, slt.-r, w : 10, oc.-sn, sl, r
29	0·0	8·2	NNW : N	NNW : SW	3·5	0·0	0·33	270	10, oc.-r, sl : 10	p.-cl : p.-cl, ho.-fr, slt.-f
30	5·3	8·1	SW : SSW : WSW	WSW : SW	2·2	0·0	0·12	280	p.-cl, fr : v : 1, li.-cl	3, ci.-cu, li.-cl : 10, r
Means	2·3	8·8	...	...	...	...	0·21	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 44°·5, being 2°·9 *higher* than
The mean *Temperature of the Dew Point* for the month was 42°·8, being 3°·1 *higher* than
The mean *Degree of Humidity* for the month was 88·8, being 1·3 *greater* than
The mean *Elastic Force of Vapour* for the month was 0in·275, being 0in·031 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 3grs·2, being 0gr·4 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 543 grains, being 5 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 6·5

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·256. The maximum daily amount of *Sunshine* was 7·4 hours on November 6 and 7.

The highest reading of the *Solar Radiation Thermometer* was 111°·3 on November 7; and the lowest reading of the *Terrestrial Radiation Thermometer* was 18°·1 on November 23.

The mean daily distribution of *Ozone* for the 12 hours ending 9h was 0·2; 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. 4, E. 8, S. 10, W. 7. One day was calm.

The *Greatest Pressure of the Wind* in the month was 13·5 lbs. on the square foot on November 2. The mean daily *Horizontal Movement of the Air* for the month was 237 miles; the greatest daily value was 625 miles on November 2; and the least daily value was 91 miles on November 11.

Rain fell on 13 days in the month, amounting to 2in·407, as measured by gauge No. 6 partly sunk below the ground; being 0in·141 *greater* than the average fall for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	...	29·744	52·0	46·4	5·6	49·4	+ 8·8	47·2	44·8	4·6	8·0	1·3	85	71·0	41·0	0·000	4·0	wwP
2	Apogee	29·567	54·5	50·1	4·4	52·5	+11·9	49·4	46·3	6·2	8·6	4·4	80	60·5	44·7	0·003	3·0	wwP
3	...	29·719	54·1	47·8	6·3	51·1	+10·3	48·7	46·2	4·9	11·0	0·6	84	68·0	44·0	0·047	1·5	wP
4	...	29·796	57·8	52·6	5·2	54·6	+13·5	52·5	50·5	4·1	7·2	1·8	86	91·7	47·0	0·003	4·5	wwP
5	...	29·888	54·8	51·7	3·1	53·7	+12·4	52·2	50·7	3·0	4·4	2·0	90	63·5	49·9	0·000	0·0	wwP
6	Last Quarter: In Equator	29·849	55·4	48·1	7·3	53·4	+12·1	51·6	49·8	3·6	5·4	1·8	88	67·7	47·3	0·092	0·0	wwP
7	...	29·614	50·0	40·0	10·0	45·1	+ 4·1	43·8	42·3	2·8	5·5	0·4	90	52·9	34·9	1·196	0·0	wwP, wwN : ...
8	...	29·857	45·9	38·0	7·9	42·9	+ 2·3	40·5	37·7	5·2	10·1	2·9	82	49·3	30·3	0·000	0·2	mP
9	...	29·684	51·4	42·4	9·0	47·8	+ 7·5	45·3	42·6	5·2	10·1	1·7	83	71·1	36·1	0·053	0·8	... : mP
10	...	30·067	53·8	42·7	11·1	50·2	+10·3	47·5	44·7	5·5	9·2	3·0	82	65·8	36·3	0·000	0·0	wP : wwP
11	...	30·317	54·6	50·4	4·2	52·6	+12·8	50·2	47·8	4·8	8·8	2·4	84	60·6	45·0	0·000	0·2	wwP
12	...	30·133	54·1	49·8	4·3	52·2	+12·3	49·9	47·6	4·6	7·6	2·6	84	60·8	48·1	0·000	0·8	wwP
13	Greatest Dec. S.: New	30·198	50·7	37·2	13·5	44·8	+ 4·7	42·7	40·3	4·5	6·3	2·6	85	60·4	30·0	0·000	0·0	wwP : wP
14	Perigee	30·036	50·8	36·4	14·4	44·3	+ 4·1	42·5	40·4	3·9	6·1	1·9	86	67·0	28·8	0·000	0·0	wwP
15	...	30·000	49·0	41·5	7·5	46·0	+ 5·7	42·5	38·5	7·5	9·7	5·5	76	53·3	33·4	0·000	0·0	wwP
16	...	30·082	52·0	37·0	15·0	45·1	+ 4·9	44·0	42·7	2·4	4·2	1·5	91	56·3	30·0	0·004	0·0	wwP : ...
17	...	30·086	52·4	49·0	3·4	51·1	+11·1	50·3	49·5	1·6	2·4	0·8	94	56·0	48·8	0·000	0·0	...
18	...	30·007	55·2	51·7	3·5	53·0	+13·3	51·2	49·4	3·6	6·0	1·6	87	67·5	46·8	0·000	0·0	...
19	In Equator	29·958	53·1	38·6	14·5	46·1	+ 6·8	43·1	39·7	6·4	12·5	3·2	79	61·2	31·0	0·000	0·0	... : wP
20	First Quarter	30·208	39·2	34·2	5·0	37·1	− 1·9	33·3	27·9	9·2	11·3	5·5	70	50·9	28·0	0·000	0·0	mP
21	...	30·257	41·3	29·2	12·1	36·6	− 2·2	35·8	34·7	1·9	4·2	0·3	93	52·7	25·7	0·017	0·0	sN, mP : wP
22	...	30·320	44·7	29·2	15·5	34·6	− 4·0	33·3	31·2	3·4	9·9	0·0	87	71·0	21·0	0·003	0·0	wP
23	...	30·261	41·9	28·6	13·3	34·3	− 4·1	31·5	26·7	7·6	13·2	4·2	73	73·0	18·6	0·000	1·0	wP
24	...	30·226	42·0	31·0	11·0	37·2	− 1·1	35·1	32·2	5·0	7·1	2·8	82	42·3	18·7	0·000	0·0	wP
25	...	30·192	49·8	40·1	9·7	44·2	+ 5·9	41·7	38·7	5·5	9·0	2·9	81	71·4	37·5	0·002	0·0	wwP
26	Greatest Declination N.	29·941	50·2	41·9	8·3	47·5	+ 9·1	45·7	43·7	3·8	5·0	2·4	88	64·8	37·1	0·000	0·2	wwP
27	Full	29·447	55·1	43·5	11·6	50·4	+12·0	47·0	43·4	7·0	14·8	1·7	78	63·9	41·7	0·486	0·8	wwP : wwP, wwN
28	...	29·421	44·6	36·1	8·5	40·4	+ 1·9	38·5	36·1	4·3	8·4	2·0	85	66·5	30·6	0·048	0·0	wwP
29	Apogee	29·145	50·7	37·5	13·2	44·6	+ 6·0	43·1	41·4	3·2	4·4	2·1	89	56·0	32·0	0·140	0·0	wwP, wwN : wN, wwP
30	...	29·525	42·7	29·7	13·0	38·4	− 0·2	35·9	32·6	5·8	9·0	1·5	80	57·7	22·3	0·011	0·0	wwP, wwN : wP
31	...	29·476	43·9	29·0	14·9	37·6	− 1·0	36·3	34·5	3·1	8·5	1·1	89	43·9	21·2	0·120	0·0	wP : wN : wwP, wN
Means	...	29·904	49·9	40·7	9·2	45·8	+ 6·1	43·6	41·1	4·7	8·0	2·2	84·2	61·9	35·1	Sum 2·225	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 29in·904, being 0in·113 *higher* than the average for the 50 years, 1841–1890.

TEMPERATURE OF THE AIR.

The highest in the month was 57°·8 on December 4; the lowest in the month was 28°·6 on December 23; and the range was 29°·2.
The mean of all the highest daily readings in the month was 49°·9, being 5°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of all the lowest daily readings in the month was 40°·7, being 5°·9 *higher* than the average for the 50 years, 1841–1890.
The mean of the daily ranges was 9°·2, being *the same as* the average for the 50 years, 1841–1890.
The mean for the month was 45°·8, being 6°·1 *higher* than the average for the 50 years, 1841–1890.

MONTH and DAY, 1898.	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	0·2	8·1	SW : WSW	WSW : SW	6·4	0·0	0·51	420	10 : 9 : 9	9 : 9 : 9, lu.-ha, w
2	0·0	8·1	WSW : SW	SW : WSW : W	14·8	0·0	2·19	765	10, w : 10, sc, w, slt.-r	10, sc, fq.-slt.-r, w : 10, fq.-slt.-r, w
3	0·1	8·1	WSW	WSW : SW	5·5	0·0	0·50	377	10, slt.-r, w : 10, th.-r, f	9, oc.-r : v, shs.-r
4	3·9	8·0	SW	SW : SSW	5·5	0·0	1·03	508	9 : 4, cu.-s, li.-cl, w	p.-cl, slt.-r : 10, slt.-r : 10, slt.-r
5	0·0	8·0	SSW	SSW	5·8	0·0	0·99	508	10 : 10, w	10, w : 10
6	0·0	8·0	SSW : SW	SSW : SW : WSW	6·4	0·0	0·89	474	10 : 10, w	10, fq.-r, w : 10, fq.-r
7	0·0	7·9	SSW : N : NW	WSW	3·8	0·0	0·38	337	10, hy.-r : 10, c.-hy.-r : 10, c.-r	p.-cl, oc.-slt.-r : 7, ci.-cu, li.-cl : 0
8	0·0	7·9	WSW : W : NNW	NNW : SSE : S	3·1	0·0	0·15	249	9 : 10 : 6, ci.-cu, li.-cl	4, ci.-cu, li.-cl : p.-cl
9	2·7	7·9	SSW : WSW : W	WSW : W	7·4	0·0	0·87	504	10, slt.-r : 10, hy.-sh, w : 5, slt.-r	1, li.-cl : 0
10	0·1	7·9	WSW : SW	WSW : SW	14·0	0·0	1·03	535	p.-cl : 10, w : 10, w	10, w : 10, slt.-r : 10
11	0·0	7·9	WSW : SW	WSW : SW	2·6	0·0	0·20	329	10 : 10	10 : 10, slt.-r
12	0·0	7·8	SW : SSW	SW : WSW	7·8	0·0	0·82	461	10 : 10, w	10, w : 9
13	0·4	7·8	NNW : N : NNE	NE : N : SW	0·1	0·0	0·00	129	10 : 9	10 : 0, slt.-f
14	0·2	7·8	SW	SW : WSW : W	6·2	0·0	0·68	430	10 : 10	10, th.-r, w : p.-cl : 0
15	0·2	7·8	WNW : W	NNW : NW	3·4	0·0	0·34	360	9, th.-cl : 1, li.-cl, slt.-f, h	p.-cl, h : p.-cl
16	0·0	7·8	SW : WSW	WSW	3·7	0·0	0·27	332	10 : 10	10 : 10, slt.-r
17	0·0	7·8	WSW : SW	SW	1·6	0·0	0·12	298	10 : 10	10, slt.-sh : 9 : 10, oc.-th.-r
18	0·3	7·8	SW	WSW : SW	2·9	0·0	0·24	343	10 : 10 : p.-cl	p.-cl, so.-ha : 9 : 10
19	0·7	7·8	SW : WNW : NW	NW : WNW : W	4·4	0·0	0·51	410	10 : 10 : p.-cl	3, th.-cl : 0 : v
20	1·2	7·8	NNW	NNW : WSW	2·5	0·0	0·28	307	0, ho.-fr : 3, th.-cl	1, li.-cl : 1, li.-cl : 10
21	0·0	7·8	W : N : ENE	NE : S	0·7	0·0	0·01	151	10, slt.-r : 10 : 10	1, th.-cl, h : tk.-f, ho.-fr
22	3·7	7·8	Calm : Variable	SSW : S : SSE	0·3	0·0	0·00	100	tk.-f, ho.-fr : tk.-f	0 : 0, ho.-fr
23	7·0	7·8	SSE	S : SSE	1·8	0·0	0·10	236	0, ho.-fr : 0	1, li.-cl : 0, lu.-co, ho.-fr
24	0·0	7·8	S : SSW	S : SSW	0·6	0·0	0·00	240	0, ho.-fr : 9, th.-cl	10 : 10
25	3·8	7·8	SSW : SW	SW	2·0	0·0	0·13	276	10 : 10, slt.-f : p.-cl	li.-cl : li.-cl, lu.-co, lu.-ha, d
26	1·2	7·8	SW	SW	7·7	0·0	0·97	500	p.-cl, d : p.-cl	10, w, slt.-r : 10, w
27	0·0	7·8	SW : SSW	SSW : SW : WSW	29·8	0·0	2·61	762	10, st.-w : 10, sc, oc.-r, g	10, sc, c.-r, g : 10, c.-r : 10, c.-r
28	4·7	7·8	SW : WSW	WSW	3·5	0·0	0·42	406	10, r : 2, li.-cl : 1, li.-cl	0 : th.-cl, h, lu.-ha
29	0·0	7·8	SW : SSW : S	SW : WSW	8·8	0·0	0·55	394	0 : 10, shs.-r, w : 10, shs.-r, w	10, shs.-r : v : th.-cl, lu.-co
30	4·3	7·8	N : NNW	NNW : WSW : SW	11·0	0·0	0·80	370	9, shs.-r : 0, w : 0, w	1, li.-cl : 0, slt.-f, ho.-fr
31	0·0	7·9	SW : S : SSE	S : SSW : WSW	8·0	0·0	0·40	308	h, ho.-fr : p.-cl : 10, r	10, sc, w, r : 10, oc.-slt.-r : 10, hy.-sh
Means	1·1	7·9	...	...	...	...	0·58	381		
Number of Column for Reference.	19	20	21	22	23	24	25	26	27	28

The mean *Temperature of Evaporation* for the month was 43°·6, being 5°·3 *higher* than
The mean *Temperature of the Dew Point* for the month was 41°·1, being 4°·6 *higher* than
The mean *Degree of Humidity* for the month was 84·2, being 4·3 *less* than
The mean *Elastic Force of Vapour* for the month was 0in·258, being 0in·042 *greater* than
The mean *Weight of Vapour in a Cubic Foot of Air* for the month was 2grs·9, being 0gr·4 *greater* than
The mean *Weight of a Cubic Foot of Air* for the month was 548 grains, being 5 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 6·8.

The mean proportion of *Sunshine* for the month (constant sunshine being represented by 1) was 0·142. The maximum daily amount of *Sunshine* was 7·0 hours on December 23.

The highest reading of the *Solar Radiation Thermometer* was 91°·7 on December 4; and the lowest reading of the *Terrestrial Radiation Thermometer* was 18°·6 on December 23.

The mean daily distribution of *Ozone* for the 12 hours ending 9h was 0·4; 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. 4, E. 1, S. 13, W. 13.

The *Greatest Pressure of the Wind* in the month was 29·8 lbs. on the square foot on December 27. The mean daily *Horizontal Movement of the Air* for the month was 381 miles; the greatest daily value was 765 miles on December 2; and the least daily value was 100 miles on December 22.

Rain fell on 10 days in the month, amounting to 2in·225, as measured by gauge No. 6 partly sunk below the ground; being 0in·455 *greater* than the average fall for the 50 years, 1841–1890.

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

MAXIMA.

Month	Greenwich Civil Time, 1898. (d h m)	Reading. (in.)
January	3. 12. 20	30·103
	6. 11. 40	29·797
	7. 21. 35	30·020
	13. 0. 0	30·486
	15. 21. 0	30·471
	21. 23. 0	30·338
	23. 9. 50	30·487
	28. 22. 50	30·526
	31. 15. 40	30·333
February	3. 9. 0	29·880
	5. 20. 50	29·853
	11. 23. 0	30·191
	14. 23. 20	30·197
	17. 6. 15	30·004
	19. 2. 5	29·786
	24. 21. 0	30·007
	26. 21. 0	29·942
	28. 11. 55	29·838
March	4. 21. 25	29·691
	8. 0. 0	29·899
	11. 0. 25	30·083
	13. 10. 20	29·919
	15. 0. 30	29·892
	17. 0. 35	29·904
	21. 9. 0	30·070
	23. 23. 40	29·653
	25. 18. 0	29·699
April	1. 9. 0	29·752
	5. 10. 40	30·037
	7. 22. 40	30·097

MINIMA.

Month	Greenwich Civil Time, 1898. (d h m)	Reading. (in.)
January	6. 4. 40	29·722
	7. 4. 45	29·688
	9. 6. 10	29·670
	14. 6. 20	30·284
	19. 15. 5	30·130
	22. 13. 5	30·250
	26. 14. 10	30·224
	31. 3. 35	29·890
February	2. 16. 0	29·552
	4. 12. 55	29·145
	6. 12. 0	29·550
	13. 10. 5	29·939
	16. 2. 30	29·910
	18. 5. 40	29·642
	21. 9. 0	29·029
	26. 1. 15	29·735
	27. 16. 15	29·698
March	1. 13. 30	29·410
	6. 15. 0	29·574
	8. 15. 55	29·818
	12. 15. 35	29·842
	14. 11. 0	29·772
	16. 3. 0	29·746
	19. 8. 15	29·710
	23. 14. 45	29·500
	24. 13. 25	29·535
	26. 18. 0	29·155
April	2. 16. 0	29·583
	6. 16. 15	29·940
	9. 12. 5	29·680

MAXIMA.

Month	Greenwich Civil Time, 1898. (d h m)	Reading. (in.)
April	9. 22. 20	29·813
	11. 7. 40	29·630
	13. 7. 20	29·900
	16. 23. 5	29·880
	21. 11. 0	30·039
	24. 20. 45	30·033
	30. 1. 30	29·495
May	1. 5. 45	29·724
	3. 10. 5	29·410
	5. 8. 10	29·720
	7. 8. 0	30·178
	13. 14. 25	29·549
	17. 0. 0	30·072
	18. 9. 30	30·048
	21. 23. 30	29·675
	24. 22. 30	29·677
	29. 7. 0	29·952
June	3. 7. 0	29·853
	8. 23. 0	29·952
	14. 1. 0	30·108
	17. 8. 0	30·104
	23. 13. 30	29·795
July	1. 10. 0	30·056
	2. 14. 45	29·884
	5. 6. 40	30·130
	10. 22. 30	30·202
	15. 22. 30	29·994
	17. 10. 20	30·016
	21. 0. 0	30·055

MINIMA.

Month	Greenwich Civil Time, 1898. (d h m)	Reading. (in.)
April	10. 17. 20	29·499
	12. 1. 40	29·152
	15. 4. 0	29·520
	18. 15. 30	29·586
	22. 17. 30	29·866
	27. 16. 0	29·393
	30. 13. 10	29·325
May	2. 15. 0	29·297
	4. 5. 45	29·244
	6. 1. 0	29·493
	12. 3. 50	29·030
	14. 3. 40	29·468
	17. 17. 40	29·930
	20. 17. 5	29·462
	23. 15. 0	29·540
	25. 15. 0	29·577
	31. 16. 10	29·296
June	5. 16. 0	29·642
	10. 5. 0	29·858
	15. 17. 0	30·036
	22. 16. 50	29·610
	25. 15. 25	29·298
July	2. 5. 30	29·777
	3. 4. 0	29·810
	7. 18. 0	29·997
	13. 13. 5	29·693
	16. 17. 25	29·922
	18. 18. 0	29·725
	23. 3. 50	29·495

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

MAXIMA.

Greenwich Civil Time, 1898.		Reading.
	d h m	in.
July	26. 11. 0	29·960
	30. 12. 0	30·091
August	4. 22. 0	29·966
	7. 6. 35	29·660
	7. 21. 0	29·666
	9. 23. 0	30·020
	11. 9. 0	30·061
	14. 22. 30	29·860
	17. 22. 0	29·992
	18. 22. 5	30·018
	21. 8. 30	29·985
	25. 9. 45	30·089
	29. 7. 40	29·901
	30. 12. 0	29·738
September	2. 8. 45	30·207
	4. 9. 0	30·242
	10. 22. 50	29·914
	15. 9. 0	30·207
	19. 9. 0	30·073
	23. 8. 40	30·080
	28. 23. 50	29·867
October	2. 8. 0	30·179

MINIMA.

Greenwich Civil Time, 1898.		Reading.
	d h m	in.
July	28. 18. 50	29·696
August	3. 20. 55	29·618
	6. 20. 25	29·502
	7. 14. 10	29·546
	8. 12. 40	29·541
	10. 17. 30	29·950
	13. 1. 50	29·759
	16. 15. 40	29·744
	18. 16. 45	29·901
	19. 1. 45	29·804
	22. 10. 5	29·806
	27. 17. 0	29·576
	29. 23. 10	29·605
	31. 0. 0	29·646
September	2. 17. 0	30·127
	9. 13. 20	29·718
	11. 18. 15	29·748
	18. 5. 20	29·708
	21. 15. 5	29·837
	27. 18. 10	29·539
	30. 4. 15	29·420
October	8. 5. 35	29·760

MAXIMA.

Greenwich Civil Time, 1898.		Reading.
	d h m	in.
October	10. 10. 0	29·947
	20. 12. 0	29·623
	23. 20. 20	29·991
	27. 10. 40	29·908
November	1. 22. 25	29·903
	4. 10. 0	29·780
	6. 11. 40	29·980
	9. 10. 25	30·039
	14. 23. 0	30·172
	18. 9. 30	30·184
	22. 11. 55	29·905
December	1. 9. 30	29·799
	5. 21. 0	29·923
	8. 16. 25	29·936
	11. 21. 5	30·353
	13. 23. 0	30·253
	16. 3. 25	30·132
	17. 10. 0	30·122
	22. 10. 15	30·351
	24. 22. 30	30·280
	28. 23. 0	29·579
	30. 21. 5	29·833

MINIMA.

Greenwich Civil Time, 1898.		Reading.
	d h m	in.
October	18. 5. 40	28·586
	21. 6. 10	29·453
	24. 22. 0	29·799
	30. 3. 20	29·103
November	3. 4. 55	29·482
	5. 13. 30	29·610
	8. 1. 15	29·772
	12. 22. 40	29·466
	16. 15. 0	30·052
	21. 23. 40	29·799
	25. 4. 0	28·606
December	2. 16. 40	29·445
	7. 13. 0	29·517
	9. 8. 15	29·494
	12. 19. 45	30·016
	14. 23. 0	29·851
	16. 16. 10	30·028
	19. 4. 25	29·875
	24. 6. 45	30·194
	28. 0. 15	29·298
	29. 16. 55	28·916

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 1898.
[Extracted from the preceding Table.]

MONTH, 1898.	Readings of the Barometer.		Range.
	Highest.	Lowest.	
	in.	in.	in.
January	30·526	29·670	0·856
February	30·197	29·029	1·168
March	30·083	29·155	0·928
April	30·097	29·152	0·945
May	30·178	29·030	1·148
June	30·108	29·298	0·810
July	30·202	29·495	0·707
August	30·089	29·502	0·587
September	30·242	29·420	0·822
October	30·179	28·586	1·593
November	30·184	28·606	1·578
December	30·353	28·916	1·437

The highest reading in the year was 30in·526 on January 28. The lowest reading in the year was 28in·586 on October 18.
The range of reading in the year was 1in·940.

MONTHLY RESULTS of METEOROLOGICAL ELEMENTS for the YEAR 1898.

MONTH, 1898.	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	30·144	54·5	30·0	24·5	47·1	39·3	7·8	43·7	+ 5·2	41·9	39·8	86·9
February ...	29·775	55·8	26·1	29·7	46·9	36·0	10·9	41·3	+ 1·8	38·7	35·4	79·9
March	29·706	60·0	27·2	32·8	46·8	34·0	12·9	40·0	− 1·7	37·5	34·2	80·2
April	29·744	67·2	29·7	37·5	57·4	39·8	17·6	48·1	+ 0·9	44·3	40·3	74·9
May	29·664	75·0	36·0	39·0	60·2	44·9	15·3	52·0	− 1·1	48·6	45·1	77·8
June.........	29·814	78·4	40·0	38·4	67·3	49·8	17·5	57·8	− 1·6	53·6	49·7	74·9
July	29·933	82·0	44·6	37·4	72·3	52·7	19·5	61·9	− 0·5	56·6	52·1	70·7
August......	29·844	90·0	48·0	42·0	75·9	55·2	20·7	64·8	+ 3·2	59·5	55·1	71·4
September..	29·933	92·1	39·9	52·2	74·5	51·3	23·2	62·0	+ 4·9	56·6	52·0	70·0
October	29·666	69·2	37·9	31·3	59·6	48·4	11·2	53·9	+ 3·9	51·6	49·3	84·8
November...	29·679	60·3	29·0	31·3	51·0	40·5	10·5	46·1	+ 2·9	44·5	42·8	88·8
December ...	29·904	57·8	28·6	29·2	49·9	40·7	9·2	45·8	+ 6·1	43·6	41·1	84·2
Means	29·817	Highest. 92·1	Lowest. 26·1	Annual Range. 66·0	59·1	44·4	14·7	51·4	+ 3·4	48·1	44·7	78·7

MONTH, 1898.	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.....	0·245	2·8	555	0·1	8·1	8	0·654	38	21	31	95	61	310	146	35	7	0·22	244
February ...	0·207	2·4	551	0·6	7·2	12	1·185	99	31	20	7	5	228	208	74	0	0·54	384
March	0·197	2·3	551	0·6	6·8	14	1·403	118	192	74	38	36	107	148	26	5	0·52	340
April	0·250	2·8	543	0·8	5·7	10	0·928	47	81	160	29	113	152	88	43	7	0·34	281
May	0·301	3·4	537	0·1	7·3	22	2·640	147	101	73	56	84	156	71	49	7	0·33	277
June.........	0·357	4·0	533	0·4	7·0	11	1·748	157	101	12	30	58	223	109	26	4	0·31	279
July	0·389	4·3	530	0·0	6·5	9	1·339	171	99	48	34	25	104	137	109	17	0·19	238
August	0·434	4·8	526	0·1	4·9	11	0·864	88	72	88	30	53	250	121	39	3	0·39	291
September...	0·388	4·3	530	0·2	3·3	5	0·305	53	87	104	69	71	185	95	24	32	0·12	209
October......	0·352	4·0	534	0·5	7·0	17	3·152	51	108	134	66	95	226	38	19	7	0·25	255
November ..	0·275	3·2	543	0·3	6·5	13	2·407	60	63	118	106	90	189	47	30	17	0·21	237
December...	0·258	2·9	548	0·5	6·8	10	2·225	46	13	4	16	125	374	106	52	8	0·58	381
Sums	...	...	...	...	...	142	18·850	1075	969	866	576	816	2504	1314	526	114	...	...
Means	0·304	3·4	540	0·4	6·4	...	...	...	...	...	...	...	...	...	...	...	0·33	285

The greatest recorded pressure of the wind on the square foot in the year was 29·8 lbs. on December 27.
The greatest recorded daily horizontal movement of the air in the year was 830 miles on February 2.
The least recorded daily horizontal movement of the air in the year was 69 miles on January 14.

Monthly Mean Reading of the Barometer at every Hour of the Day, as deduced from the Photographic Records.

Hour, Greenwich Civil Time.	1898. 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	30·125	29·793	29·724	29·757	29·679	29·818	29·940	29·847	29·944	29·674	29·688	29·930	29·827
1h.	30·121	29·788	29·723	29·750	29·674	29·815	29·936	29·842	29·942	29·668	29·682	29·923	29·822
2	30·122	29·786	29·713	29·744	29·668	29·811	29·931	29·838	29·937	29·661	29·680	29·922	29·818
3	30·122	29·778	29·708	29·740	29·662	29·806	29·926	29·842	29·934	29·656	29·674	29·918	29·814
4	30·117	29·772	29·703	29·737	29·660	29·805	29·925	29·842	29·931	29·654	29·671	29·909	29·810
5	30·116	29·772	29·703	29·740	29·661	29·809	29·928	29·846	29·932	29·654	29·672	29·902	29·811
6	30·120	29·770	29·705	29·746	29·666	29·813	29·933	29·853	29·941	29·655	29·672	29·900	29·815
7	30·130	29·773	29·707	29·752	29·669	29·816	29·940	29·861	29·946	29·663	29·676	29·898	29·819
8	30·142	29·777	29·711	29·756	29·671	29·818	29·942	29·863	29·949	29·672	29·685	29·902	29·824
9	30·154	29·779	29·712	29·756	29·669	29·817	29·942	29·864	29·951	29·676	29·690	29·908	29·826
10	30·163	29·781	29·710	29·756	29·670	29·818	29·943	29·864	29·951	29·678	29·694	29·913	29·828
11	30·165	29·784	29·707	29·752	29·669	29·819	29·942	29·860	29·944	29·680	29·690	29·905	29·826
Noon	30·157	29·779	29·702	29·745	29·666	29·817	29·940	29·853	29·937	29·674	29·681	29·895	29·821
13h.	30·146	29·769	29·692	29·738	29·663	29·812	29·937	29·846	29·930	29·668	29·672	29·883	29·813
14	30·141	29·762	29·687	29·734	29·657	29·809	29·933	29·838	29·920	29·664	29·665	29·878	29·807
15	30·143	29·760	29·684	29·727	29·652	29·804	29·929	29·829	29·912	29·659	29·662	29·881	29·804
16	30·148	29·758	29·684	29·725	29·650	29·801	29·923	29·825	29·909	29·657	29·664	29·886	29·803
17	30·152	29·763	29·689	29·727	29·647	29·800	29·919	29·821	29·910	29·660	29·671	29·891	29·804
18	30·157	29·771	29·698	29·730	29·650	29·803	29·919	29·822	29·912	29·665	29·676	29·896	29·808
19	30·160	29·772	29·707	29·738	29·655	29·809	29·922	29·828	29·921	29·668	29·680	29·901	29·813
20	30·163	29·773	29·714	29·749	29·663	29·817	29·928	29·838	29·930	29·671	29·683	29·908	29·820
21	30·164	29·778	29·718	29·751	29·671	29·829	29·938	29·843	29·937	29·672	29·685	29·912	29·825
22	30·165	29·779	29·720	29·754	29·675	29·833	29·941	29·850	29·940	29·670	29·687	29·915	29·827
23	30·164	29·779	29·722	29·757	29·675	29·837	29·943	29·851	29·940	29·668	29·689	29·917	29·828
24	30·159	29·778	29·722	29·756	29·671	29·837	29·940	29·852	29·938	29·666	29·688	29·913	29·827
Means 0h.–23h.	30·144	29·775	29·706	29·744	29·664	29·814	29·933	29·844	29·933	29·666	29·679	29·904	29·817
Means 1h.–24h.	30·146	29·774	29·706	29·744	29·664	29·815	29·933	29·845	29·933	29·666	29·679	29·904	29·817
Number of Days employed.	31	28	31	30	31	30	31	31	30	31	30	31	...

Monthly Mean Temperature of the Air at every Hour of the Day, as deduced from the Photographic Records.

Hour, Greenwich Civil Time.	1898. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	42·8	40·1	37·8	43·7	49·1	53·0	57·4	60·3	57·3	52·1	44·6	44·6	48·6
1h.	42·9	39·8	37·5	43·3	48·5	52·4	56·5	59·4	56·4	51·9	44·4	44·6	48·1
2	42·8	39·7	37·2	43·2	48·0	52·0	56·0	58·6	55·8	51·8	44·2	44·5	47·8
3	42·7	39·3	36·9	42·9	47·6	51·7	55·6	58·5	55·3	51·3	44·0	44·5	47·5
4	42·8	38·9	36·8	42·8	47·3	51·5	55·3	58·2	54·8	51·2	44·2	44·6	47·4
5	42·7	38·9	36·7	42·5	47·5	52·0	55·5	58·1	54·6	50·9	44·1	44·6	47·3
6	42·6	38·8	36·6	42·9	48·2	53·3	56·4	58·6	54·6	50·8	44·2	44·7	47·6
7	42·5	38·7	36·8	44·2	49·6	54·9	58·3	60·2	55·6	51·1	44·3	44·9	48·4
8	42·6	38·9	37·8	46·4	51·3	57·0	60·3	62·6	58·7	52·0	44·8	45·0	49·8
9	42·8	40·0	39·5	48·8	53·2	59·0	62·6	65·5	62·6	53·6	45·5	45·5	51·5
10	43·3	41·6	41·4	50·5	54·7	60·2	64·5	67·7	65·7	55·3	46·7	46·2	53·2
11	44·2	42·8	42·9	51·8	55·5	61·3	66·1	69·7	68·5	56·9	47·8	47·0	54·5
Noon	45·2	44·0	43·9	53·3	56·2	62·0	67·4	71·6	70·8	58·1	48·7	47·7	55·7
13h.	45·9	44·7	45·0	54·1	57·0	63·1	68·4	73·1	72·0	58·3	49·6	48·1	56·6
14	46·2	45·1	45·0	55·0	57·1	64·4	69·0	73·3	72·1	58·4	49·9	48·2	57·0
15	45·8	44·9	44·8	55·1	57·0	64·6	69·0	73·3	71·5	57·8	49·4	47·7	56·7
16	45·3	44·4	44·2	54·7	56·2	64·1	68·9	72·4	70·0	56·9	48·4	47·1	56·0
17	44·6	43·5	43·0	53·3	55·4	63·4	67·9	70·8	67·7	55·7	47·4	46·6	54·9
18	44·1	42·7	41·6	51·5	54·5	62·0	66·4	68·5	65·3	54·6	46·7	46·3	53·7
19	43·9	41·9	40·5	49·7	53·1	60·3	64·5	66·0	62·9	53·9	46·2	45·8	52·4
20	43·6	41·2	39·6	47·8	51·7	58·5	62·4	63·9	61·0	53·3	45·7	45·5	51·2
21	43·5	40·8	38·8	46·5	50·3	56·6	60·3	62·6	59·5	52·8	45·3	45·3	50·2
22	43·3	40·6	38·1	45·5	49·6	55·3	59·0	61·5	58·5	52·5	45·2	45·0	49·5
23	43·1	40·3	37·8	44·6	49·1	54·3	58·2	60·7	57·8	52·1	45·0	44·7	49·0
24	42·9	40·0	37·6	44·0	48·9	53·6	57·3	60·1	57·1	51·9	44·7	44·4	48·5
Means 0h.–23h.	43·7	41·3	40·0	48·1	52·0	57·8	61·9	64·8	62·0	53·9	46·1	45·8	51·4
Means 1h.–24h.	43·7	41·3	40·0	48·1	52·0	57·8	61·9	64·8	62·0	53·9	46·1	45·8	51·4
Number of Days employed.	31	28	31	30	31	30	31	31	30	31	30	31	...

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

Hour, Greenwich Civil Time.	1898.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	41.4	38.2	36.1	41.8	47.3	50.8	54.5	57.6	54.4	50.8	43.4	42.9	46.6
1h.	41.5	38.1	36.0	41.6	46.8	50.5	54.0	57.1	54.1	50.8	43.4	42.8	46.4
2	41.4	38.0	35.8	41.6	46.5	50.1	53.6	56.5	53.8	50.6	43.2	42.7	46.2
3	41.4	37.6	35.5	41.5	46.3	50.0	53.4	56.4	53.4	50.2	43.1	42.8	46.0
4	41.5	37.4	35.4	41.4	46.0	49.9	53.2	56.2	53.1	50.1	43.2	42.8	45.8
5	41.4	37.2	35.4	41.3	45.8	50.3	53.3	56.2	52.9	49.7	43.1	42.8	45.8
6	41.3	37.1	35.1	41.5	46.3	51.2	54.0	56.6	52.8	49.7	43.2	42.9	46.0
7	41.1	37.1	35.2	42.6	47.3	52.1	55.0	57.5	53.5	49.8	43.3	43.0	46.5
8	41.2	37.4	36.0	44.1	48.3	53.4	56.1	58.8	55.5	50.6	43.7	43.0	47.3
9	41.3	38.1	37.2	45.4	49.2	54.3	57.3	60.1	57.3	51.7	44.3	43.3	48.3
10	41.6	39.3	38.4	46.0	49.7	54.8	58.0	60.8	58.6	52.6	45.2	43.8	49.1
11	42.1	39.8	39.4	46.7	50.0	55.6	58.7	61.7	59.7	53.1	45.9	44.2	49.7
Noon	42.8	40.1	39.9	47.3	50.5	56.0	59.1	62.5	60.5	53.4	46.4	44.7	50.3
13h.	43.2	40.5	40.4	47.7	51.0	56.5	59.6	63.0	60.8	53.5	46.9	45.0	50.7
14	43.4	40.7	40.5	48.0	51.0	56.9	59.9	63.1	60.9	53.7	47.1	45.1	50.9
15	43.2	40.5	40.4	47.8	51.1	57.1	59.8	63.1	60.7	53.3	46.6	44.9	50.7
16	42.8	40.3	40.2	47.5	50.9	56.7	59.7	62.7	59.9	53.0	46.0	44.5	50.4
17	42.5	39.8	39.4	46.7	50.5	56.4	59.3	62.2	59.0	52.6	45.4	44.3	49.8
18	42.2	39.5	38.6	45.9	50.0	55.8	58.6	61.1	58.1	52.1	44.8	44.1	49.2
19	42.0	39.0	37.8	45.0	49.4	55.1	57.8	60.2	57.2	51.8	44.7	43.8	48.6
20	41.9	38.8	37.4	44.1	48.6	54.2	57.0	59.4	56.5	51.6	44.2	43.6	48.1
21	41.8	38.4	36.8	43.4	48.0	53.3	56.1	58.8	55.8	51.3	44.1	43.5	47.6
22	41.7	38.2	36.4	42.8	47.6	52.5	55.5	58.2	55.1	51.1	43.9	43.2	47.2
23	41.6	38.1	36.1	42.2	47.3	51.9	55.0	57.9	54.7	50.8	43.9	42.9	46.9
24	41.4	38.1	36.0	42.0	47.2	51.4	54.4	57.5	54.3	50.6	43.6	42.7	46.6
Means { 0h.–23h.	41.9	38.7	37.5	44.3	48.6	53.6	56.6	59.5	56.6	51.6	44.5	43.6	48.1
Means { 1h.–24h.	41.9	38.7	37.5	44.3	48.6	53.6	56.6	59.5	56.6	51.6	44.5	43.6	48.1
Number of Days employed }	31	28	31	30	31	30	31	31	30	31	30	31	...

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

Hour, Greenwich Civil Time.	1898.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Midnight	39.7	35.7	33.8	39.6	45.3	48.6	51.9	55.2	51.8	49.5	42.0	40.9	44.5
1h.	39.8	35.9	33.9	39.6	45.0	48.6	51.7	55.1	51.9	49.7	42.2	40.7	44.5
2	39.7	35.8	33.9	39.7	44.9	48.2	51.3	54.6	51.9	49.4	42.0	40.6	44.3
3	39.8	35.4	33.6	39.8	44.9	48.3	51.3	54.5	51.6	49.1	42.0	40.8	44.3
4	39.9	35.4	33.5	39.7	44.6	48.3	51.2	54.4	51.4	49.0	42.0	40.7	44.2
5	39.8	34.9	33.6	39.9	43.9	48.6	51.2	54.5	51.3	48.5	41.9	40.7	44.1
6	39.7	34.8	33.0	39.8	44.2	49.1	51.7	54.8	51.1	48.6	42.0	40.8	44.1
7	39.4	34.9	33.0	40.7	44.8	49.4	52.0	55.1	51.5	48.5	42.1	40.8	44.3
8	39.5	35.4	33.6	41.5	45.2	50.1	52.5	55.6	52.6	49.2	42.5	40.7	44.9
9	39.5	35.6	34.2	41.7	45.2	50.1	52.8	55.7	52.8	49.9	42.9	40.8	45.1
10	39.6	36.4	34.7	41.3	44.9	50.1	52.6	55.4	52.8	50.0	43.5	41.1	45.2
11	39.6	36.2	35.2	41.5	44.8	50.7	52.7	55.5	52.8	49.6	43.8	41.0	45.3
Noon	40.0	35.5	35.2	41.3	45.2	50.8	52.5	55.6	52.6	49.2	43.9	41.4	45.3
13h.	40.1	35.6	35.1	41.4	45.5	50.9	52.7	55.5	52.4	49.2	44.0	41.6	45.3
14	40.2	35.6	35.3	41.3	45.4	50.7	52.8	55.6	52.5	49.5	44.1	41.7	45.4
15	40.2	35.4	35.3	40.8	45.7	50.9	52.6	55.6	52.5	49.2	43.6	41.9	45.3
16	39.9	35.5	35.5	40.5	45.9	50.6	52.5	55.5	52.1	49.4	43.4	41.6	45.2
17	40.0	35.4	35.1	40.2	45.9	50.5	52.5	55.6	52.1	49.7	43.2	41.7	45.2
18	39.9	35.6	34.9	40.1	45.7	50.4	52.3	55.3	52.2	49.7	42.6	41.6	45.0
19	39.7	35.4	34.4	40.0	45.7	50.5	52.2	55.5	52.4	49.8	43.0	41.5	45.0
20	39.9	35.8	34.5	40.0	45.5	50.3	52.4	55.6	52.6	49.9	42.5	41.4	45.0
21	39.8	35.4	34.1	39.9	45.6	50.2	52.5	55.6	52.5	49.8	42.7	41.4	45.0
22	39.8	35.1	34.1	39.7	45.5	49.8	52.4	55.4	52.0	49.7	42.4	41.1	44.8
23	39.8	35.3	33.8	39.4	45.3	49.5	52.1	55.5	52.0	49.5	42.6	40.8	44.6
24	39.6	35.6	33.8	39.6	45.3	49.3	51.8	55.2	51.7	49.3	42.3	40.7	44.5
Means { 0h.–23h.	39.8	35.5	34.3	40.4	45.2	49.8	52.2	55.3	52.1	49.4	42.8	41.1	44.8
Means { 1h.–24h.	39.8	35.5	34.3	40.4	45.2	49.8	52.2	55.3	52.1	49.4	42.8	41.1	44.8
Number of Days employed. }	31	28	31	30	31	30	31	31	30	31	30	31	...

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.	1898. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
Midnight	89	85	86	85	87	85	82	84	82	91	91	88	86
1h.	89	86	87	87	88	87	84	86	85	92	92	87	87
2	89	86	88	87	89	87	85	86	88	92	92	87	88
3	90	86	88	89	91	88	86	86	88	92	93	87	89
4	90	87	88	89	91	89	87	87	88	92	92	87	89
5	90	86	89	90	89	88	86	88	89	92	92	87	89
6	90	86	87	89	87	86	85	87	88	92	92	87	88
7	89	87	86	88	85	81	80	84	87	91	92	86	86
8	89	88	85	84	80	77	75	78	81	90	92	85	84
9	88	85	82	77	74	73	70	71	71	87	91	84	79
10	87	83	78	72	69	69	65	64	63	83	90	83	76
11	84	78	75	68	67	69	62	60	57	76	88	80	72
Noon	82	72	72	64	67	67	59	57	53	72	84	80	69
13h.	81	71	68	62	65	65	58	54	50	72	82	78	67
14	81	70	69	60	65	61	56	54	50	72	81	79	66
15	82	69	69	59	66	61	55	54	51	73	81	81	67
16	82	71	71	59	69	61	55	55	53	76	83	82	68
17	84	74	74	61	70	63	58	59	57	81	86	84	71
18	85	77	78	65	71	66	61	62	62	83	87	85	74
19	85	79	79	70	76	70	64	69	69	86	89	86	77
20	87	82	82	75	79	75	70	75	74	88	89	86	80
21	87	82	85	79	84	79	75	78	78	90	91	87	83
22	88	81	86	81	87	82	79	81	79	91	90	86	84
23	88	83	86	82	87	84	80	84	81	91	91	87	85
24	88	85	86	84	88	85	82	84	82	91	92	87	86
Means 0h.–23h.	86	81	81	76	78	76	72	73	72	85	89	85	79
Means 1h.–24h.	86	81	81	76	78	76	72	73	72	85	89	84	79

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 1898.

Month, 1898.	Registered Duration of Sunshine in Hour ending 5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon.	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	Total registered Duration of Sunshine in each Month.	Corresponding aggregate Period during which the Sun was above Horizon.	Proportion of Sunshine.	Mean Altitude of the Sun at Noon.
	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h		°
January	...	...	...	...	0·4	2·3	3·5	4·7	5·4	3·5	2·9	0·3	...	...	...	...	23·0	259·8	0·089	18
February	...	...	...	1·0	5·2	8·9	8·1	6·4	7·0	7·1	5·6	4·6	0·7	...	...	...	54·6	278·1	0·196	26
March	...	...	...	3·1	7·6	9·2	11·2	10·8	10·7	8·8	7·3	6·1	4·0	0·5	...	...	79·3	366·6	0·216	37
April	...	0·1	5·5	9·9	9·2	11·8	12·0	13·5	13·9	17·9	17·1	17·8	13·2	8·4	1·3	...	151·6	414·7	0·366	48
May	0·2	5·1	10·6	10·1	10·6	12·5	12·9	12·5	11·3	12·4	11·3	10·6	10·2	8·6	3·7	0·1	142·7	482·1	0·296	57
June	1·8	6·5	9·4	10·1	10·3	9·6	10·8	11·2	11·0	13·5	13·8	12·3	13·6	11·1	10·4	3·8	159·2	494·5	0·322	62
July	2·4	10·4	13·0	10·6	12·0	14·1	14·8	15·3	15·2	14·1	13·1	13·5	12·3	13·0	11·0	2·2	187·0	497·1	0·376	60
August	0·2	5·4	10·2	12·9	18·0	18·9	19·9	20·0	22·4	19·8	19·4	17·3	15·1	14·6	4·5	...	218·6	449·2	0·487	52
September	...	...	4·1	11·7	16·5	19·0	21·6	23·2	23·5	21·7	23·1	23·4	19·0	6·7	...	...	213·5	377·8	0·565	41
October	...	...	...	2·1	9·1	12·4	12·1	12·1	9·3	8·0	7·8	7·1	2·8	0·3	...	...	83·1	328·5	0·253	30
November	...	...	...	...	3·5	7·5	8·9	9·4	10·6	11·4	11·3	5·1	...	...	...	...	67·7	264·5	0·256	20
December	...	...	...	...	0·6	3·1	6·3	7·4	7·0	6·7	2·7	0·9	...	...	...	...	34·7	243·9	0·142	16
For the Year	...	...	...	...	...	...	...	...	...		...	...	...	...	...	...	1415·0	4456·8	0·318	...

The hours are reckoned from *apparent* midnight.

READINGS of DRY-BULB THERMOMETERS placed in a STEVENSON'S SCREEN near the Ordinary Stand, and of those mounted in a louvre-boarded shed on the ROOF of the MAGNET-HOUSE at an elevation of 20 feet above the GROUND; and EXCESS of the READINGS above those of the corresponding THERMOMETERS on the ORDINARY STAND, in the YEAR 1898.

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

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

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

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

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

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	50·7	32·0	35·4	47·2	49·7	44·3	−0·1	−1·2	−0·6	−0·3	0·0	+0·6
2	53·8	34·2	41·9	50·9	51·4	48·5	−1·2	−1·1	+0·6	−0·1	−0·1	+0·3
3	56·3	41·1	...	...	...	...	−0·9	−2·1	...	...	...	...
4	53·5	42·1	48·7	49·0	51·0	42·9	−0·7	−0·7	+0·5	+0·2	−0·7	+0·1
5	53·2	30·1	45·3	48·8	52·2	39·5	−0·1	−2·5	+1·5	−0·9	+1·0	−0·2
6	61·0	33·0	49·0	56·8	60·1	47·5	−0·2	−0·6	+0·4	−0·8	+1·4	−0·1
7	60·1	45·1	51·6	54·7	58·7	49·8	0·0	−0·5	+0·3	+0·2	+0·9	−0·4
8	67·1	41·3	...	...	...	...	−0·1	−0·9	...	...	...	...
9	60·8	48·2	55·6	58·9	59·6	51·4	−1·0	+0·4	+0·2	−0·5	−0·1	0·0
10	57·5	50·2	...	...	...	...	+0·1	+0·2	...	...	...	...
11	58·0	46·2	...	...	...	...	−0·6	−0·4	...	...	...	...
12	54·5	42·5	44·7	49·7	53·7	48·2	−0·5	−0·5	−0·4	0·0	0·0	+0·5
13	58·4	36·1	52·9	55·0	57·4	46·6	+0·3	−1·1	+1·3	0·0	+1·0	+0·3
14	60·9	42·4	53·7	53·7	60·5	49·7	+0·4	−0·8	+0·2	+0·3	+1·3	+0·9
15	59·3	45·6	47·8	54·6	59·0	49·3	−0·3	−0·2	0·0	−1·2	+0·4	+0·4
16	53·2	35·2	48·4	50·7	53·2	46·7	+0·7	−1·8	+0·5	+0·9	+1·0	0·0
17	63·3	36·0	...	...	...	...	−0·8	0·0	...	...	...	...
18	55·6	38·1	48·7	53·0	54·4	41·7	+1·3	−0·9	+0·3	−0·2	+1·3	−0·9
19	55·4	39·0	48·9	53·6	53·9	41·5	+0·8	−1·1	+1·0	+1·2	+1·2	−0·6
20	60·8	38·3	48·6	56·4	56·6	46·9	+0·9	−1·5	+0·7	+0·7	+0·8	−0·2
21	58·0	39·8	51·4	56·3	55·0	40·7	+0·9	−1·1	+1·0	+0·6	+1·2	−0·3
22	51·3	34·1	43·2	45·7	48·6	39·0	+0·3	−1·8	+0·4	+1·0	+0·8	−0·9
23	55·9	31·7	47·7	50·1	55·9	40·2	−0·4	−1·4	+1·0	−2·6	+0·8	−1·0
24	56·7	28·8	...	...	...	...	+0·7	−0·9	...	...	...	...
25	54·6	35·0	50·7	51·7	53·2	45·0	+0·6	−0·1	+1·1	+0·9	+0·7	−0·1
26	60·8	41·1	45·7	51·6	59·2	48·8	+1·7	−0·7	0·0	+0·8	+1·5	−0·5
27	61·7	47·8	52·8	55·4	59·4	50·0	+1·4	−0·1	+1·9	+1·7	+1·9	+0·5
28	56·8	44·1	50·2	50·5	52·6	50·4	+0·3	−0·9	−0·1	−0·2	+0·6	+0·1
29	60·7	46·3	52·0	58·7	60·2	49·5	−0·2	−0·8	+1·0	+1·9	+0·6	0·0
30	56·0	40·6	53·2	52·0	54·1	48·3	0·0	−1·1	+1·5	+0·6	+0·4	−0·4
Means	57·5	39·5	48·7	52·7	55·4	46·1	+0·1	−0·9	+0·6	+0·2	+0·7	−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.						Excess above readings of Thermometers on ordinary stand, 4 ft. above the ground.						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		Maximum.	Minimum.	9h	Noon.	15h	21h	Maximum.	Minimum.	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°	°	°	°	°	d	°	°	°	°	°	°	°	°	°	°	°	°
1	52·3	41·4	...	...	...	...	−0·7	+0·1	...	...	...	...	1	53·8	40·4	...	...	...	...	+0·8	−0·9	...	...	...	...
2	67·0	46·9	54·8	63·3	65·7	53·8	−1·0	0·0	−0·7	−0·4	−0·1	+0·1	2	68·5	46·4	57·1	64·4	65·9	53·7	+0·5	−0·5	+1·6	+0·7	+0·1	0·0
3	60·1	47·5	57·9	58·3	56·5	50·7	−0·7	+0·1	−0·1	−0·2	−0·5	+0·3	3	60·2	46·5	58·4	59·4	57·0	50·0	−0·6	−0·9	+0·4	+0·9	0·0	−0·4
4	57·2	48·0	52·2	52·1	55·8	49·8	−0·6	+0·1	−0·3	−0·4	−0·3	+0·1	4	57·2	47·0	53·5	52·4	56·9	49·5	−0·6	−0·9	+1·0	−0·1	+0·8	−0·2
5	54·2	44·2	51·6	51·3	51·1	52·1	−1·4	+0·2	0·0	−0·4	+0·3	−0·3	5	56·4	44·0	52·4	52·7	51·4	52·0	+0·8	0·0	+0·8	+1·0	+0·6	−0·4
6	60·3	46·3	53·1	55·0	59·6	48·8	−1·8	+0·1	+0·1	−0·3	−1·1	+0·1	6	61·5	45·2	52·5	55·8	59·9	48·7	−0·6	−1·0	−0·5	+0·5	−0·8	0·0
7	60·8	42·1	54·0	58·3	60·2	51·6	−1·3	+0·2	−0·5	−0·7	−1·7	−0·2	7	62·8	40·2	52·6	58·6	62·8	51·5	+0·7	−1·7	−1·9	−0·4	+0·9	−0·3
8	53·8	48·0	...	...	...	...	−0·2	+0·1	...	...	...	...	8	54·0	48·2	...	...	...	...	0·0	+0·3	...	...	...	...
9	59·9	50·3	53·8	55·7	57·8	54·6	−0·6	+0·2	−0·2	−0·2	−0·4	+0·3	9	60·5	50·1	54·2	55·7	58·7	54·4	0·0	0·0	+0·2	−0·2	+0·5	+0·1
10	60·1	49·0	55·8	56·9	58·6	54·5	−0·7	+0·3	−0·4	+0·1	−0·1	+0·3	10	61·1	47·9	57·7	57·9	59·3	54·2	+0·3	−0·8	+1·5	+1·1	+0·6	0·0
11	58·5	47·3	51·3	55·6	57·6	47·8	−1·2	−0·3	−0·3	−0·4	−0·6	−0·1	11	58·8	46·7	52·0	55·7	56·5	47·5	−0·9	−0·9	+0·4	−0·3	−1·7	−0·4
12	52·9	43·2	48·4	49·1	51·7	44·0	−2·3	+0·2	−0·7	−0·6	−1·2	+0·1	12	54·1	42·7	48·9	49·1	52·7	43·4	−1·1	−0·3	−0·2	−0·6	−0·2	−0·5
13	58·4	36·1	48·7	52·5	54·9	46·8	−1·6	+0·1	0·0	−0·1	+0·9	0·0	13	59·5	34·8	48·6	53·5	53·7	46·7	−0·5	−1·2	−0·1	+0·9	−0·3	−0·1
14	59·1	44·1	51·3	56·6	57·8	48·8	−2·5	−0·1	+0·1	−0·1	−0·5	+0·9	14	60·6	43·4	52·5	56·7	58·7	47·3	−1·0	−0·8	+1·3	0·0	+0·4	−0·6
15	56·1	43·1	...	...	...	...	−0·4	+0·3	...	...	...	...	15	57·3	41·2	...	...	...	...	+0·8	−1·6	...	...	...	...
16	57·1	43·1	51·0	52·3	55·8	44·8	−1·9	+0·1	−0·3	−0·5	−1·0	+0·2	16	59·0	42·6	49·9	51·8	56·0	44·3	0·0	−0·4	−1·4	−1·0	−0·8	−0·3
17	58·1	38·3	49·8	55·4	54·4	48·3	−1·9	+0·2	+0·1	−0·3	−0·3	+0·3	17	60·5	36·8	50·8	56·7	55·7	48·2	+0·5	−1·3	+1·1	+1·0	+1·0	+0·2
18	55·1	40·2	50·9	53·8	53·1	44·5	−2·2	+0·2	−0·7	−0·8	−1·6	+0·2	18	57·2	38·9	52·7	56·1	55·4	43·9	−0·1	−1·1	+1·1	+1·5	+0·7	−0·4
19	50·2	39·1	46·0	47·8	49·1	49·3	+0·2	+0·1	−0·3	+0·1	−0·1	−0·1	19	50·2	37·9	45·2	47·8	48·5	49·1	+0·2	−1·1	−1·1	+0·1	−0·7	−0·3
20	51·4	48·6	49·1	50·6	51·4	50·5	−0·5	−0·6	−0·3	−0·1	−0·2	−0·2	20	51·3	48·2	48·8	50·4	51·0	50·5	−0·6	−1·0	−0·6	−0·3	−0·6	−0·2
21	61·1	50·1	52·9	57·8	57·6	51·3	−0·8	+0·1	−0·8	−0·2	−0·2	+0·5	21	62·6	50·2	52·7	58·4	57·6	50·8	+0·7	+0·2	−1·0	+0·4	−0·2	0·0
22	68·1	46·1	...	...	...	...	−0·9	0·0	...	...	...	...	22	69·5	45·2	...	...	...	...	+0·5	−0·9	...	...	...	...
23	71·4	46·9	65·8	71·1	68·4	58·6	−3·6	0·0	−1·2	−1·2	−1·3	−0·1	23	74·6	46·0	67·8	73·5	71·2	58·6	−0·4	−0·9	+0·8	+1·2	+1·5	−0·1
24	64·1	51·2	57·5	63·8	61·7	51·8	−3·8	−0·7	−1·1	−2·8	−2·0	−0·1	24	67·4	49·2	59·1	65·7	64·5	51·2	−0·5	−2·7	+0·5	−0·9	+0·8	−0·7
25	57·9	46·1	49·7	54·8	56·7	49·8	−2·1	−0·7	−0·8	−0·9	−0·3	−0·2	25	59·5	46·1	50·2	55·5	57·0	49·7	−0·5	−0·7	−0·3	−0·2	0·0	−0·3
26	55·2	44·2	49·3	54·2	54·9	48·8	−1·6	0·0	−0·6	−0·6	−0·3	+0·2	26	56·5	43·3	50·2	55·3	55·8	48·5	−0·3	−0·9	+0·3	+0·5	+0·6	−0·1
27	62·4	45·7	56·3	60·8	57·3	52·8	−2·5	+0·6	−1·5	−1·2	−0·5	+0·1	27	65·3	44·2	57·7	62·7	58·5	52·9	+0·4	−0·9	−0·1	+0·7	+0·7	+0·2
28	58·6	46·1	...	...	...	...	−1·7	0·0	...	...	...	...	28	59·8	45·4	...	...	...	...	−0·5	−0·7	...	...	...	...
29	60·1	47·1	...	...	...	...	−1·1	+0·2	...	...	...	...	29	61·0	46·1	...	...	...	...	−0·2	−0·8	...	...	...	...
30	59·1	49·3	...	...	...	...	−0·8	0·0	...	...	...	...	30	59·8	48·6	...	...	...	...	−0·1	−0·7	...	...	...	...
31	59·9	45·1	57·7	56·7	52·5	45·1	−2·1	+0·1	−0·1	0·0	+0·1	+0·1	31	60·4	42·3	57·8	57·5	51·3	42·9	−1·6	−2·7	0·0	+0·8	−1·1	−2·1
Means	58·7	45·3	52·9	56·0	56·7	50·0	−1·4	0·0	−0·4	−0·5	−0·5	+0·1	Means	60·0	44·4	53·5	56·8	57·3	49·6	−0·1	−0·9	+0·2	+0·3	+0·1	−0·3

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

JUNE.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 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	56·1	40·1	51·7	49·0	51·0	48·7	−1·7	+0·1	+1·0	−0·7	−0·7	+0·3
2	56·8	44·9	51·3	48·6	56·4	50·5	−2·3	+0·1	−0·4	−0·3	−0·3	+0·6
3	63·8	42·2	58·7	63·7	60·6	50·6	−1·8	0·0	+0·8	−0·5	+0·1	+0·2
4	62·3	47·2	56·6	55·9	59·7	53·3	−0·7	+0·2	−0·1	0·0	0·0	−0·1
5	72·8	47·4	...	...	...	...	−2·6	+0·2	...	...	...	...
6	70·1	51·1	69·1	62·0	67·1	59·7	−0·9	+0·2	−0·1	−0·6	−0·4	+0·3
7	71·6	51·8	62·4	69·0	70·8	59·7	−2·3	+0·1	+0·5	−0·7	−0·8	+0·1
8	66·5	48·6	64·8	64·9	66·1	60·8	−3·5	+0·3	−0·7	−0·7	−0·6	+0·1
9	64·8	56·1	59·2	61·8	64·7	59·5	−1·2	+0·1	−0·5	−0·4	−0·4	+0·5
10	61·4	54·0	55·2	57·8	59·8	58·6	−0·6	0·0	−0·4	−0·3	−0·2	+0·1
11	72·8	49·1	64·7	70·8	71·8	55·6	−3·2	+0·2	−0·7	−1·9	−1·4	−0·2
12	58·3	49·2	...	...	...	...	+2·3	−0·6	...	...	...	...
13	55·4	47·1	50·5	52·1	55·1	51·2	−0·7	0·0	−0·7	−0·5	−0·6	−0·2
14	55·2	48·0	51·6	52·8	54·2	50·6	−1·6	0·0	−0·7	−0·9	−0·5	−0·1
15	60·7	46·5	49·8	53·7	58·9	51·5	−1·2	−0·3	−0·4	−1·2	−2·1	+0·2
16	63·0	46·7	51·1	57·6	59·5	54·9	−0·6	0·0	−1·0	−2·3	−0·7	−0·1
17	71·1	47·2	60·3	67·6	68·6	57·6	−1·4	+0·2	−0·2	−1·1	0·0	+0·2
18	76·2	53·0	68·4	74·2	74·1	62·6	−2·2	+0·3	+0·7	−0·5	−0·6	−0·1
19	72·2	60·1	...	...	...	...	−1·9	+0·1	...	...	...	...
20	72·8	53·1	62·5	67·8	71·8	65·0	−1·8	+0·1	−0·5	−0·3	−0·9	0·0
21	76·1	60·1	67·3	72·4	74·6	60·6	−1·6	+0·1	−0·4	−0·6	−0·1	0·0
22	70·1	55·3	61·8	65·2	66·1	58·0	−1·9	0·0	−0·5	+0·2	−1·1	+0·1
23	67·3	48·2	59·6	61·2	66·3	56·3	−1·8	+0·2	+0·1	+0·4	−0·6	+0·1
24	60·2	52·4	56·0	57·6	58·8	56·8	−0·7	+0·1	+0·1	0·0	0·0	−0·1
25	63·9	52·0	56·8	57·3	62·0	53·0	−0·9	+0·3	−0·9	−0·6	+0·1	+0·1
26	61·2	46·9	...	...	...	...	−1·0	0·0	...	...	...	...
27	60·9	49·8	56·3	57·3	58·8	54·1	−1·3	+0·5	−0·7	−0·9	−0·8	−0·1
28	66·4	50·1	56·7	61·8	63·8	57·6	−0·6	+0·1	−0·1	−0·8	−0·8	+0·3
29	73·4	51·1	64·8	69·8	73·1	59·7	−1·9	+0·1	+0·3	−0·4	−0·8	+0·1
30	72·6	56·2	60·6	64·0	72·6	64·7	−1·6	+0·2	−0·1	0·0	0·0	+0·2
Means	65·9	50·2	58·8	61·4	64·1	56·6	−1·4	+0·1	−0·2	−0·6	−0·5	+0·1

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

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. 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	70.2	54.2	60.3	65.1	67.6	58.8	−1.4	+0.5	−0.6	−0.4	−1.1	+0.1
2	70.9	57.1	61.8	68.8	70.4	62.7	−1.4	+0.1	−0.4	−1.8	−0.5	+0.7
3	69.1	49.4	...	...	...	...	−1.7	+0.2	...	...	...	...
4	65.3	51.2	57.3	61.9	62.3	54.7	−2.7	−0.3	−1.4	−0.7	−0.8	+0.7
5	67.6	47.1	58.0	64.7	66.3	60.7	−1.7	+0.1	0.0	−0.7	−1.1	+0.3
6	74.0	58.0	63.7	69.9	71.8	66.0	−2.2	+0.2	−0.3	−0.5	−0.5	+0.3
7	72.7	56.1	67.3	71.6	70.3	63.1	−2.1	+0.1	+0.1	−1.3	−0.6	+0.2
8	67.7	53.7	63.6	63.5	63.5	57.6	−1.7	−0.1	−0.1	−0.9	−0.8	0.0
9	61.1	51.0	54.8	57.0	60.5	55.7	−0.9	+0.2	+0.1	−0.7	−0.6	−0.1
10	57.6	51.8	...	...	...	...	−0.5	0.0	...	...	...	...
11	68.4	46.5	55.1	61.9	68.2	59.6	−2.7	0.0	−0.4	−0.7	−1.0	+0.3
12	74.3	51.7	64.8	69.6	71.8	64.8	−1.9	+0.4	−0.7	−0.3	−0.4	+0.1
13	66.6	55.1	58.3	61.8	66.5	55.6	−1.9	+0.1	−0.4	−0.8	−0.7	+0.3
14	75.4	47.2	63.3	70.1	75.3	65.8	−1.7	+0.2	0.0	−0.9	−1.4	+0.4
15	80.1	54.9	67.1	74.0	78.7	67.7	−1.0	+0.1	−0.1	−1.2	−1.5	0.0
16	80.2	57.1	70.0	78.3	78.9	69.1	−1.8	+0.1	−0.5	−1.3	−1.2	+0.5
17	74.1	59.0	...	...	...	...	−1.9	+0.9	...	...	...	...
18	79.1	55.9	70.0	75.6	75.9	65.8	−1.9	−0.4	+0.1	−1.4	−0.8	+0.1
19	68.3	57.4	62.0	64.3	66.5	58.1	−1.9	−0.4	−0.1	−0.5	−0.2	+0.1
20	65.2	52.3	57.3	59.8	63.2	52.7	−2.8	−0.2	−1.2	−0.7	−1.2	+0.2
21	73.4	45.1	59.8	67.0	71.3	61.9	−2.5	+0.5	−0.9	−0.2	−1.9	0.0
22	72.9	58.8	66.4	70.9	62.5	58.8	−2.2	−0.1	−0.6	−0.3	−0.4	−0.1
23	72.1	57.7	65.6	67.8	70.4	62.3	−1.2	−0.1	−0.1	0.0	−0.3	+0.2
24	74.0	52.1	...	...	...	...	−1.3	+0.1	...	...	...	...
25	72.3	53.1	67.7	70.5	71.1	63.5	−2.0	+0.1	−0.4	+0.1	+0.6	+0.5
26	70.1	60.1	65.8	70.1	67.5	62.8	−2.5	−0.4	−0.8	−0.6	−0.2	−0.1
27	76.6	58.1	65.6	74.9	74.8	60.7	−2.4	−0.4	−0.2	−1.1	−2.0	+0.2
28	68.9	56.1	62.8	67.7	63.1	57.1	−1.0	−0.4	0.0	−0.5	+0.1	+0.1
29	60.1	52.3	57.7	58.2	55.9	52.6	+1.0	−0.1	−0.1	−0.5	−0.5	−0.1
30	61.6	50.1	55.9	56.6	60.5	52.4	−0.7	−0.1	−0.6	−0.3	−0.2	0.0
31	76.3	47.5	...	...	...	...	−3.1	+0.1	...	...	...	...
Means	70.5	53.5	62.4	67.0	68.3	60.4	−1.7	0.0	−0.4	−0.7	−0.7	+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	72.0	52.9	63.0	67.2	69.2	58.7	+0.4	−0.8	+2.1	+1.7	+0.5	0.0
2	71.7	57.0	62.7	69.6	70.7	62.1	−0.6	0.0	+0.5	−1.0	−0.2	+0.1
3	71.0	48.2	...	...	...	...	+0.2	−1.0	...	...	...	...
4	66.4	51.4	57.6	61.7	63.7	53.4	−1.6	−0.1	−1.1	−0.9	+0.6	−0.6
5	68.8	46.1	59.1	65.7	67.4	60.5	−0.5	−0.9	+1.1	+0.3	0.0	+0.1
6	76.3	57.6	65.1	70.8	73.5	65.7	+0.1	−0.2	+1.1	+0.4	+1.2	0.0
7	74.7	55.4	68.7	72.9	71.2	62.2	−0.1	−0.6	+1.5	0.0	+0.3	−0.7
8	67.1	53.1	63.5	63.5	64.7	56.9	−2.3	−0.7	−0.2	−0.9	+0.4	−0.7
9	61.8	50.3	55.0	57.7	61.3	55.4	−0.2	−0.5	+0.3	0.0	+0.2	−0.4
10	58.3	51.2	...	...	...	...	+0.2	−0.7	...	...	...	...
11	69.5	45.3	55.9	62.7	68.7	59.8	−1.6	−1.2	+0.4	+0.1	−0.5	+0.5
12	75.6	51.0	67.1	70.7	72.9	64.6	−0.6	−0.3	+1.6	+0.8	+0.7	−0.1
13	68.1	54.5	58.7	62.6	68.1	54.8	−0.4	−0.5	0.0	0.0	+0.9	−0.5
14	76.5	45.4	63.7	70.0	75.9	65.7	−0.6	−1.6	+0.4	−1.0	−0.8	+0.3
15	80.7	54.1	68.2	75.3	80.3	67.7	−0.4	−0.7	+1.0	+0.1	+0.1	0.0
16	81.6	56.4	70.9	77.6	79.7	69.0	−0.4	−0.6	+0.4	−2.0	−0.4	+0.4
17	75.6	57.3	...	...	...	...	−0.4	−0.8	...	...	...	...
18	80.3	55.6	71.0	75.0	76.3	65.4	−0.7	−0.7	+1.1	−2.0	−0.4	−0.3
19	69.2	57.6	62.4	64.7	66.6	57.9	−1.0	−0.2	+0.3	−0.1	−0.1	−0.1
20	67.3	51.2	58.2	60.8	64.4	52.2	−0.7	−1.3	−0.3	+0.3	0.0	−0.3
21	75.8	44.1	60.9	66.2	74.0	61.9	−0.1	−0.5	+0.2	−1.0	+0.8	0.0
22	74.4	58.7	68.1	71.9	62.6	58.7	−0.7	−0.2	+1.1	+0.7	−0.3	−0.2
23	72.7	57.3	65.9	68.7	71.1	62.2	−0.6	−0.5	+0.2	+0.9	+0.4	+0.1
24	75.2	51.3	...	...	...	...	−0.1	−0.7	...	...	...	...
25	74.7	52.2	69.9	72.2	70.7	63.7	+0.4	−0.8	+1.8	+1.8	+0.2	+0.7
26	71.6	60.5	66.0	71.6	68.2	62.6	−1.0	0.0	−0.6	+0.9	+0.5	−0.3
27	78.5	58.2	65.6	74.1	76.5	60.3	−0.5	−0.3	−0.2	−1.9	−0.3	−0.2
28	70.2	55.6	64.0	68.9	62.9	56.2	+0.3	−0.9	+1.2	+0.7	−0.1	−0.8
29	58.8	51.6	58.3	58.6	57.0	52.4	−0.3	−0.8	+0.5	−0.1	+0.6	−0.3
30	61.9	50.0	56.1	56.9	61.0	52.6	−0.4	−0.2	−0.4	0.0	+0.3	+0.2
31	77.5	45.7	...	...	...	...	−1.9	−1.7	...	...	...	...
Means	71.7	52.8	63.3	67.6	69.2	60.1	−0.5	−0.6	+0.5	−0.1	+0.2	−0.1

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

AUGUST.

Days of the Month.	Readings of Thermometers in Stevenson's Screen, 4 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	76·6	50·0	...	...	...	...	−2·4	−0·3	...	...	...	...
2	77·2	53·1	66·6	75·0	76·7	64·1	−2·0	−0·1	+0·5	−0·4	+0·2	+0·1
3	74·6	56·0	66·3	70·7	73·3	63·5	−1·7	−0·1	−0·3	0·0	−0·5	0·0
4	71·5	51·0	63·9	65·6	70·0	60·8	−1·5	−0·2	−0·2	−0·1	−2·0	+0·3
5	74·1	54·1	63·9	70·4	70·4	63·8	−1·6	−0·1	0·0	−0·4	−0·5	+0·1
6	67·8	62·2	64·5	65·8	66·2	63·6	−0·6	−0·3	+0·1	−0·3	−0·5	−0·2
7	64·4	52·2	...	...	...	...	+0·2	+0·1	...	...	...	...
8	59·2	48·0	54·6	57·6	56·8	53·6	−0·9	0·0	−0·9	−0·4	−0·2	+0·1
9	65·9	50·0	56·6	62·3	61·8	58·1	−1·9	0·0	−0·3	−0·6	0·0	−0·3
10	66·9	50·6	59·9	64·3	66·8	60·6	−1·1	−0·1	0·0	−0·4	−0·6	+0·2
11	79·6	58·2	64·4	74·5	79·2	61·9	−1·2	−0·3	−0·6	−0·3	+0·2	+0·2
12	82·7	55·3	75·6	80·3	79·1	71·0	−1·8	−0·5	0·0	−1·2	−0·5	−0·4
13	84·2	63·8	74·2	82·5	81·7	68·8	−3·3	−0·4	+0·7	−0·3	−0·5	+0·2
14	85·4	60·2	...	...	...	...	−2·5	0·0	...	...	...	...
15	84·1	64·4	76·1	82·5	82·0	68·6	−1·9	−0·5	+0·1	−1·7	−1·2	−0·1
16	80·1	60·7	66·3	75·8	79·8	66·3	−2·0	−0·5	−0·2	−1·8	−1·8	+0·1
17	75·5	59·1	62·6	68·1	75·2	61·7	−1·5	−0·8	−0·5	−2·6	−1·7	−0·4
18	75·2	55·7	69·6	74·4	73·9	62·5	−3·1	−0·1	−1·3	−1·3	−1·7	−0·1
19	78·5	57·2	67·3	74·0	78·5	67·0	−2·6	−0·7	−1·0	−2·4	−2·0	+0·2
20	79·5	57·7	69·8	75·9	78·8	66·8	−2·6	−0·5	+0·3	−1·3	−1·9	+0·1
21	78·1	58·8	...	...	...	...	−3·7	−0·6	...	...	...	...
22	87·8	60·3	68·6	82·8	83·8	68·6	−2·2	−0·1	−1·2	+1·4	−0·9	−0·1
23	76·4	59·7	66·9	73·3	73·8	65·0	−2·1	+0·3	+0·2	−0·8	−0·7	0·0
24	70·3	57·1	63·6	68·2	69·7	59·5	−2·5	+0·2	−0·9	−2·5	−1·5	+0·1
25	70·1	51·5	65·6	66·8	69·2	56·3	−3·1	+0·1	−0·2	−1·8	−1·5	+0·3
26	71·5	50·1	65·9	71·0	69·8	63·3	−2·0	+0·1	+0·4	−0·5	−0·8	0·0
27	67·1	58·1	64·8	65·6	66·2	58·4	−0·8	+0·1	−0·4	−0·1	−0·3	−0·1
28	71·6	51·1	...	..	...	...	−1·5	+0·2	...	...	...	...
29	64·1	48·7	60·1	61·8	62·4	58·3	−1·4	+0·4	+0·6	−0·2	−0·2	−0·1
30	75·1	57·0	63·9	70·1	74·1	66·2	−1·6	+0·3	−0·6	−1·4	−1·2	+0·1
31	66·5	56·2	58·9	63·0	64·8	56·3	−1·5	+0·8	−0·1	−0·8	−0·9	+0·6
Means	74·2	55·7	65·4	70·9	72·5	62·9	−1·9	−0·1	−0·2	−0·9	−0·9	0·0

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

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.						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	67·8	44·2	60·6	63·2	67·8	54·9	−2·2	+0·2	+0·6	−0·2	−1·0	0·0
2	74·6	46·7	64·7	70·0	73·3	60·7	−1·4	+0·1	+0·9	−0·5	−1·4	+0·5
3	80·5	55·6	68·9	75·6	79·8	68·1	−2·4	+0·3	+1·0	−2·1	−0·9	+0·1
4	80·8	56·9	...	...	...	...	−1·7	+0·8	...	...	...	...
5	76·0	59·2	63·3	72·3	74·6	62·0	−3·0	0·0	−1·3	−2·7	−1·6	−0·2
6	76·6	61·2	67·9	76·3	71·7	61·3	−3·5	+0·3	−1·6	−2·4	−2·1	−0·5
7	84·0	58·0	67·8	77·7	80·5	71·0	−0·8	−1·1	−0·1	−1·3	−0·4	0·0
8	90·0	62·2	77·3	87·8	88·6	70·5	−2·1	+0·2	−0·3	−2·1	−0·2	−0·2
9	87·4	65·1	76·6	85·5	83·9	69·7	−2·4	+0·1	+0·7	−1·7	−1·7	+0·5
10	74·2	59·1	65·3	71·4	73·4	63·6	−3·0	+0·2	+0·6	−2·0	−1·9	+0·2
11	76·8	53·7	...	...	...	...	−2·2	+0·3	...	...	...	...
12	68·6	56·3	60·2	66·0	67·0	58·1	−2·7	+0·3	−0·9	−2·5	−1·3	+0·2
13	68·7	48·7	62·3	64·8	67·5	60·6	−1·9	+0·1	+0·1	−0·2	−0·8	+0·1
14	78·1	59·2	63·1	73·8	77·2	64·6	−2·0	0·0	−0·3	−2·5	−1·5	+0·4
15	79·1	55·1	62·7	76·7	78·0	62·8	−2·9	+0·1	+0·1	−1·5	−1·5	−0·1
16	81·8	56·0	70·3	79·8	79·2	65·8	−2·1	+0·1	+0·4	−2·7	−1·2	0·0
17	87·3	59·3	76·8	86·1	86·1	68·9	−2·6	+0·3	−0·7	−2·3	−1·4	−0·3
18	69·6	56·6	...	...	...	...	+0·2	+0·5	...	...	...	...
19	65·0	44·2	57·9	62·2	61·1	59·5	−1·0	+2·1	+0·1	−0·5	−0·1	+0·1
20	72·5	56·3	61·3	66·6	71·6	59·1	−2·1	+0·1	−0·2	−0·3	−0·8	+0·1
21	71·4	50·3	58·8	64·8	70·8	58·1	−2·4	+0·1	−0·4	−1·1	−2·4	−0·3
22	67·8	49·0	57·4	65·4	65·0	57·0	−2·1	+0·4	−0·4	−1·7	−0·8	+0·1
23	63·3	45·1	56·7	62·7	62·8	51·6	−3·4	+0·3	−0·1	−2·8	−1·7	+0·7
24	59·1	40·0	51·8	57·8	58·8	52·7	−1·6	0·0	−0·7	−2·2	−1·6	0·0
25	60·4	48·1	...	...	...	...	−1·7	+0·2	...	...	...	...
26	63·4	40·1	54·4	60·9	62·2	48·4	−2·7	+0·2	−0·2	−2·1	−2·1	−0·1
27	64·2	41·5	51·8	62·5	62·8	56·9	−1·5	+0·3	−0·8	−0·5	−0·3	+0·1
28	62·0	43·8	51·3	58·7	59·6	48·8	−2·5	+0·1	−0·3	−0·8	−0·2	+0·6
29	63·6	40·1	55·6	62·7	60·7	54·5	−1·7	−0·1	−0·4	−1·7	0·0	+0·1
30	57·7	50·3	52·1	54·8	56·8	50·5	0·0	+0·6	−0·4	−0·8	+0·1	+0·8
Means	72·4	52·1	62·2	69·5	70·8	60·0	−2·0	+0·2	−0·2	−1·6	−1·1	+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	69·2	42·1	61·4	63·3	69·2	55·3	−0·8	−1·9	+1·4	−0·1	+0·4	+0·4
2	75·4	45·5	64·5	70·8	73·7	59·9	−0·6	−1·1	+0·7	+0·3	−1·0	−0·3
3	82·0	54·6	68·2	77·0	80·7	67·7	−0·9	−0·7	+0·3	−0·7	0·0	−0·3
4	83·0	56·3	...	...	...	...	+0·5	+0·2	...	...	...	...
5	77·7	58·9	65·3	73·7	75·9	61·7	−1·3	−0·3	+0·7	−1·3	−0·3	−0·5
6	78·4	60·5	69·7	77·4	73·4	61·6	−1·7	−0·4	+0·2	−1·3	−0·4	−0·2
7	86·5	59·4	67·4	79·5	81·4	72·8	+1·7	+0·3	−0·5	+0·5	+0·5	+1·8
8	91·6	62·3	79·6	88·2	88·8	70·7	−0·5	+0·3	+2·0	−1·7	0·0	0·0
9	89·3	65·5	77·7	87·2	84·9	69·1	−0·5	+0·5	+1·8	0·0	−0·7	−0·1
10	75·3	58·3	64·8	71·8	74·7	63·0	−1·9	−0·6	+0·1	−1·6	−0·6	−0·4
11	78·3	52·5	...	...	...	...	−0·7	−0·9	...	...	...	...
12	69·9	55·3	61·9	67·7	68·0	57·5	−1·4	−0·7	+0·8	−0·8	−0·3	−0·4
13	69·8	47·3	64·0	65·8	67·8	60·2	−0·8	−1·3	+1·8	+0·8	−0·5	−0·3
14	79·6	59·4	63·9	75·0	77·5	63·8	−0·5	+0·2	+0·5	−1·3	−1·2	−0·4
15	81·5	54·4	63·8	79·0	79·7	62·6	−0·5	−0·6	+1·2	+0·8	+0·2	−0·3
16	83·3	55·4	70·8	81·0	79·7	65·7	−0·6	−0·5	+0·9	−1·5	−0·7	−0·1
17	88·9	59·4	80·1	87·2	88·4	68·8	−1·0	+0·4	+2·6	−1·2	+0·9	−0·4
18	70·0	55·4	...	...	...	...	+0·6	−0·7	...	...	...	...
19	65·8	41·1	58·5	63·0	61·1	59·4	−0·2	−1·0	+0·7	+0·3	−0·1	0·0
20	73·3	55·5	62·0	67·8	72·0	58·2	−1·3	−0·7	+0·5	+0·9	−0·4	−0·8
21	73·0	49·4	60·0	66·0	72·6	59·0	−0·8	−0·8	+0·8	+0·1	−0·6	+0·6
22	69·1	48·2	58·1	66·4	65·4	56·8	−0·8	−0·4	+0·3	−0·7	−0·4	−0·1
23	64·9	44·3	56·7	62·7	64·2	50·6	−1·8	−0·5	−0·1	−2·8	−0·3	−0·3
24	59·7	39·0	52·7	58·4	58·7	52·5	−1·0	−1·0	+0·2	−1·6	−1·7	−0·2
25	61·4	47·4	...	...	...	...	−0·7	−0·5	...	...	...	...
26	65·3	38·4	55·0	61·7	64·0	47·8	−0·8	−1·5	+0·4	−1·3	−0·3	−0·7
27	65·4	40·2	53·7	63·4	63·5	56·7	−0·3	−1·0	+1·1	+0·4	+0·4	−0·1
28	63·4	42·1	52·2	59·1	59·7	47·9	−1·1	−1·6	+0·6	−0·4	−0·1	−0·3
29	64·4	40·5	57·7	63·0	61·4	54·4	−0·9	+0·3	+1·7	−1·4	+0·7	0·0
30	57·6	49·4	52·2	55·9	57·2	50·2	−0·1	−0·3	−0·3	+0·3	+0·5	+0·5
Means	73·8	51·3	63·2	70·5	71·7	59·8	−0·7	−0·6	+0·8	−0·6	−0·2	−0·1

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

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	64·9	39·2	52·4	62·7	64·9	49·7	−0·1	−1·6	+0·6	−1·1	+0·4	0·0
2	66·6	36·0	...	...	...	...	+0·7	−1·9	...	...	...	...
3	68·5	44·3	59·2	67·8	67·4	57·7	−0·7	+2·0	+1·3	−0·5	−0·2	0·0
4	61·1	57·1	59·2	60·7	60·5	58·3	−0·2	0·0	−0·2	+0·1	−0·2	+0·2
5	59·6	56·5	57·2	59·6	58·7	57·7	0·0	−0·4	0·0	+0·2	0·0	0·0
6	61·4	55·8	58·8	60·2	59·3	55·8	+0·2	−0·1	+0·1	+0·4	−0·1	−0·2
7	59·7	52·5	55·2	59·7	58·5	54·9	−0·2	−0·9	0·0	+0·5	+0·3	−0·1
8	59·4	50·0	55·3	57·3	56·2	50·5	−0·3	−0·5	+0·1	−0·1	−0·3	−0·4
9	61·2	44·4	...	...	...	...	+0·7	−1·4	...	...	...	...
10	52·8	45·4	48·4	49·9	52·8	46·7	−0·2	−1·1	−0·2	−0·1	+0·1	−0·2
11	52·8	42·8	45·7	49·7	51·1	47·5	+0·8	−0·2	−0·1	−0·2	−0·4	−0·6
12	56·7	42·5	49·7	56·0	55·7	49·7	−0·2	−0·8	+1·2	+0·5	+0·2	0·0
13	52·3	41·1	45·5	51·8	50·6	46·2	−1·7	−0·9	−0·1	−0·2	+0·1	+0·4
14	58·5	42·9	50·4	55·5	56·7	51·0	+0·2	−0·8	+0·5	+0·5	+0·2	0·0
15	52·2	48·2	50·5	50·5	50·5	48·6	+1·1	−0·5	0·0	0·0	0·0	−0·3
16	53·4	47·7	...	...	...	...	+0·2	−0·3	...	...	...	...
17	62·8	51·2	59·6	62·4	60·7	53·5	−0·3	+0·2	+2·1	+0·7	+0·3	0·0
18	60·3	48·1	53·5	60·3	58·1	50·7	+0·3	−2·5	0·0	+0·5	+0·4	0·0
19	56·8	48·2	53·1	56·7	54·5	52·3	+0·1	−0·9	−0·5	+0·3	+0·3	−0·2
20	58·7	46·0	53·2	58·0	56·7	53·3	+0·9	−1·0	+1·5	+1·1	+0·4	+0·1
21	65·0	52·2	60·2	63·8	64·7	60·5	+0·2	0·0	+0·2	+0·4	+0·5	+0·2
22	64·0	58·3	60·7	63·7	63·8	60·9	−0·1	+0·3	+0·1	+0·5	0·0	+0·2
23	64·8	50·4	...	...	...	...	+0·8	−0·7	...	...	...	...
24	61·3	49·2	53·9	58·5	58·0	51·7	+0·2	−0·9	+0·4	+0·5	+0·3	0·0
25	58·2	44·4	51·8	56·7	57·6	55·8	+0·2	−1·0	+0·3	+0·1	+0·1	0·0
26	61·1	54·2	56·0	59·9	60·0	55·7	+0·1	+0·2	+0·2	+0·4	+0·3	−0·3
27	60·9	52·3	58·2	60·5	59·1	54·8	−0·1	−0·6	+0·5	+0·7	+0·6	−0·1
28	61·2	48·4	57·2	60·2	58·5	51·4	−0·1	−0·8	+1·4	0·0	+0·8	−0·1
29	60·9	49·1	58·9	59·1	57·7	56·2	+0·4	−0·1	+0·3	+0·3	+0·1	0·0
30	56·5	47·1	...	...	...	...	−0·3	−0·6	...	...	...	...
31	56·4	41·3	51·2	55·2	52·5	42·9	−0·5	−1·4	+1·1	−0·4	+0·2	−0·1
Means	59·7	48·0	54·4	58·3	57·9	52·8	+0·1	−0·6	+0·4	+0·2	+0·2	−0·1

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.						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	53.6	38.1	42.3	49.8	52.8	44.8	+0.2	+0.1	−0.6	−0.8	+0.1	0.0
2	57.3	43.7	53.6	52.8	52.9	55.2	+2.1	0.0	−0.1	−0.1	−0.4	0.0
3	60.4	47.4	58.8	57.2	55.1	47.8	+0.1	+0.1	+0.1	+0.2	−0.2	0.0
4	55.3	40.5	46.3	52.2	52.9	48.6	+0.2	+0.1	−0.6	−0.2	0.0	−0.1
5	56.6	47.1	51.0	53.9	54.8	47.8	−0.4	+0.1	0.0	0.0	+0.1	+0.2
6	56.4	39.5	...	...	...	...	−0.7	+0.4	...	...	...	...
7	51.9	43.3	48.7	50.5	50.0	47.2	−2.4	+0.2	−0.5	−1.5	−0.1	−0.2
8	56.5	42.0	46.2	52.5	54.9	48.2	+0.4	+0.2	−0.2	−0.7	−0.4	+0.2
9	58.6	47.7	50.1	53.3	57.1	52.1	0.0	0.0	+0.1	−0.4	−0.1	−0.1
10	56.5	48.2	50.0	51.9	56.0	48.7	+0.1	0.0	−0.1	−0.5	−0.4	+0.3
11	55.3	45.3	46.3	50.8	54.2	49.2	−0.8	−0.2	−0.2	−1.2	−0.5	−0.1
12	52.3	43.2	47.2	50.4	52.0	50.9	−1.2	−0.2	−0.2	−1.0	−0.4	+0.1
13	54.1	42.7	...	...	...	...	−0.9	0.0	...	...	...	...
14	49.9	35.2	37.7	44.2	48.8	46.7	−0.2	−0.4	0.0	−1.0	−0.6	−0.2
15	52.5	41.2	49.1	51.8	51.0	51.3	0.0	0.0	−0.4	−0.2	−0.5	−0.2
16	55.8	49.9	52.8	53.9	54.8	52.6	0.0	+0.1	+0.1	−0.1	0.0	+0.1
17	54.1	49.2	52.8	53.6	53.7	49.9	−0.2	+0.2	−0.1	−0.1	−0.3	−0.1
18	52.3	43.7	48.2	51.0	49.0	44.0	+0.2	−0.2	+0.1	−0.4	−0.2	−0.1
19	50.2	41.1	47.4	46.5	44.9	43.9	+2.7	0.0	+0.1	−0.1	+0.1	−0.2
20	49.2	42.9	...	...	...	...	+0.1	0.0	...	...	...	...
21	48.4	41.5	46.3	46.3	45.4	42.0	+2.1	0.0	0.0	0.0	−0.3	0.0
22	44.3	30.9	35.2	37.8	38.5	30.9	+1.6	+0.2	+0.1	−0.4	+0.1	0.0
23	41.3	29.1	37.5	39.5	39.9	39.0	+0.7	+0.1	−0.2	−0.2	−0.1	0.0
24	45.1	35.8	39.9	41.3	42.7	44.8	+0.2	−0.1	−0.1	−0.2	0.0	+0.1
25	50.1	43.1	45.0	47.9	47.7	43.2	−0.9	+0.3	−0.5	−0.1	−0.2	0.0
26	44.8	41.7	42.3	43.5	44.0	43.9	0.0	0.0	−0.2	−0.2	0.0	−0.2
27	45.4	40.3	...	...	...	...	+0.5	+0.1	...	...	...	...
28	42.0	33.6	34.6	37.4	40.7	35.0	−0.3	0.0	−0.1	−0.1	−0.1	−0.1
29	40.7	34.1	36.5	38.7	38.6	34.1	+0.6	+0.5	0.0	−0.2	+0.1	+0.4
30	44.4	30.1	36.8	42.0	43.5	44.3	−0.1	+0.1	−0.4	−0.8	0.0	−0.1
Means	51.2	41.1	45.5	48.1	49.1	45.6	+0.1	+0.1	−0.1	−0.4	−0.2	0.0

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	54.0	36.9	43.6	50.6	53.5	44.7	+0.6	−1.1	+0.7	0.0	+0.8	−0.1
2	55.5	43.1	53.9	52.8	53.1	55.5	+0.3	−0.6	+0.2	−0.1	−0.2	+0.3
3	60.6	46.5	59.2	56.9	55.5	47.6	+0.3	−0.8	+0.5	−0.1	+0.2	−0.2
4	55.4	39.2	47.8	53.2	52.3	48.6	+0.3	−1.2	+0.9	+0.8	−0.6	−0.1
5	57.2	46.4	51.5	54.5	55.1	47.3	+0.2	−0.6	+0.5	+0.6	+0.4	−0.3
6	58.4	38.2	...	...	...	...	+1.3	−0.9	...	...	...	...
7	53.3	43.0	48.6	52.4	50.6	47.3	−1.0	−0.1	−0.6	+0.4	+0.5	−0.1
8	58.1	40.5	47.7	53.7	56.4	48.0	+2.0	−1.3	+1.3	+0.5	+1.1	0.0
9	59.7	47.4	50.5	53.9	57.9	52.2	+1.1	−0.3	+0.5	+0.2	+0.7	0.0
10	56.6	47.1	50.1	52.6	56.6	47.1	+0.2	−1.1	0.0	+0.2	+0.2	−1.3
11	56.6	45.2	46.6	51.6	55.5	49.2	+0.5	−0.3	+0.1	−0.4	+0.8	−0.1
12	53.7	43.0	47.5	50.9	52.8	51.0	+0.2	−0.4	+0.1	−0.5	+0.4	+0.2
13	54.7	42.0	...	...	...	...	−0.3	−0.7	...	...	...	...
14	50.3	34.9	37.8	44.9	50.3	46.6	+0.2	−0.7	+0.1	−0.3	+0.9	−0.3
15	52.8	41.1	49.7	52.6	51.6	51.5	+0.3	−0.1	+0.2	+0.6	+0.1	0.0
16	55.7	49.3	52.7	54.2	54.8	53.4	−0.1	−0.5	0.0	+0.2	0.0	+0.9
17	54.5	48.4	52.8	53.7	54.1	49.5	+0.2	−0.6	−0.1	0.0	+0.1	−0.5
18	53.3	43.1	48.1	51.8	49.6	43.9	+1.2	−0.8	0.0	+0.4	+0.4	−0.2
19	47.5	39.7	47.5	47.1	44.7	43.7	0.0	−1.4	+0.2	+0.5	−0.1	−0.4
20	49.4	42.1	...	...	...	...	+0.3	−0.8	...	...	...	...
21	46.5	39.1	46.3	45.9	44.9	41.9	+0.2	−2.4	0.0	−0.4	−0.8	−0.1
22	41.9	29.0	35.3	37.8	38.2	30.1	−0.8	−1.7	+0.2	−0.4	−0.2	−0.8
23	40.4	27.9	37.9	39.7	39.9	38.9	−0.2	−1.1	+0.2	0.0	−0.1	−0.1
24	44.7	35.2	40.0	41.5	42.7	44.7	−0.2	−0.7	0.0	0.0	0.0	0.0
25	51.2	42.1	45.7	48.5	48.2	42.7	+0.2	−0.7	+0.2	+0.5	+0.3	−0.5
26	44.9	40.9	42.6	43.6	44.2	44.0	+0.1	−0.8	+0.1	−0.1	+0.2	−0.1
27	44.5	39.3	...	...	...	...	−0.4	−0.9	...	...	...	...
28	41.4	32.0	34.7	37.5	40.8	34.4	−0.9	−1.6	0.0	0.0	0.0	−0.7
29	39.9	32.2	36.4	38.8	38.5	33.7	−0.2	−1.4	−0.1	−0.1	0.0	0.0
30	44.9	28.9	37.3	42.9	43.7	44.6	+0.4	−1.1	+0.1	+0.1	+0.2	+0.2
Means	51.3	40.1	45.8	48.6	49.4	45.5	+0.2	−0.9	+0.2	+0.1	+0.2	−0.2

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

DECEMBER.

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

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

READINGS of the WET-BULB THERMOMETER placed in a STEVENSON'S SCREEN near the Ordinary Stand; and EXCESS of the READINGS above those of the corresponding THERMOMETER on the ORDINARY STAND, in the YEAR 1898.

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

FEBRUARY.

Days of the Month.	9h	Noon.	15h	21h	Excess 9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	50·9	52·1	53·1	52·8	+ 0·2	+ 0·2	+ 0·2	+ 0·3
2	39·6	39·1	38·5	36·9	0·0	− 0·3	− 0·1	+ 0·3
3	36·6	39·1	41·3	43·0	+ 0·1	+ 0·4	+ 0·4	+ 0·3
4	36·1	34·1	34·4	32·2	+ 0·4	− 0·2	− 0·3	+ 0·5
5	29·9	33·4	35·1	32·8	0·0	− 0·1	+ 0·3	+ 0·6
7	35·1	38·1	38·0	35·1	− 0·3	+ 0·4	+ 0·2	+ 0·4
8	37·0	40·9	42·8	38·7	− 0·2	+ 0·3	+ 0·3	+ 0·5
9	34·6	38·4	42·0	40·1	− 0·1	0·0	+ 0·3	+ 0·1
10	41·7	45·0	43·8	43·8	− 0·1	+ 0·3	+ 0·4	+ 0·4
11	42·7	43·2	43·7	43·1	+ 0·1	+ 0·2	0·0	+ 0·1
12	45·1	47·9	46·0	43·9	− 0·1	+ 0·2	+ 0·3	+ 0·2
14	41·3	45·8	45·1	42·5	0·0	+ 0·4	+ 0·1	+ 0·3
15	45·8	48·1	49·8	49·4	+ 0·3	+ 0·3	+ 0·1	− 0·1
16	41·1	43·1	43·9	41·3	0·0	+ 0·4	+ 0·2	+ 0·4
17	38·9	39·9	40·4	41·3	+ 0·3	+ 0·2	− 0·1	+ 0·1
18	38·2	37·1	35·1	34·7	− 0·2	− 0·2	− 0·2	+ 0·3
19	30·1	33·1	35·1	34·8	+ 0·1	+ 0·1	+ 0·1	+ 0·3
21	28·7	33·1	34·6	33·1	− 0·1	+ 1·1	− 1·0	+ 0·5
22	32·9	36·9	37·9	33·8	+ 0·8	+ 0·3	0·0	+ 0·9
23	34·9	37·1	37·1	35·1	+ 0·3	+ 0·1	− 0·1	+ 0·4
24	33·1	36·1	36·4	33·1	+ 0·1	− 0·4	+ 0·1	+ 0·6
25	32·1	38·1	40·2	39·7	− 0·1	+ 0·2	− 0·2	+ 0·2
26	36·3	39·1	40·1	37·0	+ 0·1	− 0·1	+ 0·4	+ 0·7
28	36·3	40·1	40·5	40·4	+ 0·1	+ 0·4	+ 0·5	+ 0·4
Means	37·5	40·0	40·6	39·1	+ 0·1	+ 0·2	+ 0·1	+ 0·4

MARCH.

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

APRIL.

Days of the Month.	9h	Noon.	15h	21h	Excess 9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	35·2	41·8	42·4	40·4	− 0·8	− 0·9	− 0·9	− 0·2
2	39·1	44·1	44·4	43·1	− 0·1	− 0·3	− 0·3	+ 0·2
4	45·0	44·1	43·1	38·2	+ 0·3	+ 0·4	− 0·4	+ 0·4
5	39·0	40·8	42·1	35·7	− 0·7	− 0·8	+ 0·1	+ 0·5
6	44·0	47·1	49·4	44·9	+ 0·3	− 0·1	+ 0·4	− 0·1
7	49·2	51·0	52·4	48·1	− 0·4	− 0·1	− 0·4	− 0·1
9	51·1	53·1	50·8	49·7	+ 0·3	+ 0·1	− 0·6	− 0·1
12	42·9	43·6	45·0	42·6	+ 0·1	0·0	− 0·4	+ 0·3
13	46·6	48·1	49·7	44·1	+ 0·4	+ 0·3	+ 0·3	+ 0·1
14	47·2	47·1	48·5	47·2	− 0·1	+ 0·5	+ 0·9	+ 0·3
15	46·1	48·5	48·5	45·1	− 0·1	− 0·2	+ 0·1	+ 0·2
16	45·1	45·6	46·4	43·3	+ 0·4	− 0·1	− 0·2	+ 0·4
18	43·9	46·2	46·2	41·4	− 0·7	− 1·6	+ 0·1	+ 0·4
19	44·0	46·3	45·7	40·2	− 0·4	− 0·4	− 0·7	+ 0·1
20	44·2	48·8	50·1	45·4	− 1·2	− 0·9	− 0·1	− 0·1
21	46·4	48·3	47·2	38·6	− 0·8	− 0·6	− 0·7	+ 0·2
22	38·3	39·1	41·2	37·3	+ 0·2	− 0·6	− 0·8	+ 0·1
23	41·3	43·4	45·6	38·9	− 0·5	− 0·8	− 1·1	+ 0·1
25	45·0	44·1	44·4	41·2	− 1·0	− 1·0	− 1·3	− 0·1
26	43·9	47·6	51·3	48·6	− 0·4	− 0·4	− 0·6	− 0·1
27	49·7	51·1	52·3	47·0	+ 0·2	+ 0·2	− 0·1	0·0
28	48·9	49·9	50·8	49·3	− 0·2	+ 0·2	0·0	− 0·1
29	48·1	51·3	52·4	47·7	+ 0·1	− 0·1	+ 0·6	0·0
30	46·7	48·1	48·4	46·1	− 0·2	+ 0·1	+ 0·2	+ 0·3
Means	44·6	46·6	47·4	43·5	− 0·2	− 0·3	− 0·2	+ 0·1

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

MAY.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 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	°	°	°	°	°	°	°	°
2	53·6	57·4	57·6	49·1	− 0·9	+ 0·1	− 0·3	+ 0·1
3	50·5	51·0	49·9	47·8	+ 0·2	+ 0·3	− 0·1	+ 0·2
4	49·1	48·1	50·3	45·2	− 0·4	− 0·3	− 0·2	+ 0·1
5	48·8	49·4	49·8	51·8	+ 0·1	+ 0·1	+ 0·5	+ 0·3
6	48·1	48·4	50·8	46·2	+ 0·1	0·0	− 0·4	+ 0·2
7	47·4	50·5	53·1	48·5	− 0·7	− 0·7	− 0·4	+ 0·3
9	49·4	50·0	51·1	50·5	− 0·3	0·0	− 0·6	+ 0·2
10	54·0	54·8	54·6	52·6	+ 0·3	+ 0·2	− 0·1	+ 0·4
11	46·0	46·8	47·3	45·4	− 0·1	+ 0·1	− 0·2	0·0
12	46·0	45·1	46·1	42·4	− 0·3	− 0·5	− 0·5	+ 0·4
13	42·3	43·7	47·2	45·1	+ 0·1	+ 0·5	+ 0·7	+ 0·3
14	47·4	48·5	49·1	45·4	+ 0·2	0·0	− 0·4	+ 0·5
16	44·3	44·8	46·1	43·0	− 0·7	− 0·6	− 0·8	+ 0·3
17	45·5	46·0	47·0	45·6	− 0·5	+ 0·5	− 0·5	+ 0·3
18	45·2	47·3	45·1	40·8	− 0·8	− 0·3	− 1·5	+ 0·2
19	45·1	46·1	48·9	49·2	− 0·4	+ 0·1	+ 0·3	+ 0·1
20	48·9	50·1	51·2	50·4	+ 0·1	− 0·1	− 0·2	+ 0·2
21	51·6	54·1	52·7	49·9	− 0·1	+ 0·2	0·0	+ 0·5
23	61·1	62·9	60·1	56·2	− 0·1	− 1·2	− 0·6	0·0
24	53·5	58·3	58·9	51·2	− 1·1	− 1·1	− 0·3	+ 0·2
25	47·9	51·3	52·0	47·3	− 0·7	− 0·4	− 0·1	+ 0·2
26	44·3	47·9	48·9	47·1	− 0·5	− 0·7	0·0	+ 0·5
27	48·3	52·4	49·9	48·4	− 1·5	− 0·3	− 0·8	+ 0·4
31	53·2	52·1	49·9	41·6	− 0·4	− 0·2	− 0·2	− 0·4
Means	48·8	50·3	50·7	47·5	− 0·3	− 0·2	− 0·3	+ 0·2

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	52·8	55·4	57·0	56·7	− 0·7	− 0·1	− 0·8	+ 0·1
2	58·3	59·3	60·0	57·4	+ 0·1	− 0·9	− 0·7	+ 0·2
4	51·0	53·4	54·1	51·2	− 1·6	− 1·6	− 0·9	+ 0·1
5	53·9	55·1	56·4	54·4	− 0·3	− 1·1	− 1·2	− 0·4
6	58·2	61·3	62·0	61·1	− 0·7	− 0·8	− 1·2	− 0·1
7	61·4	62·9	63·4	57·2	− 0·2	− 1·2	− 0·7	− 0·2
8	58·6	58·1	56·9	53·0	+ 0·3	− 0·9	− 0·8	− 0·1
9	51·1	52·2	54·1	51·3	− 0·6	− 1·0	− 0·9	− 0·2
11	52·4	55·7	58·7	55·8	− 0·6	− 0·9	− 1·5	+ 0·2
12	59·9	61·4	62·7	58·3	0·0	− 0·3	− 0·2	− 0·3
13	52·6	54·1	56·1	50·6	− 0·4	− 0·4	− 0·4	0·0
14	55·5	57·7	59·6	58·4	+ 0·1	− 0·3	− 1·0	+ 0·4
15	61·3	63·0	64·6	63·1	− 0·4	− 1·3	− 1·2	− 0·3
16	60·7	64·1	65·8	59·9	− 0·2	− 0·7	− 0·6	+ 0·1
18	63·0	65·1	66·0	61·8	− 0·1	− 1·1	− 0·6	+ 0·2
19	59·1	59·1	61·0	56·1	− 0·4	− 0·7	0·0	0·0
20	52·2	53·4	54·2	50·0	− 1·3	− 1·1	− 1·1	+ 0·3
21	53·7	57·1	59·5	55·9	− 1·0	+ 0·1	− 1·1	+ 0·4
22	62·3	63·7	61·8	58·1	− 0·3	+ 0·2	+ 0·1	0·0
23	60·2	61·1	61·0	60·1	− 0·3	+ 0·3	+ 0·2	− 0·2
25	61·2	61·1	62·2	61·0	0·0	+ 0·4	+ 0·8	+ 0·2
26	63·1	64·4	63·0	60·4	− 0·7	− 1·0	− 0·2	− 0·3
27	61·8	66·4	64·8	59·3	− 0·7	− 0·8	− 1·1	− 0·2
28	59·0	60·2	60·1	54·1	− 0·2	− 0·3	− 0·3	− 0·3
29	54·1	54·6	51·7	49·6	− 0·5	− 0·3	− 0·4	− 0·2
30	49·0	50·1	52·4	49·9	− 1·0	− 0·9	− 0·3	+ 0·3
Means	57·2	58·8	59·6	56·3	− 0·4	− 0·6	− 0·6	0·0

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	45·8	47·4	47·8	45·3	− 0·2	− 0·8	− 0·9	− 0·1
2	47·1	45·3	48·8	45·9	− 0·7	− 0·5	− 0·6	0·0
3	51·4	53·3	51·2	47·5	+ 0·4	− 0·3	− 0·2	− 0·1
4	51·2	52·0	53·1	49·6	− 0·5	+ 0·1	+ 0·4	0·0
6	62·1	60·5	62·1	58·1	− 0·1	− 0·7	− 0·6	+ 0·2
7	55·9	58·4	60·0	55·8	0·0	− 0·6	− 0·8	− 0·1
8	58·1	57·6	57·1	55·6	− 1·0	− 0·9	− 0·9	+ 0·2
9	56·1	58·6	60·4	55·2	− 0·6	− 0·3	− 0·4	+ 0·2
10	54·9	56·6	57·1	57·9	− 0·1	− 0·1	− 0·3	+ 0·4
11	58·4	62·1	63·2	53·9	− 1·0	− 1·1	− 1·4	− 0·1
13	48·1	49·1	50·6	47·6	− 0·5	− 0·5	− 0·1	0·0
14	47·1	48·3	49·4	47·3	− 0·5	− 0·6	− 0·6	− 0·1
15	45·4	48·1	51·6	47·1	− 0·4	− 0·4	− 1·1	+ 0·1
16	47·4	51·8	54·0	52·0	− 1·1	− 1·6	− 0·6	+ 0·3
17	56·0	59·1	60·3	54·9	+ 0·1	− 0·4	+ 0·6	+ 0·3
18	60·0	63·1	62·0	60·1	+ 0·9	+ 0·6	+ 0·3	+ 0·2
20	59·2	62·0	64·1	62·0	0·0	+ 0·5	− 0·4	+ 0·6
21	63·3	65·6	65·5	57·6	+ 0·3	+ 0·6	+ 0·5	+ 0·4
22	56·5	56·1	55·1	52·1	+ 0·4	+ 0·2	− 0·1	+ 0·4
23	51·1	51·5	54·6	52·8	+ 0·3	+ 0·5	− 0·3	+ 0·4
24	55·4	56·8	57·1	55·2	+ 0·3	+ 0·2	+ 0·2	+ 0·2
25	54·5	54·6	55·0	49·8	− 0·2	0·0	+ 0·4	+ 0·2
27	54·1	55·0	55·2	52·1	− 0·4	− 0·7	− 0·4	+ 0·1
28	51·9	55·3	57·0	55·4	+ 0·1	− 0·4	− 0·6	+ 0·4
29	57·2	59·1	59·7	56·3	+ 0·5	− 0·1	− 0·9	0·0
30	58·9	61·0	65·7	61·0	+ 0·3	+ 0·1	+ 0·8	+ 0·2
Means	54·1	55·7	56·8	53·4	− 0·1	− 0·3	− 0·3	+ 0·2

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	°	°	°	°	°	°	°	°
2	59·4	63·1	64·0	59·4	+ 0·4	+ 0·1	+ 0·1	0·0
3	59·8	61·8	63·1	59·9	− 0·2	+ 0·3	− 0·1	− 0·1
4	55·9	55·9	57·3	54·3	− 0·7	+ 0·5	− 0·8	− 0·1
5	58·1	61·2	62·9	61·0	− 0·1	− 0·3	− 0·3	+ 0·2
6	63·1	64·0	62·7	60·4	+ 0·1	+ 0·2	− 0·2	− 0·2
8	52·2	53·5	53·0	50·1	− 1·0	− 0·8	0·0	+ 0·1
9	52·3	54·8	56·0	53·4	− 0·3	− 0·4	− 0·7	+ 0·1
10	56·0	59·0	61·1	58·8	0·0	− 0·2	− 0·4	+ 0·1
11	60·1	64·1	63·4	58·1	− 0·8	+ 0·1	− 0·3	+ 0·2
12	66·0	65·3	66·5	63·6	− 0·1	− 1·0	− 0·5	− 0·3
13	66·4	70·9	71·2	66·9	+ 0·5	− 0·1	+ 0·3	+ 0·3
15	67·6	69·6	70·3	64·6	− 0·3	− 0·9	− 0·7	+ 0·2
16	63·4	68·4	70·1	63·7	0·0	− 0·5	− 0·7	+ 0·3
17	60·0	62·3	66·2	58·1	− 0·2	− 1·4	− 0·4	+ 0·1
18	62·2	59·8	60·0	56·0	− 0·7	− 0·9	− 0·2	+ 0·3
19	64·9	67·7	70·4	64·8	− 0·6	− 2·1	− 0·9	+ 0·2
20	64·3	65·2	67·1	62·8	+ 0·1	− 0·5	− 1·1	+ 0·1
22	66·1	72·9	69·7	62·3	− 0·9	+ 1·0	− 0·9	− 0·1
23	61·2	64·6	65·5	62·0	+ 0·1	+ 0·4	0·0	+ 0·3
24	55·6	57·4	57·1	54·1	− 0·2	− 1·3	− 0·5	+ 0·4
25	57·3	56·2	58·2	53·1	− 0·1	− 1·4	− 0·5	+ 0·4
26	60·1	61·4	62·1	61·5	+ 0·5	− 0·3	− 0·4	− 0·1
27	63·1	64·1	64·0	56·9	− 0·1	− 0·1	+ 0·2	+ 0·1
29	54·4	54·8	56·1	57·2	+ 0·1	+ 0·4	+ 0·4	− 0·2
30	58·1	60·1	64·3	62·5	+ 0·3	− 0·6	− 0·6	− 0·4
31	52·6	54·7	55·1	50·5	− 0·2	+ 0·2	+ 0·3	+ 0·2
Means	60·0	62·0	63·0	59·1	− 0·2	− 0·4	− 0·3	+ 0·1

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

SEPTEMBER.

Days of the Month.	Readings of the Wet-bulb Thermometer in Stevenson's Screen, 4 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	52·8	52·5	56·0	50·1	+ 0·3	+ 0·5	− 0·4	− 0·3
2	54·9	57·8	61·0	56·2	+ 0·3	+ 1·1	− 1·2	+ 0·3
3	61·3	65·4	67·1	63·3	+ 0·1	− 1·0	− 0·7	+ 0·2
5	62·1	66·8	67·4	61·4	− 0·7	− 1·7	− 1·4	− 0·1
6	64·6	68·1	65·8	60·9	− 1·0	− 1·8	− 0·9	+ 0·1
7	64·1	70·1	71·8	67·1	− 0·5	− 0·8	0·0	+ 0·1
8	68·8	71·2	69·6	65·6	− 0·4	− 1·3	− 0·3	0·0
9	66·8	68·8	66·1	63·2	0·0	− 1·6	− 0·7	+ 0·4
10	57·7	59·1	58·1	57·1	+ 0·6	− 0·6	− 1·3	+ 0·4
12	56·6	55·9	55·5	51·2	− 0·6	− 0·9	− 0·9	− 0·2
13	54·1	56·2	58·7	58·8	− 0·1	− 0·3	− 1·0	− 0·2
14	60·1	64·7	65·8	62·0	− 0·2	− 0·9	− 0·7	+ 0·3
15	60·1	66·6	67·3	58·1	+ 0·4	+ 0·4	0·0	+ 0·2
16	63·1	66·1	67·3	61·3	− 0·1	+ 0·7	− 0·1	+ 0·4
17	66·3	70·1	69·9	63·7	+ 0·1	0·0	+ 0·3	+ 0·1
19	51·1	55·3	55·5	57·8	− 0·1	+ 0·3	+ 0·3	+ 0·3
20	58·9	60·1	61·9	56·1	0·0	+ 0·4	0·0	+ 0·4
21	56·1	58·6	61·2	55·1	+ 0·1	+ 0·4	− 0·6	+ 0·2
22	55·1	59·2	58·7	54·1	− 0·3	− 1·5	− 0·3	+ 0·2
23	50·6	53·9	54·2	48·1	− 0·1	− 1·5	− 0·5	+ 0·5
24	47·9	51·0	51·8	48·6	− 0·4	− 1·0	+ 0·3	+ 0·6
26	49·2	53·8	54·9	45·8	+ 0·4	− 0·9	+ 0·2	+ 0·7
27	49·1	53·4	54·1	55·2	− 0·2	+ 0·4	+ 0·2	+ 0·3
28	47·6	50·7	51·2	45·3	+ 0·7	+ 1·5	+ 1·0	+ 0·9
29	51·2	53·2	52·0	52·0	+ 0·6	− 1·1	0·0	0·0
30	51·4	52·0	51·1	48·7	− 0·3	− 0·7	− 0·4	+ 0·7
Means	57·0	60·0	60·5	56·4	− 0·1	− 0·4	− 0·4	+ 0·2

OCTOBER.

Days of the Month.	9h	Noon.	15h	21h	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	49·2	53·2	53·5	48·8	− 0·5	− 1·2	− 1·0	+ 0·1
3	55·3	56·4	53·6	56·1	− 0·4	− 1·5	− 1·1	− 0·1
4	57·1	57·1	57·1	56·1	− 0·5	− 0·5	− 0·3	− 0·2
5	56·3	56·6	56·1	56·3	− 0·4	− 0·1	− 0·5	− 0·1
6	57·0	57·1	56·9	55·2	− 0·3	− 0·4	− 0·1	− 0·2
7	53·4	54·9	54·7	52·1	− 0·1	− 0·3	− 0·3	− 0·6
8	51·0	50·4	49·4	47·7	− 0·5	− 0·9	− 0·5	0·0
10	48·1	49·0	50·1	46·8	+ 0·1	− 0·1	− 0·1	+ 0·4
11	45·9	48·3	49·1	46·7	+ 0·2	− 0·3	0·0	+ 0·2
12	45·9	48·1	47·8	47·1	− 0·2	− 0·7	− 0·6	+ 0·1
13	45·1	48·8	48·5	44·8	− 0·1	− 0·9	− 0·1	+ 0·3
14	48·6	49·6	49·3	48·6	− 0·1	− 0·4	− 0·7	− 0·1
15	48·6	48·4	48·9	48·9	− 0·2	− 0·5	− 0·2	+ 0·2
17	54·6	56·1	55·5	52·8	− 0·1	− 0·2	− 0·2	+ 0·2
18	52·9	55·3	53·0	49·2	0·0	− 0·3	+ 0·3	− 0·2
19	51·5	53·0	52·2	51·3	− 0·2	+ 0·5	0·0	+ 0·1
20	49·1	51·8	52·9	52·1	− 0·4	+ 0·1	+ 0·1	− 0·1
21	59·5	61·1	61·4	60·0	− 0·2	− 0·2	− 0·3	+ 0·3
22	59·0	59·3	59·6	60·1	− 0·3	+ 0·1	− 0·1	+ 0·1
24	51·6	51·2	50·4	49·1	− 0·1	− 0·2	+ 0·2	+ 0·1
25	49·3	52·8	53·4	53·3	− 0·2	+ 0·1	− 0·2	0·0
26	53·1	54·9	55·3	53·5	− 0·4	+ 0·1	0·0	0·0
27	54·4	54·1	53·3	52·2	− 0·3	− 0·1	+ 0·1	+ 0·1
28	52·9	53·7	53·0	50·1	− 0·2	− 0·5	+ 0·3	+ 0·1
29	56·6	57·3	56·6	55·9	− 0·1	− 0·1	0·0	− 0·1
31	47·1	48·3	46·1	41·1	0·0	− 0·4	0·0	+ 0·2
Means	52·0	53·3	53·0	51·4	− 0·2	− 0·3	− 0·2	0·0

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

DECEMBER.

Days of the Month.	9h	Noon.	15h	21h	9h	Noon.	15h	21h
d	°	°	°	°	°	°	°	°
1	47·2	48·1	47·6	47·2	0·0	0·0	− 0·1	− 0·2
2	49·5	50·2	51·9	50·1	− 0·2	+ 0·1	+ 0·2	+ 0·2
3	51·8	51·3	47·8	49·2	+ 0·1	− 0·1	+ 0·3	− 0·2
5	51·8	52·4	52·1	52·6	− 0·1	0·0	0·0	− 0·2
6	52·1	52·7	52·9	47·9	0·0	0·0	+ 0·1	− 0·1
7	44·3	41·9	43·1	38·7	+ 0·9	+ 0·2	− 0·1	0·0
8	41·2	40·1	40·3	40·7	− 0·4	+ 0·1	+ 0·1	0·0
9	48·4	46·4	45·2	41·3	− 0·3	− 0·3	+ 0·2	− 0·1
10	47·3	48·8	50·1	50·6	− 0·3	+ 0·1	− 0·1	0·0
12	48·7	49·4	50·7	52·7	− 0·2	− 0·3	− 0·3	+ 0·1
13	41·0	43·1	44·3	39·2	− 0·2	− 0·5	0·0	+ 0·5
14	39·8	44·5	46·8	49·3	0·0	+ 0·1	+ 0·2	+ 0·1
15	41·3	42·9	43·0	41·4	+ 0·2	+ 0·1	+ 0·2	+ 0·2
16	41·9	44·5	47·0	50·8	+ 0·1	− 0·2	− 0·6	− 0·1
17	49·7	49·2	50·2	51·2	0·0	+ 0·1	− 0·1	0·0
19	41·9	41·1	39·3	38·9	+ 0·2	+ 0·1	− 0·1	− 0·1
20	32·9	33·6	34·1	34·2	+ 0·4	+ 0·1	+ 0·4	+ 0·1
21	38·5	37·1	36·4	29·6	− 0·1	0·0	+ 0·1	+ 0·1
22	31·9	38·9	38·5	31·8	− 0·2	− 0·2	+ 0·1	+ 0·3
23	29·8	34·4	35·5	32·9	0·0	0·0	+ 0·6	+ 0·4
27	47·8	48·4	48·1	43·4	0·0	+ 0·2	− 0·2	+ 0·2
28	38·1	39·8	38·8	35·8	− 0·1	− 0·1	+ 0·3	+ 0·3
29	45·3	48·1	47·3	42·9	− 0·2	0·0	− 0·1	0·0
30	35·2	36·1	35·1	31·0	+ 0·2	0·0	+ 0·2	+ 0·4
31	34·0	38·8	40·2	43·0	− 0·2	+ 0·1	0·0	+ 0·3
Means	42·9	44·1	44·3	42·7	0·0	0·0	+ 0·1	+ 0·1

(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.

1898.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	52·49	51·85	51·12	50·39	49·75	49·34	49·46	50·00	50·84	51·80	52·65	52·99
2	52·48	51·79	51·08	50·37	49·71	49·35	49·47	50·03	50·88	51·83	52·70	53·00
3	52·45	51·75	51·06	50·36	49·68	49·36	49·47	50·05	50·93	51·88	52·72	53·01
4	52·44	51·72	51·04	50·33	49·66	49·35	49·49	50·06	50·95	51·90	52·72	53·01
5	52·45	51·70	51·01	50·30	49·64	49·35	49·50	50·09	50·98	51·93	52·75	53·02
6	52·43	51·67	50·98	50·29	49·63	49·36	49·52	50·12	51·02	51·97	52·75	53·01
7	52·39	51·65	50·96	50·27	49·61	49·35	49·53	50·11	51·04	51·99	52·77	52·98
8	52·36	51·63	50·94	50·25	49·59	49·35	49·55	50·20	51·10	52·03	52·80	52·98
9	52·34	51·60	50·93	50·22	49·58	49·35	49·54	50·19	51·13	52·06	52·82	52·98
10	52·32	51·60	50·90	50·19	49·57	49·35	49·55	50·21	51·15	52·08	52·83	53·00
11	52·32	51·57	50·88	50·19	49·55	49·35	49·58	50·25	51·18	52·10	52·83	53·01
12	52·31	51·55	50·85	50·14	49·53	49·30	49·60	50·28	51·20	52·14	52·84	53·00
13	52·27	51·51	50·82	50·11	49·51	49·34	49·61	50·32	51·23	52·21	52·86	52·97
14	52·25	51·50	50·82	50·10	49·51	49·34	49·64	50·33	51·28	52·20	52·86	52·99
15	52·23	51·48	50·79	50·07	49·47	49·35	49·65	50·37	51·30	52·24	52·88	52·97
16	52·20	51·44	50·78	50·04	49·48	49·35	49·73	50·39	51·34	52·25	52·91	52·96
17	52·16	51·40	50·76	50·04	49·46	49·37	49·75	50·42	51·40	52·30	52·92	52·97
18	52·16	51·38	50·75	50·00	49·46	49·37	49·71	50·45	51·38	52·33	52·93	52·98
19	52·16	51·33	50·73	49·98	49·45	49·38	49·72	50·47	51·43	52·35	52·92	52·93
20	52·13	51·33	50·69	49·95	49·43	49·38	49·74	50·51	51·46	52·38	52·92	52·91
21	52·11	51·28	50·65	49·95	49·44	49·38	49·76	50·54	51·48	52·44	52·94	52·91
22	52·09	51·27	50·63	49·90	49·43	49·39	49·78	50·57	51·52	52·45	52·91	52·88
23	52·03	51·25	50·60	49·88	49·43	49·38	49·79	50·60	51·54	52·46	52·92	52·88
24	52·02	51·23	50·56	49·86	49·41	49·39	49·81	50·62	51·57	52·49	52·93	52·88
25	51·98	51·20	50·54	49·84	49·40	49·39	49·84	50·63	51·60	52·52	52·96	52·89
26	51·97	51·18	50·53	49·81	49·38	49·41	49·87	50·67	51·64	52·55	52·95	52·89
27	51·94	51·16	50·50	49·80	49·38	49·41	49·90	50·70	51·67	52·58	52·95	52·88
28	51·93	51·13	50·47	49·77	49·37	49·43	49·90	50·73	51·69	52·59	52·95	52·83
29	51·90		50·46	49·76	49·37	49·43	49·92	50·75	51·75	52·62	52·95	52·83
30	51·88		50·44	49·75	49·37	49·45	49·95	50·79	51·76	52·63	52·96	52·81
31	51·85		50·41		49·36		49·97	50·81		52·65		52·80
Means	52·19	51·47	50·76	50·06	49·50	49·37	49·69	50·40	51·31	52·26	52·86	52·94

The mean of the twelve monthly values is 51°·07.

(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.

1898.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	51·02	49·30	48·39	47·00	47·21	48·67	50·93	53·50	55·68	57·22	56·17	54·41
2	50·95	49·26	48·32	46·97	47·22	48·72	51·03	53·60	55·82	57·25	56·20	54·36
3	50·87	49·21	48·29	46·93	47·29	48·81	51·09	53·67	55·92	57·30	56·17	54·27
4	50·78	49·18	48·21	46·90	47·32	48·87	51·20	53·70	55·99	57·26	56·08	54·20
5	50·73	49·19	48·17	46·88	47·36	48·96	51·28	53·80	56·05	57·25	56·07	54·11
6	50·66	49·12	48·12	46·87	47·41	49·01	51·37	53·86	56·11	57·24	55·98	54·00
7	50·56	49·10	48·08	46·83	47·46	49·10	51·47	53·85	56·17	57·21	55·96	53·78
8	50·47	49·10	48·01	46·82	47·48	49·15	51·53	53·97	56·30	57·19	55·91	53·68
9	50·41	49·06	47·98	46·79	47·54	49·18	51·58	54·04	56·34	57·18	55·88	53·65
10	50·32	49·07	47·93	46·76	47·60	49·22	51·65	54·11	56·32	57·09	55·80	53·58

(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.*

1898.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
11	50·30	49·04	47·87	46·73	47·61	49·31	51·77	54·22	56·38	57·07	55·74	53·51
12	50·23	49·00	47·80	46·72	47·66	49·31	51·87	54·33	56·40	57·06	55·68	53·44
13	50·17	48·98	47·74	46·72	47·70	49·40	51·91	54·40	56·42	57·00	55·62	53·33
14	50·11	48·95	47·70	46·71	47·77	49·47	52·03	54·46	56·52	57·00	55·53	53·30
15	50·05	48·90	47·65	46·72	47·81	49·56	52·12	54·51	56·58	56·98	55·50	53·22
16	50·00	48·86	47·60	46·72	47·89	49·63	52·21	54·55	56·67	56·92	55·48	53·16
17	49·92	48·80	47·55	46·77	47·90	49·73	52·26	54·60	56·77	56·95	55·38	53·10
18	49·90	48·77	47·50	46·77	47·96	49·82	52·39	54·65	56·70	56·89	55·31	53·07
19	49·90	48·70	47·45	46·80	48·02	49·90	52·40	54·70	56·73	56·87	55·20	52·97
20	49·80	48·68	47·39	46·82	48·07	49·98	52·48	54·77	56·83	56·82	55·12	52·87
21	49·75	48·61	47·30	46·88	48·13	50·05	52·57	54·87	56·86	56·81	55·09	52·83
22	49·71	48·60	47·28	46·88	48·18	50·12	52·66	54·92	56·91	56·76	54·97	52·77
23	49·60	48·58	47·21	46·90	48·27	50·19	52·72	54·97	56·97	56·69	54·90	52·68
24	49·60	48·53	47·16	46·95	48·30	50·27	52·80	55·02	56·97	56·63	54·86	52·68
25	49·52	48·50	47·13	46·98	48·31	50·33	52·90	55·09	57·05	56·57	54·83	52·61
26	49·48	48·49	47·10	47·01	48·37	50·43	52·99	55·20	57·10	56·54	54·73	52·59
27	49·45	48·47	47·09	47·08	48·41	50·52	53·09	55·27	57·13	56·48	54·65	52·57
28	49·42	48·40	47·08	47·10	48·48	50·63	53·17	55·36	57·15	56·42	54·60	52·43
29	49·39		47·07	47·12	48·49	50·77	53·20	55·41	57·21	56·40	54·50	52·41
30	49·37		47·04	47·17	48·57	50·83	53·28	55·55	57·17	56·32	54·44	52·28
31	49·32		47·00		48·61		53·39	55·60		56·28		52·25
Means	50·06	48·87	47·62	46·88	47·88	49·66	52·17	54·53	56·57	56·89	55·41	53·23

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

(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.

1898.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	48·20	47·92	46·40	45·30	48·40	51·48	55·41	58·72	61·10	60·57	57·00	52·50
2	48·23	47·90	46·30	45·27	48·52	51·60	55·50	58·69	61·13	60·40	56·99	52·30
3	48·25	47·98	46·26	45·28	48·60	51·70	55·59	58·67	61·11	60·25	56·87	52·09
4	48·23	47·99	46·20	45·29	48·68	51·70	55·70	58·71	61·04	60·01	56·64	52·02
5	48·22	48·00	46·10	45·38	48·75	51·77	55·87	58·71	60·95	59·83	56·50	51·90
6	48·15	48·00	46·00	45·43	48·92	51·78	56·01	58·77	60·97	59·68	56·30	51·88
7	48·09	47·97	45·90	45·51	49·03	51·89	56·11	58·76	60·98	59·56	56·20	51·83
8	48·07	47·89	45·80	45·59	49·10	52·00	56·19	58·88	61·15	59·48	56·02	51·85
9	48·10	47·77	45·70	45·70	49·20	52·17	56·23	59·00	61·22	59·39	55·86	51·80
10	48·11	47·60	45·60	45·86	49·30	52·42	56·34	58·99	61·23	59·26	55·67	51·87
11	48·12	47·47	45·47	46·06	49·40	52·63	56·47	59·01	61·40	59·19	55·50	51·84
12	48·10	47·33	45·40	46·27	49·50	52·72	56·60	59·02	61·47	59·10	55·38	51·81
13	48·00	47·23	45·32	46·49	49·63	52·92	56·60	59·00	61·56	58·94	55·27	51·76
14	47·93	47·22	45·30	46·66	49·80	53·10	56·65	59·00	61·72	58·81	55·13	51·76
15	47·88	47·22	45·25	46·81	49·83	53·29	56·70	59·10	61·78	58·61	55·10	51·80

(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.*

1898.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
16	47·87	47·22	45·20	46·95	49·92	53·40	56·78	59·22	61·87	58·40	55·03	51·74
17	47·83	47·23	45·17	47·10	49·95	53·50	56·82	59·37	61·92	58·29	54·90	51·70
18	47·81	47·23	45·18	47·20	50·00	53·62	57·01	59·62	61·90	58·01	54·80	51·63
19	47·80	47·29	45·20	47·29	50·01	53·69	57·10	59·87	61·90	57·90	54·67	51·52
20	47·72	47·31	45·32	47·39	50·10	53·81	57·29	60·07	61·88	57·80	54·59	51·47
21	47·69	47·26	45·43	47·50	50·17	54·00	57·48	60·28	61·83	57·76	54·52	51·48
22	47·70	47·20	45·59	47·55	50·19	54·20	57·66	60·47	61·80	57·62	54·35	51·42
23	47·76	47·12	45·70	47·68	50·26	54·41	57·83	60·60	61·72	57·52	54·25	51·30
24	47·82	47·00	45·76	47·80	50·36	54·61	57·88	60·71	61·60	57·46	54·10	51·17
25	47·90	46·87	45·79	47·88	50·46	54·81	58·02	60·86	61·51	57·42	53·82	50·97
26	47·96	46·76	45·77	47·95	50·60	55·02	58·14	61·04	61·40	57·44	53·38	50·77
27	47·99	46·62	45·70	48·02	50·85	55·11	58·23	61·10	61·27	57·40	53·00	50·55
28	48·00	46·50	45·60	48·06	51·00	55·32	58·50	61·10	61·07	57·33	52·93	50·30
29	48·00		45·52	48·17	51·16	55·37	58·55	61·17	60·95	57·30	52·80	50·21
30	47·96		45·45	48·30	51·29	55·38	58·56	61·25	60·70	57·11	52·69	50·09
31	47·96		45·40		51·40		58·67	61·16		57·11		50·00
Means	47·98	47·40	45·64	46·72	49·82	53·31	56·98	59·71	61·40	58·55	55·01	51·46

The mean of the twelve monthly values is 52°·83.

(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.

1898.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	45·00	45·70	42·59	42·22	48·62	52·76	58·05	60·70	63·00	59·62	55·36	47·56
2	45·01	45·95	42·65	42·50	48·62	52·48	58·32	60·75	62·74	59·22	54·80	47·58
3	44·98	46·15	42·55	42·72	48·79	52·33	58·60	61·02	62·56	59·00	54·38	48·00
4	44·75	45·86	42·23	43·12	49·10	52·23	58·71	61·33	62·66	58·70	54·33	48·44
5	44·50	45·53	42·00	43·50	49·24	52·52	58·80	61·51	62·91	58·80	54·11	48·97
6	44·70	44·85	41·89	43·66	49·40	53·00	58·79	61·52	63·35	58·88	53·77	49·41
7	45·18	44·46	41·69	43·81	49·51	53·70	58·96	61·60	63·70	58·96	53·44	49·69
8	45·42	44·09	41·48	44·41	49·56	54·27	59·20	61·35	64·26	58·90	53·10	49·62
9	45·19	43·75	41·32	45·00	49·77	54·78	59·20	60·83	64·55	58·83	52·90	49·30
10	44·99	43·52	41·33	45·58	50·00	55·20	59·05	60·45	64·73	58·47	52·80	49·08
11	44·81	43·63	41·45	46·18	50·21	55·37	58·83	60·34	64·97	58·11	52·90	49·02
12	44·50	43·89	41·47	46·40	50·39	55·40	58·67	60·68	64·86	57·72	52·92	49·18
13	44·46	44·17	41·53	46·60	50·50	55·70	58·61	61·20	64·68	57·20	52·91	49·40
14	44·60	44·43	41·40	46·59	50·23	55·53	58·90	61·87	64·49	56·80	52·88	49·43
15	44·75	44·49	41·45	46·71	50·11	55·37	59·05	62·57	64·39	56·40	52·56	49·13
16	44·72	44·65	41·52	46·92	50·20	55·25	59·51	63·20	64·50	56·20	52·30	48·92
17	44·58	44·88	41·97	47·00	50·20	55·45	60·00	63·70	64·64	56·09	52·32	48·65
18	44·35	44·93	42·47	46·76	50·24	55·80	60·51	64·07	64·46	55·97	52·48	48·80
19	44·30	44·80	43·17	46·88	50·20	56·27	60·72	64·22	64·50	56·10	52·39	49·04
20	44·59	44·33	43·50	47·11	50·11	56·93	60·81	64·41	64·01	56·10	52·13	49·10

(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.*

1898.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
21	45·07	43·97	44·00	47·33	50·13	57·46	60·90	64·60	63·54	56·02	51·90	48·61
22	45·60	43·55	43·81	47·59	50·30	58·00	60·89	64·80	63·23	56·10	51·50	47·95
23	45·90	43·22	43·60	47·70	50·72	58·30	61·17	64·97	62·87	56·42	50·98	47·31
24	45·89	43·00	43·40	47·58	51·77	58·23	61·13	65·04	62·40	56·63	50·20	46·62
25	45·73	42·80	43·07	47·59	52·29	58·08	61·20	64·96	61·93	56·58	49·46	45·98
26	45·63	42·57	42·58	47·63	52·74	57·82	61·33	64·80	61·60	56·38	49·22	45·80
27	45·50	42·60	42·20	47·80	52·81	57·60	61·52	64·43	61·19	56·27	48·71	46·00
28	45·41	42·60	42·00	48·20	52·70	57·52	61·97	64·30	60·70	56·28	48·80	46·29
29	45·31		41·95	48·32	52·73	57·47	61·90	63·80	60·40	56·27	48·40	46·38
30	45·21		41·89	48·45	52·78	57·61	61·40	63·45	59·85	56·00	48·00	46·22
31	45·35		42·00		52·78		60·94	63·10		55·83		46·08
Means	45·03	44·23	42·26	46·06	50·54	55·61	59·92	62·76	63·26	57·25	52·06	48·12
The mean of the twelve monthly values is 52°·26.												

(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.

1898.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	43·0	48·1	42·1	41·0	49·7	51·0	60·0	61·9	59·9	54·1	47·8	45·9
2	43·3	46·0	39·9	41·0	53·0	51·0	61·6	62·8	60·6	53·2	50·7	48·1
3	40·0	43·0	37·7	44·0	52·0	52·5	59·9	64·2	64·0	56·0	55·1	49·0
4	40·9	41·0	38·1	45·2	51·1	54·9	59·2	62·0	65·5	58·5	48·8	50·1
5	45·0	37·2	38·1	42·6	50·1	56·5	59·0	63·1	66·0	58·5	50·5	51·1
6	48·0	40·3	37·1	44·0	51·0	59·0	62·3	65·0	67·3	58·9	48·0	52·0
7	45·9	39·7	37·0	48·3	50·3	58·1	63·2	60·0	67·0	57·9	48·9	46·9
8	41·2	39·8	37·2	50·0	51·7	60·1	62·0	57·8	69·7	56·5	48·7	44·8
9	41·8	37·7	39·0	50·5	52·4	59·8	59·0	58·2	69·9	55·0	50·7	47·0
10	41·1	42·3	38·1	51·2	52·8	57·8	58·1	59·5	66·2	53·9	51·6	47·2
11	40·2	43·9	38·8	50·0	52·0	58·1	58·0	62·5	65·9	51·9	50·5	49·1
12	42·9	45·0	39·9	47·8	51·0	47·1	60·9	64·9	65·0	51·7	50·2	49·9
13	44·1	45·0	37·0	47·3	48·3	55·1	60·1	67·8	62·3	51·0	50·8	46·9
14	43·1	43·6	40·9	49·0	50·0	55·0	60·1	68·0	65·1	52·0	46·6	44·8
15	43·0	45·1	38·9	49·0	50·5	54·7	63·5	69·6	65·0	52·2	48·9	45·2
16	41·0	45·5	43·9	47·0	49·8	56·0	65·0	69·0	65·9	52·1	51·0	44·3
17	38·7	44·0	44·8	46·9	49·8	58·1	65·1	66·9	68·1	54·8	52·0	48·8
18	42·4	41·9	48·0	47·9	50·2	60·7	65·9	66·9	65·5	54·9	50·0	50·0
19	45·7	37·3	48·8	48·0	49·0	63·0	64·4	68·0	60·5	53·8	48·8	47·3
20	47·2	40·0	44·0	49·1	50·1	63·0	63·0	67·2	62·7	53·0	47·7	42·0
21	48·9	37·0	39·0	50·0	52·1	63·5	60·8	67·8	60·9	56·6	48·2	42·1
22	47·9	38·8	40·9	47·0	53·0	62·3	66·1	68·8	60·7	59·0	43·3	40·0
23	42·9	39·0	41·0	46·1	56·4	59·8	63·5	68·0	58·5	56·2	42·0	37·7
24	44·8	38·3	38·7	47·0	57·0	59·1	61·0	65·7	56·7	55·0	43·0	38·1
25	44·0	37·5	37·3	48·0	55·3	57·9	64·0	63·9	58·0	53·3	45·4	41·8

(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.*

1898.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
26	43·9	40·0	37·3	48·2	53·5	56·8	64·8	64·5	56·0	55·2	44·2	44·0
27	43·9	40·0	39·0	51·1	54·0	57·1	64·7	65·9	56·0	55·8	44·0	48·0
28	43·0	39·7	39·0	50·0	53·8	57·0	64·0	61·8	55·1	55·0	40·8	43·1
29	41·0		39·8	51·0	54·5	59·0	59·1	60·5	55·3	55·8	40·9	42·9
30	47·0		39·1	49·9	54·3	58·5	57·8	63·2	55·9	52·3	40·0	41·7
31	46·9		41·0		55·0		58·6	62·0		51·6		39·3
Means	43·6	41·3	40·0	47·6	52·1	57·4	61·8	64·4	62·5	54·7	47·6	45·5

The mean of the twelve monthly values is 51°·54.

(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.

1898.												
Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	°	°	°	°	°	°	°	°	°	°	°	°
1	42·1	53·2	48·1	44·0	52·1	52·0	65·6	73·0	62·9	58·9	47·6	50·7
2	42·9	45·8	42·1	47·0	62·2	51·0	66·7	73·0	69·2	57·5	53·5	53·1
3	39·0	42·1	38·7	51·3	58·9	61·6	63·0	72·4	74·2	63·7	58·3	53·4
4	42·0	37·0	39·4	47·9	51·7	58·9	62·5	65·4	76·0	61·1	51·5	54·5
5	49·3	35·7	39·0	46·5	52·3	66·7	64·1	71·0	72·9	59·8	53·8	53·9
6	51·9	44·8	41·0	55·2	55·7	64·3	70·7	67·1	75·0	59·9	49·0	55·0
7	45·0	42·0	39·8	54·5	57·5	66·2	71·4	56·5	72·8	58·1	50·3	43·0
8	42·0	43·0	38·1	61·2	52·3	67·0	66·6	58·0	84·9	55·9	50·8	42·8
9	40·7	39·1	41·5	58·7	56·4	63·0	57·9	61·4	83·0	57·5	53·3	48·5
10	38·5	48·7	42·7	55·8	56·7	58·0	56·5	64·1	70·8	50·9	52·6	51·8
11	43·2	47·5	39·9	57·0	55·6	69·1	62·0	71·8	73·2	48·8	50·9	53·2
12	47·3	50·0	40·7	48·9	49·8	55·5	69·0	77·3	68·8	53·3	50·9	52·2
13	46·3	44·8	37·3	53·5	53·0	53·6	61·1	80·0	65·9	50·9	51·2	44·9
14	42·2	47·8	45·5	53·0	55·0	54·8	69·7	78·0	73·6	54·0	44·0	46·3
15	42·7	50·8	45·9	53·6	51·8	55·2	73·0	79·0	74·0	51·6	50·7	45·4
16	37·7	49·0	49·7	47·3	53·0	58·3	73·9	75·1	75·5	51·6	54·0	45·6
17	33·7	43·9	50·9	57·5	51·9	67·1	70·2	68·2	83·8	60·6	53·2	50·8
18	48·2	40·0	56·1	52·1	55·2	72·2	76·6	71·8	63·2	57·2	49·6	53·7
19	51·3	35·8	54·8	51·9	48·0	69·0	66·4	74·0	63·6	56·0	46·9	44·9
20	52·0	42·5	44·8	54·1	51·1	69·0	60·0	74·0	67·5	55·6	46·6	37·1
21	51·5	34·8	40·0	55·2	57·0	71·0	65·7	75·1	63·9	62·4	47·1	39·8
22	50·6	39·6	44·9	44·8	59·8	65·1	72·7	77·0	64·2	62·0	37·9	38·8
23	37·8	40·8	43·0	50·0	69·0	61·8	68·8	73·0	62·9	58·7	39·5	38·0
24	45·3	39·0	37·6	52·2	64·0	58·5	65·2	68·0	58·0	57·0	41·6	38·3
25	42·9	41·0	34·0	51·7	55·9	57·9	70·0	66·0	60·4	56·0	47·6	45·5
26	44·2	44·0	38·0	50·8	55·0	57·8	69·8	71·0	60·1	58·8	42·6	48·6
27	44·0	46·0	38·9	55·2	60·2	58·0	71·6	67·1	61·8	59·0	41·6	53·5
28	42·2	43·0	38·0	51·9	55·3	61·0	66·0	65·1	58·0	58·9	37·3	41·7
29	40·2		43·2	56·6	56·6	68·0	58·0	62·1	62·4	59·3	38·2	48·4
30	51·8		46·0	51·3	58·0	62·1	57·3	69·8	55·0	53·8	40·3	38·5
31	48·9		46·7		56·9		62·3	63·0		54·2		39·5
Means	44·4	43·3	42·8	52·4	55·7	61·8	66·3	69·9	68·6	56·9	47·7	46·8

The mean of the twelve monthly values is 54°·72.

ABSTRACT of the CHANGES of the DIRECTION of the WIND, as derived from the Records of OSLER'S ANEMOMETER in the Year 1898.

(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. 0½	1. 6	S.	S.E.		45
1. 8	1. 9	S.E.	E.		45
1. 19	2. 0	E.	N.		90
2. 2	2. 4	N.	W.		90
2. 12	2. 13	W.	W.S.W.		22½
2. 17	2. 18	W.S.W.	S.		67½
3. 7	3. 7½	S.	E.N.E.		112½
3. 10½	3. 11	E.N.E.	S.		247½
3. 16	3. 18½	S.	S.S.E.		22½
4. 0	4. 1	S.S.E.	S.W.	67½	
4. 3	4. 4½	S.W.	W.S.W.	22½	
4. 16	4. 18	W.S.W.	S.W.		22½
5. 20	5. 21	S.W.	W.S.W.	22½	
6. 14	6. 14½	W.S.W.	W.	22½	
6. 16	6. 17	W.	S.W.		45
6. 19	6. 20	S.W.	S.S.W.		22½
7. 4	7. 8	S.S.W.	N.N.W.	135	
7. 17	7. 18	N.N.W.	S.W.		112½
7. 18¾	7. 19	S.W.	W.N.W.	67½	
7. 19¾	7. 20	W.N.W.	S.		112½
8. 2	8. 3	S.	S.S.E.		22½
8. 11	8. 13	S.S.E.	S.E.		22½
8. 22	8. 23	S.E.	E.S.E.		22½
9. 5½	9. 6	E.S.E.	N.N.E.		90
10. 14½	10. 15½	N.N.E.	W.S.W.	225	
11. 16	11. 17	W.S.W.	S.W.		22½
12. 8	12. 9	S.W.	W.S.W.	22½	
13. 9½	13. 11	W.S.W.	S.		67½
13. 14	13. 14½	S.	E.S.E.		67½
14. 1	14. 2	E.S.E.	S.	67½	
14. 6	14. 8	S.	S.S.E.		22½
14. 16	14. 18	S.S.E.	E.N.E.		90
14. 21	14. 22	E.N.E.	S.E.	67½	
15. 4	15. 4¼	S.E.	E.S.E.		22½
15. 9	15. 11	E.S.E.	S.E.	22½	
17. 2	17. 4	S.E.	S.S.E.	22½	
17. 7½	17. 8	S.S.E.	S.W.	67½	
17. 21¼	17. 21½	S.W.	S.		45
18. 1	18. 1¼	S.	S.S.W.	22½	
19. 2	19. 3	S.S.W.	S.W.	22½	
20. 4	20. 6	S.W.	W.S.W.	22½	
22. 9	22. 10½	W.S.W.	W.	22½	
22. 18	22. 23	W.	E.N.E.	157½	
23. 6	23. 9½	E.N.E.	S.W.	157½	
23. 11½	23. 12	S.W.	W.S.W.	22½	
23. 23	24. 3	W.S.W.	W.N.W.	45	
24. 15	24. 17½	W.N.W.	N.N.W.	45	
24. 23	25. 0½	N.N.W.	W.N.W.		45
25. 8	25. 9	W.N.W.	S.W.		67½
26. 3½	26. 4	S.W.	S.S.W.		22½
Jan.—*cont.*					
26. 7	26. 10	S.S.W.	S.W.	22½	
26. 22	26. 23	S.W.	W.S.W.	22½	
29. 10¼	29. 11	W.S.W.	S.W.		22½
29. 13½	29. 15	S.W.	W.S.W.	22½	
29. 17	29. 18	W.S.W.	S.W.		22½
30. 22	31. 0½	S.W.	W.S.W.	22½	
31. 4	31. 5	W.S.W.	N.W.	67½	
31. 12½	31. 13½	N.W.	W.		45
31. 16	31. 17	W.	S.W.		45
			Sums	1507½	1822½
February.					
1. 1	1. 2	S.W.	W.S.W.	22½	
2. 20	2. 21½	W.S.W.	W.N.W.	45	
3. 7	3. 8	W.N.W.	W.S.W.		45
3. 19½	3. 21	W.S.W.	N.W.	67½	
4. 5½	4. 8	N.W.	N.	45	
5. 6	5. 8	N.	N.N.W.		22½
5. 19½	5. 22½	N.N.W.	S.W.		112½
6. 9	6. 11½	S.W.	W.N.W.	67½	
6. 18	6. 20	W.N.W.	W.S.W.		45
7. 9	7. 14	W.S.W.	N.W.	67½	
7. 19	7. 21	N.W.	W.S.W.		67½
8. 11½	8. 12½	W.S.W.	W.N.W.	45	
8. 19	8. 20	W.N.W.	N.W.	22½	
9. 0	9. 3	N.W.	W.S.W.		67½
9. 16	9. 17	W.S.W.	S.W.		22½
10. 9	10. 11	S.W.	W.S.W.	22½	
10. 15	10. 18	W.S.W.	S.W.		22½
13. 8	13. 11	S.W.	N.N.E.	157½	
13. 15	13. 19½	N.N.E.	W.S.W.		135
14. 9½	14. 12½	W.S.W.	W.N.W.	45	
14. 14½	14. 15	W.N.W.	W.		22½
14. 18	14. 19	W.	W.S.W.		22½
16. 0	16. 3	W.S.W.	W.	22½	
16. 9	16. 11	W.	W.N.W.	22½	
16. 22	17. 0	W.N.W.	N.W.	22½	
17. 14	17. 18	N.W.	W.S.W.		67½
17. 22	18. 0	W.S.W.	E.N.E.		180
18. 3	18. 5	E.N.E.	N.E.		22½
18. 15	18. 16	N.E.	N.		45
19. 8½	19. 10	N.	W.S.W.		112½
20. 10	20. 13	W.S.W.	W.N.W.	45	
20. 16	20. 17	W.N.W.	W.S.W.		45
Feb.—*cont.*					
20. 22	21. 1	W.S.W.	S.S.W.		45
21. 4	21. 7½	S.S.W.	N.E.		157½
21. 10	21. 11	N.E.	E.S.E.	67½	
21. 22¼	21. 22½	E.S.E.	E.		22½
22. 2	22. 3	E.	E.N.E.		22½
22. 18½	22. 21	E.N.E.	N.N.E.		45
22. 23	23. 0	N.N.E.	N.		22½
23. 18	23. 2	N.	N.N.W.		22½
24. 11	24. 12½	N.N.W.	N.N.E.	45	
24. 19	24. 21	N.N.E.	N.N.W.		45
25. 0	25. 0½	N.N.W.	W.S.W.		90
25. 14	25. 16	W.S.W.	S.S.W.		45
26. 1	26. 2	S.S.W.	W.S.W.	45	
26. 21	26. 22	W.S.W.	S.W.		22½
27. 0	27. 1½	S.W.	W.S.W.	22½	
27. 16½	27. 17½	W.S.W.	W.N.W.	45	
27. 19	27. 20	W.N.W.	W.S.W.		45
28. 8	28. 10½	W.S.W.	W.N.W.	45	
28. 15½	28. 17	W.N.W.	W.S.W.		45
			Sums	990	1687½
March.					
1. 13	1. 15	W.S.W.	W.	22½	
1. 20½	1. 22	W.	W.S.W.		22½
2. 5	2. 9	W.S.W.	W.N.W.	45	
2. 14¾	2. 15	W.N.W.	N.W.	22½	
2. 16½	2. 17	N.W.	W.		45
3. 1	3. 2	W.	W.S.W.		22½
3. 7½	3. 8	W.S.W.	W.N.W.	45	
3. 10	3. 10½	W.N.W.	N.N.W.	45	
3. 13½	3. 15	N.N.W.	S.S.W.		135
3. 16	3. 17½	S.S.W.	W.S.W.		315
3. 22	4. 0	W.S.W.	N.E.	157½	
4. 15¼	4. 15½	N.E.	E.N.E.	22½	
4. 18¾	4. 19	E.N.E.	N.N.E		45
5. 6	5. 7	N.N.E.	N.		22½
5. 10	5. 10½	N.	N.N.E.	22½	
5. 19	5. 20½	N.N.E.	S.	157½	
6. 4	6. 4½	S.	S.S.E.		22½
6. 18½	6. 20	S.S.E.	E.S.E.		45
7. 0	7. 1	E.S.E.	E.		22½
7. 8	7. 10	E.	N.E.		45
7. 14	7. 14¼	N.E.	E.N.E.	22½	
7. 16	7. 17	E.N.E.	N.E.		22½

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

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retro-grade.
				°	°
March—*cont.*					
d h	d h				
9. 22	10. 0	N.E.	N.N.E.		22½
10. 8½	10. 9	N.N.E.	N.E.	22½	
10. 17	10. 18	N.E.	S.E.	90	
10. 19¼	10. 19½	S.E.	E.		45
10. 23	11. 0	E.	N.E.		45
11. 3	11. 4	N.E.	E.N.E.	22½	
11. 6½	11. 8	E.N.E.	N.E.		22½
11. 10	11. 10½	N.E.	E.N.E.	22½	
11. 15	11. 16½	E.N.E.	E.S.E.	45	
11. 19½	11. 21½	E.S.E.	E.N.E.		45
12. 0	12. 1	E.N.E.	N.E.		22½
12. 5¾	12. 6	N.E.	N.N.E.		22½
12. 20½	12. 21½	N.N.E.	N.		22½
13. 2½	13. 3½	N.	W.S.W.	247½	
13. 12	13. 13½	W.S.W.	S.S.W.		45
13. 16	13. 16¼	S.S.W.	W.S.W.	45	
14. 12	14. 14½	W.S.W.	N.N.W.	90	
14. 16¼	14. 16½	N.N.W.	S.E.	157½	
14. 18	14. 19	S.E.	N.	225	
14. 23	14. 23¾	N.	N.N.W.		22½
15. 2	15. 4	N.N.W.	W.S.W.		90
15. 15	15. 17	W.S.W.	S.W.		22½
15. 23	16. 2½	S.W.	W.S.W.	22½	
16. 8	16. 8½	W.S.W.	W.	22½	
16. 12	16. 13	W.	W.N.W.	22½	
16. 17½	16. 18	W.N.W.	N.W.	22½	
16. 20½	16. 21	N.W.	W.S.W.		67½
17. 14	17. 15	W.S.W.	W.	22½	
17. 17	17. 18	W.	W.S.W.		22½
18. 7	18. 9	W.S.W.	W.	22½	
18. 16½	18. 17½	W.	W.S.W.		22½
19. 13	19. 13½	W.S.W.	W.	22½	
19. 16	19. 16½	W.	N.E.	135	
19. 19	19. 19¼	N.E.	E.N.E.	22½	
20. 2	20. 3	E.N.E.	N.N.E.		45
20. 9	20. 10	N.N.E.	N.E.	22½	
20. 12	20. 13	N.E.	E.N.E.	22½	
20. 15	20. 17	E.N.E.	S.E.	67½	
21. 0½	21. 0¾	S.E.	W.N.W.	157½	
21. 2	21. 7½	W.N.W.	S.W.		67½
21. 9	21. 10½	S.W.	N.E.	180	
21. 23½	21. 23¾	N.E.	S.	135	
22. 1	22. 2	S.	S.S.W.	22½	
22. 3	22. 3¼	S.S.W.	W.N.W.	90	
22. 9	22. 10	W.N.W.	E.	157½	
22. 14	22. 14½	E.	S.S.E.	67½	
22. 19	22. 20	S.S.E.	S.W.	67½	
23. 0	23. 1	S.W.	W.S.W.	22½	
23. 12	23. 15	W.S.W.	N.	112½	
23. 21	23. 22	N.	N.N.W.		22½
24. 10	24. 10½	N.N.W.	N.	22½	
24. 13½	24. 14	N.	N.N.E.	22½	
27. 4½	27. 5	N.N.E.	E.N.E.	45	
27. 7	27. 8	E.N.E.	N.E.		22½
27. 12½	27. 13	N.E.	N.N.E.		22½
27. 21½	27. 22½	N.N.E.	N.		22½
28. 10½	28. 12½	N.	S.		180
28. 16	28. 18	S.	S.W.	45	
28. 21	28. 22	S.W.	S.S.W.		22½

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retro-grade.
				°	°
March—*cont.*					
d h	d h				
29. 7	29. 8	S.S.W.	S.W.	22½	
29. 11½	29. 12	S.W.	W.S.W.	22½	
29. 18	29. 19	W.S.W.	S.W.		22½
30. 6½	30. 6¾	S.W.	E.N.E.		157½
30. 9½	30. 10	E.N.E.	S.E.	67½	
30. 13½	30. 14	S.E.	E.S.E.		22½
31. 3	31. 4	E.S.E.	E.		22½
31. 10½	31. 11	E.	E.S.E.	22½	
31. 19	31. 22	E.S.E.	E.N.E.		45
			Sums	3240	1980
April.					
1. 1	1. 1¼	E.N.E.	N.E.		22½
1. 4	1. 5	N.E.	N.N.E.		22½
1. 9	1. 10	N.N.E.	N.E.	22½	
1. 12	1. 13	N.E.	E.N.E.	22½	
2. 0	2. 3¼	E.N.E.	S.W.		202½
2. 4¼	2. 7	S.W.	N.N.E.	157½	
2. 9½	2. 10	N.N.E.	W.		112½
2. 10½	2. 11½	W.	N.N.W.	67½	
2. 18½	2. 19	N.N.W.	W.N.W.		45
2. 19½	2. 20	W.N.W	N.N.W.	45	
2. 22	3. 0	N.N.W.	W.		67½
3. 8½	3. 9	W.	W.N.W.	22½	
3. 15	3. 15½	W.N.W.	W.		22½
4. 0	4. 0½	W.	W.S.W.		22½
4. 5½	4. 6½	W.S.W.	W.	22½	
4. 8½	4. 8¾	W.	W.N.W.	22½	
4. 10	4. 11	W.N.W.	N.N.W.	45	
4. 18	4. 18½	N.N.W.	N.	22½	
5. 3	5. 4	N.	N.E.	45	
5. 8½	5. 10	N.E.	E.	45	
5. 13	5. 13½	E.	S.E.	45	
5. 15½	5. 16	S.E.	E.S.E.		22½
5. 17	5. 18½	E.S.E.	S.S.E.	45	
6. 3	6. 4½	S.S.E.	S.	22½	
6. 7	6. 12	S.	W.S.W.	67½	
7. 18	7. 19	W.S.W.	S.W.		22½
8. 8	8. 9	S.W.	S.S.W.		22½
8. 19½	8. 20½	S.S.W.	S.		22½
8. 23½	9. 0	S.	S.S.W.	22½	
9. 8	9. 9	S.S.W.	W.S.W.	45	
9. 12	9. 12½	W.S.W.	W.	22½	
9. 18	9. 20	W.	S.W.		45
10. 13	10. 15	S.W.	W.S.W.	22½	
11. 10½	11. 11	W.S.W.	S.W.		22½
11. 15½	11. 17	S.W.	S.S.W.		22½
12. 0	12. 1	S.S.W.	W.S.W.	45	
12. 2½	12. 3½	W.S.W.	W.N.W.	45	
12. 13	12. 13½	W.N.W.	N.W.	22½	
12. 16	12. 17	N.W.	N.N.W.	22½	
12. 18	12. 20	N.N.W.	W.N.W.		45
12. 22	12. 23	W.N.W.	W.S.W.		45

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retro-grade.
				°	°
April—*cont.*					
d h	d h				
13. 8	13. 9	W.S.W.	S.W.		22½
13. 15	13. 16	S.W.	S.S.W.		22½
13. 18½	13. 20	S.S.W.	S.S.E.		45
14. 5	14. 7	S.S.E.	S.S.W.	45	
14. 12	14. 13	S.S.W.	S.		22½
14. 15½	14. 16	S.	S.S.E.		22½
14. 17¼	14. 18	S.S.E.	S.E.		22½
14. 18½	14. 19½	S.E.	S.S.W.	67½	
14. 20½	14. 21½	S.S.W.	S.S.E.		45
15. 3	15. 4	S.S.E.	W.S.W.	90	
15. 11	15. 12½	W.S.W.	W.N.W.	45	
15. 14	15. 14½	W.N.W.	W.		22½
15. 18	15. 18½	W.	N.W.	45	
15. 20	15. 20½	N.W.	W.N.W.		22½
15. 22	15. 23	W.N.W.	W.S.W.		45
16. 3½	16. 4	W.S.W.	S.W.		22½
16. 8	16. 10	S.W.	E.N.E.	202½	
16. 11½	16. 12	E.N.E.	E.S.E.	45	
16. 17	16. 20½	E.S.E.	S.S.W.	90	
17. 9	17. 9¼	S.S.W.	S.		22½
17. 16	17. 16½	S.	S.W.	45	
17. 18½	17. 19¼	S.W.	S.E.		90
17. 23	17. 23½	S.E.	E.		45
18. 6½	18. 7	E.	E.S.E.	22½	
18. 15	18. 16	E.S.E.	E.		22½
18. 19	18. 21	E.	E.S.E.	22½	
19. 2½	19. 4	E.S.E.	E.N.E.		45
19. 8½	19. 9	E.N.E.	E.S.E.	45	
19. 21	19. 23	E.S.E.	E.N.E.		45
20. 3½	20. 3¾	E.N.E.	N.E.		22½
20. 6½	20. 8	N.E.	E.	45	
20. 12½	20. 13	E.	S.	90	
20. 14	20. 14¼	S.	E.S.E.		67½
20. 16	20. 16¼	E.S.E.	S.S.E.	45	
20. 17¼	20. 17½	S.S.E.	E.		67½
20. 23	21. 0	E.	E.N.E.		22½
21. 3	21. 4	E.N.E.	E.	22½	
21. 21	22. 0	E.	N.E.		45
22. 8	22. 9	N.E.	E.N.E.	22½	
22. 18	22. 18¼	E.N.E.	E.	22½	
22. 20	22. 21	E.	E.N.E.		22½
22. 22½	23. 0	E.N.E.	N.E.		22½
23. 3	23. 5	N.E.	N.N.E.		22½
23. 9	23. 10	N.N.E.	N.E.	22½	
23. 15	23. 17	N.E.	E.S.E.	67½	
23. 23½	23. 23¾	E.S.E.	E.N.E.		45
24. 2½	24. 2¾	E.N.E.	N.N.E.		45
24. 7	24. 7½	N.N.E.	E.N.E.	45	
24. 12	24. 13	E.N.E.	E.	22½	
24. 22	25. 0	E.	N.N.E.		67½
25. 3½	25. 4	N.N.E.	N.		22½
25. 6	25. 9	N.	E.	90	
25. 11	25. 12	E.	E.N.E.		22½
26. 1	26. 2	E.N.E.	N.E.		22½
26. 11	26. 12	N.E.	E.N.E.	22½	
26. 22½	26. 23½	E.N.E.	E.S.E.	45	
27. 7	27. 7½	E.S.E.	S.S.E.	45	
27. 11	27. 12	S.S.E.	S.	22½	
27. 21	27. 21½	S.	E.S.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. Retro-grade.
				°	°
April—*cont.*					
d h	d h				
27. 22¼	27. 22½	E.S.E.	N.		112½
27. 23	27. 23½	N.	E.N.E.	67½	
28. 1¼	28. 1¾	E.N.E.	N.		67½
28. 3	28. 3¼	N.	W.N.W.		67½
28. 4	28. 6	W.N.W.	N.N.W.	45	
28. 13	28. 13¼	N.N.W.	W.		67½
28. 14¼	28. 14½	W.	N.	90	
28. 15½	28. 15¾	N.	S.W.		135
28. 18¾	28. 19	S.W.	S.S.W.		22½
28. 20½	28. 22	S.S.W.	S.S.E.		45
28. 23	28. 23½	S.S.E.	S.	22½	
29. 7	29. 8	S.	S.S.W.	22½	
29. 17½	29. 18½	S.S.W.	S.S.E.		45
29. 19½	29. 21½	S.S.E.	W.S.W.	90	
29. 22½	29. 23½	W.S.W.	S.S.W.		45
30. 3	30. 5	S.S.W.	S.S.E.		45
30. 12½	30. 15	S.S.E.	S.W.	67½	
			Sums	2767½	2610
May.					
1. 0	1. 1	S.W.	S.S.W.		22½
1. 4	1. 4½	S.S.W.	S.		22½
1. 8	1. 8½	S.	S.S.E.		22½
1. 10	1. 13	S.S.E.	E.N.E.		90
1. 17	1. 18	E.N.E.	S.E.	67½	
1. 22½	1. 23	S.E.	N.E.		90
2. 7	2. 8	N.E.	E.	45	
2. 11	2. 12½	E.	S.S.E.	67½	
2. 14	2. 15	S.S.E.	S.S.W.	45	
3. 19	3. 20	S.S.W.	S.		22½
4. 5	4. 8	S.	W.S.W.	67½	
4. 21	4. 23	W.S.W.	S.W.		22½
5. 3	5. 4	S.W.	S.S.W.		22½
5. 9¾	5. 10¼	S.S.W.	S.		22½
5. 13	5. 14	S.	S.S.E.		22½
5. 17½	5. 19	S.S.E.	S.W.	67½	
5. 20½	5. 21	S.W.	W.S.W.	22½	
6. 0½	6. 1¼	W.S.W.	N.N.W.	90	
6. 17	6. 18	N.N.W.	N.	22½	
6. 23	7. 0	N.	N.N.W.		22½
7. 11	7. 12	N.N.W.	N.	22½	
7. 17¾	7. 20¼	N.	S.S.E.	157½	
7. 23	8. 0	S.S.E.	S.	22½	
8. 1½	8. 2½	S.	S.W.	45	
8. 20	8. 23¼	S.W.	W.N.W.	67½	
9. 2	9. 2½	W.N.W.	W.S.W.		45
9. 3½	9. 4¼	W.S.W.	W.N.W.	45	
9. 5	9. 5¼	W.N.W.	N.W.	22½	
9. 6	9. 6½	N.W.	N.N.W.	22½	
9. 10	9. 10½	N.N.W.	N.W.		22½
9. 19½	9. 20¼	N.W.	N.	45	
10. 0	10. 3	N.	S.S.W.		157½
10. 6¼	10. 6½	S.S.W.	S.S.E.		45

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro-grade.
				°	°
May—*cont.*					
d h	d h				
10. 8¼	10. 9½	S.S.E.	W.S.W.	90	
10. 18	10. 19½	W.S.W.	S.W.		22½
11. 5½	11. 5¾	S.W.	W.S.W.	22½	
11. 19	11. 20	W.S.W.	S.W.		22½
12. 6	12. 9	S.W.	N.	135	
12. 17	12. 18	N.	N.		360
12. 22	12. 23	N.	W.N.W.	292½	
13. 1½	13. 2	W.N.W.	W.S.W.		45
13. 14	13. 16	W.S.W.	S.W.		22½
14. 8	14. 11	S.W.	W.N.W.	67½	
14. 12½	14. 13½	W.N.W.	N.N.W.	45	
14. 15½	14. 16	N.N.W.	N.	22½	
14. 19	14. 19¼	N.	N.N.E.	22½	
14. 20½	14. 21½	N.N.E.	S.S.E.	135	
14. 23½	15. 0½	S.S.E.	E.N.E.		90
15. 3¾	15. 4	E.N.E.	E.S.E.	45	
15. 5	15. 5¼	E.S.E.	E.N.E.		45
15. 9	15. 9½	E.N.E.	E.S.E.	45	
15. 12½	15. 12¾	E.S.E.	N.N.E.		90
15. 13¾	15. 16	N.N.E.	S.S.E.	135	
15. 17¾	15. 18	S.S.E.	S.S.W.	45	
15. 23	16. 0½	S.S.W.	N.	157½	
16. 10	16. 11	N.	N.N.E.	22½	
16. 17½	16. 19	N.N.E.	S.E.	112½	
16. 20½	16. 21	S.E.	S.S.E.	22½	
17. 1¼	17. 1½	S.S.E.	S.S.W.	45	
17. 8½	17. 9¾	S.S.W.	N.N.E.	180	
17. 11½	17. 16	N.N.E.	S.S.W.	180	
17. 19	17. 21½	S.S.W.	S.E.		67½
18. 0	18. 3	S.E.	E.N.E.		67½
18. 17	18. 18	E.N.E.	N.E.		22½
18. 23	19. 0	N.E.	N.N.E.		22½
19. 12	19. 13	N.N.E.	N.E.	22½	
19. 21	19. 23	N.E.	N.N.E.		22½
20. 9	20. 9½	N.N.E.	N.		22½
20. 12	20. 13	N.	N.N.E.	22½	
21. 0	21. 2	N.N.E.	N.		22½
21. 3¼	21. 3½	N.	S.S.W.		157½
21. 11	21. 12	S.S.W.	S.		22½
21. 21	22. 0	S.	E.S.E.		67½
22. 6½	22. 7	E.S.E.	E.		22½
22. 10	22. 10½	E.	E.S.E.	22½	
22. 17	22. 23	E.S.E.	E.N.E.		45
23. 1	23. 2	E.N.E.	N.E.		22½
23. 9½	23. 11½	N.E.	E.S.E.	67½	
23. 20	23. 21	E.S.E.	E.		22½
24. 1	24. 2	E.	E.N.E.		22½
24. 11	24. 12	E.N.E.	E.S.E.	45	
24. 23	25. 0	E.S.E.	N.N.E.		90
25. 19	25. 20	N.N.E.	N.E.	22½	
26. 2	26. 3	N.E.	N.N.E.		22½
26. 7	26. 8	N.N.E.	N.		22½
26. 15½	26. 16	N.	S.W.		135
27. 2	27. 3	S.W.	E.	225	
27. 11	27. 11¼	E.	E.S.E.	22½	
27. 13½	27. 14	E.S.E.	S.S.E.	45	
27. 23	27. 23¼	S.S.E.	W.S.W.	90	
28. 0½	28. 1	W.S.W.	S.		67½
28. 3½	28. 4½	S.	N.	180	

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retro-grade.
				°	°
May—*cont.*					
d h	d h				
28. 15½	28. 16	N.	N.N.E.	22½	
28. 18	28. 18½	N.N.E.	N.		22½
28. 21½	28. 22	N.	N.N.E.	22½	
29. 2½	29. 3½	N.N.E.	N.N.W.		45
29. 11	29. 12½	N.N.W.	W.N.W.		45
29. 18	29. 19	W.N.W.	W.S.W.		45
30. 3½	30. 4½	W.S.W.	N.N.W.	90	
30. 11	30. 12	N.N.W.	N.W.		22½
30. 13½	30. 14½	N.W.	W.S.W.		67½
30. 19	30. 20	W.S.W.	W.	22½	
31. 1	31. 3	W.	W.S.W.		22½
31. 16	31. 16¼	W.S.W.	W.N.W.	45	
31. 17	31. 17½	W.N.W.	W.S.W.		45
31. 18	31. 18¼	W.S.W.	W.N.W.	45	
31. 23	31. 23½	W.N.W.	W.S.W.		45
			Sums	3780	2677½
June.					
1. 4¾	1. 5¼	W.S.W.	W.N.W.	45	
1. 7	1. 8	W.N.W.	W.		22½
1. 13	1. 14	W.	W.S.W.		22½
2. 11	2. 12¼	W.S.W.	N.	112½	
2. 21¾	3. 0½	N.	W.S.W.		112½
3. 12	3. 13	W.S.W.	S.W.		22½
3. 15	3. 16	S.W.	W.S.W.	22½	
3. 18	3. 20	W.S.W.	S.W.		22½
4. 18	4. 19	S.W.	S.S.W.		22½
4. 22	5. 3	S.S.W.	N.E.		157½
5. 7	5. 10	N.E.	S.E.	90	
5. 16½	5. 19	S.E.	S.	45	
5. 21	5. 22	S.	S.S.E.		22½
6. 1	6. 2½	S.S.E.	E.S.E.		45
6. 4	6. 5	E.S.E.	S.E.	22½	
6. 8	6. 9¾	S.E.	S.W.	90	
6. 10½	6. 10¾	S.W.	S.E.		90
6. 12	6. 13	S.E.	S.S.W.	67½	
7. 0	7. 2	S.S.W.	S.W.	22½	
7. 5	7. 7	S.W.	W.S.W.	22½	
7. 14	7. 15	W.S.W.	S.W.		22½
7. 18	7. 20	S.W.	S.S.W.		22½
8. 2	8. 2½	S.S.W.	E.		112½
8. 5	8. 6	E.	E.N.E.		22½
8. 12	8. 12½	E.N.E.	N.E.		22½
8. 21	8. 23	N.E.	N.N.E.		22½
9. 3	9. 4	N.N.E.	N.		22½
9. 21	9. 23	N.	N.N.W.		22½
10. 1	10. 3	N.N.W.	N.W.		22½
10. 6	10. 8	N.W.	N.	45	
11. 7	11. 8	N.	N.N.E.	22½	
12. 19½	12. 20	N.N.E.	N.E.	22½	
12. 21	12. 21½	N.E.	E.N.E.	22½	
13. 1	13. 2	E.N.E.	N.E.		22½
14. 2	14. 3	N.E.	N.N.E.		22½

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

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
June—*cont.*					
d h	d h				
16.21½	16.23	N.N.E.	S.S.E.	135	
17. 6½	17. 6¾	S.S.E.	W.S.W.	90	
17.14	17.15	W.S.W.	S.W.		22½
18. 5	18. 7	S.W.	W.S.W.	22½	
18.19	18.20	W.S.W.	W.	22½	
19. 8	19. 8½	W.	W.S.W.		22½
19.10½	19.10¾	W.S.W.	N.W.	67½	
19.11½	19.12	N.W.	N.N.W.	22½	
19.13¾	19.14¼	N.N.W.	N.W.		22½
19.16½	19.17	N.W.	N.N.W.	22½	
19.23½	20. 1	N.N.W.	W.S.W.		90
20.12	20.12½	W.S.W.	W.	22½	
20.15	20.16	W.	W.S.W.		22½
21. 2	21. 3	W.S.W.	S.W.		22½
21.22	22. 0	S.W.	W.S.W.	22½	
22. 4½	22. 5	W.S.W.	W.	22½	
22. 8	22. 8½	W.	W.S.W.		22½
22. 9¼	22. 9½	W.S.W.	W.N.W.	45	
22.16	22.16¼	W.N.W.	W.		22½
22.17½	22.18	W.	W.N.W.	22½	
22.21	22.21¼	W.N.W.	W.		22½
22.22½	22.23	W.	W.S.W.		22½
23. 6	23. 7	W.S.W.	W.N.W.	45	
23.11	23.12	W.N.W.	W.S.W.		45
23.18	23.18½	W.S.W.	S.W.		22½
24. 2	24. 4	S.W.	S.S.W.		22½
25. 5	25. 6	S.S.W.	S.W.	22½	
25.15¾	25.16	S.W.	W.S.W.	22½	
25.18¾	25.19	W.S.W.	S.W.		22½
25.20	25.21	S.W.	S.S.W.		22½
26. 0½	26. 1	S.S.W.	S.		22½
26. 6½	26. 6¾	S.	S.W.	45	
26. 9¼	26. 9½	S.W.	S.S.E.		67½
26.16	26.18	S.S.E.	S.E.		22½
26.21½	26.22	S.E.	S.S.W.	67½	
26.23	26.23¼	S.S.W.	N.	157½	
27. 3	27. 4	N.	N.N.W.		22½
27.10	27.11	N.N.W.	N.	22½	
27.23½	28. 0	N.	N.N.W.		22½
28. 8	28. 8¼	N.N.W.	N.	22½	
28.11½	28.12	N.	N.N.W.		22½
28.16½	28.16¾	N.N.W.	E.S.E.	135	
28.17½	28.17¾	E.S.E.	S.	67½	
28.23½	29. 0	S.	S.W.	45	
29. 8	29. 9	S.W.	W.S.W.	22½	
29.17	29.18	W.S.W.	S.W.		22½
30.20	30.21	S.W.	W.S.W.	22½	
30.21¾	30.22¼	W.S.W.	N.N.W.	90	
			Sums	1957½	1507½

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
July.					
d h	d h				
1.10½	1.11	N.N.W.	W.		67½
1.15	1.16	W.	S.W.		45
1.20	1.22	S.W.	S.S.W.		22½
2. 0	2. 2	S.S.W.	S.W.	22½	
2. 5	2. 7	S.W.	N.N.W.	112½	
2.13½	2.14½	N.N.W.	W.N.W.		45
2.18½	2.19¼	W.N.W.	W.S.W.		45
3. 6	3. 7	W.S.W.	W.N.W.	45	
3.10¾	3.11	W.N.W.	W.		22½
3.16¾	3.17	W.	W.N.W.	22½	
3.18½	3.19	W.N.W.	N.W.	22½	
3.23	4. 0	N.W.	W.N.W.		22½
4. 1¼	4. 1½	W.N.W.	N.N.W.	45	
4. 9½	4.10	N.N.W.	N.	22½	
4.17½	4.18	N.	N.N.E.	22½	
4.19	4.20	N.N.E.	N.E.	22½	
4.20¾	4.21½	N.E.	S.S.E.	112½	
5. 0¼	5. 0½	S.S.E.	N.E.		112½
5. 2½	5. 3	N.E.	N.N.E.		22½
5. 9½	5.11	N.N.E.	N.W.		67½
5.16½	5.17	N.W.	N.N.W.	22½	
5.19	5.19½	N.N.W.	N.	22½	
6. 1¾	6. 2½	N.	W.		90
6. 5½	6. 6	W.	W.N.W.	22½	
6. 9½	6.11	W.N.W.	N.N.W.	45	
6.23	7. 0	N.N.W.	W.S.W.		90
7. 7½	7. 8	W.S.W.	W.N.W.	45	
7. 9	7. 9½	W.N.W.	W.		22½
7.12½	7.13	W.	W.N.W.	22½	
7.15	7.15¼	W.N.W.	N.W.	22½	
7.17	7.18	N.W.	N.N.W.	22½	
8. 7	8. 8	N.N.W.	N.	22½	
8.11	8.12	N.	N.E.	45	
8.22	8.23	N.E.	N.N.E.		22½
9. 3	9. 4	N.N.E.	N.		22½
9. 8	9.10	N.	N.N.E.	22½	
11. 0¼	11. 0½	N.N.E.	N.N.W.		45
11. 2	11. 2½	N.N.W.	N.	22½	
11. 7	11. 8	N.	N.N.E.	22½	
11.18	11.18½	N.N.E.	N.E.	22½	
11.20¾	12. 0	N.E.	W.S.W.	202½	
12. 1¼	12. 1½	W.S.W.	S.W.		22½
12. 2¾	12. 3	S.W.	W.S.W.	22½	
12. 9	12. 9¼	W.S.W.	N.N.W.	90	
12.12½	12.13	N.N.W.	W.		67½
12.15	12.16	W.	N.W.	45	
12.21	12.21½	N.W.	W.N.W.		22½
13. 0½	13. 0¾	W.N.W.	W.		22½
13. 4	13. 6	W.	N.N.W.	67½	
13.13	13.14	N.N.W.	N.	22½	
13.16½	13.17	N.	N.N.E.	22½	
14. 0	14. 1	N.N.E.	N.		22½
14. 2½	14. 2¾	N.	S.W.		135
14. 6	14. 6½	S.W.	W.S.W.	22½	
14.15½	14.16	W.S.W.	W.N.W.	45	
14.18½	14.19	W.N.W.	W.		22½
14.20¼	14.20½	W.	W.S.W.		22½
15. 8	15. 8½	W.S.W.	W.N.W.	45	
15.12½	15.13	W.N.W.	N.N.W.	45	

Greenwich Civil Time.		Change of Direction.		Amount of Motion.	
From	To	From	To	Direct.	Retrograde.
				°	°
July—*cont.*					
d h	d h				
15.17½	15.18	N.N.W.	N.	22½	
15.19¼	15.19½	N.	S.W.		135
16. 0¼	16. 0½	S.W.	N.N.E.	157½	
16. 3½	16. 3¾	N.N.E.	S.		202½
16. 4½	16. 5	S.	W.S.W.		292½
16. 8	16. 8¼	W.S.W.	N.	112½	
16.16	16.16¼	N.	N.N.W.		22½
16.17½	16.18	N.N.W.	N.N.E.	45	
16.23½	17. 0	N.N.E.	N.		22½
17. 3	17. 4	N.	N.N.W.		22½
17.16	17.17	N.N.W.	N.W.		22½
17.18½	17.19	N.W.	S.S.W.		112½
17.20¾	17.21	S.S.W.	S.S.E.		45
17.22½	17.23	S.S.E.	S.W.	67½	
18.12	18.12½	S.W.	W.S.W.	22½	
19. 4¼	19. 5½	W.S.W.	W.N.W.	45	
19.10	19.10½	W.N.W.	W.S.W.		45
19.11½	19.12	W.S.W.	N.E.	157½	
19.13½	19.13¾	N.E.	E.S.E.	67½	
19.17	19.17¼	E.S.E.	E.N.E.		45
19.20	19.21	E.N.E.	E.	22½	
19.22½	19.23	E.	E.N.E.		22½
20. 0	20. 1	E.N.E.	N.E.		22½
20. 9	20.11	N.E.	E.	45	
20.16¼	20.16¾	E.	E.N.E.		22½
20.17	20.18	E.N.E.	E.S.E.	45	
21. 2¼	21. 2½	E.S.E.	S.S.E.	45	
21. 4	21. 4½	S.S.E.	E.N.E.		90
21. 6¼	21. 6½	E.N.E.	E.S.E.	45	
21.10	21.10½	E.S.E.	S.E.	22½	
21.11½	21.12	S.E.	S.S.E.	22½	
21.22¼	21.22½	S.S.E.	E.N.E.		90
22. 1	22. 3	E.N.E.	S.S.E.	90	
22. 8	22.10	S.S.E.	S.S.W.	45	
22.11	22.11½	S.S.W.	S.W.	22½	
23. 2	23. 3	S.W.	W.S.W.	22½	
23. 8	23. 8½	W.S.W.	W.	22½	
23.17	23.18	W.	W.S.W.		22½
23.23¼	23.23½	W.S.W.	N.N.W.	90	
24. 2¼	24. 2½	N.N.W.	W.N.W.		45
24.10	24.10½	W.N.W.	W.		22½
24.14½	24.15	W.	W.N.W.	22½	
24.16	24.16½	W.N.W.	N.N.W.	45	
24.18½	24.22	N.N.W.	S.E.	157½	
24.23	24.23½	S.E.	S.S.E.	22½	
25. 0½	25. 0¾	S.S.E.	N.N.E.		135
25. 3½	25. 3¾	N.N.E.	S.E.		247½
25. 5¾	25. 6	S.E.	N.E.		90
25. 6½	25. 7	N.E.	S.E.	90	
25. 9	25. 9¼	S.E.	S.S.W.	67½	
25.11	25.12	S.S.W.	S.W.	22½	
25.19½	25.20	S.W.	S.S.E.		67½
25.21	25.22¼	S.S.E.	E.N.E.		90
26. 8	26. 9	E.N.E.	N.E.		22½
26.14	26.15	N.E.	E.N.E.	22½	
26.18	26.19	E.N.E.	E.	22½	
26.22½	26.23	E.	N.E.		45
27. 1½	27. 2	N.E.	E.	45	
27. 8	27. 8½	E.	N.E.		45

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

Greenwich Civil Time. From	Greenwich Civil Time. To	Change of Direction. From	Change of Direction. To	Amount of Motion. Direct.	Amount of Motion. Retrograde.
d h	d h			°	°
July—*cont.*					
27. 13	27. 15	N.E.	E.S.E.	67½	
27. 22	27. 23½	E.S.E.	S.S.E.	45	
28. 0½	28. 3	S.S.E.	S.W.		292½
28. 5	28. 5¼	S.W.	N.N.E.	157½	
28. 9½	28. 10½	N.N.E.	S.S.E.		225
28. 11¼	28. 11½	S.S.E.	W.N.W.	135	
28. 13	28. 13¼	W.N.W.	N.W.	22½	
28. 15	28. 16	N.W.	W.S.W.		67½
28. 18¾	28. 19½	W.S.W.	N.N.W.	90	
28. 20½	28. 21	N.N.W.	N.W.		22½
29. 4	29. 5	N.W.	N.N.W.	22½	
30. 11½	30. 12	N.N.W.	N.	22½	
30. 14½	30. 15	N.	N.N.E.	22½	
30. 18¼	30. 18½	N.N.E.	E.N.E.	45	
30. 19½	30. 21	E.N.E.	S.S.E.	90	
30. 22	30. 22½	S.S.E.	S.	22½	
31. 0	31. 2	S.	W.S.W.	67½	
31. 17	31. 17½	W.S.W.	W.N.W.	45	
31. 20½	31. 21	W.N.W.	W.S.W.		45
			Sums	4072½	3802½
August.					
1. 9½	1. 10	W.S.W.	W.	22½	
1. 13½	1. 14	W.	W.N.W.	22½	
1. 16	1. 16½	W.N.W.	W.S.W.		45
1. 18¼	1. 18½	W.S.W.	N.W.	67½	
1. 20½	1. 21	N.W.	W.S.W.		67½
2. 22	3. 0	W.S.W.	S.W.		22½
3. 23	3. 23½	S.W.	N.N.W.	112½	
4. 1½	4. 2½	N.N.W.	W.N.W.		45
4. 3½	4. 4½	W.N.W.	W.S.W.		45
4. 13	4. 13½	W.S.W.	W.	22½	
4. 15	4. 15½	W.	W.S.W.		22½
4. 17	4. 17½	W.S.W.	W.N.W.	45	
4. 19½	4. 20	W.N.W.	W.S.W.		45
4. 22	4. 23	W.S.W.	S.W.		22½
5. 4	5. 5	S.W.	S.S.W.		22½
5. 9	5. 10	S.S.W.	S.W.	22½	
6. 21	6. 23	S.W.	N.W.	90	
7. 2½	7. 3	N.W.	W.		45
7. 4½	7. 4¾	W.	S.S.W.		67½
7. 5¾	7. 6	S.S.W.	N.N.E.	180	
7. 6½	7. 7	N.N.E.	N.E.	22½	
7. 11½	7. 12	N.E.	N.N.E.		22½
7. 14½	7. 15	N.N.E.	N.		22½
7. 18	7. 19	N.	N.N.W.		22½
7. 21	7. 22	N.N.W.	N.	22½	
8. 0	8. 1	N.	N.E.	45	
8. 3¼	8. 3½	N.E.	E.	45	
8. 4½	8. 5	E.	N.E.		45
8. 11	8. 12	N.E.	N.N.E.		22½
8. 15½	8. 16½	N.N.E.	N.		22½
8. 19½	8. 20	N.	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.
d h	d h			°	°
August—*cont.*					
8. 22	8. 23	N.N.W.	N.W.		22½
9. 14½	9. 15	N.W.	N.	45	
9. 17	9. 17½	N.	N.W.		45
9. 20	9. 20¼	N.W.	W.S.W.		67½
10. 0	10. 1	W.S.W.	S.W.		22½
11. 2	11. 3	S.W.	W.S.W.	22½	
11. 12	11. 13	W.S.W.	S.W.		22½
11. 17	11. 18	S.W.	S.S.W.		22½
11. 23	12. 0	S.S.W.	S.S.E.		45
12. 0¾	12. 1	S.S.E.	S.E.		22½
12. 3	12. 4	S.E.	S.S.E.	22½	
12. 22	12. 23	S.S.E.	S.	22½	
13. 2	13. 3½	S.	S.S.W.	22½	
13. 6½	13. 7	S.S.W.	W.S.W.	45	
13. 20½	13. 21	W.S.W.	S.S.W.		45
13. 22	13. 22½	S.S.W.	W.S.W.	45	
13. 23¾	14. 1¼	W.S.W.	S.S.W.		45
14. 4	14. 5	S.S.W.	W.S.W.	45	
14. 12½	14. 13	W.S.W.	N.	112½	
15. 1½	15. 2	N.	N.N.E.	22½	
15. 4	15. 5	N.N.E.	N.E.	22½	
15. 10	15. 11	N.E.	E.N.E.	22½	
15. 16½	15. 16½	E.N.E.	E.S.E.	45	
15. 18	15. 20	E.S.E.	N.E.		67½
15. 21½	16. 3	N.E.	E.	45	
16. 15¾	16. 16	E.	N.		90
16. 20	16. 21	N.	N.N.E.	22½	
16. 22½	16. 23	N.N.E.	N.		22½
17. 8	17. 8½	N.	N.N.E.	22½	
17. 14½	17. 15	N.N.E.	N.E.	22½	
17. 16	17. 17	N.E.	E.S.E.	67½	
17. 20	17. 22	E.S.E.	E.N.E.		45
18. 8½	18. 9	E.N.E.	E.	22½	
18. 12	18. 12½	E.	E.N.E.		22½
19. 9	19. 9½	E.N.E.	E.S.E.	45	
19. 12	19. 12¼	E.S.E.	E.N.E.		45
19. 13½	19. 14½	E.N.E.	E.S.E.	45	
19. 18	19. 20½	E.S.E.	S.W.	112½	
20. 7	20. 7½	S.W.	W.S.W.	22½	
20. 13	20. 13¼	W.S.W.	W.N.W.	45	
20. 15½	20. 16	W.N.W.	N.E.	112½	
20. 18	20. 18½	N.E.	E.N.E.	22½	
21. 11½	21. 12	E.N.E.	E.S.E.	45	
21. 18½	21. 19	E.S.E.	E.		22½
21. 21½	21. 22	E.	E.N.E.		22½
22. 1½	22. 2¼	E.N.E.	E.	22½	
22. 5	22. 5½	E.	S.S.W.	112½	
22. 5¾	22. 10½	S.S.W.	S.E.		67½
22. 11	22. 11½	S.E.	S.W.	90	
22. 12	22. 12¾	S.W.	S.S.W.		22½
22. 15½	22. 16	S.S.W.	S.W.	22¼	
22. 22	22. 22½	S.W.	W.S.W.	22½	
23. 4½	23. 5½	W.S.W.	S.W.		22½
23. 20	23. 21	S.W.	W.S.W.	22½	
24. 0¼	24. 0½	W.S.W.	N.N.W.	90	
24 11¾	24. 12¼	N.N.W.	N.	22½	
24. 21	24. 21¼	N.	N.N.E.	22½	
24. 23¼	24. 23½	N.N.E.	E.S.E.	90	
25. 0¾	25. 2¼	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.
d h	d h			°	°
August—*cont.*					
25. 3¾	25. 4	S.S.W.	N.N.E.		180
25. 4¾	25. 5¼	N.N.E.	N.E.	22½	
25. 13½	25. 14	N.E.	E.S.E.	67½	
25. 19	25. 20	E.S.E.	S.E.	22½	
26. 7	26. 8	S.E.	S.S.E.	22½	
26. 8½	26. 9	S.S.E.	S.S.W.	45	
26. 15	26. 17	S.S.W.	S.W.	22½	
26. 22½	27. 0	S.W.	S.S.W.		22½
27. 17¼	27. 17½	S.S.W.	W.S.W.	45	
29. 2	29. 3	W.S.W.	S.W.		22½
29. 13	29. 14	S.W.	S.S.W.		22½
29. 22	30. 0½	S.S.W.	W.S.W.	45	
30. 16	30. 17	W.S.W.	S.W.		22½
31. 0	31. 1	S.W.	W.S.W.	22½	
31. 2½	31. 3	W.S.W.	W.N.W.	45	
31. 4¾	31. 5	W.N.W.	W.		22½
31. 6½	31. 9	W.	N.W.	45	
31. 13½	31. 14	N.W.	N.N.W.	22½	
			Sums	2902½	1732½
September.					
1. 1	1. 1½	N.N.W.	W.		67½
1. 2¾	1. 3	W.	S.W.		45
1. 9	1. 10	S.W.	N.	135	
1. 13½	1. 14	N.	N.W.		45
1. 16½	1. 17	N.W.	W.S.W.		67½
1. 19¼	1. 19½	W.S.W.	S.E.		112½
1. 20½	1. 21	S.E.	S.W.	90	
2. 3	2. 4	S.W.	S.S.W.		22½
2. 6½	2. 9	S.S.W.	W.S.W.	45	
2. 17½	2. 18	W.S.W.	S.W.		22½
3. 6	3. 8	S.W.	W.S.W.	22½	
3. 12¾	3. 13	W.S.W.	W.N.W.	45	
3. 14	3. 14½	W.N.W.	N.N.W.	45	
3. 19	3. 21	N.N.W.	N.E.	67½	
4. 9½	4. 10	N.E.	E.N.E.	22½	
4. 14	4. 14½	E.N.E.	E.S.E.	45	
5. 10½	5. 11	E.S.E.	E.N.E.		45
5. 13	5. 13¼	E.N.E.	E.	22½	
5. 14	5. 14¼	E.	E.S.E.	22½	
6. 0	6. 1	E.S.E.	E.		22½
6. 6	6. 7	E.	E.S.E.	22½	
6. 17	6. 18	E.S.E.	E.		22½
7. 9½	7. 10	E.	E.N.E.		22½
7. 11	7. 11¼	E.N.E.	E.	22½	
7. 12	7. 12¼	E.	S.	90	
7. 19	7. 20	S.	S.S.E.		22½
7. 22½	7. 22¾	S.S.E.	E.S.E.		45
7. 23½	8. 0	E.S.E.	S.E.	22½	
8. 5½	8. 6	S.E.	N.N.E.		112½
8. 6½	8. 7½	N.N.E.	E.S.E.	90	
8. 9	8. 10	E.S.E.	S.	67½	
8. 13	8. 13½	S.	S.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.
				°	°
Sept.—*cont.*					
d h	d h				
8. 18	8. 19	S.S.W.	S.		22½
8. 21	8. 23	S.	S.S.E.		22½
9. 4¾	9. 5¼	S.S.E.	W.S.W.	90	
9. 10	9. 11	W.S.W.	S.W.		22½
9. 15	9. 16	S.W.	W.S.W.	22½	
9. 19½	9. 20	W.S.W.	W.	22½	
9. 21	9. 21½	W.	S.S.W.		67½
9. 22¼	9. 22½	S.S.W.	W.S.W.	45	
10. 1	10. 2	W.S.W.	W.	22½	
10. 5	10. 5½	W.	N.W.	45	
10. 9	10. 10	N.W.	W.		45
10. 12	10. 12½	W.	W.S.W.		22½
10. 17	10. 17¾	W.S.W.	W.N.W.	45	
10. 18¾	10. 19	W.N.W.	W.		22½
10. 21	10. 22½	W.	S.W.		45
11. 17	11. 18	S.W.	S.S.W.		22½
11. 20	11. 21	S.S.W.	S.W.	22½	
12. 6	12. 7½	S.W.	N.N.W.	112½	
12. 15	12. 15½	N.N.W.	N.	22½	
13. 2½	13. 2¾	N.	S.W.		135
13. 8	13. 8½	S.W.	W.S.W.	22½	
13. 13	13. 14	W.S.W.	S.W.		22½
14. 2	14. 4	S.W.	W.S.W.	22½	
15. 10½	15. 11½	W.S.W.	S.E.		112½
15. 22	15. 23	S.E.	E.S.E.		22½
16. 8	16. 9	E.S.E.	S.E.	22½	
16. 13½	16. 14	S.E.	E.S.E.		22½
17. 1	17. 2	E.S.E.	S.E.	22½	
17. 9	17. 10	S.E.	S.	45	
17. 17	17. 18	S.	S.W.	45	
17. 21	17. 22	S.W.	S.S.E.		67½
18. 0¼	18. 0½	S.S.E.	W.S.W.	90	
18. 2¼	18. 2½	W.S.W.	S.E.		112½
18. 3	18. 4	S.E.	S.	45	
18. 5½	18. 8	S.	S.W.	45	
18. 14	18. 15	S.W.	W.	45	
18. 18½	18. 19	W.	W.N.W.	22½	
18. 23	19. 0½	W.N.W.	S.W.		67½
19. 2½	19. 3	S.W.	S.S.W.		22½
19. 4½	19. 5	S.S.W.	S.		22½
19. 8	19. 9	S.	S.S.W.	22½	
19. 13	19. 14	S.S.W.	S.W.	22½	
19. 17	19. 18½	S.W.	S.S.W.		22½
19. 20	19. 22	S.S.W.	S.W.	22½	
21. 7	21. 9	S.W.	W.S.W.	22½	
21. 14	21. 14½	W.S.W.	W.	22½	
21. 15½	21. 16	W.	W.N.W.	22½	
21. 17	21. 18	W.N.W.	N.N.W.	45	
21. 19¼	21. 19½	N.N.W.	N.N.E.	45	
22. 19	22. 20	N.N.E.	N.E.	22½	
23. 12	23. 14	N.E.	E.	45	
23. 19	23. 20	E.	E.N.E.		22½
23. 21	23. 22	E.N.E.	N.E.		22½
24. 2½	24. 4	N.E.	N.N.W.		67½
24. 6	24. 6½	N.N.W.	N.N.E.	45	
25. 11	25. 12	N.N.E.	N.E.	22½	
25. 22	25. 23	N.E.	E.N.E.	22½	
26. 12½	26. 13	E.N.E.	E.S.E.	45	
27. 0½	27. 1	E.S.E.	E.N.E.		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.
				°	°
Sept.—*cont.*					
d h	d h				
27. 6½	27. 7½	E.N.E.	E.S.E.	45	
27. 9½	27. 11	E.S.E.	S.S.E.	45	
27. 13	27. 14	S.S.E.	S.	22½	
27. 16	27. 18	S.	S.S.W.	22½	
27. 20	27. 22	S.S.W.	N.W.	112½	
28. 0½	28. 2	N.W.	W.		45
28. 3½	28. 4	W.	W.S.W.		22½
28. 7½	28. 8	W.S.W.	W.	22½	
28. 10	28. 10½	W.	W.N.W.	22½	
28. 18½	28. 19	W.N.W.	W.		22½
28. 20	28. 20¼	W.	S.W.		45
29. 4¾	29. 6	S.W.	S.		45
29. 8	29. 9	S.	S.S.W.	22½	
29. 17	29. 18	S.S.W.	S.S.E.		45
30. 3	30. 4	S.S.E.	S.E.		22½
30. 5	30. 7	S.E.	E.S.E.		22½
30. 8	30. 8½	E.S.E.	E.		22½
30. 14¾	30. 15	E.	E.N.E.		22½
30. 16	30. 18	E.N.E.	N.E.		22½
30. 19	30. 20	N.E.	N.N.E.		22½
			Sums	2520	2115
October.					
1. 5	1. 5½	N.N.E.	N.N.W.		45
1. 7	1. 8	N.N.W.	N.N.E.	45	
1. 11	1. 12	N.N.E.	N.E.	22½	
1. 16	1. 16½	N.E.	E.S.E.	67½	
1. 19¼	1. 19½	E.S.E.	E.N.E.		45
1. 22¾	1. 23	E.N.E.	S.E.	67½	
2. 0	2. 0¼	S.E.	N.N.W.		157½
2. 6	2. 6½	N.N.W.	S.		157½
2. 9	2. 10	S.	E.N.E.		112½
2. 16½	2. 17	E.N.E.	E.	22½	
2. 19	2. 19½	E.	E.N.E.		22½
2. 22	2. 23	E.N.E.	N.E.		22½
3. 8½	3. 9	N.E.	E.N.E.	22½	
5. 14	5. 14½	E.N.E.	E.	22½	
5. 17	5. 18	E.	E.N.E.		22½
6. 4	6. 5	E.N.E.	E.	22½	
6. 11	6. 12	E.	E.N.E.		22½
6. 16½	6. 17	E.N.E.	E.	22½	
6. 18	6. 18½	E.	E.N.E.		22½
7. 11	7. 12	E.N.E.	E.S.E.	45	
7. 16	7. 16½	E.S.E.	E.		22½
7. 19	7. 19½	E.	E.S.E.	22½	
8. 8¾	8. 9	E.S.E.	E.		22½
8. 12¼	8. 12½	E.	E.N.E.		22½
8. 13½	8. 14	E.N.E.	E.	22½	
8. 19	8. 20	E.	E.N.E.		22½
8. 21	8. 23	E.N.E.	N.E.		22½
9. 8½	9. 10½	N.E.	E.S.E.	67½	
9. 19	9. 19¼	E.S.E.	N.N.E.		90
9. 19½	9. 20	N.N.E.	E.N.E.	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.
				°	°
Oct.—*cont.*					
d h	d h				
9. 21	9. 21¼	E.N.E.	E.S.E.	45	
9. 22¼	9. 22½	E.S.E.	E.N.E.		45
9. 23¼	9. 23½	E.N.E.	E.S.E.	45	
10. 1¼	10. 1½	E.S.E.	E.N.E.		45
10. 3¼	10. 3½	E.N.E.	W.S.W.		180
10. 4	10. 4¼	W.S.W.	N.N.W.	90	
10. 5	10. 5½	N.N.W.	W.		67½
10. 11	10. 11¼	W.	S.S.W.		67½
10. 12	10. 13¾	S.S.W.	N.		202½
10. 18	10. 19	N.	W.S.W.		112½
10. 22	10. 23	W.S.W.	S.W.		22½
11. 9	11. 10½	S.W.	N.	135	
11. 14	11. 14½	N.	N.N.W.		22½
11. 15½	11. 16	N.N.W.	S.W.		112½
11. 16½	11. 17	S.W.	N.N.W.	112½	
12. 2	12. 4	N.N.W.	N.W.		22½
12. 7	12. 9	N.W.	N.N.W.	22½	
13. 3	13. 3½	N.N.W.	N.	22½	
13. 10	13. 11	N.	N.E.	45	
13. 12	13. 13	N.E.	S.W.		180
13. 15	13. 15¼	S.W.	S.S.W.		22½
13. 17	13. 17¼	S.S.W.	S.E.		67½
13. 22	13. 23	S.E.	E.S.E.		22½
14. 1½	14. 2	E.S.E.	E.N.E.		45
14. 3	14. 3½	E.N.E.	E.S.E.	45	
14. 5½	14. 7	E.S.E.	E.		22½
14. 10	14. 11	E.	E.S.E.	22½	
15. 4	15. 7	E.S.E.	E.N.E.		45
15. 16	15. 18	E.N.E.	N.N.E.		45
15. 22	15. 23	N.N.E.	N.E.	22½	
16. 13	16. 14	N.E.	E.N.E.	22½	
16. 16½	16. 18	E.N.E.	E.S.E.	45	
16. 20	16. 22	E.S.E.	S.S.E.	45	
17. 0	17. 1	S.S.E.	S.	22½	
17. 3½	17. 4	S.	S.S.E.		22½
17. 16	17. 18	S.S.E.	E.S.E.		45
17. 23	18. 1	E.S.E.	E.N.E.		45
18. 3	18. 7	E.N.E.	S.S.W.	135	
18. 20	18. 20½	S.S.W.	S.		22½
19. 9	19. 10	S.	S.S.W.	22½	
19. 16	19. 17	S.S.W.	S.		22½
19. 20	19. 21	S.	S.S.W.	22½	
19. 23	20. 0	S.S.W.	S.W.	22½	
20. 14	20. 16	S.W.	S.S.W.		22½
20. 17	20. 18	S.S.W.	S.		22½
20. 19¾	20. 20	S.	S.E.		45
20. 20½	20. 21	S.E.	S.S.E.	22½	
21. 0½	21. 1½	S.S.E.	S.S.W.	45	
21. 8	21. 10	S.S.W.	W.S.W.	45	
21. 17	21. 18	W.S.W.	S.W.		22½
22. 23	23. 0	S.W.	W.S.W.	22½	
23. 4	23. 6	W.S.W.	S.W.		22½
23. 17	23. 18	S.W.	S.S.W.		22½
24. 5	24. 6	S.S.W.	S.W.	22½	
24. 19	24. 21	S.W.	W.S.W.	22½	
25. 11	25. 12	W.S.W.	S.W.		22½
27. 18	27. 18½	S.W.	S.S.W.		22½
28. 11	28. 12	S.S.W.	S.		22½
28. 17	28. 18	S.	S.S.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.
d h	d h			°	°
Oct.—*cont.*					
29. 6½	29. 8½	S.S.E.	S.S.W.	45	
29. 12½	29. 13	S.S.W.	S.		22½
29. 15	29. 16	S.	S.S.E.		22½
29. 20	29. 20½	S.S.E.	S.E.		22½
29. 21¼	29. 21½	S.E.	S.S.W.	67½	
30. 1½	30. 2	S.S.W.	S.W.	22½	
30. 13	30. 14	S.W.	S.S.W.		22½
30. 17½	30. 18	S.S.W.	S.W.	22½	
31. 8	31. 10	S.W.	W.S.W.	22½	
31. 18	31. 20	W.S.W.	S.W.		22½
			Sums	1822½	2700
November.					
1. 11	1. 12	S.W.	W.S.W.	22½	
1. 15	1. 18	W.S.W.	S.S.W.		45
3. 1	3. 3	S.S.W.	S.W.	22½	
3. 11	3. 12	S.W.	W.S.W.	22½	
3. 21	3. 22	W.S.W.	S.W.		22½
5. 8	5. 9	S.W.	W.S.W.	22½	
5. 23	6. 1	W.S.W.	S.W.		22½
6. 11	6. 12	S.W.	S.S.W.		22½
6. 17	6. 18	S.S.W.	S.E.		67½
6. 19	6. 20	S.E.	S.S.E.	22½	
7. 8½	7. 9	S.S.E.	S.E.		22½
7. 19½	7. 20	S.E.	S.S.E.	22½	
8. 1	8. 3	S.S.E.	S.E.		22½
8. 12	8. 13	S.E.	E.S.E.		22½
8. 18¾	8. 19	E.S.E.	E.N.E.		45
10. 2	10. 3	E.N.E.	E.	22½	
10. 6	10. 7	E.	E.N.E.		22½
10. 9	10. 10	E.N.E.	E.S.E.	45	
10. 11½	10. 12	E.S.E.	E.N.E.		45
10. 14	10. 15	E.N.E.	E.	22½	
11. 12	11. 13	E.	E.S.E.	22½	
12. 5	12. 5¼	E.S.E.	E.N.E.		45
12. 6	12. 7	E.N.E.	E.S.E.	45	
12. 12½	12. 13	E.S.E.	S.E.	22½	
12. 17	12. 17½	S.E.	S.S.E.	22½	
13. 0	13. 1½	S.S.E.	W.S.W.	90	
13. 15	13. 16	W.S.W.	N.E.	157½	
13. 17¾	13. 19½	N.E.	S.		225
13. 22¾	13. 23	S.	W.S.W.	67½	
14. 0¾	14. 1	W.S.W.	S.W.		22½
14. 3¼	14. 3½	S.W.	S.		45
14. 5	14. 5¼	S.	S.S.E.		22½
14. 10½	14. 10¾	S.S.E.	N.N.E.		135
14. 11½	14. 12	N.N.E.	W.		112½
14. 15½	14. 16½	W.	S.S.W.		67½
14. 21½	14. 23½	S.S.W.	S.S.W.	360	
15. 5	15. 6½	S.S.W.	W.S.W.	45	
15. 11½	15. 12	W.S.W.	S.W.		22½
Nov.—*cont.*					
15. 22	15. 23	S.W.	S.S.W.		22½
16. 2	16. 4	S.S.W.	S.W.	22½	
16. 8	16. 10	S.W.	W.S.W.	22½	
16. 14¼	16. 15	W.S.W.	S.W.		22½
16. 21	16. 21½	S.W.	S.		45
17. 0	17. 0¼	S.	S.W.	45	
17. 4½	17. 4¾	S.W.	S.S.E.		67½
17. 7¼	17. 12	S.S.E.	N.E.		112½
17. 14	17. 15	N.E.	E.N.E.	22½	
17. 17	17. 18	E.N.E.	E.S.E.	45	
17. 19	17. 20	E.S.E.	E.		22½
17. 22	17. 23	E.	E.S.E.	22½	
18. 3	18. 4	E.S.E.	E.N.E.		45
18. 10	18. 11	E.N.E.	E.	22½	
18. 15	18. 18	E.	N.E.		45
18. 22½	18. 23	N.E.	E.N.E.	22½	
19. 2	19. 3	E.N.E.	N.E.		22½
19. 6	19. 7	N.E.	E.N.E.	22½	
19. 9	19. 10	E.N.E.	E.	22½	
19. 22	20. 1	E.	N.	270	
20. 4	20. 4¼	N.	S.		180
20. 10	20. 11	S.	S.S.W.	22½	
20. 14	20. 14¼	S.S.W.	S.S.E.		45
20. 22	20. 22¼	S.S.E.	W.S.W.	90	
21. 0	21. 1	W.S.W.	S.S.W.		45
21. 2	21. 2½	S.S.W.	S.S.E.		45
21. 3½	21. 4	S.S.E.	N.E.	247½	
21. 5¼	21. 5½	N.E.	E.S.E.	67½	
21. 6½	21. 7½	E.S.E.	N.N.E.		90
21. 11	21. 12	N.N.E.	N.		22½
21. 19	21. 20	N.	N.N.W.		22½
22. 23	22. 23¼	N.N.W.	S.S.W.	225	
23. 1½	23. 2	S.S.W.	S.S.E.		45
23. 8	23. 9	S.S.E.	S.	22½	
23. 12	23. 12¼	S.	S.S.E.		22½
23. 16	23. 18	S.S.E.	S.E.		22½
24. 0	24. 1	S.E.	E.S.E.		22½
24. 3	24. 4	E.S.E.	S.E.	22½	
24. 9	24. 10	S.E.	E.S.E.		22½
25. 2	25. 2½	E.S.E.	S.E.	22½	
25. 5	25. 6	S.E.	S.S.E.	22½	
25. 11	25. 12	S.S.E.	S.	22½	
25. 14½	25. 15	S.	S.S.E.		22½
25. 16½	25. 17¼	S.S.E.	S.E.		22½
26. 0½	26. 1½	S.E.	E.N.E.		67½
26. 4½	26. 5½	E.N.E.	S.S.E.	90	
26. 8	26. 8¼	S.S.E.	N.N.E.		135
26. 12	26. 13½	N.N.E.	N.N.W.	315	
26. 14½	26. 14¾	N.N.W.	W.N.W.		45
26. 16	26. 17	W.N.W.	W.S.W.		45
26. 20	26. 20½	W.S.W.	N.W.	67½	
27. 5	27. 5½	N.W.	W.N.W.		22½
27. 7½	27. 8	W.N.W.	W.S.W.		45
27. 14	27. 14½	W.S.W.	N.N.W.	90	
27. 16	27. 17	N.N.W.	N.N.E.	45	
28. 19	28. 19½	N.N.E.	N.		22½
28. 22	28. 23	N.	N.N.W.		22½
29. 20¾	29. 21	N.N.W.	S.W.		112½
Nov.—*cont.*					
30. 2	30. 3	S.W.	S.S.W.		22½
30. 4	30. 6	S.S.W.	W.S.W.	45	
30. 11	30. 12	W.S.W.	S.W.		22½
			Sums	3015	2655
December.					
1. 10	1. 11	S.W.	W.S.W.	22½	
1. 19	1. 20	W.S.W.	S.W.		22½
2. 16	2. 18	S.W.	W.S.W.	22½	
3. 14	3. 16	W.S.W.	S.W.		22½
4. 20	4. 21	S.W.	S.S.W.		22½
6. 16	6. 18	S.S.W.	W.S.W.	45	
6. 19½	6. 21	W.S.W.	S.S.W.		45
7. 5¼	7. 5½	S.S.W.	W.	67½	
7. 6½	7. 7	W.	N.N.W.	67½	
7. 8½	7. 9½	N.N.W.	W.N.W.		45
7. 11	7. 12	W.N.W.	W.S.W.		45
8. 7	8. 7½	W.S.W.	W.	22½	
8. 9	8. 10½	W.	N.N.W.	67½	
8. 14	8. 16½	N.N.W.	S.S.E.		180
8. 20	8. 21	S.S.E.	S.	22½	
8. 23	9. 0	S.	S.S.W.	22½	
9. 7	9. 8	S.S.W.	W.S.W.	45	
10. 1	10. 3	W.S.W.	S.W.		22½
11. 12	11. 13	S.W.	W.S.W.	22½	
11. 15	11. 16	W.S.W.	S.W.		22½
12. 3	12. 4	S.W.	S.S.W.		22½
12. 6	12. 8	S.S.W.	S.W.	22½	
12. 18	12. 19	S.W.	W.S.W.	22½	
12. 22½	12. 23½	W.S.W.	N.N.W.	90	
13. 6	13. 6½	N.N.W.	N.N.E.	45	
13. 14¾	13. 15	N.N.E.	N.		22½
13. 16½	13. 17	N.	N.N.W.		22½
13. 22	13. 22½	N.N.W.	S.W.		112½
14. 10	14. 12	S.W.	W.S.W.	22½	
14. 23	15. 0	W.S.W.	W.N.W.	45	
15. 5	15. 6	W.N.W.	W.		22½
15. 8	15. 9	W.	W.N.W.	22½	
15. 10½	15. 11	W.N.W.	N.W.	22½	
16. 0	16. 1	N.W.	S.W.		90
16. 11	16. 12	S.W.	W.S.W.	22½	
17. 4½	17. 5	W.S.W.	S.W.		22½
18. 11	18. 13	S.W.	W.S.W.	22½	
18. 16	18. 18	W.S.W.	S.W.		22½
19. 3½	19. 6	S.W.	N.W.	90	
19. 10	19. 11	N.W.	W.N.W.		22½
19. 14	19. 14½	W.N.W.	W.		22½
19. 16¼	19. 16½	W.	W.S.W.		22½
19. 18½	19. 19	W.S.W.	W.	22½	
19. 20	20. 0	W.	N.N.W.	67½	
20. 21½	20. 23	N.N.W.	W.S.W.		90
21. 3	21. 4½	W.S.W.	N.N.W.	90	

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				
21. 6	21. 10	N.N.W.	E.N.E.	90	
21. 11½	21. 12	E.N.E.	N.N.E.		45
21. 12½	21. 13	N.N.E.	N.E.	22½	
21. 14	21. 15	N.E.	S.	135	
21. 19½	21. 20¼	S.	E.N.E.		112½
21. 21	21. 21½	E.N.E.	S.	112½	
22. 0	22. 0½	S.	N.N.E.		157½
22. 2	22. 2¼	N.N.E.	E.N.E.	45	
22. 10½	22. 11	E.N.E.	S.	112½	
22. 12	22. 13	S.	S.S.W.	22½	
22. 20	22. 21	S.S.W.	S.S.E.		45
23. 11	23. 11½	S.S.E.	S.	22½	
23. 16	23. 16½	S.	S.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. Retrograde.
				°	°
Dec.—*cont.*					
d h	d h				
24. 0	24. 1	S.S.E.	S.	22½	
24. 13	24. 13½	S.	S.S.W.	22½	
25. 10	25. 12	S.S.W.	S.W.	22½	
27. 12	27. 13	S.W.	S.S.W.		22½
27. 20	27. 20½	S.S.W.	S.W.	22½	
28. 10	28. 12	S.W.	W.S.W.	22½	
28. 22	28. 23	W.S.W.	S.W.		22½
29. 1	29. 2	S.W.	S.S.W.		22½
29. 4	29. 4½	S.S.W.	S.		22½
29. 8½	29. 9½	S.	S.S.W.	22½	
29. 11½	29. 12	S.S.W.	S.W.	22½	
29. 19	29. 21	S.W.	W.S.W.	22½	
30. 0	30. 1¼	W.S.W.	N.N.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.
				°	°
Dec.—*cont.*					
d h	d h				
30. 18	30. 19½	N.N.W.	W.S.W.		90
30. 21	30. 21¼	W.S.W.	S.W.		22½
31. 2	31. 2¼	S.W.	S.		45
31. 3	31. 4	S.	S.S.E.		22½
31. 12	31. 12½	S.S.E.	S.	22½	
31. 19	31. 19¼	S.	S.W.	45	
31. 20¼	31. 20½	S.W.	S.S.W.		22½
31. 22	31. 22½	S.S.W.	W.S.W.	45	
			Sums	1980	1597½

EXCESS of MOTION in each MONTH.

1898.	Direct.	Retrograde.	1898.	Direct.	Retrograde.
	°	°		°	°
January		315	July	270	
February		697½	August	1170	
March	1260		September	405	
April	157½		October		877½
May	1102½		November	360	
June	450		December	382½	

The whole excess of direct motion for the year was 3667½°.

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	1898. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean for the Year.
h.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1	9·6	14·6	12·6	9·1	9·6	10·7	8·3	10·7	6·4	9·4	8·5	14·5	10·3
2	9·8	15·1	12·0	9·4	9·6	10·3	7·6	10·6	6·8	9·2	8·9	14·3	10·3
3	10·2	15·0	13·0	8·9	9·2	9·6	7·5	9·6	6·3	9·6	8·7	14·5	10·2
4	10·5	15·3	13·1	8·7	9·3	9·7	8·4	9·3	6·4	8·9	9·4	15·1	10·3
5	9·5	15·5	12·7	9·1	9·5	9·7	8·4	9·2	6·3	8·8	9·2	14·9	10·2
6	10·4	15·6	12·8	9·4	10·1	9·8	8·7	8·5	6·7	9·3	9·5	15·3	10·5
7	10·0	15·3	12·6	9·8	10·4	10·6	9·0	9·3	6·6	9·6	9·4	14·9	10·6
8	10·0	15·2	13·2	10·4	11·9	11·0	8·8	10·8	6·8	10·3	9·8	14·8	11·1
9	10·3	15·0	13·8	11·4	12·3	11·6	9·7	11·7	7·8	10·1	9·4	15·2	11·5
10	10·3	15·9	14·8	12·5	13·4	12·6	10·5	12·4	9·4	11·2	10·2	16·5	12·5
11	10·7	17·4	16·5	13·6	13·2	11·8	11·1	12·7	9·6	11·9	10·3	18·0	13·1
Noon.	11·0	17·9	16·7	13·7	13·3	12·7	11·6	14·1	10·8	13·1	10·5	18·8	13·7
13h.	11·3	18·7	17·2	14·6	13·8	12·1	11·8	14·8	10·9	13·2	10·6	19·3	14·0
14	11·5	19·3	17·9	16·1	14·4	13·3	11·8	15·4	11·5	13·0	11·3	18·6	14·5
15	11·2	18·5	16·9	16·3	14·6	14·0	12·2	15·5	12·2	12·6	11·3	18·3	14·5
16	10·3	17·6	16·5	15·6	13·9	13·9	11·5	15·5	11·9	12·1	10·4	16·7	13·8
17	10·2	16·7	15·8	14·5	13·1	14·1	11·6	15·1	12·0	11·5	10·8	16·4	13·5
18	9·7	15·9	14·7	13·7	12·7	14·2	11·7	14·8	10·5	11·0	10·9	16·4	13·0
19	9·2	15·4	13·5	12·1	11·7	12·6	11·3	13·5	9·5	10·8	10·4	16·0	12·2
20	9·5	15·0	13·2	11·6	10·8	11·3	10·4	12·0	8·7	10·5	10·4	14·6	11·5
21	9·8	15·1	13·0	10·8	10·7	11·1	9·5	11·8	7·9	10·1	9·6	14·3	11·1
22	9·9	14·3	12·6	10·9	10·3	10·9	9·0	11·9	8·7	10·3	9·5	14·5	11·1
23	9·7	14·7	12·6	10·1	9·5	11·1	8·9	11·2	7·9	9·4	9·1	14·6	10·7
Midnight.	9·6	15·0	12·6	8·9	9·6	10·2	8·9	10·4	7·2	9·2	8·5	14·8	10·4
Means	10·2	16·0	14·2	11·7	11·5	11·6	9·9	12·1	8·7	10·6	9·9	15·9	11·9
Greatest Hourly Measures	44	42	42	41	42	24	30	32	21	27	36	50	...
Least Hourly Measures	1	2	0	0	0	1	1	0	0	0	0	1	...

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.)

1898.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d 1	...	+ 229	+ 663	+1038	+ 368	+ 374	+ 482	+ 537	+ 660	+ 642	+ 330	+ 292
2	+ 177	+ 633	+1036	+ 956	+ 315	+ 370	+ 387	+ 411	+ 541	+ 685	...	+ 184
3	+ 347	+ 707	+ 687	+ 641	+ 333	+ 420	+ 411	+ 250	+ 585	+ 549	...	+ 286
4	+ 365	+ 860	+ 918	+ 745	+ 230	...	+ 624	+ 590	+ 317	+ 375	+ 430	+ 154
5	+ 72	+1241	+1210	+ 837	+ 449	+ 374	+ 639	+ 307	+ 167	+ 366	+ 455	+ 123
6	+ 170	+ 722	+ 636	+ 597	+ 685	+ 294	+ 666	+ 251	+ 233	+ 290	+ 440	+ 138
7	+ 535	+1060	+1193	+ 533	+ 753	+ 361	+ 477	+ 163	+ 323	+ 373	+ 327	...
8	+ 598	+1033	+1028	+ 705	+ 350	...	+ 549	+ 384	+ 300	+ 402	+ 305	+ 445
9	+ 490	+1157	+ 972	+ 448	+ 733	+ 482	+ 601	+ 513	+ 336	+ 281	+ 308	...
10	+ 776	+ 861	+1082	+ 348	+ 390	+ 299	+ 478	+ 340	+ 574	+ 374	+ 255	+ 247
11	+ 669	+ 796	+1109	+ 352	+ 114	+ 257	+ 590	+ 274	+ 490	+ 423	+ 340	+ 191
12	+ 433	+ 647	+1146	+ 638	+ 578	+ 403	+ 591	+ 347	+ 735	+ 572	+ 354	+ 138
13	+ 480	+ 597	...	+ 832	+ 720	+ 462	+ 620	+ 301	+ 657	+ 570	+ 343	+ 249
14	+ 483	+ 732	+ 620	+ 3	+ 593	+ 582	+ 484	+ 334	+ 490	+ 302	+ 430	+ 264
15	+ 533	+ 408	+ 823	+ 566	+ 267	+ 636	+ 642	+ 297	+ 425	...	+ 468	+ 216
16	+ 678	+ 743	+ 835	+ 834	+ 652	+ 660	+ 504	+ 306	+ 467	+ 167	+ 300	...
17	+1065	+ 946	+ 625	+ 525	+ 684	+ 386	+ 504	+ 424	+ 405	...	+ 176	...
18	+ 435	+ 409	+ 385	+ 565	+ 598	+ 297	+ 311	+ 195	+ 523	+ 115	+ 337	...
19	+ 245	+1216	+ 359	+ 547	+ 420	+ 402	+ 416	+ 234	+ 521	+ 141	+ 378	...
20	+ 163	+ 720	+ 638	+ 608	+ 192	+ 346	+ 464	+ 395	+ 389	+ 241	+ 465	+ 803
21	+ 169	+1215	+1014	+ 522	+ 232	+ 213	+ 554	+ 340	+ 624	...	+ 93	+ 360
22	+ 312	+1205	+ 938	+ 966	+ 240	+ 465	+ 196	+ 251	+ 530	...	+ 765	+ 370
23	+ 693	+1062	+ 786	+ 881	+ 395	+ 458	+ 277	+ 312	+ 508	+ 165	− 117	+ 391
24	+ 569	+1155	+ 890	+ 737	+ 315	+ 184	+ 403	+ 551	+ 672	+ 210	− 143	+ 355
25	+ 949	+1002	+ 514	+ 779	+ 561	+ 142	+ 449	+ 430	+ 567	+ 327	+ 87	+ 268
26	+ 823	+ 745	− 59	+ 541	+ 673	+ 178	+ 270	+ 435	+ 529	+ 251	+ 87	+ 167
27	+ 916	+ 449	+ 21	+ 439	+ 390	+ 294	+ 251	+ 308	+ 624	+ 313	+ 527	+ 14
28	+ 775	+ 875	+ 572	+ 364	+ 448	...	+ 331	+ 266	+ 778	+ 212	+ 345	+ 174
29	+ 758		+ 821	+ 348	+ 630	+ 254	+ 365	+ 438	+ 574	+ 62	+ 495	+ 100
30	+ 180		+ 938	+ 381	+ 308	+ 270	+ 506	+ 377	+ 417	...	+ 662	+ 231
31	+ 615		+ 673		+ 282		+ 326	+ 676		+ 406		+ 159
Means	+ 516	+ 837	+ 769	+ 609	+ 448	+ 365	+ 463	+ 362	+ 499	+ 339	+ 330	+ 253

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.	1898. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Means.
Midnight.	+ 531	+ 878	+ 806	+ 701	+ 409	+ 487	+ 503	+ 390	+ 567	+ 357	+ 346	+ 271	+ 520
1h.	+ 458	+ 794	+ 746	+ 660	+ 419	+ 425	+ 481	+ 378	+ 523	+ 305	+ 338	+ 226	+ 479
2	+ 412	+ 649	+ 703	+ 547	+ 362	+ 381	+ 444	+ 343	+ 477	+ 284	+ 315	+ 234	+ 429
3	+ 393	+ 629	+ 665	+ 497	+ 364	+ 341	+ 427	+ 330	+ 426	+ 275	+ 316	+ 218	+ 407
4	+ 354	+ 634	+ 617	+ 502	+ 369	+ 334	+ 415	+ 349	+ 411	+ 261	+ 322	+ 216	+ 399
5	+ 329	+ 664	+ 639	+ 521	+ 336	+ 330	+ 424	+ 341	+ 414	+ 253	+ 285	+ 216	+ 396
6	+ 353	+ 711	+ 704	+ 580	+ 315	+ 332	+ 422	+ 374	+ 450	+ 259	+ 264	+ 230	+ 416
7	+ 381	+ 796	+ 742	+ 661	+ 442	+ 355	+ 416	+ 421	+ 476	+ 276	+ 274	+ 235	+ 456
8	+ 383	+ 761	+ 800	+ 652	+ 492	+ 309	+ 391	+ 400	+ 490	+ 285	+ 268	+ 238	+ 456
9	+ 469	+ 791	+ 823	+ 620	+ 485	+ 253	+ 455	+ 374	+ 515	+ 313	+ 297	+ 249	+ 470
10	+ 592	+ 951	+ 823	+ 537	+ 519	+ 346	+ 606	+ 409	+ 528	+ 357	+ 396	+ 272	+ 528
11	+ 621	+1002	+ 803	+ 552	+ 489	+ 303	+ 576	+ 353	+ 481	+ 355	+ 405	+ 275	+ 518
Noon.	+ 564	+ 770	+ 674	+ 536	+ 422	+ 303	+ 501	+ 289	+ 418	+ 346	+ 336	+ 263	+ 452
13h.	+ 541	+ 756	+ 725	+ 461	+ 437	+ 208	+ 444	+ 273	+ 412	+ 328	+ 329	+ 253	+ 431
14	+ 531	+ 726	+ 734	+ 583	+ 429	+ 305	+ 372	+ 256	+ 407	+ 333	+ 333	+ 254	+ 439
15	+ 556	+ 786	+ 601	+ 572	+ 450	+ 313	+ 428	+ 256	+ 407	+ 368	+ 320	+ 246	+ 442
16	+ 565	+ 917	+ 604	+ 579	+ 404	+ 344	+ 463	+ 268	+ 436	+ 410	+ 302	+ 264	+ 463
17	+ 583	+ 878	+ 829	+ 632	+ 519	+ 328	+ 456	+ 324	+ 496	+ 438	+ 299	+ 278	+ 505
18	+ 629	+ 973	+ 888	+ 679	+ 435	+ 368	+ 440	+ 392	+ 558	+ 438	+ 343	+ 276	+ 535
19	+ 646	+1013	+ 950	+ 687	+ 499	+ 408	+ 431	+ 440	+ 621	+ 437	+ 361	+ 270	+ 564
20	+ 630	+ 984	+ 887	+ 676	+ 534	+ 445	+ 448	+ 418	+ 627	+ 387	+ 358	+ 254	+ 554
21	+ 614	+1026	+ 874	+ 624	+ 529	+ 492	+ 499	+ 410	+ 605	+ 355	+ 365	+ 264	+ 555
22	+ 636	+1032	+ 929	+ 768	+ 575	+ 538	+ 544	+ 476	+ 617	+ 357	+ 388	+ 289	+ 596
23	+ 608	+ 957	+ 892	+ 792	+ 525	+ 519	+ 536	+ 435	+ 607	+ 358	+ 365	+ 271	+ 572
24	+ 555	+ 873	+ 840	+ 694	+ 414	+ 476	+ 515	+ 387	+ 572	+ 330	+ 332	+ 227	+ 518
Means 0h.–23h.	+ 516	+ 837	+ 769	+ 609	+ 448	+ 365	+ 463	+ 362	+ 499	+ 339	+ 330	+ 253	+ 483
Means 1h.–24h.	+ 517	+ 837	+ 771	+ 609	+ 448	+ 365	+ 464	+ 362	+ 499	+ 338	+ 329	+ 251	+ 483
Number of Days employed.	30	28	30	30	31	27	31	31	30	26	28	25	...

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.	1898.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 198	+ 728	+ 600	+ 418	+ 279	+ 488	+ 334	+ 366	+ 657	+ 282	+ 333	+ 213	+ 408
1^h.	+ 142	+ 622	+ 542	+ 469	+ 321	+ 417	+ 317	+ 361	+ 618	+ 226	+ 326	+ 198	+ 380
2	+ 132	+ 354	+ 532	+ 221	+ 252	+ 329	+ 277	+ 351	+ 545	+ 207	+ 260	+ 197	+ 305
3	+ 107	+ 369	+ 475	+ 166	+ 277	+ 238	+ 266	+ 334	+ 370	+ 200	+ 287	+ 193	+ 273
4	+ 103	+ 372	+ 437	+ 211	+ 290	+ 247	+ 270	+ 311	+ 410	+ 183	+ 319	+ 192	+ 279
5	+ 67	+ 476	+ 455	+ 183	+ 235	+ 214	+ 290	+ 277	+ 415	+ 174	+ 223	+ 190	+ 267
6	+ 80	+ 550	+ 465	+ 261	+ 164	+ 212	+ 306	+ 240	+ 418	+ 174	+ 192	+ 170	+ 269
7	+ 97	+ 582	+ 432	+ 399	+ 324	+ 270	+ 361	+ 300	+ 452	+ 196	+ 227	+ 133	+ 314
8	+ 112	+ 372	+ 579	+ 406	+ 381	+ 197	+ 354	+ 307	+ 495	+ 200	+ 212	+ 127	+ 312
9	+ 127	+ 319	+ 617	+ 420	+ 351	+ 106	+ 467	+ 290	+ 480	+ 213	+ 190	+ 130	+ 309
10	+ 205	+ 452	+ 498	+ 289	+ 389	+ 169	+ 659	+ 317	+ 298	+ 240	+ 269	+ 118	+ 325
11	+ 262	+ 768	+ 506	+ 431	+ 378	+ 37	+ 547	+ 273	+ 402	+ 242	+ 279	+ 83	+ 351
Noon.	+ 263	+ 272	+ 315	+ 546	+ 355	+ 183	+ 519	+ 196	+ 355	+ 247	+ 206	+ 57	+ 293
13^h.	+ 240	+ 381	+ 532	+ 297	+ 388	− 80	+ 459	+ 156	+ 385	+ 198	+ 178	+ 17	+ 263
14	+ 242	+ 284	+ 548	+ 631	+ 347	+ 208	+ 140	+ 111	+ 358	+ 208	+ 136	+ 72	+ 274
15	+ 275	+ 458	+ 217	+ 696	+ 381	+ 213	+ 289	+ 194	+ 405	+ 253	+ 87	+ 73	+ 295
16	+ 292	+ 718	+ 144	+ 701	+ 309	+ 304	+ 306	+ 179	+ 527	+ 276	+ 14	+ 150	+ 327
17	+ 288	+ 618	+ 593	+ 729	+ 443	+ 248	+ 230	+ 257	+ 625	+ 261	− 13	+ 182	+ 372
18	+ 295	+ 839	+ 720	+ 783	+ 312	+ 338	+ 166	+ 341	+ 628	+ 233	+ 112	+ 183	+ 412
19	+ 335	+ 952	+ 728	+ 651	+ 435	+ 384	+ 167	+ 413	+ 665	+ 268	+ 191	+ 177	+ 447
20	+ 347	+ 877	+ 549	+ 514	+ 471	+ 384	+ 256	+ 373	+ 665	+ 212	+ 212	+ 152	+ 418
21	+ 313	+ 1011	+ 499	+ 184	+ 524	+ 413	+ 340	+ 307	+ 690	+ 167	+ 209	+ 140	+ 400
22	+ 322	+ 1087	+ 617	+ 514	+ 554	+ 471	+ 369	+ 419	+ 702	+ 149	+ 262	+ 168	+ 470
23	+ 340	+ 1039	+ 529	+ 637	+ 509	+ 423	+ 334	+ 391	+ 643	+ 172	+ 257	+ 167	+ 453
24	+ 345	+ 941	+ 510	+ 618	+ 454	+ 440	+ 360	+ 391	+ 590	+ 161	+ 221	+ 158	+ 432
Means 0^h–23^h	+ 216	+ 604	+ 505	+ 448	+ 361	+ 267	+ 334	+ 294	+ 509	+ 216	+ 207	+ 145	+ 342
Means 1^h–24^h	+ 222	+ 613	+ 502	+ 457	+ 368	+ 265	+ 335	+ 295	+ 506	+ 211	+ 202	+ 143	+ 343
Number of Days employed.	6	9	10	9	18	9	7	7	4	9	9	6	...

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.	1898.												Yearly Means.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Midnight.	+ 635	+ 930	+1041	+ 838	+ 551	+ 500	+ 554	+ 377	+ 544	+ 415	+ 349	+ 315	+ 587
1h.	+ 554	+ 864	+ 912	+ 758	+ 528	+ 443	+ 533	+ 368	+ 503	+ 365	+ 338	+ 293	+ 538
2	+ 503	+ 771	+ 816	+ 704	+ 507	+ 415	+ 502	+ 362	+ 456	+ 343	+ 331	+ 269	+ 498
3	+ 484	+ 739	+ 774	+ 657	+ 488	+ 404	+ 484	+ 350	+ 421	+ 332	+ 326	+ 249	+ 476
4	+ 430	+ 746	+ 698	+ 648	+ 489	+ 387	+ 473	+ 360	+ 399	+ 317	+ 319	+ 236	+ 459
5	+ 401	+ 741	+ 698	+ 690	+ 459	+ 389	+ 486	+ 367	+ 401	+ 318	+ 313	+ 238	+ 458
6	+ 421	+ 773	+ 775	+ 740	+ 460	+ 393	+ 481	+ 423	+ 440	+ 332	+ 298	+ 260	+ 483
7	+ 453	+ 886	+ 829	+ 797	+ 549	+ 403	+ 445	+ 474	+ 465	+ 344	+ 301	+ 269	+ 518
8	+ 458	+ 932	+ 849	+ 786	+ 637	+ 373	+ 411	+ 443	+ 480	+ 358	+ 296	+ 269	+ 524
9	+ 564	+1008	+ 888	+ 731	+ 711	+ 330	+ 470	+ 427	+ 504	+ 396	+ 347	+ 290	+ 555
10	+ 694	+1199	+ 960	+ 662	+ 798	+ 433	+ 608	+ 486	+ 540	+ 447	+ 453	+ 333	+ 634
11	+ 716	+1139	+ 880	+ 618	+ 767	+ 428	+ 592	+ 449	+ 477	+ 458	+ 459	+ 353	+ 611
Noon.	+ 650	+1019	+ 799	+ 548	+ 594	+ 379	+ 502	+ 385	+ 410	+ 438	+ 398	+ 350	+ 539
13h.	+ 626	+ 943	+ 747	+ 553	+ 580	+ 359	+ 452	+ 367	+ 400	+ 427	+ 405	+ 351	+ 518
14	+ 605	+ 940	+ 778	+ 575	+ 621	+ 355	+ 446	+ 344	+ 402	+ 422	+ 429	+ 342	+ 522
15	+ 623	+ 971	+ 802	+ 531	+ 595	+ 361	+ 472	+ 325	+ 390	+ 450	+ 429	+ 325	+ 523
16	+ 627	+1044	+ 835	+ 534	+ 581	+ 349	+ 519	+ 326	+ 403	+ 512	+ 434	+ 323	+ 541
17	+ 650	+1075	+ 908	+ 600	+ 625	+ 341	+ 536	+ 354	+ 461	+ 562	+ 443	+ 327	+ 573
18	+ 705	+1059	+ 870	+ 647	+ 659	+ 357	+ 537	+ 414	+ 525	+ 582	+ 451	+ 321	+ 594
19	+ 713	+1035	+ 975	+ 713	+ 632	+ 402	+ 526	+ 452	+ 589	+ 568	+ 441	+ 303	+ 612
20	+ 690	+1027	+1008	+ 759	+ 581	+ 466	+ 521	+ 436	+ 607	+ 535	+ 430	+ 290	+ 612
21	+ 678	+ 998	+1032	+ 828	+ 588	+ 531	+ 560	+ 476	+ 588	+ 518	+ 449	+ 309	+ 630
22	+ 703	+ 963	+1052	+ 886	+ 621	+ 571	+ 605	+ 514	+ 588	+ 527	+ 462	+ 323	+ 651
23	+ 667	+ 893	+1058	+ 869	+ 555	+ 576	+ 596	+ 462	+ 572	+ 500	+ 431	+ 292	+ 623
24	+ 602	+ 809	+ 994	+ 729	+ 292	+ 511	+ 557	+ 405	+ 535	+ 470	+ 399	+ 220	+ 544
Means 0h.–23h.	+ 594	+ 946	+ 874	+ 695	+ 591	+ 414	+ 513	+ 406	+ 482	+ 436	+ 389	+ 301	+ 553
Means 1h.–24h.	+ 592	+ 941	+ 872	+ 690	+ 580	+ 415	+ 513	+ 407	+ 482	+ 438	+ 391	+ 297	+ 551
Number of Days employed.	22	15	13	20	8	15	21	20	24	13	17	15	...

AMOUNT of RAIN COLLECTED in each MONTH of the YEAR 1898.

MONTH, 1898.	Number of Rainy Days.	Monthly Amount of Rain collected in each Gauge.							
		Self-registering Gauge of Osler's Anemometer.	Second Gauge at Osler's Anemometer.	On the roof of the Octagon Room.	On the roof of the Magnetic Observatory.	On the roof of the Photographic Thermometer Shed.	Gauges partly sunk in the ground.		
		No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.
		in.	in.	in.	in.	in.	in.	in.	in.
January	8	0·338	0·334	0·422	0·540	0·645	0·654	0·642	0·692
February	12	0·477	0·451	0·833	0·926	1·120	1·185	1·146	1·192
March	14	0·362	0·340	0·719	1·138	1·293	1·403	1·359	1·347
April	10	0·538	0·517	0·711	0·788	0·891	0·928	0·894	0·920
May	22	1·453	1·528	2·075	2·380	2·520	2·640	2·520	2·572
June	11	0·960	0·955	1·401	1·607	1·761	1·748	1·680	1·764
July	9	1·009	0·978	1·163	1·266	1·313	1·339	1·265	1·299
August	11	0·492	0·453	0·663	0·791	0·848	0·864	0·804	0·842
September	5	0·179	0·167	0·254	0·285	0·296	0·305	0·270	0·287
October	17	2·391	2·481	2·790	2·995	3·155	3·152	3·092	3·111
November	13	1·549	1·661	2·025	2·285	2·391	2·407	2·390	2·401
December	10	1·411	1·321	1·841	2·007	2·171	2·225	2·205	2·255
Sums	142	11·159	11·186	14·897	17·008	18·404	18·850	18·267	18·682
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.

1898.

Month and Day, 1898.		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		°	
April	5	23. 17. 50	H.	Jupiter	...	2·0	...	...	1
August	9	21. 46. 53	M.	2	Bluish-white	0·5	None	8	2
„		22. 2. 47	M.	3	Bluish-white	0·5	None	10	3
„		22. 3. 55	M.	1	Bluish-white	1·0	Bright	15	4
„		22. 6. 5	M.	2	Bluish-white	1·5	Slight	15	5
„		22. 27. 14	M.	2	Bluish-white	1·0	Slight	12	6
„		22. 33. 32	M.	2	Bluish-white	0·7	None	8	7
„		22. 43. 7	M.	3	Bluish-white	0·8	None	10	8
„		22. 53. 17	M.	2	Bluish-white	0·5	None	15	9
„		22. 56. 28	M.	3	Bluish-white	0·4	None	5	10
„		23. 2. 16	M.	2	Bluish-white	0·8	None	...	11
„		23. 9. 30	M.	2	Bluish-white	1·0	Slight	10	12
„		23. 19. 17	M.	2	Bluish-white	1·0	None	12	13
„		23. 20. 2	M.	1	Bluish-white	1·2	None	15	14
August	10	21. 18. 5	J.	>1	Bluish-white	1·0	None	20	15
„		21. 19. 55	J.	>1	Bluish-white	2·0	Bright	30	16
„		21. 19. 57	D.	>1	White	1·0	Bright	12	17
„		21. 20. 19	D.	>1	Bluish-white	3·0	Bright	20	18
„		21. 24. 28	D.	>1	White	2·0	Bright	10	19
„		21. 25. 5	D.	>1	White	2·0	Bright	...	20
„		21. 26. 11	D.	1	Bluish-white	1·0	Slight	5	21
„		21. 36. 2	J.	>1	White	2·0	Bright	20	22
„		21. 43. 25	D.	>1	Bluish-white	1·0	Bright	15	23
„		21. 54. 2	D.	2	White	0·5	Slight	5	24
„		21. 56. 29	D.	2	Bluish-white	0·5	None	...	25
„		21. 58. 13	D.	1	Bluish-white	1·0	Bright	10	26
„		22. 0. 5	D.	2	Bluish-white	0·5	Slight	5	27
„		22. 1. 55	J.	1	Bluish-white	1·0	None	15	28
„		22. 4. 16	J.	1	White	0·5	None	10	29
„		22. 46. 41	C.	>1	White	1·0	Bright	12	30
„		22. 47. 11	C.	1	White	1·0	Slight	10	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 ν Ursæ Majoris towards β Camelopardali: the meteor burst at end of its path.
2	From a point near δ Draconis towards ξ Draconis.
3	From a point near β Cephei towards γ Ursæ Majoris.
4	From a point near δ Draconis towards ι Draconis.
5	From γ Persei moved in the direction of β Camelopardali.
6	From a point near β Camelopardali moved in the direction of α Ursæ Majoris.
7	From a point near δ Ursæ Minoris towards γ Ursæ Minoris.
8	From a point near γ Ursæ Minoris towards δ Ursæ Majoris.
9	From γ Cephei towards δ Draconis.
10	From θ Cassiopeiæ towards θ Persei.
11	From a point near ζ Ursæ Majoris fell in the direction of ν Leonis, but disappeared behind trees.
12	From a point near γ Persei towards β Persei.
13	From η Draconis towards ζ Ursæ Majoris.
14	From β Camelopardali disappeared behind cloud in the direction of Polaris.
15	From α Pegasi moved in a Westerly direction.
16	From α Aquilæ towards α Sagittarii.
17	From β Cephei towards α Cygni.
18	From α Aquilæ towards a point near β Capricorni.
19	From γ Pegasi towards ζ Piscium.
20	From a point a little below γ Pegasi fell in a Southerly direction and disappeared behind trees.
21	From γ Cassiopeiæ towards γ Lacertæ.
22	From α Aquilæ towards α Sagittarii.
23	From a point near γ Cassiopeiæ towards α Cygni.
24	From α Pegasi towards β Pegasi.
25	From γ Pegasi fell vertically downwards and disappeared behind trees.
26	From α Capricorni towards α Sagittarii.
27	From α Persei towards β Andromedæ.
28	From α Capricorni fell vertically downwards.
29	From a point near β Pegasi towards α Aquarii.
30	From a point near Polaris towards ε Boötis.
31	From γ Persei in the direction of α Lyræ.

Month and Day, 1898.		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	22. 52. 25	D.	>1	White	2·0	Bright	30	1
	„	22. 52. 36	D.	1	White	1·0	Bright	20	2
	„	23. 5. 15	B.	2	Bluish-white	0·7	Bright	7	3
	„	23. 9. 19	B.	3	Bluish-white	0·5	None	10	4
	„	23. 15. 18	D.	>1	White	0·5	Bright	30	5
	„	23. 18. 25	B.	2	Bluish-white	0·5	Bright	12	6
	„	23. 19. 9	B.	1	Bluish-white	0·5	Bright	15	7
	„	23. 23. 53	B.	>1	Bluish-white	1·0	Bright	5	8
	„	23. 25. 26	D.	2	Bluish-white	1·0	Bright	20	9
	„	23. 48. 40	J.	1	White	0·5	Bright	35	10
August	11	0. 32. 37	B.	1	Bluish-white	1·0	Bright	10	11
	„	0. 32. 55	B.	1	Bluish-white	1·0	Bright	5	12
	„	21. 24. 36	J.	3	Bluish-white	1·0	Brilliant	15	13
	„	21. 48. 5	J.	1	Bluish-white	0·5	Slight	10	14
	„	22. 3. 54	J.	1	White	1·0	None	...	15
	„	22. 6. 13	J.	1	Bluish-white	0·5	Slight	10	16
	„	22. 11. 19	J.	2	Bluish-white	1·0	None	15	17
	„	22. 12. 50	N.	>1	Bluish-white	1·0	Bright	17	18
	„	22. 13. 0	N.	1	Bluish-white	0·6	Bright	12	19
	„	22. 13. 38	J.	1	Bluish	1·0	None	10	20
	„	22. 16. 30	N.	2	Bluish-white	0·4	Slight	Short	21
	„	22. 19. 52	N.	>1	White	0·3	Bright	5	22
	„	22. 22. 23	J.	2	Bluish-white	1·0	Brilliant	10	23
	„	22. 24. 1	J.	1	Bluish-white	1·0	None	15	24
	„	22. 28. 10	N.	>1	Bluish-white	...	Bright	9	25
	„	22. 28. 10	J.	2	Bluish-white	1·0	Brilliant	15	26
	„	22. 30. 50	N.	4	Bluish-white	0·5	None	8	27
	„	22. 34. 40	N.	...	Bluish-white	0·3	Bright	5	28
	„	22. 35. 18	J.	1	White	0·5	None	5	29
	„	22. 38. 9	J.	2	Bluish-white	1·0	Slight	15	30
	„	22. 46. 47	J.	3	Bluish-white	1·0	Bright	15	31
	„	22. 49. 7	J.	3	Bluish-white	1·0	None	15	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 μ Ursæ Majoris towards Arcturus.
2	From a point midway between ϵ and δ Ursæ Majoris moved in a Westerly direction.
3	From κ Persei towards γ Andromedæ.
4	From γ Andromedæ towards δ Andromedæ.
5	From α Sagittæ towards a point near 72 Ophiuchi.
6	From δ Draconis towards β Draconis.
7	From α Cephei towards γ Draconis.
8	From γ Persei towards θ Cassiopeiæ.
9	From a point about 5° South of α Pegasi towards δ Capricorni.
10	From a point near α Lyræ towards a point midway between 72 and β Ophiuchi.
11	From ι Cephei towards α Cephei.
12	From a point near ψ Cassiopeiæ towards β Cephei.
13	From a point near α Draconis disappeared near α Aquilæ.
14	From a point near β Cassiopeiæ disappeared near α Pegasi.
15	From β Andromedæ passed near α Arietis and disappeared behind trees.
16	From α Andromedæ towards a point near ι Piscium.
17	From ϵ Cassiopeiæ towards Polaris.
18	From the direction of Perseus passed across δ and γ Cassiopeiæ.
19	Directed from Perseus across γ and β Andromedæ.
20	From δ Cassiopeiæ to a point near α Cephei.
21	From a point near α Persei towards μ Persei.
22	From a point near ϵ Arietis towards ν Ceti.
23	From ϵ Cassiopeiæ disappeared near γ Draconis.
24	From α Persei towards γ Arietis.
25	Passed across 54 and 51 Andromedæ towards β Andromedæ.
26	From γ Persei disappeared near β Andromedæ.
27	Fell nearly vertically downwards a few degrees to the right of β Andromedæ in the direction of β Arietis.
28	From the direction of ζ Andromedæ passed across γ Pegasi towards ι Piscium.
29	From a point a little to the North of α Pegasi disappeared near that star.
30	From β Persei passed near and disappeared a little beyond α Arietis.
31	From α Andromedæ towards μ Pegasi.
32	From a point near γ Pegasi fell vertically downwards.

Month and Day, 1898.		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	23. 11. 40	J.	1	Bluish-white	1·0	None	20	1
	,,	23. 23. 38	J.	1	White	0·5	Slight	10	2
	,,	23. 25. 23	J.	1	Bluish-white	0·5	None	5	3
	,,	23. 30. 58	J.	>1	Bluish-white	1·0	Slight	10	4
	,,	23. 34. 8	J.	2	Bluish	2·0	Slight	20	5
	,,	23. 40. 31	J.	2	Bluish-white	1·0	Slight	15	6
	,,	23. 42. 44	J.	3	Bluish-white	2·0	Brilliant	25	7
	,,	23. 45. 10	J.	2	Bluish-white	1·0	Brilliant	20	8
	,,	23. 46. 32	J.	3	Bluish-white	1·0	Brilliant	10	9
	,,	23. 48. 51	J.	1	Bluish-white	0·5	None	10	10
	,,	23. 51. 14	J.	1	Bluish-white	0·5	None	10	11
	,,	23. 53. 39	J.	1	White	0·5	Slight	10	12
August	12	0. 4. 22	J.	2	Bluish-white	1·0	Bright	20	13
	,,	0. 22. 47	J.	1	Bluish	1·0	Slight	10	14
	,,	0. 29. 38	J.	2	Bluish-white	2·0	Bright	15	15
	,,	0. 32. 30	J.	2	Bluish-white	1·0	None	15	16
	,,	0. 36. 15	J.	2	Bluish-white	1·0	Slight	10	17
	,,	0. 40. 38	J.	2	Bluish-white	1·0	Bright	15	18
	,,	0. 43. 50	J.	3	White	1·0	Bright	20	19
September	15	20. 55. 0	B.	>1	Bluish-white	1·5	Brilliant	12	20
October	23	21. 35. ±	S. & T.	About ½ size of full moon.	Reddish changing to blue before bursting	3·0	Train of considerable length	35	21
November	15	23. 13. 8	M.	1	Bluish-white	1·0	Slight	15	22

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 β Camelopardali passed near β Aurigæ and fell vertically downwards.
2	From a point near γ Persei towards β Andromedæ.
3	From α Persei towards β Persei.
4	From a point a little above β Aurigæ fell vertically downwards.
5	From α Persei passed near and disappeared a little beyond ι Aurigæ.
6	From a point near Polaris moved towards γ Draconis.
7	From γ Cassiopeiæ towards a point near α Lyræ.
8	From β Andromedæ towards γ Pegasi.
9	From a point midway between α Andromedæ and γ Pegasi moved towards α Pegasi.
10	From β Andromedæ disappeared a little below γ Pegasi.
11	From the direction of κ Draconis passed through a point midway between β and γ Ursæ Majoris.
12	From a point a little above β Aurigæ fell vertically downwards.
13	From β Andromedæ towards δ Piscium.
14	From α Persei towards ι Aurigæ.
15	From β Andromedæ towards α Pegasi.
16	From a point near α Andromedæ disappeared some distance beyond α Pegasi.
17	From a point a little below α Persei towards Capella.
18	From β Trianguli towards γ Pegasi.
19	From α Persei towards Polaris.
20	From a point near τ Cygni towards γ Lyræ.
21	From a point midway between ε Cassiopeiæ and γ Persei moved towards α Ursæ Majoris.
22	From γ Orionis in the direction of ν Eridani.