ROYAL OBSERVATORY, GREENWICH.

REDUCTION

WITH REFERENCE TO THE POSITIONS OF THE SUN AND MOON

OF

THE MAGNETIC OBSERVATIONS

FROM **1848** TO **1857**

(EXCLUDING THE DAYS OF GREAT MAGNETIC DISTURBANCE).

REDUCTION

OF

THE MAGNETIC OBSERVATIONS

FROM **1848** TO **1857.**

METHODS OF INTERPRETING THE PHOTOGRAPHIC REGISTERS.

THE Magnetic Registers, upon which the following Reductions are founded, are entirely those given by photographic self-registration. For the description of the photographic self-registering apparatus, and the method of determining the zeros of measure and time, I refer to the Volume of Greenwich Magnetical and Meteorological Observations, 1847, Addendum to the Introduction.

The first necessary step was, to decide on the rejection of those photographic traces, made in times of great magnetic disturbance, which seem to defy ordinary treatment. The following is a list of the days rejected for this reason :—

For the Declination-Magnetometer.

1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.
Jan. 16	Oct. 30	Feb. 23	Jan. 16	Jan. 4	Jan. 10	Jan. 20	Mar. 12		Feb. 26
28			19	19					
		June 13			Mar. 7	Feb. 16	April 4		Mar. 13
Feb. 20			Feb. 18	Feb. 14	8	24			
21		Oct. 1		15		25			May 7
24		2		17	May 2				10
			Sept. 3	18	3	Mar. 6			
Mar. 17			4	19	24	15			Sept. 3
20			6	20		16			
			7	21	June 22	28			Nov. 12
April 7			29		July 12				16
				April 20		April 10			17
Oct. 18			Oct. 2		Sept. 1				
23			28	May 19	2				Dec. 16
29				20					17
			Dec. 6		Oct. 25				
Nov. 17			28	June 11					
			29		Nov. 9				
Dec. 17				July 10					
					Dec. 6				
				Nov. 11	21				
				13					

The following days, also, might probably have been rejected :
1848, Feb. 22, 23, May 18, July 11, Nov. 18 ; 1849, Nov. 27 ; 1850, Feb. 22, Mar. 31, June 13 ; 1852, June 16; 1854, Jan. 8, April 23, May 25 ; 1855, Oct. 18.

For the Horizontal-Force-Magnetometer.

1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.
Jan. 16	Nov. 27	Feb. 22	Jan. 16	Jan. 4	Jan. 10	Jan. 8	Mar. 12		Feb. 26
28		23	19	19					
					Mar. 7	Feb. 16	April 4		May 7
Feb. 20		Mar. 31	Feb. 18	Feb. 14	8	24			10
21				15		25	July 19		
22		May 7	Sept. 3	17	May 2				Sept. 3
23			4	18	3	March 15	Oct. 18		
24		June 13	6	19	24	16			Nov. 12
			7	20		28			17
Mar. 17		Oct. 1	29	21	June 22				
20		2				April 10			Dec. 16
			Oct. 2	April 20	July 12	23			17
April 7			28						
				May 19	Sept. 1	May 25			
May 18			Dec. 6	20	2				
July 11				June 11	Oct. 25				
				16					
Oct. 18					Nov. 9				
23				July 10					
25					Dec. 6				
				Nov. 11	21				
Nov. 17									
18									

The following days might probably have been rejected:
1848, Dec. 17; 1849, Oct. 30; 1851, Dec. 28, 29; 1852, Nov. 13; 1853, March 11, Aug. 21, Oct. 1, 2; 1854, Jan. 20, Mar. 6; 1857, Nov. 16.

Besides these, which are omitted merely on account of the evident magnetical disturbance, numerous days are omitted on account of defect of adjustment, loss of photographic trace, &c., on some of which there may have been magnetical disturbance.

For the Vertical Force, the traces of magnetical disturbance are rarely conspicuous; the omission arises usually from instrumental or photographic imperfection.

The next process was, to draw by hand a curve passing, as well as could be judged, through the mean of proximate points of each photographic curve, without taking all its rapid inequalities. The general rule was, to suppress entirely all the irregularities whose period from maximum to minimum amounted to only a few minutes of time, but to respect entirely the curvatures whose period was as great as two or three hours; the curvatures whose period had an intermediate value being treated with an intermediate degree of respect. The numerical measures which are subsequently used are in all cases the ordinates of the hand-curve thus traced.

Sheets, properly printed and ruled, were prepared for the entry of the measures of the ordinates. The days of the month, or days of the lunation (as the case might be), followed in vertical columns: the homonymous hours of each day, solar or lunar (as the case might be), being arranged on the same horizontal line. One computer, holding a scale graduated to minutes of arc, or to fractional parts of the horizontal or vertical force, read off the measures of the ordinates; while another computer entered the measures in the sheets.

The means were then to be taken, with reference to days and with reference to hours; and it became important to decide on the course to be adopted in instances where the record was imperfect. It was certain, however, that the change of Declination from hour to hour is greater than that from day to day, and it seemed likely that the same law would apply to Horizontal Force and Vertical Force. This consideration determined the rule; that no mean should be taken for a day, unless the series of 24 readings were complete: but that the means of the successive hours should in all instances be taken.

This, which is common to all, being premised, I have now to explain the further processes adopted for each section of the work.

I. Reductions referred to the Sun's Place.

1. Observations of Magnetic Western Declination, referred to the Sun's Place.

It will be seen, in the description of the Photographic Apparatus and Methods (Greenwich Magnetical and Meteorological Observations, 1847, Addendum to Introduction) that each photographic sheet is furnished with a scale of time, whose zeros have been determined by comparison of arbitrary interruptions of the beam of light with the clock-times of making the interruptions as recorded by the observer. The clock was adjusted to Göttingen mean solar time; and the time-scales therefore represent Göttingen mean solar time: and the measures of ordinates, made at every hour of the scale, therefore, give the magnetic declination for every hour of Göttingen mean solar time, or for an instant preceding every hour of Greenwich mean solar time by 40^m of time nearly.

The zeros of measure of declination were determined by comparing the measures of the photographic ordinates at certain times with the declinations observed by theodolite at the same times, and the photographic measures are therefore liable to the same errors as eye-observations. The following occurrences in the adjustment of the declination-magnet must therefore be taken into account, as affecting the photographic ordinates.

The magnet is suspended by a skein of silk, through the intermediation of an adjustible circle, called the "torsion-circle." The circle ought to be so adjusted that, in ordinary positions of the magnet, the tension of the suspending skein exerts no appreciable force disturbing the position of the magnet. This adjustment is ascertained by inserting, in the plane of the magnet, a brass bar, and remarking whether it takes spontaneously a position corresponding nearly with that of the magnet. If there is sensible discordance, it shows that the magnet has been subject to an angular strain, turning it from its proper position by a certain multiple of that discordance. The multiple has been found by experiment to be $\frac{1}{3\cdot9}$ nearly.

The examination above described is made at the end of every year, and at other times when it appears necessary.

On 1848, March 5, the suspension-skein broke. A new skein was mounted, but it gave great trouble for a time. The trial of the brass bar was made at first every day; afterwards, less frequently. After the adjustments and trials at the end of the year 1848, the torsion-circle was left at the reading 252°.30′.

On 1849, February 4, 21^h, the trial of the brass bar showed that the torsion-circle ought to have been at the reading 271°.20′. The course of the declination-readings appears to show clearly that this error of 18°.50′ had existed from the beginning of the observations in 1849, January. In consequence of this error of adjustment, every value of Western Declination, from 1849, January 1 to February 4, printed in the "Indications of Magnetometers," in the Greenwich Observations, 1849, is too small by 11″.3 nearly. (In Table I. below, the results of observations are printed without this correction; but in subsequent Tables the correction is applied.)

On 1849, August 22, it was found necessary to change the reading of torsion-circle to 256°.0′. It seems probable that the change in the suspension-skein had come on gradually. No alteration is made in the values of declination printed below.

During the year 1850, the reading was steady and near to 251°.

In 1851, the reading was about 256° to October 19, when the leather strap, to which the skein is attached, broke, without other injury to the skein. The reading then became 268°.

In 1852, although the strap broke on August 21, the reading was constantly near 270°; and this continued through 1853 and 1854.

In 1855 and 1856, the reading was constantly near 262°, although, by the breaking of a tooth of the locking-wheel of the strap, the magnet was dropped a little way on 1856, May 21.

Through 1857, the reading was steady at 266° nearly.

On 1849, October 1 and 2, it seems possible that the magnet was not perfectly free. In 1850, there is ground for suspecting the observations from September 4 to October 7; on October 7, at about 4^h, the declination diminished suddenly by 12′, as if the magnet had been freed from some restraint. In the reductions which follow, no notice has been taken of this circumstance. In 1852, May 5 to 11, the declinations printed in the "Indications of Magnetometers," in the Greenwich Observations, 1852, ought to be increased by 10′; a clerical error of 10′ having been committed in entering the value of the base-line on the photographic sheets.

I now proceed with the Printed Tables of this Section.

Table I. contains the Mean Westerly Declination of the Magnet, as derived from the mean of 24 hourly measures on each Astronomical Day. On many of the days omitted, the number of measures is not far deficient from 24; but it has been thought best to adhere rigorously to the simple rule stated above. The records from 1849, January 3 to February 3, which appear to require the correction + 11″.3, are printed in smaller type than the others.

Table II. gives the Mean Westerly Declination in each month, the numbers being the simple means, for each month, of the numbers in Table I. The continued secular diminution of Westerly Declination, from month to month, is shown generally in every year, but more clearly in the column of "Mean of Years."

On comparing the mean of the three first annual means with the mean of the three last, it appears that the annual diminution is 7′·9. The proportional parts of this, for the separate months, being applied with sign changed to the numbers of "Mean of Years," form the "Mean corrected for Secular Change." If the secular change were perfectly uniform, and the observations complete and free from error, these numbers would be equal. But besides small irregularities in January and December (arising from the loss of a few days at the beginning of January and the end of December), there is most clearly an increase of Westerly Declination in the summer months. This will be a subject of further remark.

Table III. gives the Monthly Means of the actual diurnal range of the magnet in the hourly measures, or the mean of the differences between the greatest and least measures on each day, at whatever hours they may occur. The actual ranges in observation would be greater than these, because they would be obained from the salient points of the photographic curve.

Table IV. gives the Mean Monthly Determination of the Western Declination at every hour of the day, showing the diurnal course of declination.

By comparing, for each month, the number in Table II. (which is for the mean of hours) with the numbers in Table IV. for each hour of the day, a Monthly Table of Diurnal Inequality was formed. This table is not printed here; but from it the two following Tables are derived.

To form Table V., the corresponding numbers of the last-mentioned Table, for each month and each hour in the different years, were collected, and their means taken separately for each month. It exhibits the varying character of Diurnal Inequality through the months of the year. The hours refer to Göttingen Mean Solar Time.

To form Table VI., the corresponding numbers of the same table, for the different months of each year, were collected, and their means taken separately for each year. It exhibits the Mean Diurnal Inequality in each year, and the varying character of Diurnal Inequality from year to year. The Mean Diurnal Inequality for all the years is also exhibited. The double diurnal fluctuation is clearly shown. The hours are still those of Göttingen Mean Solar Time.

As a westerly deviation through the angle θ implies that a westerly force has been impressed on the North End of the magnet (and an equal easterly force on the South End) represented by Horizontal Force $\times \sin\theta$, the numerical value of "sine of deviation" is given in the last column as representing the westerly force in terms of Horizontal Force.

2. OBSERVATIONS OF MAGNETIC HORIZONTAL FORCE REFERRED TO THE SUN'S PLACE.

The time used in interpreting the measures of the photographic ordinates of the Bifilar Magnet Curve is Göttingen Mean Solar Time. The zeros of measure of horizontal force were determined by comparing the measures of the photographic ordinates at certain times with the results of eye-observation at the same times; and the zero tacitly adopted for the photographic ordinates is therefore the same as that for the eye-observation. Now the zero for eye-observations is arbitrary (depending on the length of scale, &c.); and the only circumstance which determines the real or natural zero is, that the evaluation of the divisions of the scale has been made by a process which implies that the fluctuations of horizontal force are fluctuations about the magnitude 1·0000. It is therefore necessary to conceive such a constant to be added to the numbers derived from the photographic measures as will make their magnitude nearly 1·0000 $\pm$ fluctuations.

The magnet is suspended by the two branches of a skein of silk, forming practically two suspending cords, through the intermediation of a torsion-circle. The state of this circle is examined at the end of every year, and thus the results of one year are absolutely divided (by reason of the change of adjustments) from the results of another year. But, as a general rule, the state of adjustments through each year is unaltered. On 1848, June 29, the strap, to which the suspending skein is attached, broke, and this is the only instance of interruption of adjustments in the course of a year.

On two occasions, however, in consequence of the spot of light passing beyond the limit of the sheet of photographic paper, the adjustments were so altered by hand that a record of the change made could be preserved. The first was on 1853, April 14, when the value of the reading was increased by 0·0085; and the second, on 1853, August 22, when the value was again increased by 0·0110. To harmonize and to bring into one series all the results of the year, the correction +0·0085 has been applied to all results from the beginning of the year to April 13, and −0·0110 to all results from August 22 to the end of the year.

The next point to be arranged was the Correction for Temperature. The coefficients of thermometer-reading were investigated by a process described in the Greenwich Magnetical and Meteorological Observations for 1847, Introduction, page xxxiv; and their values are given in each of the volumes of "Greenwich Magnetical and Meteorological

Observations," and in each of the "Results of Magnetical and Meteorological Observations" following that year. It was only necessary therefore to determine the temperatures. Now the thermometers within the boxes of the magnets were read, in ordinary routine, at the hours 1, 3, 9, 21, of Greenwich Mean Solar Time; but on Sundays, or other days of irregularity, they were sometimes read at other hours. There were therefore sufficient means for estimating the temperature at any hour with considerable precision, provided that means of interpolating the temperature between these hours of observation, and especially through the long interval from 9^h to 21^h, could be supplied. The system of closing the rooms, of lighting the fires, and of personal attendance, has been so perfectly uniform during the whole period, that the experience of a single year would be ample for this purpose.

As soon as the necessity for this became evident, observations of the temperature were made at every hour of the day on one day in each week for many months. The observer, however, had a fire lighted in the anteroom during the night, and the temperatures of the magnets were thereby raised. The whole of these observations were therefore rejected.

At last it was remarked that during the year 1848 the magnet-thermometers were read at the hours 0, 3, 6, 12, 18, 21, with sufficient frequency to give good information on the slow changes of the thermometers during the longer intervals; and upon these was founded the following method of correction.

Each month was treated separately. Thus on the observations of January 1848 was founded the system of corrections for the month of January in each of the years 1848, 1849, 1850, &c. to 1857; and so for other months.

A graphical projection was prepared, in which the abscissæ represented hours of the day, and the ordinates represented the mean of readings for January 1848 at the hour 0, at the hour 3, at the hour 6, and so for 12, 18, 21. The same was done for February, for March, &c. Through or nearly through the summits of these ordinates for each month, a curve for that month was drawn by hand. These curves presented no doubt or difficulty whatever.

From each of these curves temperatures were read for every hour. The mean of these 24 readings of the January curve was used as the mean temperature of a mean day of January 1848 (confining ourselves, for clearness, to that month).

Then two different processes were used for correcting the mean of observations collected on the sheets; (1) for the mean of all the observations on one day in January of any year, (2) for the mean of all the observations at one hour through all the days of January in any year.

(1.) For any day of January, the mean of all the thermometer-readings at whatever hours on that day was taken. To find the correction proper to change this into the mean of the 24 readings at the 24 hours, the mean for the same hours in 1848 January, as taken from the curve, was subtracted from the mean temperature of the 1848 January mean day; the remainder was the correction to be used.

(2.) For any hour of the mean of days in January; the treatment was simpler for the standard year 1848 than for other years. For 1848, the temperatures read every hour from the curve, as is mentioned above, were adopted as the temperatures applicable to the mean of observations at those hours respectively through the month. But for the subsequent years from 1849 to 1857, a process of interpolation and further correction was thus framed. It was considered that the thermometer-readings at 1^h, 3^h, 9^h, 21^h, were abundantly sufficient in number to give the average character of the daily temperature-changes through the month; the means of interpolation between them being alone required. Therefore in 1848, the readings at 1^h, 3^h, 9^h, 21^h, were taken; and between these were interpolated, in simple arithmetical progression between the reading for 1^h and that for 3^h, between the reading for 3^h and that for 9^h, and so on, the fictitious readings for 2^h, for 4^h, 5^h, 6^h, 7^h, 8^h, for 10^h, 11^h, 12^h, 13^h, 14^h, 15^h, 16^h, 17^h, 18^h, 19^h, 20^h, and for 22^h, 23^h, 0^h. These fictitious interpolated readings were subtracted from the curve-readings for the same hours, and the remainders gave corrections applicable to interpolated readings in order to form curve-readings. It was then held that these same corrections would apply to interpolated readings for the same month in other years. Therefore, for other years, the mean readings for January at the hours 1, 3, 9, 21, for all the years were collected on one sheet; between the readings for 1^h and 3^h, between those for 3^h and 9^h, &c., in each year, thermometer-readings were interpolated in arithmetical progression; and to these were applied the corrections found in 1848. In this manner, temperatures were found for every hour, possessing all desirable accuracy.

The correction to mean horizontal-force-reading was then made with the tables in ordinary use.

I now proceed with the explanation of the Tables which follow.

Table VII. gives the mean Horizontal Force on every day in which the 24 hourly readings can be taken from the photographic sheet, corrected for temperature by the process (1) described above.

Table VIII. gives the mean for each month. It will be remembered that the annual change of adjustments separates the results of one year from those of another year; but that the results through each year ought to form a continuous series, with the exception of 1848, in which the accident at the end of June has produced an interruption.

Applying now the proportional parts of the annual increase 0·0022 to the separate months, the column "Mean corrected for Secular Variation" is formed. If the increase were uniform, and the observations perfect, the numbers of this column would be equal. There is, however, an evident diminution in the warmer months of the year, which might suggest the suspicion that the correction for temperature is insufficient. It is extremely difficult to answer for the accuracy of the temperature-correction, but I believe that here it is accurate; and I think that some light will be thrown on the origin of this apparent diminution by remarks to be made hereafter on the discussion of the hourly inequality.

In the mean for the nine years, the mean of the first three months is 0·1151, and the mean of the last three months is 0·1170, giving a secular increase of 0·0019 in nine months, or 0·0025 in one year. It will be interesting to compare this with the secular change of horizontal force found by the method of absolute measures.

The annual means of the determinations in the several yearly volumes of "Greenwich Observations, Results of Magnetical and Meteorological Observations," all made with the same instrument and in the same manner, are as follows:—

1848, omitting July 28	3·755
1849	3·759
1850	3·770
1851	3·783
1852	3·785
1853	3·791
1854, omitting January 26	3·794
1855	3·808
1856	3·815
1857	3·836

The mean of the three first is 3·760, that of the three last is 3·818, giving an increase of 0·058 in seven years, or of 0·0083 in one year. This, estimated in the same manner as the Horizontal Force in the tables under discussion, will be represented by $\frac{0\cdot0083}{3\cdot8}$, or 0·0022, for the secular increase in one year. That found above by the use of the Bifilar Magnet and the system of reductions which I have explained, is 0·0025. The agreement is highly satisfactory, and leads to the presumption that great confidence may be placed in the results of our discussions.

Table IX. gives, for every month, the mean of the Horizontal Forces at each hour through all the days of the month, corrected for temperature in the manner described above, process (2).

For each month separately, in Table IX., the mean for the month in Table VIII. was subtracted from every number in the same month in Table IX., and thus was formed the Mean Diurnal Inequality of Horizontal Force in each month. It has not been thought necessary to print this table, but the means for each year are taken to form the two next tables.

Table X. gives the Diurnal Inequality of Horizontal Force for each month; the quantities for the same month in different years being grouped, and the means taken.

Table XI. gives the Diurnal Inequality of Horizontal Force for each year, the quantities for different months in the same year being grouped, and the means taken. The law of Diurnal Inequality is seen most clearly in the column of Mean of Years. There is a well-marked diminution of force in the day, with an increase in the night. The Horizontal Force is smallest a little before 0^h Göttingen Mean Solar Time, or a little after 23^h Greenwich Mean Solar Time. This, it will be remarked, is not the hottest part of the day. The reading of the thermometers in the magnet-boxes is highest at 6^h or 7^h Göttingen time in the summer, and at 5^h in the winter. The diurnal inequality therefore is not produced by error of temperature-correction, and the general order of these numbers tends to give confidence in the correction.

3. REMARKS ON THE COMBINATON OF THE DIURNAL INEQUALITIES OF DECLINATION AND OF HORIZONTAL FORCE.

It is evident that the two Diurnal Inequalities are related quantities, produced by different resolved parts of the same force. If we compare roughly their magnitudes in the different years from 1848 to 1857, by the rude process of adding without regard of sign the numbers in each of the columns of Table VI. and Table XI., we find in the different years—

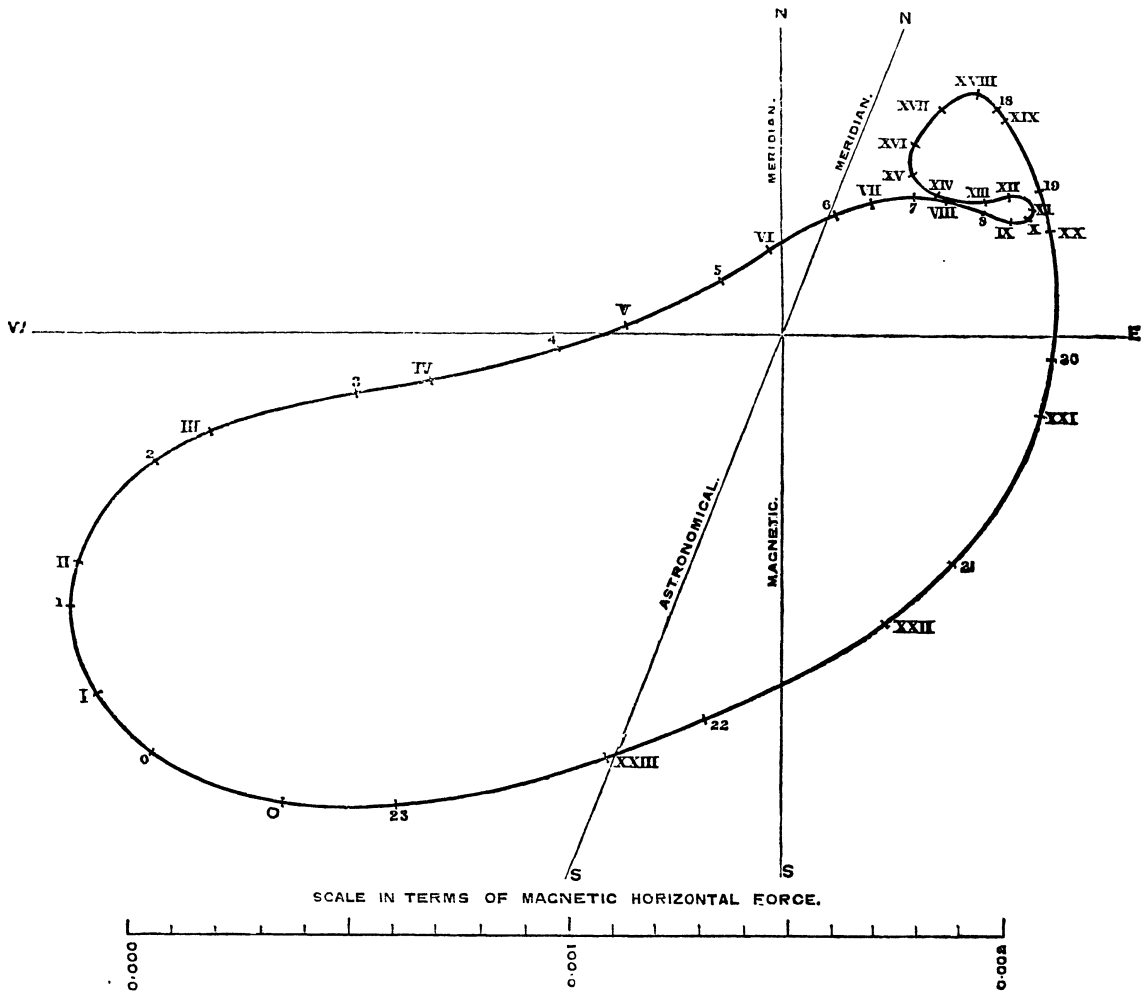
For Declination	70·1, 65·9, 64·5, 51·2, 46·5, 42·7, 45·3, 43·7, 35·6, 31·8;
For Horizontal Force	141, 124, 110, 101, 120, 96, 76, 75, 94, 106.

Although there is irregularity in the proportions of the corresponding numbers in these two lines, yet there is in both lines the broad fact of a very considerable diminution from 1848 to 1857; which, especially when the four last years are grouped together, is very nearly the same for both. I consider the irregularity therefore to be merely accidental. In like manner if we compare the inequalities in respect of their variation of magnitude through the different months, in Tables V. and X., we find a good general agreement. I therefore treat the two inequalities in combination.

Now if we trace a curve, whose ordinate in the west direction represents the numbers in the last column of Table VI., and whose ordinate in the north direction represents the numbers in the last column of Table XI., we have the following :—

DIAGRAM explanatory of the MAGNITUDE and DIRECTION of the FORCES acting on the NORTH END of the MAGNET at GREENWICH at different HOURS of the SOLAR DAY.

The Roman numerals refer to hours of Göttingen Time; the Arabic numerals to Greenwich Time. From 8 to 18 the Arabic numerals are omitted, to avoid confusion.



If the mean declination and horizontal force are the same thing as the undisturbed declination and horizontal force, the force of diurnal inequality at any time will be represented in magnitude and direction by a line drawn from the origin of co-ordinates to the point of the curve corresponding to that time. If the mean and the undisturbed are not the same, a different origin must be taken, in such a position that the preponderant measures to the curve will correspond to the preponderant forces.

Now, if we combine together these various considerations; (1) that the diurnal force is undoubtedly connected with the Sun; (2) that it is very different on different sides of the meridian, showing that the Sun does not produce it imme-

diately, but mediately, by his influence (probably) on different parts of the Earth; (3) that the great difference in the magnitudes of diurnal force in the summer and the winter (the proportion being nearly 2 : 1) seems to show that the mediately active part of the Earth must be limited to a contracted space whose distance from Greenwich changes in a very sensible proportion from summer to winter, and may well be supposed to be a limited space over which the Sun is nearly vertical; (4) that the action while the Sun passes over Africa is much less than that which follows it: we seem to be led to the following conclusions :—

The radiation of the Sun upon the sea produces a magnetic force which attracts the north end of the magnet at Greenwich.

The radiation of the sun upon the land produces an insensible force, or none at all.

The great cause of diurnal inequality at Greenwich is the radiation of the Sun upon the North Atlantic; the radiation upon other seas having a sensible but minor effect.

I am unable to explain the origin of the singular loop from VII^h to XV^h Göttingen time, but suppose it to arise from some peculiarity in the distribution of land in the great islands of the Pacific, Australia, &c.

Now as we know that the attractions of magnetic bodies diminish very rapidly with their distance, and therefore the effect of the seas illuminated from 7^h to 17^h is very small, it is evident that the origin of co-ordinates here, or mean position, does not coincide with the undisturbed position. The undisturbed position must be somewhere near to the small loop, and then we have due preponderance given to the intense disturbing force from 22^h to 4^h Greenwich time. The mean declination of the magnets therefore will contain in its numerical expression a westerly quantity, derived from that preponderance, and the mean horizontal force will contain in its numerical expression a diminution of force, similarly derived.

And, in those months of the year when the active space under the Sun comes nearest, this westerly quantity and this diminution of force will be exaggerated; and therefore the Mean Westerly Declination (after correction for secular change) will appear greatest, and the Horizontal Force will appear least, in the summer months.

This is verified in the last columns of Table II. and Table VIII.

I present this sketch of the foundations of a theory of Diurnal Inequality as one of which I have no doubt, as applying to Greenwich. I am unable yet to examine into the practicability of extending it to other stations.

4. OBSERVATIONS OF MAGNETIC VERTICAL FORCE, REFERRED TO THE SUN'S PLACE.

As in the instance of the Horizontal Force Magnet, the time used is Göttingen Mean Solar Time, and the zero to which the photographic measures of Vertical Force are referred requires such an addition that their magnitudes shall be nearly 1·0000 $\pm$ fluctuations.

The adjustments of a Vertical Force Magnet are much more liable to change than those of the other instruments. In consequence of this, the periods of continuity of adjustment have been too much broken up to permit any important comparisons of the results at different times. In May 1848 a new magnet was mounted, and so much interruption followed that I have thought it best to reject the observations of that year. In following years there are interruptions at places marked in the Tables.

For results of diurnal inequality, the numerical inferences are as accurate as the nature of the apparatus permits, and probably are in general extremely good. Yet, though the instrument was furnished and occasionally examined by the maker of highest repute, I was never perfectly satisfied with the delicacy of its movements. Subsequently to the period of these observations, the knife-edges have been ground by Mr. Simms, and their delicacy appears to be very much increased. I have now every confidence in the observations.

The correction for Temperature was treated in the same manner as that for the temperature of the Horizontal Force Magnet.

Table XII. gives the mean of the Vertical Force Readings on every day, corrected for temperature. The interruptions by a double line ═══ denote that the adjustments have been changed, so that the readings above and below it are not comparable. The interruptions by a single line ——— denote that there has been merely a change in one of the constants of reduction (the time of vibration in the vertical plane), which produces a comparatively small change in the reading. In January 1853 the adjustments were in a state too little sensitive to give useful results. In November 1857 the clock-work was out of order.

Table XIII. contains the monthly means: the interrupting lines being placed at the divisions nearest to the exact days.

It will be remarked that there was no absolute change of adjustment in the course of the years 1850, 1851, 1855, 1856, 1857, and I have therefore grouped the observations of each month separately for all those years and have taken

the mean, as worthy of considerable credit. It appears to show that the Vertical Force is sensibly greatest in the summer months. In order to exhibit the amount of variation (which at present is given in terms of Vertical Force) in terms of Horizontal Force, these numbers are multiplied by the tangent of the Dip, or tan. 68°. 45′.

Table XIV gives, for every month, the mean of the Vertical Forces at each hour through all the days of the month, corrected for temperature.

For each month separately, in Table XIV., the mean for the month in Table XIII. was subtracted from every number in the same month in Table XIV., and thus was formed the Mean Diurnal Inequality of Vertical Force in each month. The Table so formed is not printed, but the means for each year are taken to form the two next Tables.

Table XV. gives the Diurnal Inequality of Vertical Force for each month; the quantities for the same month in different years being grouped, and the means taken. To express the Inequality in terms of Horizontal Force, the numbers are multiplied by tan. 68°. 45′.

Table XVI. gives the Diurnal Inequality of Vertical Force for each year, the quantities for different months in the same year being grouped, and the means taken. As in the last Table, these values are converted into expressions in terms of Horizontal Force by multiplying by tan. 68°. 45′.

5. Remarks on the relation of the Vertical Disturbing Force to the Disturbing Forces in the Horizontal Plane.

The comparison of the Vertical Force, as exhibited in Tables XIII., XV., XVI., with the Horizontal Western Force in Tables II., V., VI., and the Horizontal Northern Force in Tables VIII., X., XI., presents some difficulties.

(1.) In the progress of years from 1848 to 1857, the diurnal inequality in both the horizontal elements is greatly diminished; while that in the vertical direction increases greatly from 1849 to 1850, and is sensibly stationary from 1850 to 1857. (I know no reason on the face of the observations for distinguishing 1849 from the other years, except that there had been less experience in the use of a difficult instrument.) This seems to show that it is not the same quality of the Sun which produces the horizontal disturbances and the vertical disturbance. The magnitude of the vertical disturbance, it is to be remarked, is greater than that of the horizontal disturbances.

(2.) In noting the changes in the magnitude of diurnal inequality through the months of a year, it will be remarked that all are greatest in the hottest months, but the changes of vertical force apparently less than those of the other forces.

(3.) The inequalities have as leading features one maximum and one minimum in the day (that of western force having another subordinate fluctuation). But the epochs of maximum and minimum of vertical force seem to refer very distinctly to noon at Greenwich, while those of the horizontal forces refer to other hours.

(4.) The monthly changes of inequalities generally correspond; the westerly declination, the southerly horizontal force, and the downwards vertical force, increasing in the hotter months.

II. Reductions referred to the Moon's Place.

6. Observations of Magnetic Western Declination referred to the Moon's Place.

The first step in the reductions was, to mark the Lunar Days and Lunar Hours in a satisfactory way upon the Photographic Sheets. The Greenwich Mean Solar Time of Moon's Transit on each day was increased by 40^m, to obtain Göttingen Time of Moon's Transit, and these times were marked in coloured chalk upon the time-scales of the sheets. The intervals from transit to transit were taken numerically, and by use of these numbers different graduated scales were prepared, exhibiting multiples of lunar hours (fitted for the photographic sheets) for different lengths of the lunar day. In this way every lunar hour was marked down on the photographic sheet with great precision. After this, the process was exactly the same as for solar hours. The readings of the curve-ordinates were collected upon sheets of the same kind as those used for the Solar observations; the lines containing lunar hours, the columns containing lunar days, and the sheets containing lunar months.

The character of the means for lunar days and lunar months necessarily agrees so closely with that of the means for solar days and calendar months, that it does not appear necessary to print them. The subsequent reference to divisions of the lunar month can be made nearly as well by use of the numbers for solar days as by those for lunar days. The really valuable results are limited to those for lunar diurnal inequalities.

Table XVII. was drawn up for the purpose of examining into the possibility of any inequality of Westerly Declination depending on the Moon's age. There is not the least trace of such an inequality. It appeared, when all

the numbers of the table had been collected, that a slightly erroneous value of Mean Declination had been used. This has produced the correction in the last column.

Table XVIII. contains the Lunar-Monthly Means of Magnetic Westerly Declination, at every Lunar Hour of the Lunar Day.

By comparing, for each lunation, the mean for the lunation with each of the numbers in Table XVIII., a Lunation-Table of Lunar-Diurnal Inequality was formed. This table is not printed here, but from it the following table is derived.

Table XIX. gives the Diurnal Inequality of Western Declination, as referred to the Lunar Hours of the Lunar Day. The existence of two maxima and two minima in each Lunar Day appears to be distinctly marked.

7. Observations of Magnetic Horizontal Force referred to the Moon's Place.

The values of Horizontal Force at the Lunar Hours were measured and entered into the sheets in the same way as those for Solar Hours. But no correction for temperature was introduced. It is evident that, while the commencement of the Lunar Day passes through all the Solar Hours, every Lunar Hour will in its turn pass through every circumstance of temperature: and thus in taking means, which for the first elements used here extend over a lunation, and in final results extend over one year or several years, the corrections for temperature on all the different days of lunation and at all the different lunar hours will be sensibly equal.

For the same reasons which apply to Declinations, it has appeared unnecessary to exhibit the mean Horizontal Force for every Lunar Day or every Lunation. These means, however, having been arranged so as to admit of the grouping of the corresponding days of different Lunations, and the yearly mean for each Lunation-Day being compared with all, the following table was formed.

Table XX. gives the mean Lunation-Inequality of Horizontal Force in each year, and in the Mean of Years. The correction for the proportional part of secular increase of Horizontal Force is applied. The numbers, in part, appear to follow some law, though accompanied with great irregularities. To diminish the latter, the means of adjacent numbers were taken four times, and the result is shown in the last column. The series of numbers (omitting cyphers) may be nearly represented by

$$11 \cos 2\theta - \frac{5}{2}\cos\theta - \frac{5}{2}\cos 3\theta;$$

the zero of θ being at 7^d nearly, and its period being a lunation; but, in the face of irregularities, such a law claims little credit.

Table XXI. gives for each Lunation the mean of the Horizontal Forces at the same Lunar Hour through all the Lunar Days of each Lunation. By the comparison of these numbers for each Lunation with the mean for that Lunation, a lunation-table of luno-diurnal inequality is prepared, which is not printed.

Table XXII. contains, for each year, the mean for each Lunar Hour of the numbers in the last table; exhibiting the Luno-Diurnal Inequality of Horizontal Force. There are in the Lunar Day two very well marked maxima and two minima. From year to year, the changes of magnitude of coefficient do not appear to follow any law; and there is no general increase or diminution.

8. Remarks on the Combination of the Luno-Diurnal Inequalities in Declination and in Horizontal Force.

On comparing the last column of Table XIX. with the last column of Table XXII., it is at once seen that the laws of the two inequalities (in Declination and in Horizontal Force) are similar; that their epochs of maxima sensibly correspond; that their signs are the same; but that their magnitudes are different in a proportion not very dissimilar from that of 78 : 113, that in the direction of North Horizontal Force being the greater.

It appears from this that the forces which are exhibited in these two inequalities are resolved parts of one force, which is alternately + and −; whose direction is westward of the magnetic north meridian by the angle 34°. 40′ nearly, or westward of the astronomical north meridian by the angle 57° nearly; and which goes through its changes twice in the lunar day.

This force cannot be explained, on the usual laws of magnetic action, by independent magnetism in the Moon, or by magnetism in the Moon induced by the Sun.

It may be explained on one of the following suppositions:—

(1.) The Earth is a great magnet with virtual poles in a definite position with respect to the Earth; and the Moon becomes magnetic by instantaneous induction.

Or (2.) The Moon produces in the terrestrial atmosphere a tide, by the ordinary mechanical laws of formation of tides, and the compression and expansion of the oxygen or other magnetic portion of the atmosphere produce these alternate magnetic effects ; no explanation, however, being yet suggested of the peculiar direction of the force.

9. Observations of Magnetic Vertical Force referred to the Moon's Place.

For the same reasons which apply to Declination and to Horizontal Force, I have thought it unnecessary to print the table of Mean Luno-Diurnal values of the Vertical Force, or their Lunation-Means. By comparing each of the Luno-Diurnal values with its Lunation-Mean, and taking the yearly means of numbers corresponding to the same day of Lunation, the following table is formed :

Table XXIII. shows the fluctuation in the mean Luno-Diurnal values of Vertical Force, in the course of a mean lunation. It does not appear to follow distinctly any laws.

Table XXIV. gives the Lunation-Means of Vertical Force at every Lunar Hour of the Lunar Day.

A Lunation-Table of Luno-Diurnal Inequality of Vertical Force was formed, by comparing, for each lunation, the mean for the lunation with each of the numbers in Table XXIV. This table is not printed, but by taking the means of the numbers for each year the following table is formed :

Table XXV. gives the Diurnal Inequality of Vertical Force, as referred to the Lunar Hours of the Lunar Day. There appear to be a single maximum and a single minimum in the course of each Lunar Day, but the result is not free from irregularity.

10. Suggestion of another Law to guide the Order of Reductions of the Magnetic Observations.

The reductions, as far as has been described, are based upon two systems of laws ; one, that of reference to the hour-angle of the Sun, with a wider reference, by subdivision into months, to the declination of the Sun ; the other, that of reference, for some examinations, to the angular distance of the Moon from the Sun ; and, for other examinations, to the hour-angle of the Moon.

With regard to the action of the Sun, I do not perceive that any extension can be made in the investigations.

With regard to the action of the Moon, it is conceivable that the Moon is, under the action of the Sun, a magnet whose axis is directed to the Sun. Suppose the Moon to perform its apparent daily revolutions in a plane parallel to the terrestrial equator and passing through Greenwich ; put l for the latitude of Greenwich ; let α be the excess of Moon's R.A. over Sun's R.A., and θ the hour-angle by which the Moon has passed the lower meridian. Also let $\tan \beta = \frac{1}{2} \tan \alpha$, and put v for the magnetic westerly declination.

Then the following expressions will be proportional to the forces in the several directions :—

Force towards magnetic north =

$$- \cos v . \sin l . \frac{\sin \alpha}{\sin \beta} . \cos (\theta - \beta) + \sin v . \frac{\sin \alpha}{\sin \beta} . \sin (\theta - \beta) ;$$

Force towards magnetic west =

$$+ \sin v . \sin l . \frac{\sin \alpha}{\sin \beta} . \cos (\theta - \beta) + \cos v . \frac{\sin \alpha}{\sin \beta} \sin (\theta - \beta) ;$$

Force vertically downwards =

$$- \cos l . \frac{\sin \alpha}{\sin \beta} . \cos (\theta - \beta).$$

If $\tan W = \frac{\tan v}{\sin l}$, and $\tan w = \tan v . \sin l$, these expressions become,

$$\text{Force towards magnetic north} = - \frac{\sin v}{\sin W} . \frac{\sin \alpha}{\sin \beta} . \cos (\theta - \beta + W) ;$$

$$\text{Force towards magnetic west} = + \frac{\cos v}{\cos w} \frac{\sin \alpha}{\sin \beta} . \sin (\theta - \beta + w) ;$$

$$\text{Force vertically downwards} = - \cos l . \frac{\sin \alpha}{\sin \beta} . \cos (\theta - \beta).$$

In these expressions, the coefficients never change sign, and β is always in the same quadrant with α. Hence the inequalities would all depend (roughly) on the angle $\theta - \alpha$; an angle which goes through its period in $25^h . 45^m$ nearly of solar time ; and the observations must be arranged with reference to this period. I have not yet effected this arrangement.

Royal Observatory, Greenwich,
1861, *April* 20.

G. B. AIRY.

REDUCTIONS OF MAGNETIC OBSERVATIONS REFERRED TO THE SUN'S PLACE.

REDUCTIONS OF MAGNETIC DECLINATION REFERRED TO THE SUN'S PLACE.

TABLE I.—MEAN WESTERLY DECLINATION of the MAGNET on each ASTRONOMICAL DAY, as DEDUCED from the MEAN of TWENTY-FOUR HOURLY MEASURES of ORDINATES of the PHOTOGRAPHIC REGISTER on that DAY.

Days of the Month.	1848.												1849.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	..	49·7	49·1	52·3	50·1	54·2	55·3	53·6	52·0	..	51·2	..	..	32·5	46·1	45·3	40·4	41·7	42·0	39·7	..	(22·5)	30·7	..
2	..	49·1	48·8	53·4	50·5	53·6	54·6	..	52·2	50·8	..	..	..	33·1	44·6	43·7	40·5	..	40·6	41·9	..	(16·5)	30·0	29·8
3	..	48·3	47·7	52·8	52·2	54·0	55·5	50·4	53·4	51·9	50·4	49·6	35·3	32·9	44·7	44·7	..	..	42·2	41·7	..	..	31·6	29·5
4	..	48·9	..	54·1	51·6	55·3	55·9	52·7	51·1	53·2	..	51·3	35·3	..	44·3	41·6	39·5	40·3	43·2	..	31·9	..	..	29·4
5	..	49·2	..	..	49·2	53·6	54·1	53·9	51·7	52·7	51·1	50·6	35·6	44·7	44·5	43·4	..	40·1	42·6	..	..	..	30·6	29·4
6	..	50·0	..	..	50·5	53·1	52·2	53·1	51·8	50·3	..	52·7	34·8	44·2	43·2	43·2	..	41·3	41·9	..	..	29·9	29·7	28·0
7	..	48·2	..	..	51·4	51·7	52·8	..	50·6	51·0	..	52·3	36·3	44·0	43·4	42·0	42·0	42·7	40·3	..	..	30·5	29·8	..
8	..	48·4	..	..	50·8	53·4	53·9	49·7	48·1	49·7	..	53·2	35·9	44·7	43·4	42·6	39·1	38·5	39·7	41·5	..	31·6	29·7	28·8
9	..	48·5	..	50·0	51·2	54·0	56·6	52·2	..	52·1	..	51·1	34·8	..	44·2	43·0	41·4	38·3	38·4	43·1	28·7	32·1	30·4	28·4
10	..	48·7	..	53·5	54·2	55·7	55·0	..	.	51·9	50·7	52·0	..	44·0	..	43·2	42·0	40·1	39·8	..	29·5	30·0	30·9	29·4
11	..	49·5	..	..	52·7	55·9	55·9	52·4	..	54·1	51·3	51·9	35·0	44·9	44·7	43·4	..	41·5	41·4	39·7	26·3	31·3	31·0	29·6
12	..	48·9	..	52·9	52·3	56·2	54·0	52·7	51·3	53·1	51·1	51·1	34·7	46·1	43·6	43·3	..	..	42·0	40·2	..	30·7	31·5	30·1
13	..	49·4	..	52·1	..	..	52·7	..	50·4	52·8	..	51·2	34·7	45·6	43·8	42·5	41·2	..	41·6	..	24·2	31·1	32·1	28·2
14	..	49·5	..	..	..	54·5	53·7	..	52·1	53·1	50·3	50·3	34·8	42·8	42·8	42·3	..	40·6	42·2	39·1	26·7	31·1	29·9	28·6
15	51·6	49·8	..	..	55·7	52·6	53·0	..	50·7	52·1	49·9	52·8	34·5	44·1	42·7	..	40·0	39·9	42·2	..	26·6	31·2	30·7	28·5
16	..	49·8	..	53·5	51·7	52·6	52·7	53·6	51·0	52·4	50·3	53·0	35·9	43·1	..	41·9	..	41·4	42·3	39·5	27·0	30·6	30·6	28·8
17	50·7	..	..	..	50·6	53·8	51·9	52·8	50·2	54·6	..	..	34·9	44·9	41·1	40·8	42·7	41·8	39·8	40·1	..	29·9	29·5	28·0
18	50·6	49·2	..	..	54·1	54·3	52·0	..	52·4	..	49·3	53·5	34·5	44·0	..	40·3	42·0	40·6	40·9	..	27·2	28·5	30·0	28·3
19	51·3	..	..	..	55·5	55·0	54·1	..	52·5	..	..	52·4	34·3	43·7	44·2	..	42·1	43·0	41·0	..	25·5	29·6	30·9	28·4
20	50·2	..	..	..	56·3	53·7	54·0	50·5	..	52·5	51·2	52·9	33·8	45·0	43·2	39·3	43·6	42·0	40·9	..	26·9	30·2	29·6	29·6
21	49·2	..	56·0	..	55·1	54·9	53·3	51·9	50·3	52·4	49·0	52·4	34·3	44·4	42·9	43·2	44·6	..	40·9	..	28·3	31·5	31·8	28·7
22	48·5	50·9	52·5	..	55·1	51·5	53·5	51·8	49·9	51·3	49·3	51·1	32·4	42·6	43·8	..	43·1	..	39·7	..	26·9	32·9	31·3	..
23	49·6	48·2	55·1	52·5	52·9	52·9	54·0	51·1	50·8	..	48·3	51·3	33·6	42·1	43·0	..	..	39·8	41·6	31·6	18·8	30·6	30·6	..
24	51·2	..	53·8	53·5	52·4	52·1	..	51·1	51·3	50·8	51·2	51·7	32·2	43·6	42·3	41·9	41·5	40·3	40·7	..	..	31·5	29·8	..
25	50·1	49·0	..	52·7	51·4	53·5	..	51·6	50·5	52·5	49·1	..	32·7	45·4	44·3	43·1	41·6	40·3	..	..	24·7	32·0	31·4	28·8
26	49·4	..	56·2	51·1	53·1	52·8	54·3	52·2	51·3	51·8	52·3	..	33·0	43·8	..	43·2	40·3	..	..	31·2	..	31·6	32·5	..
27	49·3	..	55·1	51·0	54·1	53·6	52·9	52·9	51·2	51·5	51·8	..	34·4	45·9	43·1	41·5	..	39·9	40·7	31·5	25·4	..	33·9	..
28	..	49·8	54·8	52·1	53·5	53·3	52·8	53·4	52·1	51·1	49·4	..	33·7	46·2	...	41·6	..	41·6	..	31·9	..	31·3	29·5	..
29	50·2	49·1	54·2	49·7	52·3	54·5	54·1	52·9	..	49·7	50·2	..	33·6		42·6	..	42·6	41·5	40·9	31·7	31·2	30·7	30·1	..
30	49·5		..	50·2	51·8	52·9	54·3	51·7	..	50·5	51·2	..	35·6		42·8	39·9	40·4	40·8	..	..	..	..	27·2	..
31	..		53·7		52·5		52·2	53·2		50·0		..	32·2		43·1		41·5		..	31·0		30·5		..

TABLE I.—MEAN WESTERLY DECLINATION of the MAGNET on each ASTRONOMICAL DAY, &c.—*continued.*

1850.

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

1851.

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

1852.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	19·6	..	21·1	22·6	23·3	17·7	15·9	17·5	15·2	13·7	10·8	12·8
2	..	21·9	23·1	20·3	23·0	18·5	16·6	17·4	12·5	13·5	..	14·3
3	23·2	21·6	..	22·8	23·6	19·1	..	17·6	13·2	12·9	12·3	11·2
4	..	20·2	21·9	21·0	..	18·2	..	17·2	11·9	14·2	12·0	10·9
5	24·2	21·7	22·9	21·9	22·6	..	..	16·3	13·6	..	11·6	10·3
6	21·7	23·2	22·5	22·5	21·7	17·0	..	19·0	14·5	12·9	11·2	13·2
7	22·4	..	19·2	23·3	22·8	19·2	21·1	18·9	14·1	13·3	11·1	12·8
8	21·8	..	22·3	22·4	23·2	19·6	18·8	18·3	16·0	13·1	11·0	12·7
9	23·1	..	21·0	23·8	22·6	19·7	21·0	..	18·9	12·5	11·9	12·1
10	21·3	22·6	19·7	22·4	23·1	22·3	..	16·1	15·8	13·8	11·3	11·6
11	22·4	22·7	22·8	21·1	22·7	..	17·4	19·0	13·1	..	..	11·5
12	22·6	22·2	23·8	22·0	22·3	20·0	18·3	19·3	14·7	13·2	12·1	11·0
13	21·2	21·2	22·5	22·4	23·3	17·9	18·1	18·5	13·2	12·5	..	11·7
14	23·0	20·4	21·6	20·5	23·2	17·6	19·2	17·7	12·5	12·9	10·9	11·0
15	22·4	..	19·7	22·3	22·4	..	18·5	18·1	..	13·8	11·8	11·3
16	23·3	20·3	22·7	23·9	20·9	16·2	18·6	18·7	14·5	13·9	11·2	11·3
17	23·7	..	22·0	22·6	..	17·0	19·1	18·8	12·8	12·3	12·2	9·6
18	23·4	..	22·1	23·8	..	17·6	18·4	18·0	14·6	..	12·7	10·3
19	..	..	21·9	22·5	..	17·9	18·9	17·3	17·6	11·9	11·4	11·2
20	23·8	..	20·4	..	..	..	19·2	17·4	..	11·8	11·5	10·3
21	22·6	..	19·2	23·1	18·0	17·3	18·4	..	15·3	12·5	11·5	11·1
22	24·7	22·7	21·3	23·1	..	..	17·8	21·6	14·0	12·6	11·2	10·6
23	24·2	22·3	21·5	..	..	17·0	18·7	..	14·0	12·8	11·4	..
24	22·4	20·9	21·7	22·3	..	16·8	19·2	16·9	14·0	12·6	11·1	10·6
25	22·5	22·0	20·6	22·6	20·3	16·4	20·0	..	..	12·1	10·1	..
26	22·5	22·1	21·3	23·1	20·4	17·1	21·5	..	13·6	12·8	11·5	11·6
27	22·6	20·5	..	22·7	20·1	16·7	20·8	14·9	14·5	13·1	10·9	..
28	23·7	22·3	21·2	21·8	20·9	18·3	20·3	13·6	14·6	13·0	11·6	..
29	22·2	23·0	19·7	21·4	20·4	17·6	..	14·3	..	12·8	12·3	..
30	22·8		20·1	21·4	..	17·7	19·5	13·6	14·0	11·7	13·0	..
31	21·5		19·7		18·3		19·3	13·6		11·3		..

1853.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	12·4	11·9	11·2	10·2	13·5	10·6	9·2	..	..	5·9	7·6
2	..	12·6	12·2	9·7	..	11·4	9·1	10·6	..	..	5·9	6·6
3	..	12·4	11·8	..	..	..	9·7	10·4	11·6	..	6·2	6·6
4	..	11·7	10·8	..	11·2	..	9·0	9·3	12·5	12·3	..	..
5	..	11·5	11·1	7·8	10·6	9·4	9·9	10·7	13·7	..	..	..
6	..	11·8	11·2	12·2	10·3	9·3	10·1	11·6	16·7	7·2	..	..
7	..	11·7	..	10·4	10·1	8·6	9·7	10·4	13·8	6·7	7·1	..
8	..	11·6	..	10·9	10·3	8·3	11·1	11·2	14·4	7·2	6·7	6·5
9	..	11·3	12·7	..	10·8	10·8	11·4	11·3	12·3	6·6	..	6·4
10	..	10·5	10·8	10·8	10·7	9·2	9·8	9·7	10·9	5·9	6·9	..
11	13·2	11·6	10·9	12·4	10·3	9·8	12·3	9·0	9·5	7·3	5·8	5·4
12	12·1	13·0	10·4	10·1	9·7	10·5	..	9·7	11·4	7·1	5·6	5·9
13	12·9	13·1	11·9	10·9	14·9	12·1	10·8	9·6	..	8·6	7·1	7·9
14	12·5	14·7	12·1	..	8·6	12·7	13·1	10·1	11·4	6·5	6·8	..
15	..	12·7	11·1	16·2	9·1	8·7	11·7	9·1	..	..	3·8	..
16	..	11·9	..	..	..	8·9	11·3	10·3	..	7·9	4·4	5·5
17	13·3	12·1	..	18·4	..	9·2	11·8	10·9	10·3	7·9	4·6	..
18	13·4	11·4	12·4	14·7	11·7	11·6	11·6	10·8	9·0	6·8	4·5	..
19	13·2	12·0	11·3	14·7	15·5	11·9	11·3	10·3	9·7	8·1	3·8	..
20	12·5	11·6	11·6	11·3	12·6	11·6	10·9	..	12·4	8·9	4·4	5·4
21	12·7	..	11·7	23·2	12·4	10·7	10·8	..	12·1	7·4	..	..
22	11·7	13·5	11·7	..	12·2	..	12·3	..	12·3	5·9	..	6·3
23	12·4	11·9	11·1	..	12·0	10·3	10·4	..	12·2	7·0	5·2	6·1
24	12·3	11·7	11·3	11·2	..	9·3	9·5	11·1	..	7·8	..	6·7
25	12·5	..	10·8	11·5	12·3	11·1	9·5	11·8	..	..	4·2	6·9
26	11·9	12·1	12·7	10·7	11·8	11·0	9·8	11·2	13·1	6·1	4·1	7·3
27	12·0	14·2	11·4	10·6	..	11·0	10·9	..	8·5	6·5	4·1	..
28	11·3	..	11·3	10·3	13·1	12·6	10·8	10·7	..	6·1	6·1	..
29	11·5		10·9	10·7	..	10·7	..	9·7	..	5·8	5·3	..
30	10·9		10·0	10·0	..	9·5	..	10·2	11·4	..	5·8	..
31	11·9		11·4		10·5		11·0	8·9		..		..

TABLE I.—MEAN WESTERLY DECLINATION of the MAGNET on each ASTRONOMICAL DAY, &c.—*continued.*

1854.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
1	..	64·4	61·9	62·1	62·4	62·0	61·8	62·7	59·1	..	57·8	59·0
2	..	..	62·7	62·9	..	..	60·7	61·9	59·8	..	58·4	56·6
3	..	..	61·4	62·9	62·9	..	61·8	62·3	59·8	..	58·2	57·6
4	..	63·3	62·6	62·8	61·8	60·6	61·5	62·3	59·0	..	58·0	57·5
5	..	62·9	62·8	62·9	62·0	60·1	60·9	..	61·1	..	59·4	57·3
6	.	..	..	62·7	62·5	61·0	60·4	..	59·7	..	58·7	57·8
7	64·4	64·3	62·5	..	61·5	..	60·1	..	60·5	..	59·2	57·6
8	64·5	62·6	63·7	62·6	59·7	61·4	60·5	..	59·1	55·8	..	57·4
9	64·7	63·0	63·4	63·0	61·2	62·1	..	..	59·8	57·6	59·5	58·5
10	64·7	64·6	63·8	..	62·1	60·6	59·9	61·4	..	57·4	58·0	58·3
11	65·1	..	63·7	64·7	61·4	60·1	60·5	60·4	60·2	58·1	58·4	..
12	64·6	63·1	62·0	63·2	63·3	62·1	60·8	61·7	59·0	56·9	58·2	57·3
13	64·4	62·7	61·0	62·7	63·4	60·6	60·9	60·8	58·7	57·9	58·3	57·2
14	63·6	60·7	62·8	61·7	61·5	59·3	61·5	61·5	59·2	58·4	58·3	58·0
15	64·2	61·5	..	63·0	60·2	60·5	61·3	61·0	59·1	..	58·2	56·0
16	64·4	..	..	62·3	61·5	62·0	..	61·1	..	58·6	58·8	57·2
17	64·0	61·1	62·7	63·4	59·5	60·4	60·6	..	59·4	59·0	58·4	..
18	65·3	61·2	62·5	63·3	62·5	61·0	59·4	..	..	59·1	58·4	57·8
19	65·6	62·8	62·9	62·0	59·4	60·6	60·0	..	59·0	58·2	59·3	56·9
20	..	62·5	62·6	59·1	59·6	61·8	59·7	60·9	58·9	58·2	58·7	58·4
21	64·7	62·2	62·6	58·1	61·4	62·3	59·3	62·0	59·0	58·1	58·7	57·1
22	64·0	63·1	62·2	61·1	63·4	61·8	57·8	60·6	..	58·6	58·5	57·0
23	63·9	62·1	62·3	63·6	61·1	62·1	59·0	61·1	59·4	57·1	58·4	58·0
24	64·9	..	61·5	62·4	61·0	61·6	60·9	60·9	59·5	58·9	58·1	57·0
25	63·3	..	63·2	61·1	61·9	60·9	59·4	..	59·3	57·2	59·3	58·8
26	63·5	62·6	62·6	61·7	61·4	60·8	60·2	..	58·9	57·7	..	..
27	63·7	61·7	62·7	61·7	62·2	60·8	..	59·2	59·7	..	..	..
28	63·2	62·0	..	62·5	62·6	61·3	..	60·0	58·7	57·9	58·9	..
29	63·4		63·3	62·1	62·4	..	..	..	58·4	57·4	58·5	..
30	63·6		61·6	63·1	63·1	61·6	61·3	59·1	..	57·7	57·1	..
31	64·2		62·4		61·6		62·7	59·3		57·3		..

1855.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
1	..	49·7	50·9	49·5	50·6	53·2	..	48·3	..	47·4	..	46·2
2	..	..	..	48·6	49·3	..	..	..	48·5	46·8	..	46·9
3	50·1	47·5	48·6	..	49·3	51·5	..	..	48·9	48·1	45·4	46·7
4	50·5	46·9	48·8	..	49·9	50·7	48·8	47·6	48·7	45·5	45·3	46·5
5	50·3	48·1	48·7	49·1	49·4	50·0	..	..	..	47·8	43·7	46·9
6	49·5	47·8	48·3	50·0	48·6	52·3	..	..	48·7	47·5	..	..
7	..	46·6	48·0	48·2	47·9	51·9	..	49·7	..	47·0	..	45·4
8	..	48·5	47·9	47·4	49·1	..	50·4	..	49·2	47·9	..	46·2
9	50·2	48·3	48·3	49·2	47·7	..	50·4	..	..	47·6	..	46·6
10	48·8	..	48·5	48·5	49·3	50·6	..	..	..	46·9	46·4	46·4
11	48·1	47·8	49·0	47·8	..	50·1	50·9	..	..	46·9	46·2	47·0
12	49·3	46·8	..	48·2	49·3	51·2	..	51·4	47·5	46·2	45·5	47·1
13	49·6	46·9	47·8	49·2	49·4	..	..	..	48·4	46·9	..	46·1
14	49·5	..	47·9	49·1	50·3	50·5	48·3	..	49·0	..	..	46·3
15	48·7	..	49·7	48·8	48·7	51·5	..	..	48·2	..	46·5	46·4
16	49·7	38·5	48·4	48·3	50·1	52·0	..	47·8	48·8	45·6	45·6	47·0
17	..	..	49·6	47·3	49·9	50·7	48·6	49·2	48·2	..	44·6	46·8
18	49·4	..	47·7	..	48·0	..	46·6	48·1	48·1	45·8	45·6	..
19	..	48·5	48·8	49·2	49·8	..	48·2	..	..	46·9	45·7	..
20	49·7	48·9	49·0	47·9	48·3	51·2	..	..	46·1	45·5	45·8	..
21	51·0	49·5	..	50·1	..	50·4	50·5	49·1	46·1	46·0	46·8	..
22	..	..	49·4	49·4	49·7	49·9	50·5	49·8	46·8	46·6	..	..
23	50·1	..	49·7	49·9	49·9	50·6	..	47·7	44·6	45·4	45·0	46·5
24	50·0	52·5	..	49·1	..	50·7	50·9	..	47·0	46·8	45·6	46·5
25	50·6	51·2	50·5	50·1	49·0	51·3	49·5	..	47·1	46·8	45·9	46·8
26	49·7	50·0	49·3	..	49·2	50·8	50·5	48·1	46·5	47·2	45·9	..
27	49·7	51·2	48·9	49·3	..	..	..	48·0	..	46·4	45·5	..
28	..	49·8	49·3	49·9	..	50·5	48·9	..	48·3	45·9	..	..
29	49·2		48·9	48·0	50·3	..	49·2	..	46·9	47·3	44·7	..
30	50·6		49·3	50·4	..	50·1	..	48·5	47·9	47·2	45·5	..
31	50·3		49·4		..		..	..		46·9		..

1856.

1	..	46·9	45·5	46·0	44·5	43·5	..	44·4	42·2	..	40·2	39·6
2	..	45·8	45·5	47·3	43·5	42·4	..	44·5	42·9	..	..	39·9
3	44·1	46·8	45·8	46·2	43·1	43·5	..	44·3	..	..	..	..
4	..	..	44·9	46·3	44·1	..	..	45·0	..	..	..	40·9
5	..	44·9	44·5	..	43·8	..	43·4	44·8	42·3	..	42·5	..
6	44·4	46·1	46·0	..	..	..	44·0	44·9	42·9	..	..	40·8
7	..	44·8	45·4	..	..	..	47·1	42·5	42·2	..	..	40·3
8	..	..	45·0	44·2	..	43·7	44·2	43·7	..	..	41·3	39·4
9	45·7	45·7	45·8	44·5	44·6	43·5	..	43·2	..	..	40·6	..
10	45·6	46·9	46·0	44·3	43·5	..	43·3	42·4	..	..	41·6	..
11	45·6	47·3	45·8	44·4	42·6	44·1	44·2	43·7	..	..	41·3	..
12	48·1	46·1	44·8	43·7	43·4	..	44·5	44·7	..	..	40·8	..
13	..	46·4	..	..	..	..	45·4	43·5	..	..	40·7	..
14	45·8	46·7	45·6	44·7	..	..	44·5	44·5	..	42·5	41·3	..
15	45·6	46·0	45·3	44·2	..	..	46·2	..	..	41·9	41·2	..
16	45·5	46·3	44·6	..	..	..	45·3	..	..	41·4	41·3	39·8
17	..	..	44·6	43·7	..	..	44·4	..	..	39·9	40·8	38·8
18	45·6	..	..	43·6	..	44·8	44·9	..	..	39·4	40·7	40·1
19	46·0	46·2	..	44·3	..	..	..	43·7	..	38·6	40·6	39·9
20	46·5	45·4	45·2	44·4	..	44·3	..	..	..	40·9	39·7	40·3
21	45·9	..	46·1	43·5	..	44·2	..	43·3	..	..	..	..
22	45·8	45·4	46·2	40·7	..	44·7	46·4	42·5	..	..	40·5	..
23	45·1	46·0	45·3	44·5	..	45·0	43·9	..	..	41·3	39·9	..
24	45·2	46·0	45·4	43·2	43·9	45·2	45·2	..	..	..	40·1	..
25	44·3	45·7	44·8	..	43·0	45·3	44·4	..	..	..	40·1	..
26	45·5	45·9	44·5	42·8	42·8	44·2	43·6	42·1	..	40·0	40·8	40·8
27	45·8	..	..	43·6	42·6	43·4	43·4	41·5	..	..	41·2	40·6
28	45·9	..	..	43·0	..	41·6	44·9	..	..	..	39·7	42·2
29	46·2	..	45·7	43·6	43·7	40·1	45·1	..	..	..	40·6	..
30	46·5		45·3	41·9	42·9	43·9	45·2	..	..	..	39·8	..
31	45·7		44·3		..		43·9	42·6		42·8		..

1857.

1	..	37·0	37·0	..	35·3	..	..	34·3	33·9	37·4	35·1	32·2
2	..	..	35·9	34·6	35·4	..	32·8	33·3	34·2	33·1	..	33·3
3	..	..	35·3	35·8	35·2	..	33·2	33·0	..	..	..	32·7
4	39·3	..	35·3	35·5	34·9	..	34·2	36·2	35·4	..	35·7	33·1
5	..	..	35·3	35·2	34·9	..	34·4	35·1	..	32·4	35·4	..
6	..	36·2	34·2	35·2	35·3	..	33·8	34·8	34·8	..	..	32·4
7	..	36·6	34·8	36·6	..	..	33·4	35·8	34·7	40·7	34·9	32·6
8	..	36·6	34·6	36·3	..	..	32·2	37·7	36·6	50·0	33·7	31·5
9	..	36·3	35·4	36·0	..	..	32·5	..	35·0	44·7	..	32·2
10	36·5	37·0	..	35·2	..	35·6	34·1	34·9	33·8	39·1	..	..
11	37·0	36·0	37·9	38·9	..	33·7	..	36·4	38·2	43·0	..	..
12	36·2	35·8	36·7	37·4	..	35·2	..	34·4	42·2	40·1	..	..
13	36·7	36·7	..	34·8	35·5	34·4	..	..	34·8	37·4	..	34·2
14	37·0	36·9	36·2	35·7	37·4	..	..	36·6	37·1	35·0	..	33·3
15	36·1	..	36·3	36·0	..	34·3	37·4	..	37·1	35·8	..	31·7
16	33·7	36·4	36·5	35·0	..	34·6	38·2	33·7	34·9	37·7	..	..
17	36·6	..	35·7	34·4	..	35·2	39·8	..	33·9	35·8	..	..
18	36·6	36·1	35·6	34·2	..	..	39·5	34·1	..	36·6	33·5	33·0
19	36·0	36·9	37·9	..	..	..	35·5	34·9	33·2	34·2	31·9	33·0
20	36·3	36·9	37·2	..	..	34·8	..	35·3	33·3	37·7	31·8	32·4
21	..	36·5	36·1	35·6	..	33·8	39·5	34·9	36·3	39·0	32·4	32·1
22	..	36·6	36·5	38·0	..	35·8	..	35·2	35·5	39·8	32·5	31·9
23	36·2	36·1	35·9	37·4	..	34·7	..	33·3	..	36·4	..	..
24	36·4	36·8	36·5	35·8	..	..	..	33·6	35·0	36·2	31·6	..
25	37·0	36·9	36·4	35·8	..	..	33·4	34·6	38·1	33·0	32·7	33·3
26	36·3	..	36·5	37·0	..	..	34·2	33·3	36·0	32·1	31·3	..
27	36·3	38·9	35·7	36·2	..	..	34·0	33·3	35·5	33·1	32·8	31·0
28	36·0	39·2	37·1	36·7	..	..	33·5	31·9	34·3	33·6	32·2	..
29	36·7		36·6	36·4	..	..	34·0	39·1	35·4	34·1	31·6	..
30	35·7		35·9	35·9	..	..	33·2	36·6	..	35·0	..	..
31	36·9		35·7		35·6		33·8	..		..		..

TABLE II.—MEAN WESTERLY DECLINATION of the MAGNET in each MONTH, as deduced from the Mean of the MEAN DAILY DETERMINATIONS in each MONTH; and MEAN WESTERLY DECLINATION in each YEAR, as deduced from the Mean of the MEAN MONTHLY DETERMINATIONS: showing the MONTHLY and ANNUAL PROGRESS of SECULAR VARIATION.

Month.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	Mean of Years.	Mean corrected for Secular Change 7′·9 annually.
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′
January....	22. 50·0	22. 45·7	22. 28·4	22. 20·3	22. 22·6	22. 12·5	22. 4·2	21. 50·0	21. 45·6	21. 36·5	22. 13·6	22. 13·6
February...	22. 49·3	22. 44·0	22. 27·5	22. 19·8	22. 21·8	22. 12·1	22. 2·8	21. 48·3	21. 46·0	21. 36·7	12·8	13·5
March.....	22. 52·9	22. 43·6	22. 26·3	22. 19·8	22. 21·3	22. 11·4	22. 2·4	21. 48·9	21. 45·5	21. 36·1	12·8	14·1
April.....	22. 52·1	22. 42·7	22. 26·0	22. 20·6	22. 22·3	22. 12·0	22. 2·3	21. 49·0	21. 44·1	21. 36·0	12·7	14·7
May.....	22. 52·6	22. 41·5	22. 24·4	22. 18·9	22. 21·8	22. 11·2	22. 1·7	21. 49·3	21. 43·5	21. 36·0	12·1	14·7
June	22. 53·7	22. 40·8	22. 24·0	22. 14·0	22. 18·0	22. 10·4	22. 1·1	21. 50·9	21. 43·7	21. 34·9	11·2	14·4
July.....	22. 53·7	22. 41·1	22. 22·8	22. 16·6	22. 18·9	22. 10·7	22. 0·4	21. 49·5	21. 44·7	21. 34·7	11·3	15·3
August	22. 52·5	22. 37·3	22. 21·4	22. 17·0	22. 17·7	22. 10·2	22. 0·8	21. 48·9	21. 43·6	21. 35·2	10·5	15·1
September..	22. 51·3	22. 27·4	22. 25·4	22. 14·6	22. 14·3	22. 11·5	21. 59·4	21. 47·6	21. 42·9	21. 35·6	9·0	14·3
October....	22. 51·9	22. 29·8	22. 18·2	22. 17·3	22. 12·9	22. 7·3	21. 58·0	21. 46·7	21. 41·1	21. 36·9	8·0	13·9
November..	22. 50·4	22. 30·6	22. 18·8	22. 20·7	22. 11·5	22. 5·3	21. 58·5	11. 45·6	21. 40·8	21. 33·3	7·6	14·1
December...	22. 51·7	22. 28·8	22. 18·6	22. 20·2	22. 11·5	22. 6·4	21. 57·5	21. 46·2	21. 40·2	21. 32·9	7·4	14·6
Mean.....	22. 51·8	22. 37·8	22. 23·5	22. 18·3	22. 17·9	22. 10·1	22. 0·8	21. 48·4	21. 43·5	21. 35·4		

TABLE III.—MONTHLY MEANS of all the actual DIURNAL RANGES of the WESTERN DECLINATION, as deduced from the twenty-four hourly measures of each day (the hours of extreme readings not being in all cases the same): showing the MONTHLY and ANNUAL CHANGES of ACTUAL DIURNAL RANGE.

Month.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	Mean for each Month through the whole Period of Years.
	′	′	′	′	′	′	′	′	′	′	′
January....	14·1	12·3	8·5	8·2	9·6	9·4	12·2	8·6	5·9	6·2	9·5
February...	14·9	14·7	11·8	9·4	13·3	9·9	13·7	10·9	7·4	7·3	11·3
March.....	16·8	16·2	14·8	11·4	15·1	13·9	12·9	12·5	8·2	9·5	13·1
April.....	16·4	17·8	14·4	12·8	16·1	12·7	14·5	14·2	10·6	10·5	14·0
May.....	16·1	15·1	14·2	14·0	13·2	10·7	12·9	11·7	8·7	10·4	12·7
June	16·1	15·6	15·3	11·4	13·8	13·9	11·1	10·5	9·7	8·7	12·6
July.....	16·8	15·4	14·6	13·8	12·6	12·4	11·6	10·6	9·9	9·2	12·7
August	16·4	12·8	14·8	14·2	13·0	11·0	12·4	10·9	11·5	8·8	12·6
September..	15·7	17·3	15·7	13·9	14·9	11·7	11·2	11·2	11·3	12·4	13·5
October....	16·2	14·7	14·3	12·2	13·5	12·3	10·1	11·0	7·8	10·1	12·2
November..	13·5	11·1	9·5	9·2	10·4	8·9	6·5	9·3	7·2	7·1	9·3
December...	10·5	8·1	7·5	9·3	10·2	9·2	7·0	5·7	6·0	8·0	8·2
Mean.....	15·3	14·3	12·9	11·6	13·0	11·3	11·3	10·6	8·7	9·0	11·8

TABLE IV.—MEAN MONTHLY DETERMINATION of the WESTERN DECLINATION of the MAGNET at every HOUR of the DAY; obtained by taking the MEAN of all the DETERMINATIONS at the same HOUR of the DAY through the MONTH.

Hour. Göttingen Mean Solar Time.	1848. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
	55′·0	54′·1	59′·0	56′·8	58′·0	59′·2	58′·6	58′·6	57′·8	56′·9	55′·6	55′·0
1	56′·1	56′·0	61′·6	60′·0	61′·2	62′·1	62′·2	61′·5	60′·1	59′·2	55′·8	55′·9
2	56′·9	56′·8	61′·7	61′·1	61′·2	62′·3	62′·6	61′·9	60′·1	60′·5	55′·7	56′·6
3	55′·3	56′·0	60′·2	59′·6	59′·4	61′·1	61′·2	60′·5	57′·4	58′·4	54′·5	55′·1
4	54′·5	53′·6	57′·4	56′·6	57′·0	59′·3	59′·0	57′·5	54′·8	55′·9	53′·1	53′·9
5	51′·6	51′·1	54′·9	55′·1	55′·3	56′·9	57′·2	54′·8	52′·4	53′·3	51′·1	52′·8
6	52′·0	49′·5	52′·5	52′·9	53′·4	54′·6	55′·0	52′·2	51′·1	52′·3	50′·6	52′·4
7	51′·0	49′·8	51′·6	51′·2	52′·0	53′·0	53′·5	51′·3	50′·7	51′·7	50′·0	51′·5
8	50′·5	48′·9	51′·4	50′·3	50′·4	52′·4	52′·9	51′·5	49′·6	50′·6	49′·2	51′·0
9	48′·3	46′·5	51′·7	50′·2	51′·0	52′·3	52′·7	51′·0	49′·6	50′·1	47′·3	50′·0
10	46′·2	46′·3	51′·7	50′·0	51′·2	52′·6	52′·6	51′·0	48′·7	49′·9	46′·4	49′·2
11	46′·3	45′·6	50′·4	50′·3	50′·9	53′·0	52′·6	50′·5	48′·5	49′·4	46′·6	49′·3
12	47′·3	46′·2	49′·9	49′·8	51′·1	52′·8	52′·7	50′·5	49′·0	48′·5	46′·5	49′·3
13	47′·5	46′·8	50′·3	50′·6	50′·5	52′·4	52′·4	50′·3	48′·8	48′·8	47′·8	49′·0
14	47′·9	46′·8	50′·8	50′·1	50′·0	52′·7	51 6	49′·9	49′·1	49′·1	48′·6	50′·1
15	47′·5	47′·0	51′·0	50′·6	50′·6	52′·3	51′·9	50′·1	49′·1	49′·6	49′·0	50′·9
16	47′·8	46′·9	49′·8	49′·8	49′·8	51′·6	51′·8	49′·8	49′·7	49′·8	49′·8	51′·1
17	47′·8	46′·6	49′·4	49′·5	49′·1	50′·2	50′·4	49′·6	48′·8	50′·3	50′·6	50′·6
18	47′·3	46′·7	49′·4	50′·0	48′·4	48′·3	48′·8	48′·7	48′·6	50′·7	49′·8	51′·0
19	48′·3	47′·9	50′·4	49′·0	48′·1	47′·8	48′·2	47′·4	48′·3	50′·8	50′·3	50′·8
20	47′·7	47′·4	48′·6	48′·2	47′·9	48′·2	48′·1	47′·5	47′·7	49′·6	50′·0	51′·0
21	47′·7	46′·8	49′·2	47′·6	49′·2	48′·9	48′·8	48′·6	47′·6	48′·7	49′·4	50′·6
22	49′·7	48′·3	51′·4	49′·7	51′·8	50′·9	51′·5	51′·2	49′·9	49′·6	50′·3	51′·3
23	51′·9	50′·6	55′·4	52′·7	55′·6	55′·1	54′·4	55′·3	53′·7	52′·7	52′·6	53′·2

Hour. Göttingen Mean Solar Time.	1849. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
	48′·2	47′·2	48′·8	48′·2	47′·2	46′·5	47′·0	42′·8	33′·4	34′·6	34′·4	31′·0
1	49′·9	49′·9	51′·7	51′·1	48′·8	48′·3	48′·4	44′·2	35′·2	37′·1	35′·2	32′·4
2	51′·3	50′·8	52′·4	52′·0	49′·5	48′·8	49′·1	44′·7	35′·1	36′·9	34′·9	32′·2
3	50′·6	51′·1	51′·3	50′·7	48′·9	48′·5	48′·5	43′·4	33′·6	35′·8	33′·9	30′·9
4	48′·7	49′·6	48′·7	48′·1	46′·6	46′·9	46′·2	41′·4	31′·6	33′·3	32′·6	30′·4
5	47′·6	47′·6	45′·9	45′·3	44′·5	44′·5	44′·2	39′·4	28′·9	31′·7	31′·8	29′·6
6	47′·2	46′·3	44′·4	43′·0	42′·6	42′·6	42′·4	37′·5	28′·5	30′·1	30′·9	29′·3
7	46′·6	45′·7	43′·9	42′·4	41′·1	40′·3	40′·8	36′·4	27′·1	29′·0	30′·5	29′·2
8	45′·7	44′·2	43′·0	41′·9	40′·3	39′·2	40′·2	36′·0	26′·2	27′·4	28′·9	28′·4
9	43′·8	42′·5	42′·3	41′·5	40′·3	38′·9	39′·8	35′·4	25′·6	27′·2	28′·4	27′·6
10	43′·1	41′·2	41′·0	41′·3	40′·3	38′·9	40′·1	35′·1	24′·9	27′·2	27′·6	27′·3
11	42′·3	30′·5	40′·7	40′·7	40′·3	39′·3	39′·9	35′·7	25′·4	27′·9	27′·2	26′·9
12	43′·8	40′·7	41′·1	40′·6	40′·1	39′·1	39′·5	35′·3	25′·5	28′·6	26′·9	26′·5
13	44′·1	40′·5	41′·1	40′·6	39′·5	39′·5	39′·9	35′·6	25′·8	28′·1	27′·9	26′·9
14	44′·5	40′·8	41′·7	40′·3	39′·5	39′·5	39′·7	35′·2	26′·4	27′·9	29′·3	27′·5
15	44′·4	41′·6	41′·2	39′·3	39′·0	39′·0	38′·2	35′·6	26′·1	28′·2	29′·6	27′·3
16	44′·4	41′·8	41′·3	39′·5	39′·0	38′·5	38′·7	35′·4	26′·2	28′·1	29′·8	27′·5
17	44′·0	41′·9	41′·3	39′·0	38′·4	37′·5	37′·8	35′·0	26′·1	28′·5	30′·0	28′·2
18	44′·5	42′·5	40′·4	39′·3	37′·3	36′·1	35′·7	34′·4	25′·1	28′·7	30′·3	28′·6
19	44′·9	42′·4	40′·7	38′·1	36′·2	35′·2	35′·8	33′·6	24′·5	28′·1	30′·2	28′·8
20	44′·4	41′·8	39′·0	38′·4	36′·3	34′·5	36′·1	33′·3	23′·4	27′·1	30′·3	28′·9
21	43′·2	41′·0	38′·5	38′·0	37′·4	36′·1	37′·4	34′·4	23′·0	26′·8	30′·0	28′·8
22	44′·5	41′·6	40′·6	40′·6	39′·6	38′·5	40′·0	37′·0	24′·8	27′·7	31′·2	28′·9
23	36′·2	43′·8	44′·3	45′·2	43′·8	42′·8	43′·9	40′·1	29′·0	31′·0	32′·5	29′·5

Hour. Göttingen Mean Solar Time.	1850. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
0	31′·1	31′·0	31′·4	30′·6	30′·3	30′·9	28′·4	27′·7	32′·1	24′·0	22′·6	21′·3
1	33′·3	33′·0	33′·8	33′·2	32′·0	32′·0	30′·1	29′·5	33′·3	25′·3	23′·6	21′·8
2	33′·9	35′·3	34′·6	33′·8	32′·1	32′·4	30′·6	29′·9	33′·7	24′·9	23′·0	21′·6
3	32′·9	33′·1	33′·5	32′·9	30′·6	31′·0	29′·4	28′·3	32′·5	24′·4	21′·6	20′·5
4	30′·9	30′·9	31′·7	30′·8	28′·4	29′·0	27′·7	25′·9	30′·3	21′·3	20′·4	20′·0
5	29′·8	29′·3	28′·8	28′·2	26′·1	26′·7	26′·0	23′·5	27′·7	19′·2	19′·5	19′·2
6	29′·1	27′·9	26′·7	26′·2	24′·5	24′·7	24′·2	21′·5	27′·0	18′·1	19′·0	18′·5
7	28′·6	27′·6	25′·9	24′·5	23′·4	22′·7	22′·7	20′·1	24′·8	16′·9	18′·3	18′·0
8	27′·7	26′·6	25′·2	24′·2	22′·7	21′·9	22′·0	19′·7	24′·2	16′·1	17′·9	17′·4
9	27′·0	25′·7	24′·6	24′·2	22′·9	21′·5	21′·1	19′·5	23′·3	15′·2	17′·5	16′·7
10	26′·1	25′·2	24′·1	24′·3	22′·8	21′·4	21′·1	19′·9	22′·8	15′·1	16′·3	16′·7
11	25′·9	24′·8	23′·8	24′·0	23′·0	21′·7	20′·6	19′·3	23′·0	15′·3	16′·7	17′·0
12	26′·5	25′·0	23′·0	24′·1	22′·9	22′·5	20′·8	19′·4	23′·4	16′·2	17′·3	17′·2
13	26′·1	25′·0	23′·1	24′·4	22′·6	21′·6	20′·5	19′·6	23′·2	16′·2	17′·7	17′·7
14	26′·1	25′·9	22′·9	24′·3	22′·8	22′·1	20′·5	19′·1	22′·8	15′·6	18′·0	18′·0
15	26′·4	25′·9	23′·4	24′·2	22′·9	22′·3	20′·2	18′·8	22′·7	16′·5	18′·0	18′·2
16	26′·3	26′·0	23′·6	24′·3	22′·6	21′·6	19′·7	18′·7	22′·6	16′·5	18′·1	18′·3
17	26′·8	26′·2	24′·2	24′·3	22′·0	20′·8	19′·4	18′·9	22′·6	17′·2	17′·9	18′·0
18	27′·7	26′·4	24′·1	24′·0	20′·6	19′·8	18′·5	17′·7	22′·7	17′·1	18′·0	17′·6
19	27′·9	26′·4	23′·9	22′·8	19′·6	19′·3	18′·2	17′·0	21′·7	16′·9	17′·9	17′·9
20	27′·7	26′·1	23′·2	21′·7	19′·6	19′·2	18′·3	16′·9	20′·6	16′·0	17′·8	18′·3
21	27′·4	25′·0	23′·0	21′·5	20′·7	20′·6	19′·4	18′·4	20′·8	15′·4	17′·5	18′·2
22	27′·7	25′·7	24′·8	24′·1	23′·2	23′·4	21′·6	21′·0	24′·2	16′·9	18′·0	18′·7
23	28′·9	27′·9	27′·5	27′·0	27′·2	27′·5	25′·0	24′·7	28′·5	20′·3	20′·0	20′·2

Hour. Göttingen Mean Solar Time.	1851. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
0	23′·4	23′·5	23′·9	22′·3	23′·0	18′·1	21′·9	23′·4	20′·6	22′·6	24′·2	23′·2
1	24′·2	24′·2	25′·0	25′·2	24′·3	19′·2	23′·2	24′·7	21′·3	23′·3	25′·1	23′·3
2	24′·6	24′·3	25′·4	26′·4	25′·2	19′·6	23′·4	24′·4	20′·8	22′·6	24′·4	23′·1
3	23′·6	23′·1	24′·4	26′·0	24′·8	19′·2	22′·7	22′·5	18′·9	21′·7	23′·4	22′·7
4	21′·9	21′·7	23′·0	24′·6	23′·2	18′·1	21′·1	20′·4	16′·5	19′·9	22′·3	22′·2
5	21′·1	20′·2	21′·3	23′·1	21′·4	16′·9	19′·4	18′·2	14′·8	18′·1	21′·1	20′·7
6	20′·1	20′·2	20′·2	21′·8	19′·8	15′·3	17′·7	16′·5	13′·8	17′·5	20′·5	20′·2
7	20′·4	19′·6	19′·4	20′·4	18′·6	14′·3	17′·0	14′·9	12′·4	16′·7	19′·8	19′·9
8	19′·3	19′·2	18′·8	19′·6	17′·8	13′·9	16′·1	14′·6	11′·0	16′·0	19′·4	18′·8
9	18′·9	18′·1	18′·6	19′·6	17′·8	13′·6	15′·6	14′·0	11′·9	15′·4	19′·0	18′·1
10	18′·1	17′·5	18′·6	19′·5	17′·4	13′·6	15′·1	14′·6	12′·2	15′·7	18′·4	17′·2
11	18′·7	17′·6	18′·4	19′·5	17′·2	13′·7	14′·7	14′·5	11′·8	14′·2	18′·1	17′·7
12	18′·6	18′·1	18′·2	19′·6	17′·8	13′·3	14′·7	15′·0	12′·6	14′·9	18′·0	18′·4
13	18′·9	18′·1	18′·1	19′·8	17′·6	13′·2	14′·7	14′·7	12′·8	15′·3	18′·8	18′·9
14	19′·1	18′·7	18′·0	20′·1	17′·0	12′·5	14′·1	15′·6	13′·3	15′·8	19′·4	18′·8
15	19′·7	17′·8	18′·3	19′·8	17′·3	12′·6	14′·1	15′·5	14′·0	15′·9	19′·7	19′·6
16	19′·8	18′·9	18′·5	19′·8	17′·6	12′·6	14′·9	14′·7	13′·4	15′·3	20′·3	19′·9
17	19′·7	18′·6	18′·1	19′·8	17′·4	11′·3	14′·4	15′·1	13′·6	16′·5	20′·3	19′·2
18	19′·4	18′·8	18′·3	19′·9	16′·7	10′·4	12′·9	14′·4	13′·3	16′·5	20′·4	19′·8
19	19′·6	19′·0	18′·6	19′·1	16′·0	10′·0	12′·8	13′·6	13′·3	16′·8	20′·3	20′·1
20	19′·3	18′·9	17′·4	17′·8	15′·1	9′·4	12′·2	13′·1	12′·8	16′·1	20′·4	20′·4
21	19′·0	18′·5	16′·5	15′·1	14′·4	9′·9	12′·5	14′·8	12′·9	15′·1	20′·0	20′·5
22	19′·1	18′·8	17′·7	15′·6	15′·9	12′·2	15′·0	17′·5	15′·1	15′·5	20′·3	20′·9
23	20′·4	21′·1	20′·4	18′·4	19′·7	15′·2	18′·7	21′·2	18′·0	19′·1	22′·3	22′·2

TABLE IV.—MEAN MONTHLY DETERMINATION of the WESTERN DECLINATION of the MAGNET, &c.—*continued.*

Hour. Göttingen Mean Solar Time.	1852. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
0	24·4	23·5	25·7	26·9	26·3	22·3	22·4	22·7	19·3	17·8	14·5	14·1
1	25·7	24·7	27·3	28·8	27·8	23·7	24·2	24·4	20·7	18·6	15·8	14·4
2	26·2	25·6	27·9	29·9	27·5	24·6	24·9	23·8	20·3	19·0	15·9	14·8
3	25·4	25·9	27·3	27·8	26·5	23·6	24·1	22·4	19·1	18·4	14·9	13·9
4	24·3	24·1	25·1	25·5	25·0	22·6	22·5	20·8	17·4	15·3	13·0	12·2
5	22·7	23·0	22·3	23·3	23·6	20·9	20·5	18·6	14·2	13·7	12·3	10·8
6	21·6	21·0	19·7	21·6	22·0	19·0	19·3	16·9	12·9	11·9	10·9	11·5
7	22·2	20·8	19·5	19·1	20·0	17·8	18·4	15·9	12·6	11·7	10·3	10·8
8	22·4	20·3	18·8	18·1	19·6	16·4	17·7	15·9	12·3	10·5	10·2	10·7
9	21·0	19·3	18·0	18·4	19·8	16·4	16·8	16·3	11·1	10·5	8·5	8·5
10	20·8	19·8	18·2	19·7	20·6	17·2	17·8	16·1	10·5	10·1	8·6	8·1
11	20·0	18·8	19·5	21·5	21·1	17·7	17·4	16·5	11·0	9·5	8·9	8·3
12	20·7	19·5	19·5	21·5	21·8	17·4	17·2	15·5	11·0	9·6	9·3	9·3
13	21·5	20·7	19·8	22·2	21·2	16·5	17·8	16·4	12·2	10·8	10·0	9·9
14	21·5	21·8	20·0	21·9	21·2	16·9	18·3	16·6	12·6	11·2	10·6	10·5
15	22·1	21·1	20·9	22·9	20·3	17·1	17·3	17·1	12·4	12·3	11·2	11·2
16	22·8	22·8	20·7	23·1	21·6	16·9	17·5	16·7	12·9	12·1	11·1	11·9
17	23·0	22·6	21·4	22·6	21·2	15·9	16·8	16·6	13·6	12·5	11·3	11·4
18	23·3	22·4	21·9	22·2	19·1	14·7	15·7	15·7	14·8	12·2	11·7	12·2
19	23·1	22·4	21·5	20·5	18·2	13·5	15·7	14·4	13·8	11·8	11·5	12·2
20	22·3	21·9	20·1	18·4	17·5	13·3	16·1	14·5	12·9	11·3	11·6	12·4
21	21·6	20·9	17·7	17·1	17·8	13·9	16·7	15·0	13·3	10·6	11·0	12·1
22	20·7	19·5	18·7	19·2	20·0	15·8	18·7	17·2	14·8	11·3	11·1	11·7
23	22·4	20·5	21·8	23·2	23·7	18·5	20·7	19·8	17·5	15·5	12·5	12·3

Hour. Göttingen Mean Solar Time.	1853. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
0	14·0	14·8	15·3	14·9	15·1	14·4	14·3	13·2	16·3	11·0	8·0	9·0
1	14·8	15·7	17·1	16·6	16·6	16·4	16·4	15·7	17·1	12·7	8·7	9·7
2	15·7	15·8	16·9	17·6	16·5	16·9	16·7	15·8	16·9	13·0	8·3	9·4
3	15·4	15·3	16·3	16·3	14·7	16·5	16·6	14·7	15·1	11·8	7·4	8·5
4	14·4	14·3	14·2	15·1	13·4	15·5	15·5	12·8	12·9	10·4	6·4	7·7
5	14·1	12·5	12·7	13·8	11·9	13·4	13·3	11·0	11·7	8·1	5·4	6·4
6	12·9	12·7	11·2	12·4	10·4	11·9	11·8	10·1	11·1	7·2	5·3	6·5
7	13·3	12·5	10·4	10·4	9·5	10·5	10·2	9·0	10·8	7·4	4·2	4·2
8	12·0	11·8	9·3	10·8	9·0	9·9	9·8	8·9	10·4	6·7	3·6	4·4
9	11·2	11·1	9·4	10·0	9·9	10·0	9·7	8·9	10·7	5·3	3·6	4·7
10	10·6	10·4	8·3	10·4	9·7	8·5	10·1	9·2	10·1	3·9	2·8	4·1
11	10·5	9·6	8·2	9·3	10·3	7·9	9·6	9·4	9·6	4·9	3·3	4·0
12	9·7	9·0	9·2	9·9	10·4	8·4	9·5	9·0	9·1	5·6	4·1	4·3
13	11·2	9·5	9·6	10·5	10·7	9·0	9·0	8·8	10·2	6·0	4·4	4·7
14	11·1	10·4	10·3	11·0	11·0	8·6	9·4	9·4	9·8	6·6	5·1	5·1
15	11·3	10·9	10·7	11·7	11·0	9·1	8·9	9·7	10·1	6·5	5·6	5·9
16	11·7	10·9	10·9	10·5	10·9	8·6	9·0	9·3	9·3	6·9	5·6	6·2
17	11·9	11·2	11·0	10·9	10·1	8·5	7·8	8·6	9·5	6·1	5·2	6·5
18	12·4	11·3	10·2	11·2	9·8	7·6	7·1	8·4	10·6	6·4	5·2	7·0
19	12·3	11·8	10·3	8·7	8·9	6·9	6·6	8·2	10·0	6·4	5·1	6·8
20	12·6	11·4	9·5	11·0	8·1	6·6	7·1	7·3	9·7	5·1	4·5	7·4
21	11·8	12·1	9·9	11·4	8·7	6·7	7·7	8·0	10·2	4·8	4·6	7·2
22	11·9	12·4	11·2	12·0	10·5	8·6	9·7	9·2	12·1	5·6	5·0	6·7
23	12·4	13·2	13·5	13·1	12·6	11·1	11·9	11·4	14·2	8·2	6·5	7·7

	1854. 21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
0	67·4	66·0	66·0	66·6	66·5	64·8	64·0	66·1	64·5	61·4	61·0	59·6
1	68·6	67·2	67·4	68·5	68·1	66·1	65·3	67·6	65·4	62·1	61·3	59·7
2	67·7	67·8	68·3	69·7	68·4	66·6	65·6	67·5	64·8	61·6	61·0	59·1
3	66·7	67·0	67·2	68·1	67·4	66·0	65·6	66·2	63·2	61·0	60·1	58·5
4	65·6	66·0	66·0	66·1	65·7	64·7	64·2	63·6	60·9	60·1	59·3	58·0
5	64·4	64·1	64·1	64·8	64·4	63·4	63·0	61·9	59·7	58·5	58·7	56·8
6	64·3	62·7	62·2	62·4	63·1	62·2	61·7	60·9	58·5	57·9	58·1	57·0
7	63·4	61·2	59·2	60·8	61·7	61·4	60·6	59·8	58·1	57·8	58·1	56·7
8	63·3	60·6	60·5	60·3	60·8	60·5	60·0	59·6	57·8	57·0	57·4	56·6
9	61·1	59·4	59·8	59·9	60·0	60·5	59·6	59·5	56·9	56·4	56·9	56·2
10	61·3	59·0	60·2	59·4	60·0	60·6	59·4	59·5	57·3	55·0	56·8	55·0
11	61·0	58·3	59·6	58·9	59·5	60·6	60·2	59·4	57·7	54·7	56·4	55·3
12	62·1	59·5	60·3	59·5	59·5	60·2	59·6	59·3	57·5	55·5	56·9	56·2
13	62·4	59·5	60·6	60·1	59·9	60·0	58·9	58·9	58·1	56·4	57·7	56·8
14	62·5	60·8	61·6	60·5	59·6	60·2	58·6	58·0	58·2	57·1	58·0	57·2
15	64·0	62·4	61·5	61·3	60·4	60·1	58·9	58·6	58·0	57·1	58·5	57·9
16	63·7	62·6	61·3	60·5	59·4	59·5	58·6	59·2	57·2	57·8	58·8	58·2
17	63·4	63·0	61·1	61·6	59·0	58·4	58·0	58·8	57·5	57·2	58·6	58·2
18	63·3	63·4	61·9	61·3	58·0	57·2	56·9	57·5	58·3	57·9	58·8	58·5
19	63·9	63·1	62·2	60·8	57·7	57·1	56·4	57·6	57·6	58·1	58·4	57·8
20	64·5	62·8	61·2	60·2	58·2	57·2	56·5	57·7	57·9	57·5	58·5	57·8
21	64·6	63·1	61·4	60·4	59·4	57·6	57·8	59·1	58·2	56·9	58·3	57·8
22	65·6	63·2	61·6	61·3	61·5	59·7	59·5	61·3	60·1	57·2	58·3	57·7
23	66·7	64·3	63·4	63·4	63·8	62·4	61·5	63·7	62·5	59·1	57·6	58·5

	1855. 21°	21°	21°	21	21°	21°	21°	21°	21°	21°	21°	21°
0	52·5	50·9	52·4	53·3	53·4	54·3	52·3	53·0	53·1	50·2	48·2	48·3
1	53·0	51·7	54·7	55·4	55·2	55·4	54·6	55·0	53·7	51·5	49·3	48·9
2	53·2	52·3	55·1	56·2	55·2	55·7	54·6	55·3	52·8	51·7	49·3	48·1
3	52·8	52·1	54·4	54·9	54·1	55·1	53·3	54·1	50·9	50·2	48·3	47·2
4	51·9	51·8	52·8	53·4	52·1	54·0	51·9	52·4	49·1	48·9	47·2	46·4
5	51·4	50·3	51·5	51·9	50·9	52·7	50·4	50·6	47·3	47·5	46·1	46·2
6	51·0	47·9	50·0	48·8	49·5	51·3	49·4	49·1	46·3	47·0	45·1	45·8
7	50·0	48·2	47·4	47·8	48·7	50·8	49·3	48·2	45·9	45·9	44·4	45·6
8	48·5	47·3	46·8	46·8	47·7	50·1	48·5	47·7	45·8	45·5	44·1	45·0
9	48·0	46·0	46·8	46·4	47·1	49·9	48·3	47·8	45·2	44·7	43·4	44·7
10	48·0	45·2	45·8	46·4	47·3	49·7	48·2	47·7	45·9	43·8	43·4	44·5
11	48·0	45·8	46·0	45·4	47·5	49·9	48·4	47·2	45·5	44·3	43·0	45·2
12	47·3	45·5	46·6	45·6	48·0	50·5	48·2	46·9	47·0	44·4	44·0	45·7
13	47·8	45·2	46·2	46·8	48·0	50·3	48·4	47·4	46·5	45·1	44·3	45·8
14	48·8	47·0	47·4	47·1	47·7	50·6	48·5	47·4	46·8	45·2	45·4	46·1
15	49·5	47·0	47·5	47·3	47·8	50·8	48·6	48·1	46·9	46·4	45·5	46·2
16	49·5	47·0	48·0	47·6	47·8	49·4	48·4	47·5	45·9	46·4	45·6	46·3
17	49·4	47·6	47·5	47·4	47·7	48·7	48·4	47·2	46·1	46·7	45·6	46·3
18	49·6	47·3	47·0	47·4	47·2	47·9	47·2	46·3	46·3	46·5	44·9	46·2
19	49·3	47·7	46·8	47·3	47·1	47·7	47·2	46·2	46·4	46·0	45·1	46·0
20	49·8	48·1	46·3	46·8	47·0	47·9	47·5	45·6	46·1	45·3	44·8	46·2
21	50·4	48·7	47·1	46·3	47·1	48·2	48·1	46·0	45·9	45·2	45·2	46·6
22	49·7	49·1	48·7	48·3	48·7	49·8	48·7	49·2	48·0	45·6	45·5	46·9
23	50·4	49·8	50·5	50·6	51·6	51·7	50·6	49·0	50·9	47·5	46·6	47·7

TABLE IV.—MEAN MONTHLY DETERMINATION of the WESTERN DECLINATION of the MAGNET, &c.—*concluded.*

Hour. Göttingen Mean Solar Time.	1856. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
0	46′·8	47′·7	48′·0	47′·3	46′·7	47′·0	47′·7	48′·9	48′·3	44′·5	43′·0	41′·7
1	47·3	48·5	49·7	49·3	48·2	48·4	49·4	49·9	48·5	45·2	43·8	42·6
2	47·1	48·8	49·7	49·6	48·0	48·9	49·9	49·5	48·7	44·8	43·3	42·4
3	45·9	48·2	48·9	48·6	47·0	48·4	49·4	47·9	46·7	43·0	42·4	41·5
4	45·8	47·4	47·4	47·1	45·9	47·4	48·3	45·5	44·3	41·6	41·7	40·8
5	45·3	45·5	45·7	45·8	44·9	46·0	46·7	44·0	42·9	41·0	41·4	40·4
6	45·5	45·7	44·9	44·8	44·0	44·7	45·7	42·7	41·6	40·1	40·3	39·8
7	44·4	45·0	44·6	44·4	43·3	43·7	45·1	42·1	41·5	39·5	39·7	39·7
8	44·4	44·7	43·9	43·6	42·5	43·5	44·1	42·3	40·1	38·7	39·9	39·1
9	44·2	44·7	44·2	43·1	42·6	43·3	43·8	42·1	40·7	38·9	39·4	37·9
10	44·2	43·7	44·2	42·8	42·8	43·2	43·4	42·2	41·1	38·8	38·3	38·4
11	44·4	44·4	44·2	42·7	43·1	43·0	43·4	41·7	42·3	38·8	38·4	38·5
12	44·9	45·1	44·3	42·3	43·0	42·9	43·3	42·4	41·8	39·9	38·9	39·0
13	45·4	45·4	44·5	42·3	43·0	42·6	43·4	42·6	42·4	40·1	39·8	39·4
14	45·8	46·2	44·7	42·7	42·8	42·7	43·4	42·8	42·9	41·4	40·4	39·8
15	45·8	46·0	45·0	42·5	43·1	42·7	43·5	42·3	41·7	41·6	41·0	39·9
16	46·1	46·1	44·7	42·3	42·8	42·6	43·6	42·2	42·4	41·3	41·1	40·0
17	46·0	46·1	44·7	43·0	42·1	42·0	42·9	41·7	41·3	41·4	41·2	40·1
18	46·1	46·1	44·6	42·8	41·2	41·8	42·3	41·0	40·5	41·1	41·0	40·5
19	45·9	46·3	44·6	42·3	40·8	40·7	41·9	40·7	40·2	40·4	40·8	40·5
20	46·0	46·2	44·1	41·8	40·3	40·3	41·4	40·1	40·7	39·6	40·8	40·4
21	46·0	45·9	44·0	41·5	40·7	40·7	41·6	41·4	41·8	39·5	40·6	40·5
22	45·4	45·3	44·7	42·2	41·8	42·2	43·2	43·5	44·0	41·4	40·8	40·9
23	45·6	46·2	46·3	44·2	44·0	43·1	45·1	46·7	46·5	43·3	41·8	41·3

Hour. Göttingen Mean Solar Time.	1857. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
0	39′·9	39′·4	39′·8	40′·0	40′·2	37′·5	37′·2	38′·7	40′·3	39′·8	36′·2	35′·7
1	38·7	40·5	41·4	41·6	41·1	38·0	37·6	39·4	40·6	40·7	36·9	36·1
2	39·4	40·8	41·1	41·5	40·9	37·7	37·5	38·9	39·0	40·0	36·4	35·6
3	38·5	40·3	39·8	40·6	40·0	37·5	37·1	37·2	36·5	38·6	35·8	34·8
4	37·4	38·9	37·9	39·3	38·6	36·2	36·0	35·0	34·7	37·0	34·7	33·9
5	37·0	37·1	36·5	37·4	37·4	35·2	34·9	33·6	33·0	35·8	33·6	33·0
6	36·6	36·6	35·3	35·8	36·9	34·0	33·1	32·9	32·6	35·0	32·7	32·8
7	36·2	35·8	34·8	34·6	35·2	34·0	32·9	33·7	32·5	34·6	32·3	32·4
8	35·6	35·4	34·6	34·2	35·0	34·4	33·4	34·0	32·7	34·2	31·9	31·5
9	35·0	35·2	34·5	34·1	34·8	34·6	34·3	34·1	33·2	33·6	31·3	30·8
10	34·6	35·0	34·5	34·0	35·1	34·9	34·3	34·4	33·4	33·8	31·5	30·6
11	34·2	34·8	34·8	33·9	34·8	35·4	34·9	34·5	34·0	34·7	31·0	30·7
12	34·5	35·0	34·6	33·7	34·5	35·3	34·9	34·6	34·8	35·3	31·6	30·9
13	35·0	35·5	35·2	34·2	33·2	35·3	34·8	35·0	35·0	36·5	32·0	31·0
14	35·7	36·1	35·7	34·8	35·2	35·3	34·7	35·0	35·5	37·0	32·6	31·7
15	36·4	36·3	35·4	35·2	34·9	35·7	34·6	35·0	36·0	37·5	33·1	32·2
16	36·8	36·4	35·1	35·0	34·8	35·1	34·2	35·0	35·5	37·7	33·3	32·3
17	36·6	36·5	35·1	34·9	34·2	34·0	33·9	34·7	35·3	37·8	33·2	32·3
18	36·8	36·5	35·1	34·9	33·1	33·0	33·6	34·2	35·5	37·9	33·2	32·8
19	36·7	36·1	35·3	34·2	32·5	32·7	33·7	34·0	35·9	37·7	33·2	33·2
20	36·5	35·8	34·8	33·3	32·9	32·4	33·4	34·4	36·2	37·2	33·2	33·6
21	36·0	35·2	34·1	33·5	33·6	32·3	33·5	35·2	36·7	37·1	33·0	33·6
22	35·8	35·2	34·9	35·1	35·6	33·4	33·8	35·9	37·5	37·6	33·7	34·0
23	36·9	36·8	37·3	37·7	38·2	35·1	35·2	36·9	38·8	39·0	33·4	34·8

TABLE V.—MEAN, through the RANGE of YEARS, of the MONTHLY MEAN DETERMINATIONS of the DIURNAL INEQUALITY of DECLINATION; exhibited separately for the different Months.

Hour. Göttingen Mean Solar Time.	1848 to 1857. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	+2′·7	+3′·0	+4′·2	+4′·0	+4′·6	+4′·4	+4′·1	+5′·1	+5′·6	+4′·3	+3′·2	+2′·5
1	+3·6	+4·3	+6·2	+6·3	+6·2	+5·8	+5·8	+6·7	+6·6	+5·6	+4·0	+3·1
2	+4·1	+5·0	+6·5	+7·1	+6·4	+6·2	+6·2	+6·7	+6·2	+5·5	+3·7	+2·9
3	+3·1	+4·4	+5·5	+5·8	+5·3	+5·5	+5·5	+5·3	+4·4	+4·3	+2·7	+2·0
4	+2·0	+3·0	+3·6	+4·0	+3·5	+4·2	+3·9	+3·1	+2·3	+2·4	+1·5	+1·2
5	+0·9	+1·2	+1·6	+2·2	+2·0	+2·5	+2·3	+1·1	+0·3	+0·6	+0·5	+0·2
6	+0·5	+0·2	−0·1	+0·3	+0·5	+0·9	+0·7	−0·4	−0·7	−0·3	−0·2	0·0
7	0·0	−0·1	−1·2	−1·2	−0·7	−0·3	−0·3	−1·3	−1·4	−0·9	−0·8	−0·6
8	−0·6	−0·9	−1·6	−1·7	−1·5	−0·9	−0·8	−1·4	−2·0	−1·7	−1·3	−1·1
9	−1·7	−1·9	−1·8	−2·0	−1·5	−1·1	−1·1	−1·6	−2·2	−2·5	−2·0	−1·9
10	−2·3	−2·5	−2·2	−1·9	−1·4	−1·1	−1·1	−1·5	−2·3	−2·7	−2·5	−2·3
11	−2·5	−2·8	−2·3	−2·1	−1·3	−0·9	−1·1	−1·6	−2·1	−2·6	−2·6	−2·1
12	−2·1	−2·5	−2·2	−2·1	−1·2	−0·9	−1·3	−1·7	−1·8	−2·2	−2·2	−1·7
13	−1·6	−2·2	−2·0	−1·6	−1·5	−1·1	−1·3	−1·5	−1·5	−1·7	−1·5	−1·4
14	−1·3	−1·4	−1·5	−1·4	−1·4	−1·0	−1·4	−1·6	−1·3	−1·3	−0·8	−0·9
15	−0·9	−1·2	−1·3	−1·2	−1·4	−1·0	−1·7	−1·4	−1·3	−0·9	−0·4	−0·5
16	−0·7	−0·9	−1·4	−1·5	−1·5	−1·5	−1·7	−1·6	−1·5	−0·8	−0·2	−0·2
17	−0·4	−0·8	−1·4	−1·4	−2·0	−2·4	−2·3	−1·8	−1·6	−0·7	−0·2	−0·3
18	−0·3	−0·7	−1·5	−1·4	−3·0	−3·5	−3·4	−2·6	−1·4	−0·5	−0·2	0·0
19	−0·4	−0·5	−1·4	−2·4	−3·6	−4·1	−3·7	−3·2	−1·8	−0·7	−0·3	0·0
20	−0·5	−0·8	−2·4	−3·0	−3·8	−4·3	−3·6	−3·4	−2·2	−1·5	−0·4	+0·2
21	−0·8	−1·1	−2·7	−3·5	−2·8	−3·7	−3·0	−2·3	−2·0	−2·0	−0·6	+0·2
22	−0·6	−0·9	−1·4	−1·9	−1·2	−1·7	−1·1	−0·2	+0·1	−1·2	−0·1	+0·4
23	+0·6	+0·6	+1·2	+0·8	+1·9	+1·1	+1·4	+2·4	+3·0	+1·6	+1·0	+1·3

TABLE VI.—MEAN, through the RANGE of MONTHS, of the MONTHLY MEAN DETERMINATIONS of the DIURNAL INEQUALITY of DECLINATION; exhibited separately for the different Years.

Hour. Göttingen Mean Solar Time.	January to December. 1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	Mean of Years.	Equivalent in Terms of Horizontal Force.
0	+5′·2	+4′·7	+5′·0	+4′·2	+3′·8	+3′·3	+3′·7	+3′·4	+3′·0	+3′·3	+3′·96	+0′·00115
1	+7·5	+6·6	+6·6	+5·6	+5·1	+4·7	+4·9	+4·8	+4·2	+4·0	+5·40	+ 157
2	+8·0	+7·0	+7·0	+5·8	+5·5	+4·9	+4·9	+4·9	+4·2	+3·7	+5·58	+ 162
3	+6·4	+6·2	+5·7	+4·4	+4·6	+4·0	+4·0	+3·9	+3·0	+2·7	+4·49	+ 131
4	+4·2	+4·2	+3·8	+2·0	+1·8	+2·6	+2·6	+2·6	+1·8	+1·2	+2·77	+ 81
5	+2·0	+2·3	+1·9	+1·4	+0·9	+1·1	+1·2	+1·3	+0·7	0·0	+1·28	+ 37
6	+0·5	+1·0	+0·5	+0·3	−0·5	+0·2	+0·2	0·0	−0·2	−0·9	+0·11	+ 3
7	−0·4	0·0	−0·7	−0·5	−1·3	−0·7	−0·9	−0·7	−0·7	−1·3	−0·72	− 21
8	−1·1	−1·0	−1·4	−1·3	−1·8	−1·2	−1·2	−1·4	−1·2	−1·5	−1·31	− 38
9	−1·8	−1·7	−1·9	−1·6	−2·5	−1·4	−1·9	−1·9	−1·4	−1·6	−1·77	− 52
10	−2·2	−2·1	−2·2	−1·8	−2·3	−1·9	−2·1	−2·1	−1·6	−1·6	−1·99	− 58
11	−2·4	−2·2	−2·2	−2·0	−2·0	−2·0	−2·3	−2·1	−1·4	−1·4	−2·00	− 58
12	−2·4	−2·2	−2·0	−1·7	−1·9	−1·9	−1·9	−1·8	−1·2	−1·3	−1·83	− 53
13	−2·2	−2·0	−2·0	−1·6	−1·3	−1·5	−1·7	−1·6	−1·4	−1·0	−1·63	− 47
14	−2·1	−1·8	−2·0	−1·5	−1·0	−1·1	−1·4	−1·1	−0·5	−0·5	−1·30	− 38
15	−1·7	−2·0	−1·9	−1·3	−0·7	−0·8	−0·9	−0·8	−0·6	−0·2	−1·09	− 32
16	−2·0	−1·8	−2·0	−1·1	−0·4	−0·9	−1·0	−1·0	−0·5	−0·3	−1·10	− 32
17	−2·4	−2·1	−2·0	−1·3	−0·5	−1·1	−1·2	−1·0	−0·8	−0·5	−1·29	− 38
18	−2·9	−2·5	−2·3	−1·6	−0·7	−1·2	−1·3	−1·4	−1·1	−0·7	−1·57	− 46
19	−2·9	−2·9	−2·7	−1·7	−1·3	−1·3	−1·5	−1·5	−1·4	−0·8	−1·80	− 52
20	−3·4	−3·3	−3·0	−2·2	−1·9	−1·7	−1·6	−1·6	−1·7	−0·9	−2·13	− 62
21	−3·3	−3·2	−2·8	−2·6	−2·2	−1·5	−1·2	−1·3	−1·5	−0·9	−2·05	− 60
22	−1·4	−1·5	−1·0	−1·4	−1·3	−0·5	−0·2	−0·2	−0·5	−0·2	−0·82	− 24
23	+1·8	+1·6	+1·9	+1·4	+1·2	+1·2	+1·5	+1·3	+1·0	+1·3	+1·42	+ 41

REDUCTIONS OF MAGNETIC HORIZONTAL FORCE REFERRED TO THE SUN'S PLACE.

TABLE VII.—MEAN HORIZONTAL MAGNETIC FORCE (diminished by a Constant of 0·8850 nearly) on each ASTRONOMICAL DAY, as deduced from the Mean of Twenty-four hourly Measures of Ordinates of the Photographic Register on that day, each corrected for Temperature.

1848.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	..	0·1140	0·1128	..	..	..	0·1056	0·1098	0·1095	0·1122	0·1124
2	..	0·1120	·1137	·1116	..	0·1209	0·1053	..	·1095	·1094	·1129	·1124
3	..	·1122	·1137	..	..	·1207	·1050	..	·1095	·1097	·1128	..
4	..	·1120	·1139	..	0·1189	·1208	·1052	·1060	..	·1100	..	..
5	..	..	..	·1122	·1181	·1202	·1047	·1054	..	·1097	·1138	·1125
6	..	..	·1138	..	..	·1206	..	·1047	..	·1098	..	·1119
7	..	..	·1139	..	·1191	·1192	·1048	..	·1094	·1096	..	·1123
8	..	·1118	·1134	..	..	·1211	·1050	..	..	..	..	·1115
9	..	·1115	·1136	·1138	·1192	·1213	·1059	·1044	..	·1094	..	·1119
10	..	·1117	..	..	..	..	·1056	..	..	·1100	·1118	·1118
11	..	·1124	·1146	..	·1189	·1214	..	·1050	..	..	·1115	·1122
12	..	·1123	..	·1141	·1190	·1218	·1022	·1048	·1091	·1096	·1123	·1116
13	..	·1121	·1148	·1148	..	·1226	·1037	..	·1092	..	·1124	..
14	..	·1127	..	·1142	·1206	·1209	..	..	·1094	..	..	..
15	..	..	..	..	·1211	·1203	·1040	..	·1091	·1096	·1126	·1123
16	..	·1131	..	..	·1205	·1208	·1038	..	·1097	..	·1125	·1125
17	0·1111	·1132	..	..	..	..	·1041	..	..	..	..	·1103
18	..	·1134	·1123	..	..	·1216	·1045	..	·1083	..	..	·1116
19	·1118	..	..	..	·1202	·1222	·1044	·1061	·1086	..	·1104	·1117
20	·1117	..	..	..	·1210	·1210	·1045	..	·1085	·1082	·1112	..
21	·1118	..	·1125	·1149	·1207	·1210	·1050	..	..	·1090	·1097	·1120
22	·1124	..	·1124	·1140	·1201	·1206	·1050	·1090	..	..	..	·1123
23	·1120	..	·1134	..	·1201	·1214	..	..	·1083	..	·1107	..
24	·1111	..	·1133	·1155	..	·1217	..	..	·1088	·1104	·1119	·1120
25	·1121	..	·1127	·1153	·1195	·1223	·1046	·1103	·1090	..	..	·1124
26	·1121	..	..	..	·1187	·1220	·1045	·1103	..	·1099	·1132	..
27	·1125	·1131	·1133	..	·1186	·1220	·1046	..	·1093	·1106	..	..
28	..	..	..	·1181	·1180	·1224	·1049	·1097	·1099	·1113	·1114	..
29	·1128	..	..	·1166	..	..	·1051	·1094	..	..	·1118	..
30	..		·1132	..	·1200	..	·1047	..	..	..	·1121	..
31	..		·1123		·1213		·1048	..		..		..

1849.

1	..	..	0·1135	0·1140	0·1134	0·1136	..	0·1123	0·1138	0·1124	0·1125	..
2	..	0·1147	·1134	·1147	·1143	..	..	·1127	·1130	·1128	·1130	0·1120
3	..	..	·1139	·1148	..	..	..	·1127	·1126	·1129	·1129	·1126
4	0·1137	·1142	·1137	..	..	..	..	·1129	·1124	·1130	·1130	·1133
5	·1145	·1141	·1140	·1143	·1130	..	0·1136	·1128	·1130	·1136	·1135	·1134
6	·1146	·1141	·1141	·1146	..	1137	·1131	..	·1133	·1137	·1136	·1133
7	·1140	..	..	..	..	..	·1137	·1131	·1134	·1129	·1134	..
8	..	·1145	·1146	·1154	·1130	..	..	·1139	·1130	·1129	·1131	·1130
9	·1139	·1145	·1146	..	·1135	..	·1136	·1130	·1136	·1133	·1132	·1132
10	·1139	·1140	·1145	·1154	·1140	..	·1133	..	·1136	·1132	·1138	·1130
11	·1141	..	·1147	·1161	..	..	·1140	·1129	·1134	·1124	·1124	·1131
12	..	·1149	·1149	·1156	..	..	..	·1132	·1131	·1130	·1132	·1128
13	·1139	·1143	·1149	..	·1131	·1124	·1135	..	·1118	·1131	·1120	·1133
14	·1128	·1137	·1151	·1152	..	..	·1136	·1122	·1115	·1121	·1127	·1131
15	·1130	·1141	·1147	..	..	·1129	·1136	·1128	·1127	·1123	..	·1132
16	·1138	·1132	·1150	..	..	·1137	·1140	·1131	·1119	·1124	·1135	·1137
17	1131	·1141	·1148	·1161	·1134	·1139	·1148	·1129	·1126	·1126	·1137	·1136
18	·1134	·1130	·1141	·1161	..	..	·1146	..	·1114	·1124	·1138	..
19	·1136	·1125	·1141	·1161	·1131	·1137	·1140	..	·1122	·1127	·1126	·1136
20	·1138	·1129	·1141	·1168	·1143	·1132	·1132	·1123	·1133	·1127	·1128	..
21	·1150	·1130	·1145	·1165	·1133	..	·1136	..	·1133	·1128	·1132	·1129
22	·1145	·1127	·1143	..	·1140	·1130	·1121	..	·1134	·1108	·1132	·1128
23	·1137	·1131	·1146	..	·1136	·1130	·1130	..	·1131	·1115	·1135	·1136
24	..	·1139	·1150	..	..	·1136	·1128	..	·1122	·1119	..	..
25	..	·1143	·1155	·1151	·1135	·1136	·1130	·1123	·1125	·1120	·1138	·1152
26	1134	·1144	..	·1148	·1131	·1140	·1134	·1129	·1129	·1124	·1136	..
27	·1137	·1125	..	..	..	·1146	·1128	·1136	·1126	..	..	..
28	·1143	·1136	..	·1142	..	·1143	·1126	·1133	·1123	·1120	..	..
29	·1149		·1145	..	·1139	·1141	·1131	·1139	·1128	·1127	·1105	..
30	·1137		·1142	·1136	..	..	..	·1138	..	·1120	·1098	..
31	..		·1143		..		..	·1136		·1120		..

TABLE VII.—MEAN HORIZONTAL MAGNETIC FORCE on each ASTRONOMICAL DAY, &c.—*continued.*

1850.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	0·1144	0·1136	0·1128	0·1130	..	0·1126	0·1132	0·1098	..	0·1123	0·1124
2	..	·1135	·1139	·1134	·1135	0·1134	·1112	·1132	·1091	..	·1124	·1119
3	..	·1142	·1140	·1135	·1125	..	·1120	·1120	·1107	0·1102	·1125	·1122
4	..	..	·1133	..	·1126	·1154	·1112	·1112	·1096	·1106	·1129	·1121
5	..	·1152	·1140	·1144	.1137	·1161	·1100	·1113	..	·1112	·1127	·1124
6	..	·1146	·1137	·1131	·1135	·1114	·1096	·1108	·1097	·1109	·1128	·1122
7	..	·1168	..	·1125	..	·1116	·1100	..	·1094	·1099	..	·1133
8	..	·1155	·1150	·1130	·1133	·1108	·1101	..	·1100	·1105	·1125	·1130
9	..	..	·1145	·1127	·1133	..	·1103	·1112	·1101	·1110	·1129	·1127
10	..	..	·1142	..	·1132	..	·1095	·1096	·1096	·1106	·1123	·1127
11	..	..	·1133	..	·1140	·1126	·1091	·1093	·1101	·1112	·1121	·1127
12	..	·1149	·1132	·1130	·1143	·1150	·1087	·1093	·1106	·1112	·1129	·1127
13	0·1159	·1152	·1135	·1131	·1130	·1123	·1078	..	·1111	·1120	·1123	·1129
14	·1171	·1146	·1138	·1128	·1139	·1135	·1087	·1130	·1101	·1114	·1127	·1129
15	·1171	·1146	·1142	·1138	·1141	·1130	·1096	·1128	·1103	·1108	·1128	·1132
16	·1166	·1152	·1140	·1140	·1137	·1129	·1102	·1104	·1104	·1105	·1125	·1127
17	·1170	·1152	·1144	·1131	·1149	·1128	..	·1108	..	·1106	·1132	·1117
18	·1162	·1157	·1140	·1139	·1147	·1118	·1108	·1093	·1111	·1106	·1133	·1125
19	·1152	·1153	·1147	·1138	·1125	·1119	·1109	·1094	·1110	·1111	·1134	·1135
20	·1150	·1154	·1140	·1144	·1130	·1115	·1107	·1189	·1113	..	·1136	·1135
21	·1166	·1153	·1144	·1140	·1128	·1117	·1102	·1196	..	..	·1131	·1135
22	·1166	..	·1138	·1129	·1139	·1126	·1097	..	·1108	·1124	·1129	·1137
23	·1163	..	·1142	·1127	·1145	·1119	..	..	·1110	·1130	·1124	·1133
24	·1167	·1141	·1139	·1135	·1157	·1122	..	·1091	·1105	·1129	·1123	·1134
25	..	·1146	·1127	·1132	·1148	·1132	..	·1086	·1108	·1116	·1120	..
26	·1155	·1147	·1132	·1132	·1159	·1134	·1112	..	·1109	·1120	·1112	..
27	·1151	·1145	·1127	·1142	·1159	·1132	..	·1089	·1110	·1120	·1119	..
28	·1144	·1145	·1134	·1138	·1157	·1138	·1110	·1091	..	·1128	·1123	..
29	·1148		·1138	·1130	·1147	·1119	·1115	·1094	·1110	·1119	·1124	..
30	·1153		·1137	·1123	·1150	·1126	·1123	·1093	·1111	·1122	·1113	..
31	·1150		..		·1141		·1123	·1090		·1122		..

1851.

1	..	0·1150	0·1151	..	0·1151	0·1140	..	..	0·1156	0·1138	0·1160	0·1182
2	..	·1166	·1153	..	·1149	·1139	0·1171	0·1138	·1153	..	·1165	·1183
3	..	·1160	·1149	..	·1165	·1128	·1160	·1133	..	·1128	·1165	·1184
4	..	·1161	·1149	0·1157	..	·1128	·1153	·1134	..	·1142	·1166	·1181
5	..	·1158	·1158	·1148	..	·1117	·1152	·1128	·1142	·1140	·1161	·1187
6	..	·1155	·1157	·1152	·1156	·1114	·1159	..	..	·1149	·1158	..
7	..	·1158	·1164	·1147	·1143	..	·1160	..	..	·1151	·1160	·1165
8	..	·1158	·1161	..	·1132	..	·1165	·1097	·1146	·1156	·1163	..
9	0·1182	·1156	·1163	·1150	·1136	..	·1169	·1098	..	·1150	·1167	..
10	·1180	·1151	·1152	·1147	·1136	·1126	·1169	·1092	·1148	·1149	·1163	·1181
11	·1176	·1152	·1144	..	·1139	·1126	·1163	·1170	·1145	·1145	·1162	·1184
12	·1177	·1149	·1147	·1148	·1148	·1136	·1165	·1162	·1145	·1150	·1162	·1184
13	·1182	·1155	·1149	·1152	·1139	·1133	·1169	·1170	·1142	·1157	·1164	·1189
14	·1178	·1161	·1152	·1150	·1140	·1132	·1161	·1167	·1148	·1156	·1166	·1193
15	·1181	·1153	·1155	·1152	·1143	·1139	·1163	·1166	·1141	·1163	·1168	·1193
16	..	·1167	·1155	·1151	..	·1130	·1145	·1167	·1141	·1164	·1171	·1186
17	·1159	·1159	·1159	·1148	·1157	·1126	·1141	·1162	·1152	·1166	·1171	·1194
18	·1166	...	·1154	..	·1151	·1131	·1132	·1165	·1163	·1157	·1171	·1188
19	..	..	·1155	..	..	·1132	·1148	·1174	·1160	·1158	·1174	·1185
20	·1149	..	·1148	·1143	·1155	·1133	·1152	·1175	·1160	·1147	..	·1188
21	·1151	·1147	·1155	·1142	·1168	·1125	·1140	·1163	·1166	·1161	·1164	·1191
22	·1153	·1159	·1154	·1151	·1164	·1121	·1146	·1174	·1162	·1159	·1162	·1177
23	·1153	·1160	·1155	·1145	·1162	·1114	..	·1175	·1157	·1160	·1164	·1187
24	·1155	·1158	·1151	·1153	·1146	·1113	·1162	·1154	·1156	·1156	·1166	·1189
25	·1159	·1148	·1153	·1160	·1140	·1115	·1153	·1160	..	·1161	..	·1190
26	·1168	·1154	·1156	·1163	·1145	·1117	·1145	·1155	·1163	·1160	·1185	·1193
27	·1156	..	·1156	·1169	·1144	·1107	·1140	·1153	·1157	·1154	·1183	·1181
28	·1150	·1153	..	·1163	·1142	·1092	..	..	·1152	..	·1181	·1177
29	·1146		..	·1162	·1148	·1086	·1137	·1161	..	·1133	·1187	·1160
30	·1153		..	·1159	·1149	..	·1140	·1158	..	·1145	·1189	·1188
31	·1159		..		·1149		·1141	·1159		·1154		·1187

TABLE VII.—MEAN HORIZONTAL MAGNETIC FORCE in each ASTRONOMICAL DAY, &c.—*continued.*

1852.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	0·1189	..	0·1122	0·1121	0·1092	0·1126	0·1134	0·1122	0·1144	..	0·1143	0·1155
2	·1190	0·1126	·1122	·1120	·1087	·1136	·1133	·1131	·1143	0·1147	..	·1155
3	·1189	·1129	..	·1128	·1095	·1133	·1126	·1139	·1143	·1144	·1149	·1156
4	..	·1127	·1125	·1128	·1108	·1121	·1120	·1140	·1141	·1150	·1150	·1157
5	..	·1126	·1127	·1123	·1111	..	·1121	·1139	·1119	..	·1145	·1166
6	·1137	·1126	·1121	·1127	·1111	·1132	·1092	..	·1143	·1148	·1146	..
7	·1140	..	·1120	·1134	·1110	..	·1118	·1134	·1145	·1148	·1153	·1161
8	·1139	..	·1126	·1128	..	·1137	·1122	·1135	..	·1145	·1154	·1159
9	·1139	·1130	·1128	·1134	·1108	·1155	..	..	·1142	·1147	·1162	·1153
10	·1138	·1133	·1128	·1122	·1113	·1158	..	..	·1140	·1152	·1159	·1148
11	·1136	·1136	·1136	·1126	·1106	..	·1137	·1144	..	..	..	·1159
12	·1135	·1135	·1124	·1132	·1104	·1152	·1144	·1143	·1137	·1143	·1141	·1163
13	·1126	·1129	·1133	·1125	·1093	·1152	·1135	·1131	·1140	·1147	·1141	·1159
14	·1130	..	·1138	·1119	·1099	·1163	..	·1134	·1143	·1153	·1153	..
15	·1132	..	·1134	·1114	·1117	·1165	..	·1137	·1145	·1154	·1155	..
16	·1136	·1101	·1137	·1107	·1127	..	·1131	·1140	..	·1150	·1147	·1154
17	·1134	..	·1139	·1102	..	·1144	·1141	·1141	·1130	·1141	·1151	·1153
18	·1141	..	·1142	·1114	..	·1149	·1129	·1141	·1144	..	·1151	·1142
19	..	..	·1147	·1109	..	·1152	·1139	·1141	·1128	·1140	·1157	·1155
20	..	..	·1139	..	..	·1153	·1144	·1146	·1131	·1131	·1158	..
21	·1120	..	·1141	..	·1129	·1148	·1139	·1144	..	·1138	·1164	..
22	·1112	·1113	·1142	·1090	·1126	·1133	·1138	·1141	..	·1143	·1165	·1156
23	·1109	·1117	·1135	..	·1125	·1122	·1141	·1138	·1139	·1148	..	·1151
24	·1123	·1117	·1143	·1106	..	·1138	·1131	·1139	·1153	·1146	·1163	·1147
25	·1118	·1124	·1142	·1109	..	·1140	·1142	·1138	..	·1163	·1162	·1151
26	·1123	·1116	·1128	·1106	·1124	·1135	·1150	·1138	·1115	·1165	·1158	·1158
27	·1127	·1112	·1129	·1107	·1122	·1129	·1141	·1135	·1155	·1153	..	..
28	·1134	·1118	·1133	·1103	..	·1140	·1132	·1139	·1161	·1162	·1180	..
29	·1130	..	·1126	·1118	·1120	·1138	..	·1136	..	·1156	·1166	..
30	·1125		·1129	·1097	·1130	·1134	..	·1145	·1139	·1150	·1165	..
31	·1122		·1120		·1125		·1132	·1142		·1150		..

1853.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	0·1130	0·1113	..	0·1140	..	0·1175	0·1149	..	..	0·1165	0·1184
2	..	·1123	·1110	..	..	0·1185	·1172	·1158	..	..	·1172	·1181
3	..	·1129	·1108	..	..	..	·1172	·1156	..	..	·1186	·1183
4	..	·1129	·1105	..	·1147	..	·1174	·1155	0·1115	..	..	..
5	..	·1120	·1106	..	·1130	..	·1179	·1159	·1156	0·1171	·1183	..
6	..	·1122	·1107	..	..	·1182	·1180	·1163	·1145	·1171	·1186	..
7	..	·1121	..	..	·1142	·1171	·1180	·1154	·1152	·1167	·1182	..
8	..	·1125	..	..	·1144	·1188	·1180	·1157	·1155	·1168	·1171	..
9	..	..	·1113	..	·1143	..	·1177	·1152	·1160	·1174	..	..
10	..	·1124	·1113	0·1106	·1144	·1193	·1173	·1154	·1164	·1160	·1170	·1187
11	0·1125	·1124	·1105	..	·1145	·1189	·1171	·1160	·1159	·1164	·1179	·1196
12	·1129	·1123	..	..	·1159	·1189	..	..	·1160	·1167	·1178	·1190
13	·1126	·1130	·1109	·1108	·1160	·1194	·1155	·1172	·1165	·1166	·1183	..
14	..	·1101	..	..	·1155	·1185	·1169	·1162	·1157	·1153	·1186	·1187
15	..	·1112	·1109	·1198	·1163	·1175	·1172	·1165	·1165	·1162	·1187	·1188
16	..	·1106	..	..	·1160	·1177	·1170	·1177	·1164	·1170	·1184	..
17	..	..	·1117	·1217	·1159	·1180	·1170	·1159	·1164	·1169	·1176	..
18	..	..	·1112	·1200	..	·1187	·1167	·1209	·1155	·1168	·1174	..
19	..	·1118	·1120	·1196	·1180	·1181	·1167	..	..	·1171	·1179	..
20	·1132	·1121	..	·1197	..	·1183	·1165	..	·1155	·1171	·1188	·1188
21	·1131	..	·1122	·1199	·1178	·1182	·1118	..	·1158	·1175	..	..
22	·1135	·1104	·1118	·1199	·1183	..	·1115	..	·1159	·1166	..	·1184
23	·1142	·1107	·1119	..	·1194	·1173	..	·1159	·1143	·1161	·1136	·1184
24	·1134	·1107	·1115	·1134	..	·1171	·1108	·1149	..	·1163	..	..
25	·1133	..	·1119	·1143	·1173	·1179	..	·1156	·1157	..	..	·1194
26	·1132	·1113	..	·1142	·1180	·1186	..	·1158	..	·1163	·1185	·1190
27	..	·1118	..	·1140	·1191	·1176	·1160	..	..	·1166	·1191	..
28	·1127	..	..	·1143	..	·1174	..	·1151	..	·1166	..	..
29	·1128		·1119	·1143	·1196	·1174	..	..	..	·1169	·1183	..
30	·1131		..	·1141	·1192	·1175	..	..	·1138	..	·1178	·1203
31	·1182		..		·1198		·1153	·1132		..		..

TABLE VII.—MEAN HORIZONTAL MAGNETIC FORCE on each ASTRONOMICAL DAY, &c.—*continued.*

1854.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	0·1142	0·1153	..	0·1146	0·1139	0·1157	0·1154	..	..	0·1175	0·1180
2	..	..	·1158	0·1168	·1147	..	·1150	·1159	0·1148	..	·1177	·1183
3	..	..	·1159	·1168	·1142	..	·1147	..	·1143	..	·1181	·1192
4	..	·1137	·1167	·1166	·1134	·1147	·1144	·1168	·1133	..	·1181	·1194
5	..	·1136	·1171	·1166	·1134	·1143	·1145	..	·1151	..	·1183	·1193
6	..	..	·1159	·1170	·1141	·1147	·1152	..	·1139	..	·1180	·1195
7	0·1152	..	·1158	·1173	·1144	..	·1159	..	·1143	..	·1179	·1203
8	..	·1138	·1161	·1168	·1139	·1145	·1155	..	·1143	0·1148	·1170	·1205
9	·1138	..	·1155	·1170	·1133	·1148	·1153	..	·1143	·1168	..	·1205
10	·1141	·1124	·1161	..	·1134	·1142	·1145	·1155	..	·1173	·1179	·1244
11	·1139	·1122	·1160	..	·1135	·1151	·1146	·1156	..	·1177	·1183	..
12	·1135	·1133	·1159	·1161	·1134	·1144	·1157	·1167	..	·1167	·1186	·1210
13	·1140	·1131	·1152	·1170	·1134	·1140	·1150	..	·1158	·1179	·1183	·1202
14	·1138	·1127	·1162	·1164	·1134	·1140	·1157	·1165	·1159	·1178	..	·1201
15	·1144	·1131	..	·1173	·1131	·1144	·1157	·1170	·1153	..	·1178	·1203
16	·1137	..	..	·1187	·1142	·1145	·1147	·1167	..	·1176	·1183	·1207
17	·1136	..	·1167	·1191	·1128	·1139	·1145	..	·1144	·1184	·1183	·1212
18	·1140	·1152	·1183	·1193	·1147	·1139	·1148	..	..	·1178	·1188	·1207
19	·1137	·1168	·1182	·1177	·1128	..	·1149	..	·1162	·1178	·1191	·1208
20	·1135	·1161	·1177	..	·1136	·1149	·1154	·1156	·1165	·1180	·1189	·1204
21	·1137	·1161	·1188	..	·1141	·1152	·1150	·1160	·1159	·1180	·1185	·1208
22	·1147	..	..	·1150	·1147	·1158	·1148	·1156	..	·1178	·1183	·1205
23	·1136	·1163	·1183	..	·1152	·1150	..	·1161	·1167	·1183	·1185	·1205
24	·1138	..	·1187	·1137	·1149	·1149	..	·1157	·1163	·1175	·1182	·1209
25	·1142	..	·1182	·1142	..	·1150	..	..	·1157	·1174	·1184	·1204
26	·1142	·1151	·1177	·1149	·1145	·1153	·1151	..	·1162	·1177	..	·1207
27	·1143	·1151	·1125	·1141	·1150	·1149	..	..	·1159	..	..	·1210
28	·1140	·1156	..	·1138	·1149	·1153	..	·1152	·1157	·1177	·1177	·1208
29	·1137		·1119	·1135	·1146	..	..	..	·1163	·1182	·1178	·1207
30	·1131		·1130	·1140	·1144	·1153	·1152	·1163	..	·1179	·1183	·1198
31	·1138		·1125		·1138		·1152	·1150		·1183		·1201

1855.

1	..	0·1172	0·1128	0·1152	..	0·1154	..	0·1147	..	..	..	..
2	..	·1181	..	·1151	0·1126	..	..	..	..	0·1157	..	0·1126
3	0·1136	·1171	..	..	·1127	..	..	..	..	·1140	..	·1121
4	·1137	·1167	·1131	..	·1134	..	..	..	..	·1141	0·1131	·1115
5	·1133	·1170	..	·1131	·1134	..	..	·1143	..	..	..	·1124
6	·1137	·1173	·1133	·1141	·1137	..	..	..	0·1156	·1138	·1136	·1123
7	..	·1174	·1135	..	·1137	..	..	..	..	·1141	·1129	·1123
8	..	·1164	·1142	·1152	·1130	..	0·1146	·1150	·1132	·1148	..	·1130
9	·1144	·1163	·1132	·1153	·1124	..	·1153	·1153	·1143	·1150	·1128	..
10	·1150	·1169	·1144	·1151	..	·1159	..	..	..	·1148	·1133	·1130
11	·1153	·1170	·1147	·1157	..	·1150	·1178	..	..	·1147	·1132	·1132
12	·1152	·1124	..	..	·1130	..	..	..	·1138	·1151	·1132	·1122
13	·1154	..	·1128	..	·1140	..	..	..	·1149	..	..	·1129
14	·1163	..	·1135	·1149	..	·1171	..	..	·1148	..	..	·1124
15	·1163	..	·1132	·1143	·1127	..	..	..	·1145	..	·1137	·1125
16	·1161	·1170	·1134	·1141	·1123	·1163	..	..	·1144	·1144	·1128	·1126
17	·1172	..	·1149	·1134	·1120	·1166	·1164	..	·1141	..	·1124	·1117
18	..	·1151	·1139	·1128	..	..	·1153	..	·1135	..	·1130	..
19	·1170	·1143	·1138	·1121	..	..	..	..	..	·1142	·1129	..
20	·1173	·1142	·1136	·1123	..	·1166	..	..	..	..	·1133	..
21	·1174	·1130	..	·1133	..	·1161	..	..	·1136	·1148	·1125	..
22	·1164	·1126	..	·1136	·1130	..	·1160	·1154	·1137	..	..	..
23	·1170	·1125	·1138	·1131	..	..	..	·1160	·1141	..	·1125	..
24	·1163	·1122	..	..	..	..	·1158	..	·1146	·1146	·1132	·1125
25	·1162	·1126	·1143	·1150	·1156	..	·1156	..	·1154	·1153	·1136	·1133
26	·1159	·1127	·1138	·1143	..	·1171	..	·1157	·1160	·1155	..	·1130
27	·1163	·1131	·1143	·1139	·1155	..	..	·1159	..	·1150	·1126	..
28	·1168	·1123	·1140	·1149	..	·1156	..	·1151	·1153	·1135	..	..
29	·1164		·1139	..	..	..	..	..	·1155	·1155	..	·1126
30	·1165		·1144	·1141	..	..	..	..	·1156	·1161	·1109	·1117
31	·1165		·1148		·1160		..	·1146		·1158		..

TABLE VII.—MEAN HORIZONTAL MAGNETIC FORCE on each ASTRONOMICAL DAY, &c.—*concluded.*

1856.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	0·1154	..	0·1125	..	0·1160	..	0·1168	..	..	..	0·1196
2	..	..	0·1145	·1133	0·1159	·1157	..	·1171	0·1167	..	..	·1120
3	..	..	·1149	·1147	·1161	..	..	..	..	..	..	·1176
4	..	·1156	·1151	·1142	·1160	..	..	·1168	..	..	..	·1193
5	..	·1156	·1151	..	..	..	..	·1170	·1161	..	0·1177	·1187
6	0·1129	·1152	·1142	..	..	·1212	..	·1168	·1158	..	..	·1200
7	·1123	·1147	..	..	..	..	..	·1163	·1163	..	..	·1195
8	·1125	·1149	·1146	·1165	..	..	0·1163	·1184	..	..	·1175	·1188
9	..	·1146	·1144	·1161	·1178	..	..	..	·1169	..	·1180	..
10	·1132	·1152	·1139	·1157	..	..	·1154	·1168	..	..	·1175	..
11	·1136	·1133	..	·1157	..	..	·1163	·1180	..	..	·1182	..
12	·1139	·1135	..	·1154	·1179	..	·1160	·1190	..	..	..	..
13	·1138	..	·1139	..	·1181	..	·1159	·1161	..	..	·1174	..
14	·1135	..	·1136	..	·1184	..	·1166	·1169	..	..	·1177	..
15	·1134	·1145	·1136	·1161	·1179	..	·1165	..	..	0·1223	..	..
16	·1134	·1145	·1141	·1162	·1192	..	·1166	·1179	..	·1225	·1196	·1202
17	·1135	·1150	·1140	·1164	..	..	·1166	..	..	..	·1198	·1191
18	·1134	·1151	..	·1161	..	..	·1176	·1179	..	·1226	·1209	·1193
19	·1135	·1156	..	·1156	..	..	·1166	·1180	..	·1229	·1207	·1192
20	·1133	·1143	..	·1154	1197	·1158	..	·1180	..	..	·1203	·1192
21	·1136	·1153	·1143	·1154	..	·1161	·1172	·1180	..	..	..	..
22	·1141	·1159	·1134	·1153	·1172	·1159	·1169	·1174	..	..	·1208	..
23	·1141	·1157	·1143	·1142	..	·1165	..	..	..	·1218	·1206	·1195
24	·1136	..	·1137	·1158	·1161	..	..	..	..	..	·1208	·1192
25	·1139	·1159	·1138	·1163	·1149	·1165	·1175	·1165	..	..	·1207	·1196
26	·1136	·1161	·1139	·1165	..	..	·1173	·1172	..	·1223	·1204	·1192
27	·1149	..	·1125	·1177	..	·1170	·1173	·1169	..	..	·1196	·1198
28	·1142	..	·1133	·1167	·1154	·1165	·1167	..	..	..	·1199	..
29	·1150	..	·1134	·1168	..	·1160	·1168	·1169	..	..	·1200	..
30	·1149		·1138	·1166	·1152	·1159	·1167	..	..	..	·1210	..
31	·1150		·1130		..		·1150	·1169		·1182		..

1857.

1	..	0·1234	0·1233	..	..	..	0·1248	0·1226	0·1226	0·1233	0·1256	0·1285
2	..	..	·1231	·01238	0·1198	0·1221	·1227	·1220	·1238	·1230	..	..
3	..	..	·1231	·1241	·1201	..	·1224	..	..	..	..	·1280
4	0·1193	..	·1260	·1243	·1199	..	·1226	·1223	..	..	·1268	·1278
5	·1185	..	·1243	·1236	·1207	..	..	·1230	·1218	..	·1270	..
6	·1195	·1228	·1239	·1235	·1211	..	·1222	·1222	·1224	..	..	·1278
7	·1188	..	·1234	·1232	..	..	·1218	·1229	·1218	·1249	·1280	·1276
8	..	·1225	·1237	·1236	..	..	..	..	·1225	..	·1287	..
9	..	·1227	·1245	·1239	..	..	·1218	..	·1221	·1244	..	·1276
10	·1195	·1226	..	·1236	..	·1222	·1227	..	..	..	..	..
11	·1189	·1232	·1240	·1224	..	·1220	..	·1229	·1217	..	..	..
12	·1179	·1234	·1242	·1228	..	·1219	..	..	·1218	..	..	..
13	·1185	·1234	·1240	·1236	..	..	..	..	..	..	..	·1278
14	..	·1238	..	..	..	·1208	·1228	·1228	..	..	·1271	·1270
15	·1191	..	..	·1241	..	..	·1213	·1231	·1215	..	·1268	·1278
16	..	..	..	·1240	..	·1215	·1218	·1210	·1217	·1248	·1265	..
17	·1182	..	·1214	..	..	·1215	..	..	·1218	·1241	..	..
18	·1193	·1230	..	..	..	·1224	·1215	·1228	..	..	·1250	·1247
19	·1189	·1227	·1225	·1207	..	..	·1206	·1229	·1231	·1260	·1261	..
20	·1192	·1233	·1225	..	..	·1224	·1210	·1230	·1250	·1242	·1263	..
21	..	·1231	·1231	·1206	..	·1219	·1227	·1232	..	..	..	..
22	..	·1230	·1234	·1213	..	·1221	·1228	·1224	·1233	..	·1269	·1266
23	·1196	·1233	·1230	·1210	..	..	..	..	·1235	..	..	·1253
24	·1196	·1236	·1227	·1206	..	·1204	..	·1221	..	·1243	·1260	..
25	·1192	..	·1231	·1206	..	..	·1212	·1216	..	·1242	·1262	..
26	·1191	..	·1234	·1216	..	·1214	·1222	·1226	·1236	·1235	..	..
27	·1204	..	·1233	·1198	..	..	·1228	·1223	·1242	·1243	·1268	·1260
28	..	..	·1234	·1205	..	·1217	·1226	·1230	..	·1264	·1270	..
29	..		·1233	·1194	..	..	..	·1237	..	..	·1272	..
30	·1220		·1226	·1195	..	·1240	·1224	·1218	..	..	..	..
31	..		·1233		..		..	..		..		..

TABLE VIII.—MEAN HORIZONTAL MAGNETIC FORCE (diminished by a constant 0·8850 nearly) in each Month, as deduced from the mean of the MEAN DAILY DETERMINATIONS in each Month; and MEAN HORIZONTAL MAGNETIC FORCE in each Year, as deduced from the mean of the MEAN MONTHLY DETERMINATIONS; all corrected for Temperature. Showing the apparent Monthly Change of Horizontal Force in each Year.

Month.	1848.	1849.	1850.	1851.	1852.	1853.
January	0·1119	0·1139	0·1159	0·1151	0·1137	0·1131
February	·1125	·1139	·1150	·1156	·1125	·1117
March	·1134	·1144	·1138	·1155	·1132	·1114
April	·1144	·1152	·1134	·1152	·1116	·1146
May	·1194	·1136	·1139	·1148	·1114	·1165
June	·1211	·1136	·1127	·1120	·1141	·1181
July	·1047	·1134	·1105	·1154	·1134	·1159
August	·1071	·1130	·1103	·1150	·1139	·1159
September	·1091	·1128	·1105	·1151	·1142	·1152
October	·1098	·1126	·1114	·1152	·1149	·1166
November	·1119	·1128	·1125	·1169	·1157	·1181
December	·1121	·1130	·1125	·1184	·1155	·1187
Mean		0·1135	0·1127	0·1154	0·1137	0·1154

Month.	1854.	1855.	1856.	1857.	Mean for the Nine Years 1849 to 1857.	Mean, corrected for Secular Variation, 0·0022 annually.
January	0·1140	0·1156	0·1135	0·1195	0·1151	0·1151
February	·1143	·1152	·1152	·1231	·1152	·1150
March	·1163	·1139	·1141	·1234	·1151	·1147
April	·1161	·1142	·1157	·1223	·1155	·1149
May	·1140	·1133	·1171	·1208	·1150	·1143
June	·1147	·1164	·1171	·1218	·1156	·1147
July	·1151	·1158	·1166	·1222	·1154	·1143
August	·1156	·1151	·1171	·1226	·1154	·1141
September	·1153	·1146	·1161	·1226	·1152	·1137
October	·1178	·1148	·1218	·1244	·1166	·1149
November	·1182	·1131	·1192	·1268	·1170	·1152
December	·1202	·1124	·1195	·1271	·1175	·1155
Mean	0·1160	0·1145	0·1169	0·1230		

TABLE IX.—MEAN MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE (diminished by a constant 0·8850 nearly), corrected for Temperature, at every HOUR of the DAY; obtained by taking the MEAN of all the DETERMINATIONS at the same HOUR of the DAY through each MONTH.

1848.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·1109	0·1113	0·1117	0·1121	0·1176	0·1195	0·1021	0·1051	0·1072	0·1080	0·1109	0·1113
1	·1111	·1109	·1122	·1126	·1179	·1200	·1030	·1055	·1079	·1083	·1112	·1114
2	·1114	·1114	·1127	·1131	·1185	·1204	·1038	·1060	·1086	·1088	·1117	·1119
3	·1120	·1117	·1133	·1140	·1191	·1209	·1047	·1068	·1091	·1094	·1120	·1120
4	·1118	·1120	·1132	·1144	·1193	·1213	·1054	·1074	·1094	·1098	·1120	·1118
5	·1120	·1123	·1134	·1148	·1201	·1217	·1057	·1080	·1096	·1098	·1120	·1119
6	·1124	·1127	·1136	·1153	·1205	·1221	·1059	·1082	·1096	·1102	·1120	·1120
7	·1117	·1128	·1139	·1152	·1206	·1223	·1063	·1085	·1099	·1102	·1119	·1123
8	·1118	·1128	·1139	·1151	·1206	·1223	·1063	·1084	·1100	·1104	·1123	·1120
9	·1120	·1129	·1139	·1151	·1201	·1222	·1061	·1081	·1097	·1102	·1119	·1120
10	·1117	·1128	·1140	·1149	·1199	·1217	·1058	·1079	·1098	·1104	·1121	·1121
11	·1117	·1128	·1140	·1147	·1196	·1217	·1056	·1078	·1098	·1102	·1118	·1121
12	·1119	·1129	·1139	·1149	·1198	·1216	·1053	·1079	·1097	·1102	·1120	·1122
13	·1119	·1128	·1138	·1150	·1196	·1215	·1050	·1078	·1097	·1100	·1117	·1122
14	·1119	·1128	·1138	·1149	·1196	·1216	·1054	·1076	·1096	·1101	·1119	·1120
15	·1119	·1127	·1138	·1150	·1198	·1215	·1049	·1076	·1096	·1101	·1121	·1120
16	·1122	·1129	·1139	·1150	·1196	·1216	·1051	·1077	·1096	·1102	·1120	·1121
17	·1123	·1129	·1140	·1149	·1198	·1216	·1052	·1075	·1097	·1104	·1124	·1124
18	·1124	·1131	·1141	·1151	·1197	·1215	·1049	·1073	·1094	·1104	·1123	·1125
19	·1125	·1131	·1139	·1148	·1194	·1211	·1044	·1070	·1092	·1103	·1124	·1127
20	·1124	·1132	·1136	·1143	·1192	·1205	·1035	·1062	·1088	·1100	·1120	·1126
21	·1118	·1127	·1129	·1136	·1188	·1200	·1026	·1057	·1079	·1093	·1116	·1123
22	·1114	·1121	·1123	·1132	·1179	·1196	·1024	·1054	·1072	·1087	·1114	·1118
23	·1111	·1118	·1118	·1127	·1177	·1194	·1022	·1050	·1070	·1084	·1110	·1115

1849.

0	0·1128	0·1125	0·1127	0·1132	0·1121	0·1121	0·1115	0·1117	0·1114	0·1113	0·1121	0·1123
1	·1131	·1127	·1131	·1134	·1123	·1121	·1125	·1123	·1119	·1116	·1123	·1128
2	·1136	·1132	·1137	·1142	·1127	·1138	·1129	·1127	·1126	·1121	·1124	·1129
3	·1138	·1139	·1141	·1150	·1133	·1136	·1136	·1132	·1130	·1125	·1126	·1131
4	·1138	·1141	·1144	·1154	·1139	·1141	·1140	·1133	·1129	·1127	·1128	·1130
5	·1139	·1142	·1147	·1157	·1143	·1146	·1146	·1134	·1131	·1128	·1129	·1131
6	·1142	·1144	·1150	·1162	·1150	·1146	·1145	·1137	·1131	·1129	·1132	·1132
7	·1141	·1144	·1150	·1161	·1152	·1149	·1145	·1136	·1130	·1129	·1132	·1132
8	·1141	·1140	·1150	·1163	·1149	·1147	·1145	·1136	·1130	·1131	·1131	·1131
9	·1140	·1138	·1149	·1158	·1144	·1145	·1142	·1137	·1130	·1127	·1131	·1130
10	·1140	·1138	·1149	·1158	·1142	·1143	·1142	·1136	·1131	·1130	·1130	·1131
11	·1140	·1138	·1149	·1158	·1141	·1141	·1141	·1135	·1135	·1128	·1128	·1130
12	·1139	·1139	·1147	·1157	·1139	·1140	·1140	·1134	·1134	·1130	·1127	·1130
13	·1139	·1138	·1148	·1156	·1140	·1139	·1137	·1134	·1133	·1130	·1125	·1131
14	·1140	·1140	·1147	·1158	·1140	·1139	·1137	·1132	·1133	·1128	·1128	·1130
15	·1142	·1140	·1148	·1157	·1140	·1139	·1137	·1133	·1132	·1127	·1130	·1131
16	·1142	·1142	·1149	·1157	·1138	·1139	·1136	·1132	·1134	·1130	·1130	·1131
17	·1143	·1142	·1150	·1159	·1139	·1140	·1136	·1133	·1131	·1128	·1131	·1133
18	·1144	·1146	·1150	·1159	·1138	·1137	·1134	·1131	·1131	·1130	·1132	·1134
19	·1145	·1146	·1149	·1157	·1134	·1134	·1131	·1128	·1127	·1130	·1133	·1135
20	·1144	·1144	·1147	·1147	·1127	·1127	·1123	·1124	·1124	·1127	·1130	·1133
21	·1139	·1139	·1138	·1141	·1124	·1122	·1117	·1116	·1120	·1119	·1126	·1131
22	·1133	·1134	·1131	·1134	·1120	·1119	·1115	·1118	·1120	·1114	·1121	·1128
23	·1130	·1131	·1126	·1127	·1118	·1118	·1113	·1116	·1124	·1113	·1119	·1126

TABLE IX.—MEAN MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, &c.—*continued.*

1850.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·1151	0·1135	0·1126	0·1114	0·1125	0·1117	0·1092	0·1090	0·1086	0·1098	0·1113	0·1116
1	·1155	·1139	·1129	·1119	·1129	·1124	·1097	·1096	·1093	·1102	·1117	·1120
2	·1158	·1144	·1136	·1126	·1135	·1127	·1104	·1102	·1102	·1105	·1119	·1120
3	·1163	·1150	·1143	·1132	·1141	·1126	·1107	·1107	·1102	·1109	·1119	·1121
4	·1163	·1152	·1144	·1139	·1144	·1129	·1110	·1108	·1104	·1110	·1121	·1120
5	·1162	·1153	·1143	·1141	·1148	·1131	·1112	·1111	·1105	·1113	·1122	·1122
6	·1161	·1154	·1144	·1143	·1150	·1134	·1115	·1111	·1108	·1117	·1125	·1125
7	·1161	·1155	·1143	·1142	·1150	·1133	·1113	·1112	·1108	·1116	·1125	·1126
8	·1161	·1159	·1142	·1142	·1148	·1135	·1113	·1111	·1110	·1116	·1127	·1125
9	·1159	·1154	·1141	·1139	·1144	·1130	·1109	·1109	·1110	·1118	·1127	·1125
10	·1158	·1153	·1142	·1140	·1143	·1129	·1107	·1109	·1110	·1119	·1129	·1126
11	·1159	·1153	·1141	·1138	·1142	·1127	·1106	·1106	·1111	·1120	·1127	·1125
12	·1159	·1150	·1142	·1135	·1141	·1128	·1104	·1106	·1112	·1110	·1127	·1126
13	·1160	·1149	·1140	·1135	·1142	·1126	·1105	·1108	·1112	·1119	·1128	·1127
14	·1159	·1152	·1140	·1135	·1142	·1125	·1107	·1105	·1112	·1120	·1129	·1128
15	·1160	·1151	·1139	·1136	·1042	·1126	·1106	·1106	·1111	·1120	·1130	·1128
16	·1161	·1151	·1141	·1136	·1142	·1127	·1107	·1106	·1112	·1121	·1131	·1130
17	·1160	·1152	·1142	·1135	·1141	·1128	·1109	·1106	·1111	·1121	·1132	·1130
18	·1163	·1153	·1142	·1138	·1141	·1129	·1107	·1104	·1109	·1123	·1134	·1131
19	·1161	·1154	·1144	·1138	·1141	·1134	·1106	·1102	·1109	·1123	·1133	·1133
20	·1161	·1153	·1141	·1134	·1136	·1131	·1103	·1096	·1103	·1120	·1131	·1132
21	·1158	·1147	·1134	·1127	·1131	·1125	·1096	·1091	·1096	·1111	·1128	·1128
22	·1154	·1142	·1124	·1119	·1125	·1122	·1092	·1089	·1090	·1104	·1120	·1119
23	·1150	·1137	·1122	·1115	·1124	·1118	·1089	·1088	·1086	·1099	·1115	·1115

1851.

0	0·1142	0·1146	0·1143	0·1134	0·1130	0·1104	0·1140	0·1140	0·1143	0·1139	0·1163	0·1181
1	·1141	·1145	·1145	·1137	·1134	·1109	·1145	·1142	·1150	·1142	·1163	·1184
2	·1146	·1150	·1148	·1141	·1138	·1112	·1147	·1149	·1152	·1145	·1167	·1184
3	·1146	·1149	·1150	·1146	·1142	·1118	·1150	·1152	·1153	·1151	·1168	·1184
4	·1146	·1151	·1152	·1149	·1144	·1120	·1153	·1154	·1152	·1152	·1166	·1181
5	·1147	·1151	·1151	·1153	·1150	·1123	·1155	·1151	·1153	·1153	·1167	·1178
6	·1147	·1154	·1153	·1156	·1155	·1126	·1159	·1153	·1153	·1153	·1167	·1181
7	·1149	·1155	·1153	·1157	·1157	·1129	·1161	·1155	·1152	·1153	·1169	·1181
8	·1148	·1157	·1155	·1156	·1154	·1129	·1161	·1153	·1154	·1153	·1169	·1181
9	·1150	·1156	·1155	·1156	·1153	·1126	·1161	·1154	·1156	·1155	·1168	·1181
10	·1152	·1156	·1156	·1156	·1153	·1125	·1158	·1155	·1155	·1155	·1169	·1184
11	·1153	·1156	·1158	·1156	·1154	·1125	·1158	·1155	·1156	·1153	·1169	·1182
12	·1152	·1158	·1157	·1157	·1152	·1125	·1157	·1155	·1158	·1155	·1171	·1181
13	·1151	·1156	·1157	·1157	·1152	·1125	·1156	·1153	·1155	·1154	·1171	·1182
14	·1153	·1159	·1159	·1156	·1152	·1125	·1155	·1152	·1155	·1154	·1171	·1184
15	·1154	·1159	·1159	·1156	·1154	·1125	·1158	·1154	·1156	·1155	·1171	·1180
16	·1155	·1162	·1159	·1158	·1157	·1125	·1157	·1155	·1155	·1156	·1171	·1187
17	·1158	·1164	·1162	·1160	·1156	·1125	·1159	·1154	·1156	·1156	·1173	·1189
18	·1159	·1164	·1161	·1161	·1156	·1123	·1157	·1152	·1154	·1156	·1174	·1192
19	·1159	·1165	·1162	·1162	·1152	·1122	·1157	·1150	·1153	·1156	·1173	·1192
20	·1158	·1164	·1161	·1159	·1148	·1115	·1152	·1145	·1149	·1155	·1173	·1191
21	·1156	·1161	·1156	·1151	·1143	·1112	·1148	·1142	·1144	·1150	·1168	·1190
22	·1154	·1158	·1149	·1141	·1137	·1107	·1145	·1140	·1139	·1144	·1167	·1188
23	·1147	·1150	·1144	·1136	·1131	·1104	·1142	·1138	·1137	·1140	·1167	·1184

TABLE IX.—MEAN MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, &c.—*continued.*

1852.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·1130	0·1113	0·1116	0·1096	0·1096	0·1125	0·1123	0·1125	0·1129	0·1134	0·1146	0·1148
1	·1128	·1115	·1119	·1104	·1101	·1127	·1123	·1128	·1133	·1139	·1148	·1147
2	·1130	·1116	·1125	·1111	·1104	·1125	·1126	·1128	·1137	·1142	·1149	·1147
3	·1131	·1119	·1131	·1116	·1110	·1139	·1129	·1136	·1141	·1144	·1153	·1151
4	·1132	·1120	·1134	·1118	·1113	·1140	·1130	·1136	·1141	·1144	·1154	·1149
5	·1132	·1122	·1137	·1121	·1118	·1142	·1134	·1138	·1142	·1146	·1157	·1155
6	·1133	·1124	·1137	·1124	·1121	·1146	·1138	·1140	·1146	·1148	·1158	·1153
7	·1134	·1125	·1135	·1123	·1122	·1149	·1136	·1144	·1147	·1149	·1158	·1155
8	·1134	·1128	·1136	·1123	·1123	·1149	·1137	·1145	·1146	·1150	·1158	·1154
9	·1135	·1129	·1135	·1121	·1121	·1146	·1134	·1144	·1148	·1153	·1158	·1154
10	·1137	·1125	·1134	·1119	·1119	·1145	·1135	·1144	·1147	·1154	·1158	·1156
11	·1136	·1125	·1135	·1121	·1121	·1147	·1138	·1145	·1146	·1153	·1158	·1156
12	·1137	·1127	·1136	·1123	·1119	·1147	·1138	·1143	·1148	·1155	·1161	·1155
13	·1139	·1124	·1134	·1121	·1120	·1146	·1141	·1144	·1149	·1153	·1159	·1156
14	·1141	·1127	·1135	·1121	·1119	·1156	·1142	·1144	·1146	·1154	·1159	·1158
15	·1142	·1127	·1136	·1118	·1119	·1146	·1139	·1143	·1145	·1153	·1160	·1156
16	·1142	·1127	·1137	·1120	·1118	·1147	·1141	·1145	·1146	·1156	·1161	·1158
17	·1142	·1129	·1137	·1120	·1118	·1146	·1144	·1144	·1147	·1157	·1161	·1160
18	·1146	·1132	·1138	·1122	·1119	·1148	·1143	·1142	·1145	·1157	·1164	·1162
19	·1145	·1133	·1137	·1120	·1116	·1144	·1142	·1141	·1144	·1155	·1164	·1162
20	·1146	·1133	·1135	·1116	·1110	·1139	·1133	·1136	·1142	·1150	·1162	·1161
21	·1143	·1130	·1130	·1108	·1106	·1133	·1126	·1130	·1136	·1144	·1158	·1160
22	·1138	·1120	·1122	·1100	·1101	·1128	·1122	·1127	·1132	·1138	·1153	·1156
23	·1129	·1116	·1117	·1097	·1096	·1125	·1120	·1126	·1128	·1134	·1148	·1151

1853.

0	0·1124	0·1110	0·1102	0·1139	0·1150	0·1168	0·1149	0·1146	0·1145	0·1154	0·1173	0·1182
1	·1122	·1109	·1104	·1141	·1153	·1170	·1155	·1151	·1149	·1156	·1173	·1182
2	·1124	·1111	·1106	·1141	·1156	·1175	·1154	·1154	·1152	·1159	·1175	·1181
3	·1125	·1114	·1108	·1144	·1162	·1181	·1160	·1156	·1154	·1162	·1175	·1180
4	·1125	·1114	·1112	·1143	·1166	·1185	·1164	·1158	·1156	·1163	·1176	·1179
5	·1127	·1114	·1114	·1148	·1171	·1187	·1165	·1159	·1155	·1165	·1178	·1179
6	·1129	·1115	·1114	·1150	·1172	·1191	·1169	·1163	·1156	·1164	·1179	·1181
7	·1129	·1117	·1115	·1150	·1174	·1192	·1172	·1164	·1159	·1164	·1179	·1184
8	·1129	·1117	·1116	·1148	·1172	·1191	·1171	·1164	·1157	·1167	·1179	·1182
9	·1130	·1116	·1117	·1146	·1167	·1192	·1167	·1164	·1158	·1168	·1178	·1183
10	·1132	·1116	·1119	·1148	·1171	·1192	·1165	·1164	·1156	·1167	·1177	·1184
11	·1130	·1118	·1116	·1149	·1170	·1187	·1162	·1163	·1157	·1168	·1180	·1186
12	·1132	·1117	·1117	·1148	·1170	·1186	·1162	·1164	·1155	·1168	·1181	·1186
13	·1130	·1118	·1116	·1147	·1169	·1186	·1161	·1162	·1154	·1168	·1181	·1188
14	·1133	·1119	·1117	·1149	·1169	·1184	·1160	·1163	·1155	·1169	·1182	·1187
15	·1134	·1119	·1117	·1150	·1169	·1184	·1159	·1164	·1154	·1170	·1184	·1191
16	·1135	·1120	·1119	·1150	·1168	·1183	·1161	·1166	·1156	·1171	·1185	·1192
17	·1137	·1123	·1120	·1149	·1169	·1184	·1160	·1162	·1155	·1172	·1186	·1194
18	·1138	·1124	·1122	·1151	·1167	·1182	·1159	·1163	·1153	·1173	·1189	·1198
19	·1138	·1126	·1120	·1149	·1165	·1182	·1157	·1163	·1153	·1172	·1189	·1199
20	·1139	·1124	·1117	·1148	·1162	·1175	·1152	·1158	·1150	·1170	·1189	·1199
21	·1137	·1120	·1113	·1145	·1159	·1167	·1147	·1154	·1143	·1167	·1188	·1197
22	·1134	·1122	·1110	·1135	·1157	·1161	·1145	·1150	·1140	·1160	·1180	·1191
23	·1129	·1114	·1105	·1131	·1152	·1162	·1146	·1148	·1139	·1155	·1176	·1188

TABLE IX.—MEAN MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, &c.—*continued.*

1854.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·1135	0·1136	0·1155	0·1151	0·1131	0·1137	0·1137	0·1148	0·1142	0·1171	0·1176	0·1199
1	·1135	·1135	·1158	·1155	·1133	·1141	·1143	·1151	·1146	·1172	·1175	·1201
2	·1137	·1137	·1158	·1157	·1136	·1142	·1147	·1153	·1147	·1172	·1175	·1201
3	·1138	·1134	·1161	·1156	·1141	·1146	·1152	·1155	·1150	·1174	·1176	·1200
4	·1135	·1137	·1162	·1160	·1141	·1148	·1153	·1155	·1148	·1174	·1177	·1198
5	·1133	·1139	·1162	·1164	·1145	·1151	·1154	·1154	·1147	·1172	·1178	·1197
6	·1136	·1141	·1162	·1164	·1148	·1152	·1154	·1155	·1148	·1174	·1179	·1198
7	·1138	·1143	·1163	·1166	·1149	·1154	·1157	·1156	·1151	·1174	·1180	·1199
8	·1138	·1143	·1163	·1162	·1148	·1155	·1156	·1155	·1152	·1176	·1180	·1199
9	·1138	·1143	·1163	·1161	·1144	·1152	·1153	·1155	·1154	·1175	·1180	·1202
10	·1139	·1142	·1164	·1160	·1142	·1151	·1155	·1156	·1155	·1177	·1184	·1202
11	·1140	·1144	·1164	·1161	·1142	·1151	·1152	·1157	·1157	·1178	·1184	·1202
12	·1141	·1145	·1165	·1162	·1142	·1149	·1155	·1158	·1158	·1178	·1184	·1201
13	·1142	·1147	·1164	·1162	·1142	·1149	·1154	·1157	·1158	·1178	·1183	·1202
14	·1142	·1148	·1164	·1162	·1141	·1150	·1156	·1160	·1157	·1181	·1184	·1203
15	·1141	·1147	·1167	·1163	·1144	·1150	·1155	·1160	·1158	·1181	·1186	·1205
16	·1142	·1146	·1167	·1165	·1142	·1148	·1155	·1160	·1159	·1184	·1188	·1205
17	·1146	·1149	·1168	·1165	·1143	·1148	·1156	·1162	·1160	·1184	·1189	·1207
18	·1146	·1149	·1168	·1166	·1142	·1147	·1155	·1162	·1160	·1185	·1189	·1208
19	·1149	·1153	·1170	·1167	·1142	·1145	·1154	·1161	·1159	·1185	·1190	·1209
20	·1147	·1150	·1168	·1164	·1137	·1145	·1149	·1158	·1157	·1186	·1189	·1208
21	·1143	·1150	·1161	·1160	·1135	·1138	·1145	·1155	·1152	·1181	·1187	·1207
22	·1138	·1145	·1156	·1156	·1131	·1136	·1139	·1151	·1147	·1177	·1183	·1203
23	·1135	·1139	·1155	·1151	·1129	·1135	·1138	·1149	·1145	·1176	·1178	·1197

1855.

0	0·1151	0·1149	0·1128	0·1128	0·1121	0·1154	0·1149	0·1138	0·1141	0·1139	0·1123	0·1120
1	·1153	·1150	·1133	·1133	·1125	·1159	·1149	·1144	·1145	·1141	·1124	·1120
2	·1152	·1148	·1136	·1138	·1128	·1160	·1152	·1144	·1146	·1143	·1124	·1119
3	·1156	·1150	·1136	·1141	·1129	·1163	·1155	·1148	·1149	·1145	·1124	·1120
4	·1152	·1150	·1138	·1143	·1133	·1165	·1156	·1149	·1146	·1146	·1126	·1120
5	·1152	·1148	·1139	·1144	·1137	·1160	·1156	·1148	·1146	·1146	·1127	·1118
6	·1153	·1147	·1138	·1145	·1137	·1167	·1158	·1148	·1146	·1145	·1128	·1120
7	·1152	·1149	·1139	·1145	·1140	·1169	·1159	·1151	·1146	·1147	·1129	·1121
8	·1153	·1150	·1140	·1143	·1139	·1169	·1161	·1154	·1147	·1149	·1130	·1121
9	·1153	·1147	·1139	·1142	·1136	·1169	·1159	·1155	·1148	·1150	·1130	·1120
10	·1153	·1151	·1141	·1142	·1135	·1166	·1158	·1155	·1149	·1149	·1133	·1122
11	·1156	·1151	·1140	·1145	·1136	·1167	·1159	·1156	·1150	·1150	·1130	·1122
12	·1157	·1151	·1141	·1142	·1136	·1167	·1161	·1155	·1150	·1149	·1131	·1123
13	·1156	·1153	·1142	·1146	·1137	·1166	·1163	·1154	·1151	·1150	·1132	·1123
14	·1158	·1154	·1142	·1145	·1138	·1167	·1162	·1155	·1149	·1150	·1134	·1125
15	·1159	·1155	·1141	·1144	·1138	·1168	·1161	·1157	·1147	·1150	·1132	·1127
16	·1160	·1154	·1142	·1144	·1138	·1168	·1162	·1157	·1149	·1152	·1135	·1128
17	·1161	·1156	·1144	·1146	·1136	·1169	·1162	·1157	·1148	·1154	·1135	·1130
18	·1163	·1158	·1144	·1146	·1136	·1169	·1164	·1156	·1148	·1155	·1137	·1131
19	·1163	·1158	·1144	·1147	·1135	·1166	·1162	·1154	·1147	·1156	·1138	·1133
20	·1163	·1159	·1144	·1144	·1132	·1162	·1158	·1152	·1143	·1152	·1138	·1132
21	·1161	·1157	·1140	·1140	·1131	·1158	·1157	·1150	·1139	·1150	·1134	·1130
22	·1157	·1153	·1135	·1133	·1126	·1156	·1154	·1145	·1136	·1144	·1132	·1128
23	·1155	·1151	·1131	·1130	·1122	·1155	·1152	·1142	·1136	·1141	·1127	·1125

TABLE XI.—MEAN MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, &c.—*concluded.*

1856.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·1130	0·1147	0·1132	0·1143	0·1160	0·1161	0·1155	0·1160	0·1147	0·1211	0·1189	0·1192
1	·1130	·1148	·1134	·1146	·1164	·1164	·1157	·1161	·1154	·1211	·1188	·1192
2	·1133	·1146	·1135	·1148	·1166	·1165	·1161	·1163	·1158	·1212	·1188	·1191
3	·1133	·1146	·1137	·1152	·1166	·1168	·1163	·1163	·1156	·1213	·1189	·1191
4	·1133	·1147	·1137	·1154	·1167	·1170	·1162	·1161	·1157	·1216	·1189	·1190
5	·1131	·1147	·1136	·1156	·1171	·1172	·1164	·1162	·1157	·1216	·1188	·1191
6	·1130	·1147	·1136	·1158	·1172	·1174	·1164	·1165	·1158	·1219	·1190	·1192
7	·1130	·1149	·1139	·1157	·1175	·1175	·1167	·1168	·1160	·1218	·1191	·1192
8	·1131	·1148	·1139	·1158	·1175	·1176	·1169	·1169	·1163	·1219	·1190	·1192
9	·1132	·1150	·1141	·1159	·1173	·1175	·1169	·1171	·1165	·1219	·1190	·1192
10	·1133	·1149	·1141	·1159	·1173	·1174	·1169	·1172	·1162	·1219	·1190	·1191
11	·1134	·1151	·1143	·1160	·1172	·1173	·1170	·1173	·1166	·1220	·1192	·1193
12	·1134	·1152	·1143	·1163	·1174	·1178	·1170	·1174	·1168	·1219	·1190	·1194
13	·1134	·1153	·1143	·1163	·1175	·1176	·1170	·1180	·1167	·1219	·1192	·1194
14	·1135	·1153	·1143	·1161	·1174	·1177	·1170	·1179	·1168	·1219	·1193	·1196
15	·1137	·1154	·1144	·1162	·1173	·1177	·1170	·1180	·1168	·1221	·1194	·1196
16	·1139	·1156	·1145	·1162	·1176	·1177	·1171	·1180	·1170	·1223	·1195	·1199
17	·1141	·1157	·1146	·1162	·1176	·1178	·1171	·1180	·1173	·1223	·1197	·1200
18	·1142	·1159	·1148	·1164	·1176	·1177	·1170	·1179	·1168	·1224	·1199	·1201
19	·1144	·1160	·1149	·1163	·1175	·1176	·1170	·1178	·1169	·1224	·1199	·1202
20	·1143	·1159	·1146	·1162	·1171	·1172	·1166	·1177	·1164	·1220	·1199	·1202
21	·1140	·1158	·1143	·1156	·1167	·1166	·1162	·1172	·1154	·1217	·1199	·1199
22	·1135	1151	·1139	·1150	·1163	·1159	·1158	·1168	·1149	·1211	·1195	·1197
23	·1133	·1148	·1134	·1145	·1160	·1155	·1156	·1163	·1149	·1210	·1191	·1194

1857.

0	0·1188	0·1222	0·1224	0·1212	0·1196	0·1205	01209	0·1216	0·1218	0·1235	0·1258	0·1261
1	·1185	·1222	·1229	·1213	·1197	·1208	1212	·1219	·1218	·1234	·1257	·1263
2	·1189	·1224	·1231	·1216	·1203	·1208	1213	·1218	·1220	·1236	·1257	·1267
3	·1191	·1226	·1234	·1219	·1202	·1212	1214	·1219	·1221	·1236	·1259	·1267
4	·1193	·1230	·1236	·1221	·1207	·1212	1216	·1219	·1215	·1238	·1261	·1268
5	·1192	·1231	·1235	·1223	·1209	·1212	1217	·1219	·1218	·1239	·1263	·1268
6	·1194	·1232	·1233	·1225	·1212	·1215	1216	·1220	·1222	·1240	·1264	·1269
7	·1193	·1233	·1235	·1226	·1213	·1217	1221	·1225	·1225	·1242	·1265	·1269
8	·1193	·1231	·1235	·1226	·1211	·1218	1223	·1226	·1227	·1243	·1266	·1269
9	·1192	·1230	·1234	·1225	·1210	·1220	1224	·1228	·1227	·1243	·1270	·1270
10	·1193	·1230	·1235	·1226	·1208	·1219	1224	·1229	·1229	·1245	·1269	·1271
11	·1192	·1231	·1236	·1226	·1209	·1222	1224	·1230	·1232	·1246	·1272	·1271
12	·1193	·1231	·1236	·1226	·1210	·1223	1229	·1231	·1232	·1247	·1273	·1272
13	·1196	·1230	·1235	·1227	·1209	·1224	1227	·1232	·1231	·1248	·1272	·1274
14	·1196	·1232	·1235	·1225	·1211	·1226	1228	·1232	·1230	·1248	·1274	·1274
15	·1198	·1231	·1236	·1227	·1211	·1227	1229	·1233	·1232	·1249	·1274	·1274
16	·1198	·1232	·1236	·1227	·1212	·1228	1231	·1234	·1231	·1249	·1275	·1274
17	·1200	·1233	·1237	·1227	·1213	·1229	1232	·1233	·1233	·1251	·1274	·1276
18	·1202	·1236	·1238	·1227	·1212	·1229	1232	·1233	·1233	·1251	·1275	·1279
19	·1203	·1237	·1238	·1228	·1211	·1226	1230	·1232	·1233	·1251	·1276	·1280
20	·1203	·1237	·1237	·1227	·1209	·1219	1225	·1229	·1230	·1251	·1274	·1278
21	·1201	·1236	·1235	·1221	·1207	·1216	1220	·1226	·1226	·1249	·1272	·1275
22	·1197	·1230	·1230	·1216	·1206	·1212	1212	·1223	·1222	·1246	·1265	·1268
23	·1191	·1225	·1226	·1214	·1206	·1208	1209	·1214	·1219	·1240	·1260	·1263

TABLE X.—MEAN, through the Range of Years, of the MONTHLY MEAN DETERMINATIONS of the DIURNAL INEQUALITY of HORIZONTAL FORCE; exhibited separately for the different Months.

1848 to 1857.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	−0·00074	−0·00094	−0·00124	−0·00157	−0·00142	−0·00129	−0·00140	−0·00125	−0·00118	−0·00119	−0·00081	−0·00059
1	− 71	− 91	− 90	− 119	− 110	− 93	− 94	− 86	− 69	− 97	− 72	− 43
2	− 43	− 68	− 55	− 76	− 70	− 60	− 59	− 58	− 29	− 70	− 57	− 36
3	− 21	− 46	− 20	− 31	− 31	− 20	− 17	− 20	− 8	− 40	− 43	− 29
4	− 27	− 28	− 3	− 2	− 1	+ 7	+ 8	− 9	− 13	− 25	− 34	− 41
5	− 27	− 20	+ 4	+ 28	+ 45	+ 31	+ 30	0	− 5	− 17	− 23	− 38
6	− 13	− 5	+ 9	+ 53	+ 74	+ 56	+ 47	+ 18	+ 9	− 2	− 10	− 21
7	− 18	+ 8	+ 17	+ 52	+ 90	+ 76	+ 64	+ 40	+ 22	+ 1	− 5	− 12
8	− 16	+ 11	+ 21	+ 45	+ 87	+ 76	+ 69	+ 41	+ 31	+ 13	+ 1	− 20
9	− 13	+ 2	+ 20	+ 31	+ 45	+ 61	+ 49	+ 42	+ 38	+ 17	− 1	− 17
10	− 8	− 2	+ 27	+ 30	+ 37	+ 45	+ 41	+ 43	+ 37	+ 26	+ 7	− 6
11	− 5	+ 5	+ 28	+ 34	+ 36	+ 41	+ 36	+ 42	+ 53	+ 21	+ 6	− 6
12	+ 1	+ 9	+ 29	+ 35	+ 33	+ 43	+ 39	+ 43	+ 57	+ 30	+ 13	− 4
13	+ 4	+ 6	+ 23	+ 37	+ 34	+ 36	+ 34	+ 46	+ 52	+ 23	+ 8	+ 5
14	+ 14	+ 22	+ 26	+ 34	+ 34	+ 39	+ 41	+ 42	+ 46	+ 31	+ 21	+ 9
15	+ 24	+ 20	+ 31	+ 36	+ 40	+ 41	+ 33	+ 50	+ 44	+ 34	+ 30	+ 14
16	+ 34	+ 29	+ 40	+ 42	+ 39	+ 42	+ 42	+ 56	+ 53	+ 51	+ 39	+ 31
17	+ 49	+ 44	+ 52	+ 45	+ 41	+ 47	+ 51	+ 50	+ 56	+ 57	+ 50	+ 49
18	+ 65	+ 62	+ 58	+ 58	+ 36	+ 40	+ 40	+ 39	+ 40	+ 65	+ 64	+ 67
19	+ 70	+ 73	+ 58	+ 52	+ 17	+ 24	+ 23	+ 23	+ 31	+ 62	+ 67	+ 78
20	+ 66	+ 65	+ 38	+ 17	− 24	− 26	− 34	− 19	− 5	+ 38	+ 53	+ 68
21	+ 34	+ 35	− 15	− 42	− 57	− 79	− 86	− 63	− 66	− 12	+ 24	+ 56
22	− 8	− 14	− 75	− 111	− 103	− 120	− 124	− 91	− 108	− 70	− 22	+ 2
23	− 52	− 61	− 116	− 154	− 133	− 142	− 143	− 122	− 122	− 101	− 61	− 36

TABLE XI.—MEAN, through the Range of Months, of the MONTHLY MEAN DETERMINATIONS of the DIURNAL INEQUALITY of HORIZONTAL FORCE; exhibited separately for the different Years.

January to December.

Hour. Göttingen Mean Solar Time.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	Mean. 1848 to 1857.
0	−0·0017	−0·0014	−0·0013	−0·0011	−0·0014	−0·0009	−0·0008	−0·0008	−0·0007	−0·0009	−0·00110
1	− 13	− 10	− 9	− 8	− 11	− 7	− 6	− 5	− 6	− 9	− 84
2	− 8	− 4	− 4	− 5	− 9	− 5	− 5	− 4	− 4	− 6	− 54
3	− 2	0	0	− 2	− 4	− 2	− 3	− 2	− 3	− 5	− 23
4	0	+ 2	+ 2	− 1	− 3	0	− 3	− 1	− 3	− 4	− 11
5	+ 3	+ 4	+ 3	0	0	+ 1	− 2	− 2	− 2	− 3	+ 2
6	+ 6	+ 7	+ 5	+ 2	+ 2	+ 3	− 1	− 1	− 1	− 2	+ 18
7	+ 7	+ 7	+ 5	+ 3	+ 3	+ 4	+ 1	+ 1	0	0	+ 31
8	+ 7	+ 6	+ 5	+ 3	+ 3	+ 4	+ 1	+ 1	+ 1	+ 1	+ 32
9	+ 6	+ 4	+ 3	+ 3	+ 3	+ 3	0	+ 1	+ 2	+ 1	+ 26
10	+ 5	+ 4	+ 3	+ 3	+ 2	+ 4	+ 1	+ 1	+ 1	+ 2	+ 27
11	+ 4	+ 4	+ 3	+ 3	+ 3	+ 3	+ 1	+ 2	+ 3	+ 2	+ 28
12	+ 4	+ 3	+ 2	+ 4	+ 4	+ 3	+ 2	+ 2	+ 4	+ 4	+ 33
13	+ 3	+ 3	+ 2	+ 3	+ 4	+ 3	+ 2	+ 3	+ 4	+ 4	+ 31
14	+ 3	+ 3	+ 3	+ 3	+ 4	+ 3	+ 2	+ 3	+ 4	+ 4	+ 32
15	+ 3	+ 3	+ 3	+ 4	+ 3	+ 4	+ 3	+ 3	+ 5	+ 5	+ 36
16	+ 4	+ 3	+ 3	+ 5	+ 5	+ 5	+ 3	+ 4	+ 6	+ 6	+ 44
17	+ 5	+ 4	+ 4	+ 6	+ 5	+ 5	+ 5	+ 5	+ 7	+ 7	+ 53
18	+ 4	+ 4	+ 4	+ 6	+ 6	+ 6	+ 5	+ 6	+ 8	+ 7	+ 56
19	+ 2	+ 2	+ 5	+ 6	+ 5	+ 5	+ 5	+ 5	+ 8	+ 8	+ 51
20	− 1	− 2	+ 1	+ 3	+ 2	+ 4	+ 3	+ 3	+ 5	+ 5	+ 23
21	− 7	− 7	− 4	− 1	− 3	0	− 1	+ 1	+ 1	+ 2	− 19
22	− 12	− 11	− 10	− 6	− 9	− 5	− 5	− 3	− 3	− 3	− 67
23	− 15	− 13	− 14	− 10	− 13	− 8	− 8	− 6	− 6	− 7	− 100

REDUCTIONS OF MAGNETIC VERTICAL FORCE REFERRED TO THE SUN'S PLACE.

TABLE XII.—MEAN VERTICAL MAGNETIC FORCE (diminished by a Constant 0·9600 nearly), on each Astronomical Day, as deduced from the Mean of Twenty-four hourly Measures of Ordinates of the Photographic Register on that Day, each corrected for Temperature.

1849.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	..	..	0·0342	..	..	0·0454	0·0389	..	..	0·0426	..
2	..	..	..	·0338	..	..	·0474	·0398	0·0435	0·0441	·0435	..
3	..	0·0396	..	·0337	0·0462	..	·0434	..	·0431	..	·0429	..
4	0·0363	..	..	..	·0478	0·0476	..	·0381	·0426	·0452	·0441	..
5	·0371	·0404	..	..	..	..	·0436	·0388	·0430	..	·0428	0·0399
6	..	·0400	..	·0364	..	·0464	..	·0412	·0416	·0426	·0410	..
7	..	·0394	0·0390	·0354	..	·0446	..	..	·0393	·0441	·0416	..
8	·0387	..	..	·0343	..	·0437	..	·0456	·0391	·0460	·0443	..
9	..	..	..	·0334	·0369	·0418	·0472	·0420	·0390	..	..	..
10	..	..	..	..	·0352	·0403	·0456	·0441	·0399	·0421	·0440	..
11	·0379	·0380	..	·0311	..	·0385	..	·0445	·0395	·0430	·0433	·0412
12	·0362	·0376	..	..	..	·0373	·0451	..	..	·0437	·0413	·0422
13	..	·0363	..	..	·0418	·0419	·0451	..	..	·0424	..	·0388
14	·0416	·0389	·0324	..	..	·0425	·0430	·0387	·0363	·0437	·0427	·0415
15	·0385	..	·0342	..	..	..	·0412	..	·0382	·0427	·0406	..
16	..	·0384	·0356	..	..	·0422	·0427	..	·0385	·0428	·0394	..
17	·0426	·0381	·0356	..	..	·0423	·0417	..	·0390	..	·0393	..
18	..	·0374	·0329	..	..	..	·0388	..	·0355	..	·0401	..
19	..	..	..	..	..	·0409	·0347	·0398	·0389	..	·0423	·0365
20	..	..	·0335	..	·0428	·0432	·0346	·0415	·0390	..	..	·0348
21	..	·0379	·0332	..	·0431	·0447	·0377	·0423	·0381	..	·0428	·0327
22	..	..	·0322	..	..	·0442	·0397	·0436	·0395	..	..	·0306
23	..	·0397	·0312	..	..	·0491	·0395	·0418	·0399	·0463	·0403	..
24	..	·0384	..	..	·0470	·0460	·0357	·0416	·0390	·0475	·0415	..
25	..	·0375	·0276	..	·0476	·0437	·0377	·0433	·0388	·0466	..	·0340
26	..	..	..	..	·0474	..	..	·0437	·0385	·0479	..	..
27	..	·0372	..	..	..	·0470	..	·0425	·0404	..	·0381	..
28	..	..	·0312	..	·0446	·0450	·0418	·0409	..	..	·0371	..
29	·0368		..	..	..	·0409	..	·0423	·0420	·0457	·0390	..
30	..		·0328	..	·0469	·0407	..	·0438	..	·0440	..	·0346
31	..		·0351		·0479		·0388	·0434		·0442		·0377

1850.

1	·0385	·0389	·0398	·0397	·0403	..	..	·0466	·0409	·0386	·0401	·0353
2	·0414	·0414	·0425	·0417	·0384	·0422	·0431	·0430	·0421	·0370	·0416	·0351
3	..	..	·0378	·0411	·0383	·0438	·0420	·0456	·0442	·0388	·0412	..
4	..	·0369	·0366	..	·0400	·0433	·0436	·0483	·0425	·0386	·0407	·0356
5	·0390	·0384	·0361	·0412	·0394	·0432	·0421	·0481	..	·0406	·0379	·0398
6	·0371	·0395	·0400	·0400	·0404	·0444	·0426	·0458	·0405	·0374	·0410	·0378
7	·0329	·0389	·0379	·0425	·0379	·0399	·0432	·0454	·0407	·0401	..	·0378
8	·0310	·0379	·0371	·0439	·0395	·0400	·0422	·0450	·0398	·0402	·0401	·0383
9	·0317	·0392	·0387	·0405	·0389	·0425	·0416	·0433	·0413	·0382	·0365	·0334
10	·0343	·0354	..	..	·0395	·0431	·0414	·0439	·0407	·0381	·0372	·0352
11	·0372	·0345	·0391	..	·0408	·0451	·0432	·0466	·0402	·0369	·0411	·0338
12	·0361	·0349	·0393	..	·0409	·0425	·0457	·0474	·0410	·0375	·0408	..
13	·0379	..	·0395	·0402	·0391	·0397	·0472	·0439	·0406	·0374	·0379	·0372
14	·0347	·0349	·0388	·0395	·0378	·0378	·0472	·0452	·0406	·0358	·0368	·0377
15	·0356	·0398	·0379	·0393	·0380	·0363	..	..	·0397	·0381	..	·0378
16	·0325	·0419	·0357	·0393	·0373	·0394	·0515	·0459	·0395	·0389	·0371	·0378
17	..	·0368	·0340	·0395	·0390	..	..	·0470	·0405	·0397	·0401	·0370
18	·0383	·0395	·0365	·0416	·0402	·0410	..	·0467	·0410	·0406	·0361	·0336
19	·0381	·0405	·0377	·0408	·0394	·0415	..	·0457	·0398	·0412	·0399	·0352
20	·0385	..	·0389	·0402	·0400	·0433	..	·0423	·0409	·0416	·0375	·0346
21	·0331	·0378	·0394	·0392	·0439	·0442	·0449	·0440	·0428	·0376	·0384	·0327
22	·0339	·0419	·0369	·0396	·0423	·0444	·0488	..	·0414	·0364	·0373	·0333
23	·0367	·0399	·0384	·0381	..	·0454	·0483	..	·0421	·0345	·0408	·0347
24	·0388	·0407	·0360	·0390	·0401	·0444	·0445	·0439	·0413	·0361	·0392	..
25	·0365	..	·0347	·0388	·0401	·0433	..	·0405	·0422	·0366	·0381	..
26	·0386	·0405	·0339	·0396	·0391	·0416	·0414	·0423	·0432	·0369	·0359	..
27	·0373	·0394	·0370	·0396	·0400	·0397	·0411	·0405	..	·0350	·0362	..
28	·0348	·0392	·0359	·0372	·0406	..	·0419	·0443	·0415	·0363	·0358	·0389
29	·0399		·0344	·0382	..	·0402	·0447	·0404	·0409	·0367	·0356	·0373
30	·0395		·0367	·0395	·0424	·0352	·0442	·0398	·0401	·0349	·0337	·0384
31	..		·0391		·0437		·0440	·0386		·0378		·0414

TABLE XII.—MEAN VERTICAL MAGNETIC FORCE, &c.—*continued.*

1851.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	0·0427	0·0386	0·0375	0·0417	0·0416	0·0455	0·0447	0·0450	0·0454	..	0·0340	0·0316
2	..	·0423	·0357	·0409	..	·0459	·0458	·0447	..	..	·0332	·0346
3	..	..	..	·0408	·0412	·0461	·0406	·0463	·0429	0·0382	·0318	·0343
4	..	·0409	..	·0413	·0381	·0418	·0397	·0463	·0422	·0393	·0315	·0331
5	·0398	·0386	·0389	·0399	·0396	·0392	·0401	·0439	·0405	·0375	·0298	·0348
6	..	·0413	·0377	·0380	·0412	·0432	·0413	·0414	·0390	·0380	·0332	·0369
7	·0367	·0381	..	·0366	·0439	..	·0430	·0437	..	·0374	·0351	·0394
8	..	..	..	·0400	·0457	..	·0418	·0471	·0403	·0379	·0352	·0377
9	..	·0409	·0369	·0394	..	·0448	·0390	·0430	·0383	·0353	·0363	..
10	·0364	·0408	·0373	·0396	·0468	..	·0381	·0417	·0383	·0400	·0354	·0381
11	·0384	..	·0383	·0404	·0450	·0429	·0372	·0434	·0384	·0403	·0357	·0382
12	·0400	·0390	·0372	..	·0458	·0429	·0434	·0461	·0390	·0419	·0362	·0349
13	·0380	·0401	·0404	..	·0438	·0448	·0428	·0467	·0400	·0397	·0338	·0355
14	..	..	·0384	·0385	·0412	·0448	·0430	·0437	·0417	·0407	·0354	·0374
15	..	·0403	·0417	·0408	·0420	·0436	·0422	·0439	·0398	..	·0325	·0343
16	..	·0378	..	..	·0422	·0452	·0400	·0431	·0404	..	·0293	·0342
17	·0395	·0375	·0366	·0412	..	·0441	·0393	·0439	·0405	·0338	·0300	·0370
18	·0379	..	·0391	·0451	·0405	·0433	·0394	·0429	·0402	·0344	·0309	·0357
19	·0380	..	·0390	·0453	·0402	·0492	·0401	·0409	·0394	·0370	·0296	·0355
20	·0369	..	·0422	·0437	·0405	·0495	·0418	·0444	·0401	·0376	..	·0377
21	..	·0414	·0422	·0464	·0413	·0503	·0427	·0458	·0390	·0387	·0342	·0406
22	·0403	..	·0416	·0447	·0442	·0452	·0425	·0470	·0402	·0402	·0362	·0363
23	·0387	·0355	·0398	·0442	..	..	·0422	·0441	·0396	·0372	..	·0369
24	·0364	·0393	·0398	·0434	·0434	·0428	·0405	..	·0410	·0380	·0347	·0364
25	·0356	·0394	·0396	·0425	·0451	·0458	·0399	·0406	·0409	·0362	·0342	·0370
26	·0367	..	·0403	·0418	·0441	·0487	·0393	..	·0359	·0366	·0334	·0344
27	·0418	..	·0387	·0394	·0403	·0486	·0412	·0410	·0361	·0371	·0339	·0318
28	..	·0393	·0434	·0403	·0434	·0454	·0409	·0408	·0373	·0356	..	·0326
29	·0417		·0425	·0405	·0452	·0431	·0442	·0393	..	·0367	·0334	..
30	..		·0402	·0415	·0450	·0433	·0433	·0390	·0386	·0344	·0338	·0347
31	·0396		·0391		·0442		·0410	·0404		·0339		·0328

1852.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	0·0334	..	0·0342	0·0372	0·0423	0·0392	0·0436	0·0497	..	..	..	0·0348
2	·0302	0·0411	·0367	·0372	·0406	..	·0441	·0492	0·0471	..	..	·0388
3	·0327	..	..	·0367	·0393	·0393	·0451	·0471	·0488	..	..	·0383
4	·0337	·0365	·0350	·0356	·0391	·0400	·0471	·0459	·0484	..	..	·0384
5	·0320	..	·0343	·0388	·0403	..	·0479	·0458	·0478	..	..	·0377
6	·0336	·0405	·0353	·0387	..	·0431	·0453	·0445	·0494	0·0420	..	..
7	·0368	·0370	·0357	..	·0420	·0445	..	·0465	·0491	·0401	0·0423	·0382
8	·0337	·0382	·0371	·0384	·0436	..	·0427	·0454	·0463	·0401	·0437	·0392
9	·0342	·0381	·0384	·0354	·0438	·0438	·0424	..	·0458	·0403	..	·0361
10	..	·0357	·0373	·0381	·0441	..	·0408	..	..	·0393	..	..
11	..	·0365	·0360	·0376	..	..	·0391	·0450	..	..	..	·0401
12	..	·0358	·0369	·0379	..	..	..	·0413	·0440	..	..	·0385
13	..	·0350	·0365	·0393	·0405	·0409	·0406	·0435	·0438	..	..	·0373
14	..	..	·0339	..	..	..	..	·0454	·0434	·0436	·0380	..
15	..	·0353	·0350	·0397	..	..	·0422	·0457	..	·0436	·0395	..
16	·0377	·0369	·0372	·0376	·0444	..	..	·0438	·0420	·0429	·0405	·0358
17	·0377	..	·0378	..	..	..	·0409	·0459	·0434	·0417	..	..
18	·0352	..	·0366	·0394	..	..	·0362	·0480	·0422	..	·0384	·0401
19	·0327	..	·0363	·0360	..	..	·0387	·0484	·0440	..	..	..
20	·0346	..	·0381	..	..	..	·0377	·0497	·0443	·0434	·0385	..
21	·0346	·0343	·0388	·0392	..	..	·0379	·0468	·0415	·0423	..	..
22	·0359	·0370	..	·0402	..	..	·0373	·0486	..	·0448	·0401	·0370
23	·0354	..	·0411	·0423	·0383	..	·0385	·0468	·0442	..	·0366	·0389
24	·0326	·0355	·0385	..	·0396	..	·0401	·0484	·0456	·0448	..	·0363
25	·0333	..	·0374	..	·0399	..	·0396	·0458	·0464	·0435	·0371	..
26	·0349	·0364	·0364	·0396	·0392	..	·0389	·0489	..	·0402	·0384	·0400
27	·0349	·0365	·0346	·0385	·0376	·0442	·0393	..	..	..	..	·0385
28	·0354	·0359	·0345	·0401	·0387	·0443	·0393	·0497	·0454	·0421	..	..
29	..	..	·0385	..	·0394	·0437	..	·0481	..	·0398	·0344	..
30	·0368		·0422	·0426	·0362	..	..	·0473	·0430	·0423	·0346	..
31	·0333			..	..		·0389	·0453		..		..

TABLE XII.—MEAN VERTICAL MAGNETIC FORCE, &c.—*continued.*

1853.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	0·0362	0·0298	..	0·0428	0·0332	0·0419	0·0474	..	..	..	..
2	..	..	·0267	0·0347	..	·0346	·0406	·0471	0·0423	..	..	0·0346
3	..	..	..	·0312	·0406	..	·0425	·0472	·0372	0·0339	0·0368	·0325
4	..	·0328	..	·0321	·0395	..	·0456	·0472	·0392	·0333	·0382	·0313
5	..	·0330	·0296	·0354	·0414	·0391	·0454	·0443	..	·0367	·0373	..
6	..	·0358	·0328	·0364	·0388	·0382	·0467	·0433	..	·0374	..	..
7	..	·0361	·0324	·0371	·0382	·0407	·0482	·0465	·0387	·0354	..	..
8	..	·0383	·0363	..	·0353	·0448	·0492	·0460	·0386	·0385	..	·0380
9	..	..	·0324	..	·0336	·0417	..	·0452	·0396	·0397	·0343	·0363
10	..	·0343	·0334	·0316	·0369	·0420	·0442	·0440	..	..	·0334	..
11	..	..	..	·0341	·0394	·0445	·0420	·0444	·0415	..	·0346	·0366
12	..	·0346	·0360	·0386	·0407	·0429	..	..	·0417	·0388	·0333	·0314
13	..	·0351	·0339	..	·0396	·0392	·0439	..	·0430	·0384	·0348	·0315
14	..	·0311	·0374	·0309	·0421	·0370	·0455	·0425	·0388	..	·0367	·0368
15	..	·0323	·0317	·0307	·0407	·0391	·0405	..	·0402	·0400	·0333	..
16	..	..	..	..	·0437	·0410	·0387	·0385	·0400	·0399	·0325	·0338
17	..	·0337	..	..	..	·0404	·0406	·0413	..	·0334	·0342	·0288
18	..	..	..	·0365	..	..	·0406	..	·0418	·0352	·0324	·0319
19	..	..	·0264	·0370	..	·0374	·0417	·0427	·0410	..	..	·0307
20	..	..	·0305	..	·0401	..	·0434	·0451	·0409	..	·0354	..
21	..	..	·0292	..	·0379	·0391	·0430	·0423	·0397	·0344	..	·0325
22	..	..	..	..	·0405	·0385	·0432	·0428	·0382	·0398	..	·0336
23	..	..	·0313	..	·0411	·0434	·0446	·0445	·0381	·0400	..	·0325
24	..	·0314	..	..	..	·0472	·0436	·0399	·0352	·0393	·0304	·0350
25	..	·0299	..	..	·0417	·0444	·0440	..	·0354	..	·0303	·0358
26	..	·0300	·0294	..	..	..	·0417	·0391	..	·0392	·0324	·0294
27	..	·0340	..	..	·0426	·0432	·0429	..	..	·0383	..	..
28	..	..	·0307	·0416	·0414	·0454	·0445	·0383	..	..	·0331	..
29	..		·0312	·0415	·0366	·0443	..	·0400	..	..	·0329	..
30	..		·0333	·0411	..	·0438	..	·0410	·0399	..	·0332	..
31	..		·0345		·0390		·0443	·0411		..		..

1854.

1	0·0374	0·0422	0·0403	..	0·0384	0·0453	0·0407	0·0443	0·0408	..	..	0·0349
2	..	..	·0389	..	·0399	·0467	·0385	·0407	·0408	0·0387	0·0381	·0338
3	..	..	·0394	..	..	..	·0406	·0439	·0412	·0389	·0399	·0323
4	..	·0346	·0380	..	·0427	·0433	·0398	·0401	·0415	..	·0325	·0358
5	·0348	·0360	·0380	..	·0436	·0430	·0385	·0348	·0408	..	·0349	..
6	·0378	..	·0382	..	·0427	·0432	·0384	..	·0407	..	·0355	..
7	·0340	..	·0363	·0436	·0417	..	·0373	·0386	·0409	·0381	·0324	·0351
8	·0360	..	·0393	..	·0434	·0420	·0391	·0409	·0420	·0371	·0337	..
9	·0365	..	..	..	·0405	·0415	·0399	·0424	·0402	·0381	..	·0347
10	..	·0374	..	..	·0419	·0430	..	·0425	·0383	·0396	·0320	..
11	..	·0391	..	..	..	·0421	·0381	·0429	·0395	·0400	·0358	..
12	·0398	·0396	..	..	·0442	·0435	·0400	·0433	·0418	..	·0389	..
13	·0373	·0383	..	..	·0442	·0424	·0387	·0448	·0448	..	·0328	..
14	..	·0349	..	..	·0456	·0440	·0397	·0446	·0446	..	..	..
15	·0409	·0388	·0396	..	·0460	·0442	..	·0413	·0391	..	·0345	·0411
16	·0360	·0375	·0411	..	..	·0437	·0406	·0395	·0410	·0370	·0366	·0407
17	·0365	·0384	·0410	..	·0437	·0443	·0412	·0382	·0423	·0360	·0373	..
18	·0391	·0392	·0378	..	..	·0449	·0427	·0375	·0392	·0369	·0382	..
19	·0421	·0376	·0389	..	..	·0439	·0410	..	·0395	·0339	..	·0322
20	..	·0373	·0358	..	..	·0418	·0418	·0443	·0409	·0360	..	·0338
21	·0388	..	..	..	·0447	·0413	·0438	·0435	·0382	·0362	·0316	·0333
22	·0398	·0394	·0374	·0462	·0449	·0454	..	·0417	·0357	·0375	·0331	·0349
23	·0393	·0391	·0403	·0427	·0438	·0458	·0477	·0396	..	·0373	·0329	..
24	·0388	..	·0390	·0409	·0424	·0449	·0479	·0423	·0385	·0345	·0327	..
25	..	·0402	·0371	·0381	..	·0465	·0483	..	·0384	·0363	·0321	..
26	·0395	·0406	·0375	·0385	..	·0464	·0449	..	..	·0348	·0352	·0351
27	·0380	·0383	·0401	..	..	..	..	·0438	·0392	·0351	·0320	·0360
28	·0388	·0408	..	·0376	..	..	·0410	·0461	·0394	..	·0307	..
29	·0367		..	·0390	·0441	·0377	·0405	..	..	..	·0350	·0313
30	·0398		..	·0389	..	..	·0440	·0455	..	..	·0331	·0348
31	·0412		..		·0451		·0435	·0436		..		·0366

TABLE XII.—MEAN VERTICAL MAGNETIC FORCE, &c.—*continued.*

1855.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	0·0336	0·0376	0·0353	0·0367	0·0342	0·0438	0·0420	0·0406	..	..	0·0318
2	0·0350	·0326	·0370	·0361	·0388	..	..	·0435	·0382	..	0·0294	·0322
3	·0382	·0301	..	·0355	·0389	·0394	·0458	·0431	·0384	0·0354	·0303	·0308
4	·0399	..	..	·0395	·0381	·0404	·0460	·0429	·0404	..	·0308	·0309
5	·0403	..	·0360	·0396	·0374	·0402	..	·0435	..	·0371	·0299	..
6	·0382	·0365	·0380	·0415	·0369	·0459	..	..	..	·0390	·0327	..
7	..	·0361	·0362	·0434	·0382	..	..	·0433	·0393	·0389	·0353	..
8	..	·0349	·0363	·0406	·0400	..	·0417	·0420	·0407	·0383	·0366	·0303
9	·0406	·0361	·0343	·0363	·0368	·0405	·0430	·0419	·0391	·0358	·0340	·0328
10	·0394	·0321	..	·0406	·0389	·0421	·0442	·0390	..	·0362	·0350	·0388
11	..	·0285	·0347	..	..	·0421	·0449	·0406	·0403	..	·0364	·0298
12	·0312	·0330	..	·0403	..	·0419	·0435	·0424	·0416	·0352	·0378	·0305
13	·0327	·0352	·0358	·0412	·0376	·0419	..	·0408	·0403	·0350	·0382	·0298
14	·0374	·0302	·0380	·0412	·0349	·0419	·0453	·0380	..	..	·0352	·0290
15	·0317	..	·0373	·0402	·0368	·0386	·0388	·0405	..	..	·0324	..
16	·0320	·0341	·0404	·0451	·0364	·0376	·0423	·0433	·0385	·0315	..	·0378
17	·0340	·0312	·0370	·0408	..	·0413	·0392	·0438	·0426	·0350	·0310	·0361
18	·0310	·0291	·0324	·0384	·0406	..	·0421	·0446	·0409	·0373	·0313	·0343
19	..	·0297	·0355	·0407	·0399	·0383	·0431	·0447	..	·0358	·0319	·0307
20	·0300	·0344	..	·0403	..	·0376	..	..	..	·0353	·0317	·0295
21	·0334	·0333	·0391	·0385	·0395	·0393	·0424	·0425	·0434	·0348	·0334	·0294
22	·0294	·0354	·0368	·0358	·0390	·0413	·0450	..	·0429	·0361	·0346	·0292
23	·0314	·0328	..	·0378	..	·0447	·0445	·0449	..	·0371	·0323	·0296
24	·0314	..	..	·0394	·0399	·0403	·0439	..	·0433	·0361	·0315	..
25	·0327	·0326	·0335	..	·0425	·0401	·0405	..	·0389	·0313	·0347	·0347
26	·0344	·0349	·0338	·0378	·0446	..	·0380	·0410	·0373	..	·0303	·0326
27	·0354	·0364	·0353	·0390	..	·0451	·0398	·0404	·0366	·0327	..	·0345
28	..	·0359	·0365	·0385	..	·0450	·0412	·0443	·0400	·0316	·0350	·0344
29	..		..	·0374	·0369	·0454	·0433	..	·0412	·0303	·0334	..
30	·0335		·0370	·0357	..	·0459	·0441	·0416	·0419	·0310	·0338	·0373
31	·0343		..		·0336		·0433	·0427		..		..

1856.

1	0·0322	0·0319	0·0390	..	0·0357	0·0360	..	..	0·0300	0·0272	0·0291	..
2	..	..	·0410	0·0385	·0352	·0411	0·0336	0·0406	·0287	·0272	·0298	0·0236
3	·0362	·0334	..	·0348	·0358	..	·0329	·0377	·0278	..	..	·0201
4	·0386	..	·0382	·0386	·0369	..	·0331	·0352	·0291	·0267	·0230	..
5	·0376	·0361	·0364	·0375	·0354	·0411	·0355	·0348	·0282	·0275	·0250	·0231
6	·0385	·0360	·0368	·0386	..	·0391	·0347	·0334	·0289	..	·0236	·0258
7	..	·0354	·0380	..	..	..	·0365	·0346	·0310	..	·0235	·0271
8	·0378	..	·0318	·0396	·0354	·0420	·0328	·0319	·0287	·0286	..	..
9	·0379	·0367	·0328	·0365	·0353	·0430	..	·0341	·0291	..	..	·0337
10	·0349	·0366	·0328	·0380	·0397	·0426	·0319	·0372	..	·0265	..	·0338
11	·0316	·0366	·0380	·0390	·0421	·0421	·0349	·0381	·0287	·0257	·0255	·0323
12	·0321	..	·0339	·0402	·0408	..	·0356	·0362	..	·0272	·0227	·0281
13	·0322	·0376	·0369	·0414	·0409	·0419	·0329	·0365	..	..	·0211	·0292
14	·0319	·0378	·0354	..	·0384	·0427	..	·0352	·0253	..	·0231	..
15	·0303	·0399	·0349	·0388	·0379	·0391	·0343	·0336	·0263	·0306	·0207	·0283
16	·0326	..	..	·0383	·0379	..	·0369	·0330	·0283	·0264	..	·0265
17	·0332	..	·0322	..	..	..	·0327	·0353	·0254	..	·0215	..
18	·0349	..	·0337	..	·0363	..	·0324	·0352	·0282	..	·0248	·0230
19	·0361	·0323	·0362	·0410	·0384	..	..	·0322	·0236	..	·0263	·0272
20	·0363	·0325	·0408	..	·0400	·0394	..	..	..	..	·0249	·0238
21	·0355	·0344	·0388	..	..	·0376	·0327	·0254	..	..	·0253	·0245
22	·0393	·0336	·0356	·0385	·0419	·0388	·0364	·0259	..	·0322	..	·0256
23	·0354	·0344	·0373	·0394	..	..	·0377	·0256	·0262	·0335	..	..
24	·0381	·0383	..	·0410	·0376	·0393	·0397	..	·0255	·0331	·0311	·0241
25	·0390	·0367	·0352	·0413	..	·0430	·0337	..	·0253	·0295	·0288	·0257
26	·0364	·0358	·0353	·0403	..	..	·0340	·0308	·0298	·0267	·0225	·0198
27	·0393	·0398	·0372	·0407	·0406	..	·0328	·0318	·0238	..	·0225	·0204
28	·0333	·0440	·0343	·0363	·0409	..	·0345	·0296	·0291	..	·0260	..
29	·0341	..	·0360	..	·0393	·0356	·0369	·0312	·0259	·0228	·0232	·0199
30	..		·0343	·0356	..	..	·0385	·0304	·0270	·0218	·0224	·0224
31	·0317		·0375		·0351		·0397	·0322		·0255		..

TABLE XII.—MEAN VERTICAL MAGNETIC FORCE, &c.—*concluded.*

1857.

Days of the Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	..	..	0·0285	..	0·0298	..	0·0272	..	..	0·0269	..	..
2	..	..	·0284	0·0299	·0309	..	·0247	0·0312	0·0278	..	..	..
3	0·0291	..	·0336	·0317	·0314	0·0317	·0245	·0324	·0213	·0301	..	..
4	·0289	..	·0294	·0317	·0305	·0349	·0242	·0337	·0208	·0305	..	..
5	..	..	·0287	..	·0307	·0362	·0249	·0325	·0232	·0256	..	..
6	·0267	0·0258	·0294	·0309	·0311	..	..	·0277	·0254	..	..	0·0272
7	·0250	·0292	·0293	·0302	·0285	·0358	·0244	·0248	..	·0255	..	..
8	·0224	·0311	·0310	..	..	·0317	·0246	·0251	·0264	·0237	..	·0266
9	·0211	·0285	·0268	·0304	·0333	..	·0265	..	·0229	·0218	..	..
10	·0258	·0300	..	·0297	·0333	·0298	·0297	·0263	..	·0239	..	·0254
11	..	·0295	·0290	·0319	..	·0299	..	..	..	·0261	..	·0263
12	·0279	·0316	·0266	·0301	·0343	·0294	·0335	·0314	..	·0269	..	·0224
13	·0275	·0268	·0278	·0250	·0344	·0295	..	·0324	..	·0282	..	·0232
14	·0245	·0280	·0255	·0255	·0352	..	..	..	·0267	·0253	..	·0249
15	·0222	·0308	·0324	·0281	·0373	·0295	·0336	·0256	..	·0247	..	..
16	·0242	·0323	·0313	·0271	..	·0301	·0307	·0315	·0299	..	..	·0226
17	·0240	·0306	·0294	·0285	·0374	·0323	·0287	..	..	·0249	..	·0260
18	·0247	·0306	·0322	·0350	·0361	·0324	..	·0283	..	·0292	..	..
19	·0308	·0331	·0356	..	·0328	·0344	·0316	·0302	·0239	·0248	..	·0264
20	·0287	·0297	·0344	·0343	..	·0356	·0323	·0323	·0258	·0237	..	..
21	·0368	·0269	·0291	·0343	..	..	·0289	·0309	·0239	·0256	..	..
22	·0234	·0269	·0268	·0328	·0263	..	·0293	·0339	·0264	·0263	..	·0252
23	·0235	·0308	·0260	·0306	·0280	·0337	·0314	..	·0296	·0213	..	..
24	·0238	·0301	·0273	·0277	·0339	·0337	·0325	·0368	·0277	·0219	..	..
25	·0269	·0282	·0302	·0291	·0337	..	·0307	·0332	·0292	·0235	..	·0275
26	·0233	·0276	·0277	..	..	·0354	0·0280	·0302	·0293	..	..	..
27	·0243	·0266	·0278	·0271	·0306	..	..	·0304	·0279	·0245	..	·0233
28	·0222	·0293	·0287	..	..	·0342	·0287	·0276	..	·0252	..	·0209
29	·0224		·0305	·0278	·0331	..	..	·0274	·0265	·0237	..	·0223
30	·0187		·0320	·0291	·0318	·0305	·0295	·0307	..	·0224	..	·0236
31	·0222		·0306		..		·0321	..		·0205		·0228

TABLE XIII.—MEAN VERTICAL MAGNETIC FORCE (diminished by a Constant 0·9600 nearly) in each Month, as deduced from the Mean of the Mean Daily Determinations in each Month, corrected for Temperature; showing the apparent Monthly Change of Vertical Force.

Month.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	Mean for Years 1850, 1851, 1855, 1856, 1857.	Mean in Terms of Horizontal Force.
January.....	0·0385	0·0368	0·0397	0·0345	..	0·0378	0·0346	0·0351	0·0252	0·0343	0·0885
February.....	·0386	·0388	·0399	·0371	0·0332	·0392	·0333	·0362	·0287	·0354	·0911
March	·0329	·0375	·0393	·0371	·0318	·0397	·0363	·0362	·0295	·0358	·0922
April	·0344	·0399	·0415	·0390	·0349	·0428	·0391	0·389	·0302	·0379	·0977
May.....	·0436	0401	·0430	·0406	·0401	·0431	·0386	0·383	·0324	·0385	·0991
June.....	·0439	·0417	·0445	·0415	·0408	·0433	·0413	·0406	·0323	·0401	·1032
July.....	·0417	·0442	·0412	·0407	·0436	·0413	·0429	·0347	·0292	·0384	·0989
August.....	·0415	·0440	·0432	·0466	·0430	·0418	·0424	·0330	·0306	·0386	·0993
September.....	·0396	·0411	·0400	·0451	·0399	·0402	·0402	·0276	·0265	·0351	·0903
October	·0448	·0378	·0374	·0423	·0377	·0372	·0352	·0283	·0253	·0328	·0843
November	·0416	·0382	·0335	·0396	·0348	·0346	·0333	·0249	..	·0310	·0798
December	·0380	·0369	·0356	·0383	·0337	·0350	·0320	·0254	·0253	·0310	·0798

TABLE XIV.—MEAN MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE (diminished by a Constant 0·9600 nearly), corrected for Temperature, at every Hour of the Day; obtained by taking the Mean of all the Determinations at the same Hour of the Day through each Month.

1849.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·0383	0·0389	0·0327	0·0348	0·0426	0·0436	0·0411	0·0422	0·0405	0·0454	0·0423	0·0386
1	·0382	·0392	·0331	·0350	·0426	·0437	·0412	·0424	·0405	·0455	·0426	·0387
2	·0382	·0399	·0342	·0350	·0427	·0438	·0416	·0425	·0408	·0456	·0428	·0383
3	·0384	·0397	·0339	·0352	·0432	·0439	·0420	·0421	·0406	·0457	·0428	·0388
4	·0383	·0395	·0341	·0350	·0434	·0439	·0422	·0417	·0401	·0455	·0425	·0386
5	·0384	·0393	·0338	·0349	·0438	·0438	·0424	·0414	·0396	·0452	·0419	·0392
6	·0384	·0390	·0338	·0348	·0440	·0439	·0424	·0412	·0392	·0450	·0416	·0387
7	·0380	·0387	·0334	·0344	·0439	·0438	·0424	·0411	·0389	·0447	·0412	·0381
8	·0379	·0386	·0331	·0339	·0437	·0436	·0421	·0408	·0388	·0443	·0408	·0378
9	·0379	·0383	·0328	·0335	·0434	·0437	·0416	·0408	·0383	·0442	·0405	·0375
10	·0388	·0382	·0324	·0333	·0434	·0436	·0416	·0406	·0383	·0438	·0405	·0373
11	·0390	·0380	·0323	·0334	·0434	·0437	·0415	·0405	·0384	·0438	·0405	·0372
12	·0391	·0378	·0322	·0337	·0435	·0439	·0416	·0406	·0386	·0443	·0406	·0372
13	·0391	·0381	·0322	·0338	·0438	·0439	·0417	·0406	·0389	·0439	·0408	·0375
14	·0390	·0381	·0322	·0341	·0438	·0440	·0417	·0408	·0392	·0443	·0409	·0376
15	·0389	·0383	·0324	·0345	·0441	·0443	·0418	·0411	·0394	·0444	·0412	·0377
16	·0387	·0385	·0320	·0349	·0444	·0445	·0418	·0414	·0394	·0446	·0415	·0379
17	·0386	·0385	·0326	·0352	·0444	·0445	·0419	·0418	·0397	·0446	·0417	·0380
18	·0385	·0385	·0327	·0351	·0443	·0443	·0417	·0420	·0398	·0445	·0419	·0380
19	·0384	·0384	·0329	·0343	·0441	·0442	·0416	·0420	·0399	·0448	·0417	·0382
20	·0384	·0384	·0330	·0341	·0440	·0439	·0414	·0420	·0399	·0449	·0419	·0379
21	·0384	·0384	·0331	·0339	·0438	·0439	·0413	·0419	·0400	·0448	·0422	·0382
22	·0383	·0385	·0329	·0346	·0432	·0438	·0412	·0421	·0402	·0449	·0420	·0382
23	·0384	·0386	·0330	·0343	·0430	·0436	·0412	·0422	·0405	·0450	·0419	·0383

1850.

0	0·0380	0·0393	0·0381	0·0410	0·0411	0·0422	0·0450	0·0455	0·0434	0·0399	0·0394	0·0374
1	·0379	·0395	·0384	·0409	·0407	·0421	·0448	·0454	·0432	·0397	·0396	·0377
2	·0380	·0396	·0390	·0407	·0406	·0417	·0444	·0452	·0433	·0391	·0394	·0379
3	·0379	·0398	·0391	·0405	·0405	·0414	·0443	·0448	·0426	·0385	·0388	·0379
4	·0374	·0394	·0385	·0405	·0401	·0416	·0442	·0439	·0417	·0378	·0382	·0375
5	·0368	·0388	·0379	·0401	·0398	·0417	·0442	·0434	·0407	·0373	·0377	·0370
6	·0363	·0387	·0375	·0398	·0397	·0416	·0442	·0432	·0400	·0371	·0375	·0365
7	·0358	·0385	·0372	·0395	·0394	·0413	·0438	·0429	·0395	·0368	·0371	·0361
8	·0357	·0380	·0367	·0393	·0394	·0414	·0437	·0430	·0391	·0363	·0368	·0360
9	·0355	·0378	·0363	·0385	·0390	·0411	·0435	·0428	·0388	·0359	·0367	·0359
10	·0355	·0379	·0362	·0380	·0384	·0408	·0428	·0423	·0385	·0357	·0368	·0359
11	·0355	·0378	·0362	·0380	·0382	·0406	·0424	·0422	·0386	·0357	·0369	·0359
12	·0356	·0380	·0364	·0382	·0385	·0410	·0425	·0425	·0389	·0360	·0372	·0359
13	·0359	·0382	·0365	·0384	·0388	·0415	·0429	·0429	·0396	·0364	·0376	·0362
14	·0363	·0385	·0369	·0387	·0392	·0416	·0434	·0435	·0398	·0370	·0380	·0365
15	·0365	·0386	·0372	·0393	·0398	·0423	·0441	·0439	·0405	·0377	·0383	·0367
16	·0367	·0388	·0375	·0399	·0404	·0425	·0445	·0443	·0410	·0381	·0387	·0369
17	·0369	·0390	·0377	·0404	·0411	·0422	·0450	·0448	·0416	·0385	·0388	·0372
18	·0371	·0390	·0377	·0407	·0413	·0422	·0451	·0450	·0420	·0388	·0388	·0372
19	·0370	·0391	·0378	·0408	·0414	·0418	·0450	·0450	·0423	·0389	·0389	·0373
20	·0372	·0392	·0380	·0408	·0413	·0417	·0449	·0448	·0425	·0390	·0389	·0374
21	·0376	·0394	·0377	·0407	·0412	·0419	·0449	·0448	·0428	·0390	·0390	·0374
22	·0378	·0393	·0380	·0406	·0411	·0421	·0452	·0451	·0430	·0392	·0391	·0374
23	·0378	·0394	·0376	·0410	·0411	·0423	·0454	·0452	·0434	·0397	·0393	·0375

TABLE XIV.—MEAN MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE, &c.—*continued.*

1851.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·0406	0·0410	0·0401	0·0422	0·0425	0·0441	0·0420	0·0438	0·0409	0·0390	0·0348	0·0370
1	·0406	·0409	·0400	·0420	·0423	·0437	·0417	·0436	·0406	·0387	·0348	·0368
2	·0408	·0408	·0401	·0417	·0421	·0439	·0414	·0433	·0402	·0384	·0349	·0367
3	·0408	·0406	·0400	·0416	·0419	·0440	·0410	·0431	·0397	·0378	·0344	·0361
4	·0402	·0400	·0396	·0413	·0420	·0441	·0411	·0430	·0395	·0373	·0336	·0357
5	·0394	·0393	·0391	·0413	·0423	·0442	·0409	·0429	·0393	·0367	·0331	·0355
6	·0394	·0393	·0388	·0412	·0426	·0441	·0409	·0426	·0391	·0369	·0329	·0350
7	·0390	·0392	·0387	·0409	·0425	·0439	·0408	·0423	·0391	·0367	·0326	·0348
8	·0389	·0386	·0382	·0406	·0430	·0440	·0404	·0421	·0391	·0364	·0321	·0346
9	·0389	·0384	·0379	·0401	·0429	·0442	·0401	·0419	·0386	·0361	·0319	·0346
10	·0391	·0386	·0380	·0400	·0426	·0441	·0398	·0417	·0387	·0361	·0318	·0342
11	·0391	·0386	·0382	·0400	·0427	·0440	·0397	·0420	·0392	·0362	·0318	·0342
12	·0393	·0389	·0386	·0400	·0431	·0444	·0401	·0427	·0397	·0365	·0321	·0342
13	·0393	·0391	·0386	·0407	·0434	·0449	·0406	·0430	·0403	·0368	·0324	·0345
14	·0393	·0393	·0388	·0411	·0436	·0454	·0410	·0435	·0407	·0368	·0327	·0348
15	·0394	·0400	·0391	·0417	·0440	·0452	·0420	·0438	·0410	·0371	·0333	·0352
16	·0395	·0403	·0392	·0422	·0441	·0452	·0419	·0440	·0410	·0374	·0338	·0356
17	·0396	·0404	·0395	·0424	·0440	·0452	·0422	·0441	·0407	·0378	·0340	·0359
18	·0396	·0406	·0398	·0424	·0439	·0450	·0421	·0440	·0404	·0378	·0341	·0362
19	·0397	·0408	·0400	·0423	·0436	·0449	·0419	·0438	·0404	·0380	·0343	·0364
20	·0397	·0410	·0401	·0423	·0434	·0448	·0419	·0437	·0402	·0380	·0343	·0366
21	·0397	·0407	·0400	·0421	·0433	·0449	·0420	·0436	·0404	·0380	·0343	·0366
22	·0400	·0406	·0401	·0423	·0432	·0446	·0422	·0438	·0406	·0383	·0342	·0367
23	·0404	·0410	·0403	·0421	·0429	·0445	·0422	·0440	·0411	·0387	·0344	·0366

1852.

0	0·0357	0·0383	0·0379	0·0397	0·0414	0·0424	0·0404	0·0480	0·0469	0·0437	0·0397	0·0391
1	·0360	·0390	·0381	·0396	·0413	·0419	·0402	·0479	·0467	·0438	·0402	·0395
2	·0361	·0391	·0380	·0392	·0405	·0415	·0400	·0474	·0463	·0436	·0405	·0396
3	·0356	·0386	·0374	·0393	·0401	·0409	·0404	·0468	·0456	·0430	·0408	·0391
4	·0349	·0379	·0371	·0394	·0403	·0404	·0408	·0462	·0449	·0424	·0406	·0386
5	·0344	·0373	·0368	·0394	·0404	·0401	·0412	·0458	·0443	·0420	·0401	·0380
6	·0341	·0375	·0366	·0392	·0403	·0400	·0414	·0457	·0438	·0416	·0392	·0377
7	·0337	·0373	·0367	·0388	·0400	·0399	·0412	·0455	·0435	·0413	·0394	·0376
8	·0336	·0368	·0363	·0385	·0398	·0398	·0409	·0453	·0434	·0411	·0392	·0375
9	·0336	·0364	·0359	·0379	·0397	·0399	·0405	·0451	·0432	·0408	·0392	·0375
10	·0337	·0361	·0357	·0374	·0394	·0400	·0404	·0450	·0431	·0407	·0392	·0375
11	·0337	·0358	·0358	·0375	·0394	·0400	·0405	·0451	·0433	·0408	·0393	·0376
12	·0339	·0357	·0360	·0378	·0398	·0403	·0411	·0451	·0435	·0410	·0391	·0374
13	·0336	·0359	·0363	·0381	·0400	·0407	·0415	·0457	·0439	·0412	·0391	·0376
14	·0339	·0358	·0367	·0386	·0405	·0414	·0417	·0462	·0443	·0415	·0391	·0378
15	·0342	·0362	·0374	·0391	·0411	·0419	·0416	·0467	·0450	·0419	·0391	·0379
16	·0345	·0368	·0377	·0396	·0416	·0425	·0412	·0472	·0456	·0421	·0393	·0382
17	·0346	·0370	·0378	·0397	·0418	·0427	·0408	·0475	·0460	·0425	·0395	·0383
18	·0347	·0371	·0377	·0395	·0417	·0429	·0404	·0476	·0462	·0428	·0396	·0386
19	·0348	·0371	·0377	·0394	·0416	·0430	·0405	·0477	·0463	·0431	·0398	·0386
20	·0349	·0371	·0377	·0392	·0414	·0432	·0399	·0475	·0464	·0433	·0396	·0386
21	·0348	·0370	·0375	·0390	·0414	·0435	·0399	·0476	·0466	·0432	·0395	·0387
22	·0351	·0374	·0377	·0394	·0414	·0433	·0404	·0479	·0466	·0433	·0398	·0386
23	·0353	·0377	·0378	·0397	·0412	·0431	·0406	·0478	·0466	·0434	·0399	·0387

TABLE XIV.—MEAN MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE, &c.—*continued.*

1853.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	..	0·0357	0·0341	0·0363	0·0400	0·0412	0·0453	0·0443	0·0417	0·0395	0·0366	0·0347
1	..	·0358	·0343	·0364	·0400	·0409	·0449	·0440	·0415	·0395	·0367	·0352
2	..	·0356	·0340	·0358	·0395	·0405	·0445	·0433	·0409	·0392	·0367	·0354
3	..	·0350	·0332	·0353	·0397	·0402	·0440	·0427	·0406	·0385	·0363	·0352
4	..	·0342	·0323	·0344	·0394	·0402	·0438	·0418	·0399	·0385	·0377	·0356	·0344
5	..	·0330	·0311	·0340	·0395	·0401	·0436	·0418	·0393	·0373	·0349	·0339
6	..	·0328	·0304	·0338	·0396	·0401	·0436	·0416	·0389	·0369	·0343	·0334
7	..	·0320	·0301	·0337	·0394	·0401	·0433	·0411	·0386	·0368	·0340	·0329
8	..	·0313	·0297	·0335	·0395	·0400	·0428	·0414	·0387	·0364	·0336	·0327
9	..	·0309	·0294	·0331	·0394	·0400	·0424	·0413	·0385	·0363	·0334	·0326
10	..	·0310	·0291	·0329	·0392	·0398	·0420	·0413	·0384	·0361	·0333	·0325
11	..	·0311	·0291	·0332	·0392	·0399	·0417	·0415	·0385	·0363	·0332	·0326
12	..	·0313	·0293	·0334	·0396	·0397	·0412	·0419	·0386	·0363	·0334	·0327
13	..	·0317	·0296	·0340	·0400	·0400	·0415	·0425	·0390	·0365	·0334	·0328
14	..	·0317	·0300	·0342	·0405	·0406	·0422	·0430	·0392	·0366	·0337	·0329
15	.	·0322	·0307	·0347	·0406	·0411	·0425	·0433	·0396	·0374	·0339	·0331
16	..	·0327	·0316	·0352	·0409	·0416	·0437	·0438	·0398	·0374	·0343	·0333
17	..	·0332	·0323	·0356	·0411	·0419	·0442	·0440	·0397	·0378	·0346	·0335
18	..	·0337	·0329	·0358	·0409	·0419	·0445	·0442	·0402	·0381	·0348	·0342
19	..	·0340	·0335	·0361	·0409	·0419	·0447	·0443	·0404	·0384	·0353	·0338
20	..	·0343	·0340	·0364	·0408	·0420	·0449	·0443	·0406	·0385	·0354	·0340
21	..	·0345	·0341	·0365	·0406	·0421	·0450	·0443	·0409	·0387	·0357	·0341
22	..	·0348	·0344	·0364	·0404	·0420	·0453	·0444	·0410	·0388	·0359	·0343
23	..	·0351	·0346	·0366	·0402	·0420	·0453	·0445	·0415	·0389	·0361	·0347

1854.

0	0·0388	0·0403	0·0409	0·0442	0·0447	0·0450	0·0432	0·0438	0·0417	0·0400	0·0363	0·0357
1	·0389	·0405	·0414	·0444	·0445	·0447	·0428	·0437	·0414	·0389	·0368	·0361
2	·0388	·0407	·0416	·0445	·0441	·0440	·0419	·0420	·0407	·0389	·0369	·0363
3	·0387	·0404	·0413	·0441	·0432	·0432	·0412	·0418	·0401	·0385	·0365	·0362
4	·0380	·0397	·0404	·0436	·0425	·0428	·0408	·0409	·0395	·0376	·0355	·0358
5	·0376	·0389	·0393	·0431	·0421	·0422	·0404	·0407	·0390	·0370	·0345	·0352
6	·0373	·0385	·0386	·0429	·0420	·0418	·0402	·0407	·0389	·0366	·0337	·0345
7	·0367	·0379	·0383	·0426	·0416	·0418	·0401	·0405	·0387	·0362	·0331	·0339
8	·0364	·0376	·0382	·0425	·0413	·0417	·0397	·0404	·0386	·0362	·0329	·0335
9	·0364	·0374	·0379	·0423	·0411	·0418	·0392	·0403	·0386	·0359	·0327	·0335
10	·0364	·0376	·0377	·0418	·0408	·0416	·0389	·0402	·0385	·0357	·0326	·0336
11	·0367	·0376	·0377	·0415	·0406	·0414	·0389	·0402	·0388	·0353	·0326	·0337
12	·0366	·0379	·0378	·0416	·0409	·0415	·0394	·0404	·0390	·0354	·0329	·0339
13	·0368	·0379	·0379	·0417	·0413	·0420	·0399	·0407	·0396	·0356	·0331	·0342
14	·0370	·0383	·0383	·0419	·0417	·0424	·0405	·0412	·0403	·0359	·0335	·0345
15	·0370	·0390	·0389	·0423	·0425	·0431	·0412	·0417	·0406	·0364	·0338	·0349
16	·0376	·0394	·0397	·0423	·0435	·0439	·0418	·0423	·0411	·0368	·0341	·0352
17	·0378	·0397	·0402	·0429	·0444	·0443	·0424	·0427	·0412	·0360	·0348	·0354
18	·0382	·0398	·0410	·0432	·0449	·0447	·0427	·0429	·0412	·0376	·0350	·0355
19	·0385	·0400	·0412	·0425	·0450	·0449	·0427	·0431	·0411	·0379	·0353	·0355
20	·0388	·0401	·0413	·0426	·0451	·0450	·0429	·0431	·0411	·0380	·0355	·0357
21	·0391	·0403	·0414	·0423	·0451	·0455	·0430	·0431	·0412	·0382	·0358	·0358
22	·0392	·0403	·0410	·0429	·0452	·0453	·0433	·0434	·0415	·0386	·0361	·0358
23	·0391	·0405	·0407	·0434	·0451	·0454	·0435	·0435	·0418	·0389	·0360	·0359

TABLE XIV.—MEAN MONTHLY DETERMINATIONS of the VERTICAL MAGNETIC FORCE, &c.—*continued.*

1855.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·0364	0·0349	0·0384	0·0395	0·0396	0·0422	0·0445	0·0439	0·0422	0·0373	0·0348	0·0340
1	·0365	·0349	·0385	·0400	·0395	·0418	·0438	·0434	·0415	·0373	·0351	·0339
2	·0363	·0347	·0383	·0396	·0393	·0413	·0431	·0426	·0413	·0370	·0352	·0339
3	·0359	·0341	·0372	·0390	·0390	·0408	·0420	·0415	·0399	·0363	·0345	·0333
4	·0349	·0333	·0364	·0386	·0387	·0404	·0416	·0411	·0394	·0354	·0336	·0325
5	·0342	·0326	·0353	·0383	·0385	·0400	·0416	·0411	·0390	·0347	·0330	·0316
6	·0338	·0321	·0348	·0384	·0381	·0397	·0414	·0410	·0386	·0344	·0326	·0311
7	·0333	·0316	·0344	·0380	·0376	·0395	·0412	·0408	·0384	·0340	·0323	·0307
8	·0330	·0313	·0343	·0382	·0374	·0395	·0409	·0405	·0382	·0338	·0321	·0306
9	·0330	·0311	·0340	·0381	·0372	·0394	·0403	·0402	·0380	·0336	·0322	·0304
10	·0331	·0313	·0340	·0380	·0370	·0393	·0401	·0402	·0380	·0335	·0319	·0304
11	·0333	·0314	·0340	·0380	·0369	·0394	·0405	·0406	·0384	·0334	·0321	·0304
12	·0334	·0317	·0342	·0381	·0367	·0400	·0410	·0411	·0390	·0337	·0320	·0304
13	·0336	·0323	·0347	·0384	·0374	·0405	·0419	·0418	·0399	·0338	·0323	·0307
14	·0339	·0328	·0352	·0388	·0377	·0410	·0426	·0425	·0401	·0343	·0325	·0310
15	·0341	·0332	·0358	·0393	·0382	·0417	·0437	·0431	·0409	·0346	·0327	·0314
16	·0344	·0337	·0364	·0397	·0386	·0425	·0442	·0437	·0412	·0350	·0330	·0318
17	·0346	·0340	·0370	·0399	·0392	·0428	·0446	·0438	·0414	·0353	·0332	·0321
18	·0347	·0343	·0374	·0401	·0396	·0430	·0449	·0439	·0414	·0357	·0335	·0325
19	·0350	·0345	·0379	·0402	·0398	·0430	·0449	·0439	·0414	·0360	·0337	·0328
20	·0351	·0346	·0381	·0402	·0399	·0431	·0449	·0440	0·413	·0361	·0339	·0331
21	·0354	·0347	·0381	·0401	·0399	·0434	·0449	·0441	·0417	·0365	·0342	·0331
22	·0357	·0348	·0382	·0402	·0398	·0433	·0450	·0443	·0419	·0366	·0343	·0333
23	·0361	·0350	·0384	·0402	·0395	·0430	·0448	·0445	·0424	·0368	·0345	·0334

1856.

0	0·0369	0·0380	0·0377	0·0401	0·0399	0·0427	0·0362	0·0347	0·0306	0·0294	0·0263	0·0259
1	·0368	·0381	·0379	·0401	·0399	·0416	·0355	·0343	·0305	·0294	·0264	·0257
2	·0366	·0381	·0380	·0399	·0393	·0411	·0346	·0338	·0301	·0288	·0263	·0261
3	·0360	·0375	·0374	·0396	·0386	·0402	·0341	·0332	·0287	·0284	·0264	·0261
4	·0351	·0368	·0367	·0384	·0382	·0399	·0341	·0326	·0273	·0291	·0254	·0262
5	·0345	·0359	·0360	·0383	·0375	·0392	·0340	·0322	·0261	·0280	·0248	·0258
6	·0340	·0353	·0353	·0380	·0372	·0390	·0340	·0319	·0255	·0276	·0243	·0252
7	·0338	·0349	·0349	·0376	·0366	·0388	·0338	·0314	·0251	·0275	·0241	·0248
8	·0339	·0345	·0346	·0374	·0361	·0381	·0335	·0314	·0247	·0274	·0239	·0248
9	·0338	·0346	·0344	·0372	·0359	·0386	·0331	·0308	·0248	·0273	·0236	·0246
10	·0339	·0346	·0344	·0370	·0359	·0386	·0329	·0308	·0247	·0272	·0238	·0247
11	·0339	·0346	·0344	·0369	·0360	·0387	·0330	·0310	·0248	·0271	·0237	·0248
12	·0342	·0345	·0346	·0372	·0368	·0392	·0333	·0315	·0252	·0271	·0238	·0246
13	·0341	·0348	·0349	·0375	·0367	·0396	·0339	·0323	·0258	·0273	·0245	·0250
14	·0342	·0352	·0351	·0380	·0376	·0401	·0345	·0326	·0264	·0275	·0242	·0249
15	·0346	·0355	·0356	·0385	·0380	·0408	·0348	·0331	·0271	·0279	·0246	·0249
16	·0348	·0358	·0359	·0392	·0389	·0414	·0353	·0335	·0277	·0282	·0247	·0253
17	·0351	·0361	·0364	·0398	·0394	·0418	·0355	·0338	·0286	·0286	·0248	·0254
18	·0353	·0365	·0368	·0403	·0398	·0421	·0359	·0340	·0289	·0289	·0251	·0256
19	·0355	·0368	·0372	·0404	·0400	·0424	·0358	·0341	·0297	·0291	·0252	·0256
20	·0358	·0373	·0375	·0403	·0403	·0426	·0360	·0342	·0296	·0294	·0253	·0257
21	·0360	·0375	·0376	·0404	·0404	·0428	·0363	·0344	·0299	·0295	·0255	·0259
22	·0364	·0377	·0375	·0403	·0403	·0430	·0365	·0346	·0301	·0296	·0257	·0262
23	·0368	·0380	·0375	·0404	·0402	·0426	·0365	·0349	·0306	·0295	·0259	·0261

TABLE XIV.—MEAN MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE, &c.—*concluded.*

1857.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	0·0268	0·0303	0·0307	0·0313	0·0330	0·0333	0·0308	0·0317	0·0280	0·0272	..	0·0253
1	·0269	·0304	·0308	·0313	·0327	·0326	·0297	·0311	·0276	·0271	..	·0262
2	·0264	·0299	·0308	·0311	·0324	·0324	·0289	·0303	·0266	·0269	..	·0261
3	·0263	·0298	·0303	·0307	·0317	·0312	·0280	·0297	·0256	·0263	..	·0259
4	·0258	·0291	·0299	·0303	·0313	·0308	·0273	·0294	·0258	·0257	..	·0255
5	·0254	·0284	·0293	·0299	·0312	·0304	·0271	·0293	·0253	·0250	..	·0251
6	·0250	·0277	·0287	·0297	·0313	·0301	·0271	·0292	·0251	·0245	..	·0246
7	·0246	·0271	·0284	·0291	·0312	·0299	·0273	·0289	·0249	·0242	..	·0249
8	·0245	·0268	·0281	·0286	·0312	·0296	·0270	·0286	·0249	·0238	..	·0249
9	·0243	·0267	·0282	·0285	·0311	·0297	·0266	·0284	·0250	·0234	..	·0248
10	·0241	·0268	·0282	·0284	·0311	·0297	·0265	·0283	·0251	·0234	..	·0248
11	·0241	·0268	·0282	·0284	·0313	·0303	·0268	·0288	·0252	·0234	..	·0249
12	·0244	·0270	·0283	·0286	·0316	·0311	·0274	·0295	·0255	·0234	..	·0249
13	·0244	·0272	·0284	·0288	·0325	·0321	·0286	·0303	·0259	·0237	..	·0250
14	·0245	·0276	·0287	·0292	·0328	·0331	·0296	·0314	·0266	·0242	..	·0252
15	·0246	·0281	·0289	·0296	·0333	·0336	·0304	·0319	·0269	·0248	..	·0251
16	·0247	·0285	·0293	·0302	·0338	·0344	·0309	·0322	·0272	·0254	..	·0253
17	·0250	·0290	·0297	·0306	·0341	·0344	·0313	·0324	·0274	·0257	..	·0254
18	·0252	·0296	·0300	·0314	·0340	·0343	·0314	·0324	·0276	·0259	..	·0254
19	·0253	·0298	·0303	·0317	·0338	·0343	·0314	·0325	·0277	·0264	..	·0255
20	·0255	·0300	·0306	·0324	·0336	·0343	·0313	·0322	·0276	·0265	..	·0255
21	·0257	·0303	·0307	·0321	·0335	·0342	·0315	·0322	·0278	·0265	..	·0256
22	·0260	·0304	·0307	·0315	·0332	·0340	·0316	·0321	·0276	·0267	..	·0255
23	·0262	·0306	·0308	·0315	·0330	·0339	·0315	·0321	·0278	·0270	..	·0256

TABLE XV.—MEAN, through the RANGE of YEARS, of the MONTHLY MEAN DETERMINATIONS of the DIURNAL INEQUALITY of VERTICAL FORCE; exhibited separately for the different Months.

1849 to 1857.

Hour. Göttingen Mean Solar Time.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
0	+0·00116	+0·00130	+0·00114	+0·00093	+0·00056	+0·00076	+0·00100	+0·00131	+0·00174	+0·00171	+0·00121	+0·00083
1	+ 120	+ 148	+ 136	+ 100	+ 41	+ 34	+ 57	+ 108	+ 148	+ 154	+ 134	+ 107
2	+ 113	+ 144	+ 152	+ 76	+ 8	+ 3	+ 10	+ 48	+ 111	+ 128	+ 153	+ 112
3	+ 93	+ 117	+ 106	+ 51	− 21	− 46	− 17	+ 4	+ 36	+ 78	+ 125	+ 93
4	+ 30	+ 55	+ 52	+ 9	− 43	− 64	− 40	− 61	− 23	+ 28	+ 56	+ 51
5	− 19	− 17	− 19	− 16	− 52	− 91	− 46	− 83	− 84	− 31	− 6	+ 12
6	− 49	− 46	− 64	− 32	− 56	− 107	− 48	− 100	− 123	− 60	− 55	− 39
7	− 91	− 87	− 91	− 68	− 84	− 121	− 70	− 129	− 150	− 87	− 84	− 71
8	− 104	− 128	− 123	− 91	− 93	− 136	− 94	− 140	− 163	− 114	− 114	− 87
9	− 110	− 149	− 150	− 128	− 112	− 128	− 136	− 161	− 182	− 139	− 129	− 98
10	− 95	− 143	− 162	− 154	− 133	− 138	− 161	− 174	− 188	− 153	− 133	− 103
11	− 86	− 148	− 160	− 153	− 134	− 132	− 161	− 158	− 167	− 156	− 130	− 99
12	− 71	− 136	− 143	− 134	− 103	− 98	− 127	− 120	− 136	− 137	− 118	− 100
13	− 68	− 109	− 124	− 103	− 66	− 52	− 78	− 70	− 81	− 120	− 91	− 74
14	− 51	− 86	− 93	− 68	− 27	− 3	− 26	− 16	− 40	− 88	− 74	− 56
15	− 36	− 43	− 48	− 19	+ 20	+ 46	+ 29	+ 28	+ 9	− 42	− 45	− 37
16	− 16	− 6	− 11	+ 28	+ 71	+ 96	+ 64	+ 70	+ 42	− 11	− 14	− 8
17	0	+ 21	+ 32	+ 64	+ 108	+ 110	+ 93	+ 98	+ 68	+ 9	+ 11	+ 11
18	+ 14	+ 46	+ 63	+ 87	+ 118	+ 117	+ 102	+ 110	+ 83	+ 46	+ 29	+ 33
19	+ 25	+ 61	+ 91	+ 78	+ 116	+ 117	+ 100	+ 114	+ 100	+ 73	+ 46	+ 39
20	+ 40	+ 78	+ 111	+ 84	+ 111	+ 119	+ 96	+ 108	+ 100	+ 86	+ 54	+ 48
21	+ 56	+ 87	+ 110	+ 71	+ 104	+ 137	+ 103	+ 110	+ 123	+ 93	+ 71	+ 58
22	+ 79	+ 98	+ 113	+ 83	+ 89	+ 128	+ 124	+ 129	+ 137	+ 111	+ 83	+ 64
23	+ 99	+ 121	+ 116	+ 94	+ 71	+ 117	+ 128	+ 140	+ 172	+ 132	+ 94	+ 73

TABLE XVI.—MEAN, through the RANGE of MONTHS, of the MONTHLY MEAN DETERMINATIONS of the DIURNAL IRREGULARITY of VERTICAL FORCE exhibited separately for the different Years.

Hour. Göttingen Mean Solar Time.	January to December. 1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	Mean 1849 to 1857.	Mean in Terms of Horizontal Force.
0	+ 0·0002	+ 0·0010	+ 0·0008	+ 0·0009	+ 0·0013	+ 0·0016	+ 0·0015	+ 0·0016	+ 0·0011	+ 0·00105	+ 0·00271
1	+ 3	+ 11	+ 7	+ 10	+ 13	+ 15	+ 14	+ 14	+ 9	+ 96	+ 247
2	+ 5	+ 10	+ 5	+ 8	+ 10	+ 12	+ 11	+ 11	+ 6	+ 78	+ 201
3	+ 7	+ 8	+ 2	+ 4	+ 6	+ 8	+ 4	+ 6	0	+ 45	+ 116
4	+ 5	+ 3	− 1	+ 1	0	+ 1	− 3	+ 1	− 4	+ 3	+ 8
5	+ 4	− 1	− 4	− 2	− 4	− 5	− 8	− 6	− 7	− 33	− 85
6	+ 2	− 4	− 5	− 4	− 7	− 9	− 11	− 10	− 10	− 58	− 149
7	0	− 8	− 7	− 6	− 9	− 12	− 14	− 13	− 12	− 81	− 208
8	− 3	− 9	− 9	− 9	− 12	− 13	− 16	− 16	− 14	− 101	− 260
9	− 5	− 13	− 11	− 11	− 14	− 16	− 18	− 17	− 15	− 120	− 309
10	− 6	− 15	− 12	− 12	− 15	− 17	− 19	− 17	− 15	− 128	− 336
11	− 6	− 16	− 11	− 11	− 14	− 18	− 17	− 17	− 14	− 110	− 283
12	− 4	− 14	− 8	− 10	− 13	− 16	− 15	− 14	− 11	− 105	− 270
13	− 4	− 10	− 4	− 7	− 10	− 13	− 10	− 11	− 7	− 76	− 196
14	− 3	− 6	− 2	− 4	− 7	− 9	− 6	− 7	− 2	− 46	− 118
15	− 1	− 2	+ 3	0	− 4	− 4	0	− 3	+ 2	− 9	− 23
16	0	+ 2	+ 5	+ 3	+ 1	+ 2	+ 4	+ 1	+ 5	+ 23	+ 59
17	+ 2	+ 5	+ 6	+ 5	+ 4	+ 5	+ 8	+ 5	+ 8	+ 48	+ 124
18	+ 2	+ 7	+ 6	+ 5	+ 6	+ 9	+ 10	+ 8	+ 10	+ 63	+ 162
19	+ 1	+ 7	+ 6	+ 6	+ 8	+ 10	+ 12	+ 10	+ 11	+ 71	+ 183
20	+ 1	+ 7	+ 6	+ 5	+ 10	+ 11	+ 13	+ 12	+ 12	+ 77	+ 198
21	+ 1	+ 8	+ 6	+ 5	+ 11	+ 12	+ 14	+ 14	+ 12	+ 83	+ 214
22	+ 1	+ 9	+ 7	+ 7	+ 12	+ 14	+ 15	+ 16	+ 12	+ 93	+ 240
23	+ 1	+ 11	+ 8	+ 8	+ 13	+ 15	+ 16	+ 17	+ 12	+ 101	+ 260

REDUCTIONS OF MAGNETIC OBSERVATIONS REFERRED TO THE MOON'S PLACE.

REDUCTIONS OF MAGNETIC DECLINATION REFERRED TO THE MOON'S PLACE.

TABLE XVII.—MEAN LUNATION-INEQUALITY of the WESTERN DECLINATION of the MAGNET, exhibited separately for the different Years; with the Mean for all the Years, corrected for the Daily Proportion of Secular Change of Western Declination.

Day of the Lunation.	Mean Lunation-Inequality in each Year. 1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	Mean 1848 to 1857.	Mean corrected by −0′·17.
	′	′	′	′	′	′	′	′	′	′	′	′
1	+ 1·2	+ 0·2	+ 1·2	− 0·6	− 0·3	+ 0·2	+ 0·5	− 1·6	+ 0·5	+ 0·9	+ 0·22	+ 0·05
2	+ 0·5	− 0·1	+ 0·2	− 0·7	0·0	+ 0·6	− 0·1	− 0·5	+ 0·1	− 0·4	− 0·04	− 0·21
3	+ 0·6	− 0·5	+ 0·9	− 1·3	+ 0·4	+ 1·1	+ 1·0	+ 0·1	+ 0·2	0·0	+ 0·25	+ 0·08
4	+ 0·1	+ 1·3	+ 0·1	− 0·4	− 0·5	+ 1·4	+ 0·7	+ 0·1	+ 0·9	+ 0·7	+ 0·44	+ 0·27
5	− 0·1	− 0·1	+ 0·4	0·0	− 0·9	+ 1·1	+ 0·5	− 1·1	+ 1·8	− 0·2	+ 0·14	− 0·03
6	− 0·3	− 0·2	+ 0·3	− 0·5	+ 0·8	+ 0·9	+ 2·0	+ 0·2	+ 0·8	− 0·6	+ 0·34	+ 0·17
7	+ 0·5	− 0·1	+ 0·1	+ 0·8	+ 0·5	+ 1·5	+ 0·8	+ 0·3	+ 0·4	− 0·5	+ 0·43	+ 0·26
8	− 0·2	+ 1·5	0·0	+ 0·2	+ 0·1	+ 0·4	+ 0·1	− 0·4	+ 0·4	− 0·8	+ 0·13	− 0·04
9	+ 0·2	+ 1·0	− 1·0	− 0·1	+ 0·5	− 0·1	+ 1·2	+ 0·3	+ 0·9	− 0·1	+ 0·28	+ 0·11
10	0·0	+ 0·2	− 0·4	− 0·5	+ 1·6	+ 0·5	+ 0·4	− 0·3	+ 0·6	− 0·8	+ 0·13	− 0·04
11	− 0·6	+ 2·3	− 0·5	− 0·1	− 0·1	+ 0·2	+ 1·7	+ 0·1	+ 2·0	− 1·0	+ 0·40	+ 0·23
12	− 1·0	− 0·3	− 0·5	0·0	− 0·7	+ 0·2	− 0·4	0·0	+ 1·1	− 0·3	− 0·19	− 0·36
13	− 0·2	+ 1·7	− 0·9	− 0·3	− 0·3	+ 0·4	+ 0·8	− 0·7	− 0·1	− 0·6	− 0·08	− 0·25
14	− 0·6	+ 3·0	− 0·7	− 0·2	− 0·2	+ 0·5	− 0·1	− 0·7	+ 1·5	− 0·9	+ 0·16	− 0·01
15	− 0·5	+ 2·5	− 0·1	− 0·3	− 0·2	− 0·9	− 0·2	− 0·5	+ 0·4	− 0·2	0·00	− 0·17
16	+ 0·2	+ 3·9	− 0·5	+ 0·3	+ 0·3	− 0·1	− 0·4	− 0·8	− 0·1	− 0·4	+ 0·24	+ 0·07
17	+ 0·4	+ 1·4	− 0·3	− 0·1	− 0·2	0·0	− 0·5	− 0·9	− 0·9	0·0	− 0·11	− 0·28
18	− 0·2	+ 1·5	+ 0·2	− 0·9	0·0	− 0·3	− 0·6	− 0·1	− 0·3	0·0	− 0·07	− 0·24
19	+ 0·7	+ 1·3	+ 0·3	− 0·4	− 0·3	+ 0·4	+ 0·5	+ 0·4	− 0·2	+ 1·2	+ 0·39	+ 0·22
20	+ 0·4	+ 2·0	0·0	+ 0·3	+ 1·5	+ 0·8	− 0·2	− 0·7	+ 0·6	+ 1·2	+ 0·59	+ 0·42
21	− 0·3	+ 0·1	− 0·1	+ 0·1	+ 1·9	+ 0·1	− 0·1	− 0·9	− 0·7	+ 1·1	+ 0·12	− 0·05
22	+ 0·3	− 1·9	− 1·5	− 0·3	+ 1·3	+ 0·3	− 0·8	− 0·1	− 0·4	+ 0·2	− 0·29	− 0·46
23	+ 0·2	− 1·2	− 0·5	+ 0·4	− 0·3	− 0·8	− 1·0	0·0	− 0·2	+ 2·4	− 0·10	− 0·27
24	− 0·1	− 0·2	− 0·3	+ 0·5	+ 0·2	− 0·6	− 0·8	− 0·4	+ 0·3	+ 1·7	+ 0·03	− 0·14
25	− 0·9	+ 1·3	+ 0·5	+ 0·6	+ 0·9	0·0	0·0	+ 0·7	− 0·1	+ 2·3	+ 0·39	+ 0·22
26	− 0·4	+ 1·0	+ 0·9	+ 0·1	+ 0·5	− 0·9	− 0·3	+ 0·3	0·0	+ 0·9	+ 0·21	+ 0·04
27	− 0·7	+ 0·8	+ 1·1	+ 0·1	+ 0·8	− 0·2	− 0·3	+ 0·8	+ 0·3	+ 0·6	+ 0·33	+ 0·16
28	+ 0·1	+ 1·4	+ 0·7	+ 0·7	− 0·3	− 0·2	+ 0·7	− 0·3	− 0·3	+ 1·0	+ 0·35	+ 0·18
29	+ 0·5	− 2·5	+ 1·3	+ 0·2	+ 0·8	+ 0·1	+ 1·3	− 0·1	− 0·2	+ 1·4	+ 0·28	+ 0·11

TABLE XVIII.—MEAN LUNATION-DETERMINATION of the WESTERN DECLINATION of the MAGNET at every LUNAR HOUR of the LUNAR DAY; obtained by taking the Means of all the Determinations at the same Lunar Hour through the Lunation.

1848.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.													
	January. d h m 6. 0. 43	February. d h m 5. 1. 14	March. d h m 5. 0. 47	April. d h m 4. 1. 16	May. d h m 3. 0. 53	June. d h m 2. 1. 34	July. d h m 1. 1. 15	July. d h m 30. 0. 53	August. d h m 29. 1. 12	September. d h m 28. 1. 21	October. d h m 27. 0. 45	November. d h m 26. 0. 59	December. d h m 26. 1. 20	Mean.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
	′	′	′	′	′	′	′	′	′	′	′	′	′	′
0	48·6	50·3	51·7	51·5	54·0	53·5	53·4	57·0	52·3	53·6	52·2	52·0	43·9	51·8
1	49·3	49·0	53·4	51·2	53·8	53·4	53·9	56·7	51·8	53·2	52·2	52·0	44·8	51·5
2	49·4	49·2	54·2	51·5	52·9	53·4	54·9	56·0	51·7	52·8	51·7	52·1	45·5	51·9
3	50·4	49·4	55·9	50·9	52·6	53·5	54·3	55·0	51·6	53·0	51·9	52·6	45·9	52·1
4	50·7	49·4	56·2	51·9	52·5	53·9	53·3	55·4	51·1	52·0	50·6	51·8	46·2	51·9
5	50·8	49·3	57·3	52·0	52·6	53·2	52·9	55·5	51·0	50·8	49·5	51·9	47·0	51·8
6	51·4	48·8	56·7	52·5	52·8	53·9	53·3	55·6	51·2	50·8	49·9	51·5	47·2	52·0
7	51·6	48·6	57·0	51·8	52·7	54·4	52·8	55·5	51·2	50·8	50·6	51·5	47·8	52·0
8	51·7	48·7	57·1	52·0	53·2	54·0	53·3	55·3	50·8	51·7	50·2	51·3	47·8	52·1
9	51·4	48·3	57·7	52·5	53·6	53·6	53·6	55·0	50·8	51·8	49·9	51·8	47·7	52·1
10	51·0	48·6	56·9	52·2	53·1	53·7	54·0	55·0	51·5	51·7	50·6	51·6	47·6	52·1
11	51·2	48·8	57·1	52·6	53·3	53·7	53·9	52·1	51·6	52·6	50·3	51·2	47·2	52·0
12	51·3	48·6	56·6	51·9	53·7	54·3	54·6	52·5	51·7	52·3	49·3	51·5	47·2	52·0
13	51·9	49·2	54·6	51·8	52·9	53·8	54·0	52·6	51·7	52·2	49·1	52·0	47·6	51·8
14	51·4	49·8	52·8	52·4	53·6	53·6	54·1	51·6	51·2	52·2	49·1	50·9	47·0	51·5
15	51·7	49·7	52·0	53·2	53·4	54·0	53·7	51·3	51·1	51·7	50·3	51·8	46·3	51·6
16	50·1	49·6	51·5	53·1	53·1	53·6	54·8	52·0	51·2	51·7	50·0	51·8	46·4	51·5
17	49·1	49·6	52·4	52·8	53·8	53·2	54·8	51·3	51·4	51·8	50·4	52·2	45·9	51·4
18	49·1	49·4	51·9	52·7	53·4	53·3	54·5	51·3	51·4	52·2	51·4	51·7	45·6	51·4
19	48·1	49·6	51·7	52·8	52·9	53·7	53·5	51·2	51·4	52·3	51·1	51·9	45·3	51·2
20	47·0	49·2	52·4	52·1	51·9	54·7	53·4	51·9	51·3	52·8	51·0	51·4	44·2	51·0
21	46·6	49·2	52·1	51·1	51·9	53·8	53·5	52·4	51·8	53·4	51·0	52·4	44·1	51·0
22	47·2	48·9	52·6	50·8	52·2	54·3	54·5	52·4	51·8	52·7	51·4	51·7	44·1	51·1
23	47·6	48·7	53·5	50·3	53·3	54·2	54·5	53·3	52·2	53·2	52·7	51·5	43·5	51·4

1849.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.												
	January. d h m 24. 0. 54	February. d h m 23. 1. 15	March. d h m 24. 0. 45	April. d h m 23. 1. 12	May. d h m 22. 0. 52	June. d h m 21. 1. 38	July. d h m 20. 1. 20	August. d h m 18. 0 57.	September. d h m 17. 1. 18	October. d h m 16. 0. 44	November. d h m 15. 0. 58	December. d h m 15. 1. 17	Mean.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
	′	′	′	′	′	′	′	′	′	′	′	′	′
0	44·8	43·8	42·1	42·7	40·8	41·0	41·7	31·4	29·0	31·6	29·3	31·0	37·4
1	45·5	44·4	42·7	42·4	41·3	40·8	41·9	29·9	29·0	30·9	29·2	29·4	37·3
2	45·5	44·7	43·4	42·7	41·2	41·0	41·8	31·3	28·8	30·5	29·4	29·1	37·4
3	45·5	44·1	43·4	41·7	40·9	40·9	41·4	31·4	28·2	30·8	29·7	28·9	37·2
4	45·4	43·9	43·1	42·0	40·7	40·5	40·5	29·9	27·4	29·8	29·9	28·5	36·8
5	45·1	43·0	42·1	40·7	39·8	40·6	40·1	30·3	28·1	30·0	29·4	26·5	36·3
6	45·1	42·2	41·4	40·0	40·2	40·6	40·6	30·9	27·1	30·1	30·0	26·8	36·3
7	44·8	41·6	41·6	40·7	39·6	40·5	40·6	30·4	26·3	30·4	30·0	27·2	36·1
8	44·9	42·8	41·8	39·7	40·1	40·3	40·6	29·7	26·1	30·5	30·2	27·6	36·2
9	44·6	43·7	42·6	40·4	40·4	41·1	40·3	29·4	26·3	29·7	29·9	26·6	36·3
10	45·0	44·6	42·7	40·8	40·5	41·0	39·8	29·8	25·7	29·6	30·4	27·7	36·5
11	44·5	44·5	43·4	41·7	41·1	41·1	40·5	30·9	25·6	30·3	30·3	27·6	36·8
12	44·0	44·2	43·6	41·9	41·5	41·0	40·8	30·4	26·1	31·1	30·5	28·2	36·9
13	43·9	44·9	43·9	42·1	42·2	41·7	39·6	30·3	26·5	30·4	30·3	29·2	37·1
14	43·8	43·3	43·9	41·9	42·5	41·5	39·5	31·3	27·3	30·6	30·0	29·5	37·1
15	43·5	43·3	42·8	41·6	41·9	41·4	39·1	30·9	27·3	31·2	30·6	29·7	36·9
16	42·9	43·3	42·9	41·6	41·6	41·7	40·0	30·8	28·2	31·1	30·0	29·8	37·0
17	43·1	43·3	42·6	41·8	41·4	41·2	39·7	30·5	29·9	31·2	29·9	30·0	37·0
18	43·1	42·9	42·5	41·3	40·9	40·9	40·1	30·2	29·7	31·2	29·6	30·5	36·9
19	43·0	43·4	42·0	41·4	41·2	40·6	39·5	30·3	30·1	31·8	30·2	31·0	37·0
20	43·4	43·1	41·3	41·9	40·6	40·7	39·9	30·4	29·8	31·7	29·8	31·0	37·0
21	43·6	43·5	41·2	41·7	40·4	40·5	39·9	29·1	29·5	31·8	29·1	30·7	36·7
22	44·1	43·7	41·6	42·0	40·2	40·4	40·8	29·8	29·2	31·1	29·9	30·4	36·9
23	44·7	43·8	41·9	42·3	40·2	40·7	41·2	30·1	29·4	31·7	28·9	30·3	37·1

TABLE XVIII.—MEAN LUNATION-DETERMINATION of the WESTERN DECLINATION of the MAGNET, &c.—*continued.*

1850.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.												
	January. d h m 13. 0. 49	February. d h m 12. 1. 6	March. d h m 14. 1. 19	April. d h m 12. 0. 46	May. d h m 12. 1. 11	June. d h m 10. 0. 52	July. d h m 10. 1. 40	August d h m 8. 1. 22	September. d h m 6. 0. 57	October. d h m 6. 1. 20	November. d h m 4. 0. 49	December. d h m 4. 1. 12	Mean.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
	′	′	′	′	′	′	′	′	′	′	′	′	′
0	28·4	27·5	26·2	26·3	24·1	24·1	22·0	21·1	25·5	18·5	19·8	18·9	23·5
1	29·1	27·1	26·7	26·1	24·5	24·4	21·9	21·1	25·1	18·4	19·5	18·6	22·5
2	28·7	27·5	26·8	26·2	24·7	24·7	21·9	21·4	25·4	18·0	19·0	18·6	23·5
3	28·4	27·7	26·1	25·9	24·8	24·8	22·0	21·4	24·7	17·5	19·0	18·7	23·4
4	28·5	27·8	26·2	26·1	25·3	24·7	21·9	20·8	24·3	17·4	18·6	18·8	23·4
5	27·9	27·7	26·1	26·1	25·0	24·4	21·3	21·4	23·6	17·1	18·7	18·2	23·1
6	28·7	27·7	26·0	25·8	24·8	24·3	21·5	21·0	23·5	17·0	19·1	18·4	23·2
7	28·7	27·2	25·5	25·7	24·4	24·4	21·4	22·2	24·2	16·6	18·8	18·6	23·1
8	28·7	27·5	26·0	25·5	24·2	24·3	21·2	22·1	24·1	16·1	18·4	18·7	23·1
9	28·6	27·1	26·5	25·1	23·9	24·8	21·9	22·6	24·9	16·9	18·3	19·3	23·3
10	28·8	27·3	26·4	25·6	24·0	25·3	22·0	22·5	25·0	17·7	18·1	19·1	23·5
11	28·8	26·7	27·0	25·6	24·4	25·3	22·4	22·2	25·8	17·6	18·7	19·2	23·6
12	28·9	26·1	26·9	25·4	24·5	25·2	22·6	22·2	25·9	17·9	19·1	19·3	23·7
13	28·5	26·1	26·8	25·6	24·7	25·2	23·3	22·2	26·4	17·8	19·4	19·2	23·8
14	28·7	26·1	26·4	25·8	24·3	25·1	22·7	22·5	26·2	17·4	19·4	19·2	23·6
15	28·6	26·0	25·8	25·3	23·8	24·9	22·2	22·4	26·1	17·7	19·4	19·2	23·5
16	28·9	25·8	25·3	24·8	24·1	25·1	22·6	22·3	26·0	18·1	19·6	19·0	23·5
17	29·1	26·4	25·2	25·0	23·7	24·4	22·5	22·2	26·2	18·1	19·6	19·1	23·5
18	28·4	26·1	25·5	25·0	23·7	24·0	22·8	22·8	26·3	17·7	19·4	19·1	23·4
19	29·0	26·4	25·8	24·7	23·4	23·4	22·2	23·0	25·9	17·8	19·1	18·4	23·3
20	29·0	26·7	25·6	24·8	23·7	23·2	22·3	22·6	26·2	18·2	19·2	18·9	23·4
21	28·6	26·9	25·8	25·2	23·7	23·5	22·6	22·0	26·5	18·1	18·7	18·7	23·4
22	28·5	27·1	25·7	25·3	24·0	23·4	22·1	21·8	27·0	18·4	19·8	18·5	23·5
23	28·3	26·8	25·2	26·3	23·8	23·5	21·9	21·7	26·7	18·4	19·9	18·6	23·4

1851.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.													
	January. d h m 2. 0. 46	February. d h m 1. 1. 7	March. d h m 3. 1. 17	April. d h m 1. 0. 40	May. d h m 1. 0. 49	May. d h m 31. 1. 14	June. d h m 29. 0. 57	July. d h m 28. 0. 41	August. d h m 27. 1. 19	September. d h m 25. 0. 53	October. d h m 25. 1. 18	November. d h m 23. 0. 52	December. d h m 23. 1. 26	Mean.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
	′	′	′	′	′	′	′	′	′	′	′	′	′	′
0	20·2	20·6	19·7	20·9	18·6	14·3	16·4	17·8	14·8	17·3	20·6	21·3	22·3	18·9
1	20·8	20·2	18·9	20·6	19·1	14·4	16·5	17·4	14·9	18·0	20·9	20·8	22·2	18·8
2	20·5	19·8	18·7	20·5	19·2	14·3	16·3	17·1	14·5	17·2	20·5	20·9	21·4	18·5
3	20·2	20·1	18·7	20·4	19·3	13·8	16·4	17·1	14·0	16·8	20·4	21·1	21·8	18·5
4	20·1	19·6	18·9	20·6	19·8	13·7	16·5	17·1	13·9	15·7	20·5	21·3	21·8	18·4
5	20·4	19·8	18·4	20·5	19·5	13·9	16·5	16·9	14·8	15·8	19·9	20·6	21·7	18·4
6	20·7	19·6	18·5	20·2	19·9	14·3	16·5	17·0	15·2	16·4	20·2	20·5	21·1	18·5
7	20·3	19·4	19·9	20·7	19·3	14·2	16·1	17·7	15·8	16·4	20·1	20·5	21·2	18·6
8	20·6	19·5	20·1	20·6	19·4	13·9	17·0	18·1	16·9	16·1	19·7	20·3	21·8	18·3
9	20·3	19·1	20·3	21·1	19·4	14·2	16·8	17·6	16·5	17·1	20·1	20·3	21·8	18·8
10	20·3	19·3	20·4	20·6	19·4	14·8	17·1	17·8	16·2	17·3	20·6	20·1	21·8	18·9
11	20·1	19·7	20·7	20·6	19·3	14·5	17·4	17·4	15·5	17·9	20·9	20·1	21·7	18·9
12	20·4	19·8	21·0	21·3	19·4	15·1	17·9	17·6	15·5	17·8	20·4	19·8	21·5	19·0
13	20·8	19·3	21·1	20·5	19·5	14·7	17·5	17·7	15·1	16·9	21·5	19·9	21·7	18·9
14	20·5	19·6	20·7	20·2	19·3	14·3	17·2	17·5	14·2	17·1	21·5	20·1	22·3	18·8
15	20·5	20·1	20·5	20·2	19·7	14·0	16·7	17·3	13·7	17·1	21·0	19·7	22·2	18·7
16	20·3	20·4	20·9	20·1	19·7	14·1	16·8	16·9	14·0	16·8	21·4	20·5	22·7	18·8
17	20·0	20·7	20·2	20·8	19·4	14·0	16·4	17·0	14·1	16·8	20·6	20·8	23·1	18·8
18	20·0	20·6	20·1	21·4	18·3	13·5	15·9	17·0	14·0	16·6	20·6	20·4	22·7	18·6
19	19·9	20·2	20·1	21·4	18·0	13·6	15·7	17·1	14·4	16·8	20·4	20·2	22·9	18·5
20	20·0	20·3	20·7	20·9	18·2	14·2	15·9	17·2	14·6	17·2	20·8	20·1	22·5	18·7
21	20·3	20·5	20·4	20·6	17·8	14·3	16·1	17·5	14·8	17·5	20·8	20·0	22·1	18·7
22	20·2	20·9	20·0	20·4	18·0	14·6	16·2	17·6	15·2	17·3	20·6	20·2	22·1	18·8
23	20·1	20·7	19·8	20·6	18·8	14·6	17·0	18·0	14·7	17·2	20·6	21·1	21·7	18·9

TABLE XVIII.—MEAN LUNATION-DETERMINATION of the WESTERN DECLINATION of the MAGNET, &c.—*continued.*

1852.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.												
	January. d h m 21. 1. 3	February. d h m 20. 1. 21	March. d h m 20. 0. 44	April. d h m 19. 0. 46	May. d h m 19. 0. 56	June. d h m 18. 1. 24	July. d h m 17. 1. 6	August. d h m 15. 0. 45	September. d h m 14. 1. 13	October. d h m 13. 0. 44	November. d h m 12. 1. 15	December. d h m 11. 0. 56	Mean.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
	′	′	′	′	′	′	′	′	′	′	′	′	′
0	22·7	22·0	21·8	23·2	18·6	18·9	19·8	16·3	14·2	11·5	12·0	11·6	17·7
1	22·3	21·6	21·2	22·6	19·1	19·1	19·0	16·8	14·4	11·7	11·7	10·8	17·5
2	22·5	21·9	21·5	21·7	19·1	18·8	18·8	16·8	14·3	12·1	13·0	9·7	17·5
3	22·3	21·2	21·8	21·8	18·9	18·4	18·7	17·2	13·9	12·3	12·1	9·5	17·4
4	21·3	22·6	21·8	21·5	19·5	18·5	18·5	16·4	14·0	12·2	12·4	10·2	17·4
5	21·5	21·9	20·7	22·1	19·2	18·4	18·5	16·3	13·1	13·0	12·2	11·1	17·3
6	21·6	21·5	21·3	22·3	19·0	18·5	18·4	16·3	14·2	12·4	12·3	10·1	17·3
7	21·7	21·9	20·9	21·9	18·9	18·4	19·1	16·5	13·9	12·6	11·7	10·3	17·3
8	21·8	21·7	20·8	22·9	19·1	18·6	19·7	16·7	13·7	12·6	12·5	10·6	17·5
9	22·0	22·6	21·1	22·4	18·5	17·7	20·1	17·1	13·7	12·3	12·1	10·3	17·5
10	22·5	22·2	21·9	22·1	18·9	18·3	19·3	16·8	15·3	12·3	12·2	10·2	17·7
11	22·6	22·7	21·4	22·8	19·1	18·3	19·3	16·3	14·0	12·5	11·9	11·7	17·7
12	22·6	23·2	22·7	22·6	19·0	17·9	19·1	17·0	13·8	13·0	12·4	12·0	17·9
13	22·9	23·4	22·9	23·3	19·6	17·8	18·4	16·1	14·3	13·5	12·6	12·5	17·9
14	23·4	23·0	23·5	24·3	21·0	17·5	18·2	15·3	14·6	13·0	12·4	13·3	18·3
15	22·8	23·1	23·4	23·8	20·8	17·5	18·1	16·1	14·8	14·0	12·7	12·8	18·3
16	23·0	22·0	23·1	22·8	21·1	17·7	18·7	15·0	14·2	13·8	12·6	13·5	18·1
17	23·0	21·6	22·0	23·0	20·5	17·3	18·2	14·9	14·1	13·3	12·5	13·0	17·8
18	23·6	21·8	21·7	23·6	19·3	17·4	19·2	15·3	13·7	13·5	12·3	12·5	17·8
19	23·0	21·3	21·8	23·3	19·6	16·7	18·9	15·8	13·8	13·3	12·9	13·2	17·8
20	23·0	21·8	21·4	22·7	19·1	16·9	19·0	16·6	13·7	12·8	12·0	12·2	17·6
21	22·1	20·9	22·0	22·9	19·1	17·9	19·0	17·1	13·9	12·4	12·0	11·6	17·6
22	22·3	21·1	22·1	22·6	18·2	18·7	19·0	17·0	13·5	11·9	12·0	11·6	17·5
23	22·0	21·9	21·9	22·8	18·3	19·8	19·5	16·5	14·3	12·2	11·6	11·4	17·7

1853.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.													
	January. d h m 10. 1. 39	February. d h m 8. 1. 14	March. d h m 9. 0. 44	April. d h m 8. 0. 59	May. d h m 8. 0. 54	June. d h m 7. 1. 11	July. d h m 6. 0. 48	August. d h m 5. 1. 16	September. d h m 3. 0. 48	October. d h m 3. 1. 5	November. d h m 2. 1. 31	December. d h m 1. 1. 13	December. d h m 30. 1. 0	Mean.
	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°
	′	′	′	′	′	′	′	′	′	′	′	′	′	′
0	13·3	12·4	12·7	12·3	10·9	10·5	11·0	10·4	12·2	6·5	4·4	6·4	3·8	9·7
1	12·8	12·3	11·3	12·6	11·2	9·9	10·8	10·1	11·8	6·3	4·7	6·7	3·9	9·6
2	12·7	12·0	11·3	12·6	11·4	9·7	10·7	10·0	11·8	7·0	5·4	6·4	3·8	9·6
3	12·1	11·4	11·0	12·1	11·5	9·1	10·0	9·7	11·1	7·5	5·2	6·2	4·5	9·3
4	11·8	12·2	11·5	11·4	11·3	9·7	9·5	10·2	11·1	7·3	5·2	6·3	4·4	9·4
5	11·5	12·2	9·9	10·8	11·0	9·4	9·8	10·1	10·5	7·3	5·5	5·8	5·1	9·1
6	11·1	11·9	10·7	10·9	10·7	9·7	9·6	10·4	10·7	7·1	5·2	5·7	5·3	9·2
7	10·7	10·6	10·5	10·2	10·6	9·8	10·2	10·4	10·7	7·7	5·3	4·9	5·4	9·0
8	11·8	10·2	10·9	10·6	11·1	9·6	10·8	10·2	11·2	7·7	5·5	5·6	5·6	9·3
9	11·5	10·5	10·6	11·6	10·8	9·5	10·7	10·0	11·7	7·4	5·3	6·0	5·6	9·3
10	11·9	10·7	11·3	11·1	11·0	9·8	10·7	9·3	11·4	7·1	5·7	6·0	5·1	9·3
11	12·5	11·3	11·2	11·6	11·3	9·9	11·3	9·4	11·2	7·6	5·4	5·4	5·4	9·5
12	12·3	12·1	11·6	12·1	11·8	10·1	10·8	8·7	11·6	7·8	5·5	5·8	5·5	9·7
13	12·7	11·6	11·5	11·3	11·5	9·8	11·1	10·0	11·1	7·6	5·1	6·5	4·9	9·7
14	13·2	11·3	11·3	11·5	11·0	10·8	10·6	9·9	10·5	7·1	5·6	7·1	4·8	9·6
15	12·9	12·2	11·8	11·6	11·3	10·8	10·6	10·3	10·6	7·3	5·1	7·5	5·2	9·9
16	12·6	12·3	10·5	11·2	10·7	10·1	9·9	9·9	10·3	6·7	5·4	6·5	4·6	9·3
17	12·2	12·7	11·2	11·8	10·1	10·0	9·9	10·4	10·6	7·1	4·9	6·9	3·8	9·3
18	12·2	12·4	12·0	10·7	9·6	9·7	9·7	10·5	10·8	7·0	4·6	6·4	2·7	9·1
19	12·7	12·0	11·9	11·2	10·1	10·0	10·1	10·3	11·4	7·0	4·8	4·9	3·0	9·2
20	12·7	12·4	12·3	11·6	10·0	9·7	10·8	10·8	11·4	6·4	4·9	5·6	2·3	9·3
21	12·6	12·4	12·6	12·1	10·3	9·9	10·8	10·9	12·5	6·2	4·4	6·2	1·9	9·4
22	13·1	12·5	12·2	12·7	10·7	9·9	10·9	10·3	12·6	5·7	4·5	6·4	2·6	9·6
23	13·4	12·2	11·8	12·7	10·9	10·4	11·0	10·1	12·2	5·9	4·1	6·6	3·6	9·6

TABLE XVIII.—MEAN LUNATION-DETERMINATION of the WESTERN DECLINATION of the MAGNET, &c.—*continued.*

1854.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.												
	January. d h m 28. 0. 46	February. d h m 27. 1. 17	March. d h m 28. 0. 43	April. d h m 27. 0. 51	May. d h m 27. 1. 7	June. d h m 25. 0. 43	July. d h m 25. 1. 9	August. d h m 24. 1. 23	September. d h m 22. 0. 47	October. d h m 22. 0. 57	November. d h m 21. 1. 28	December. d h m 20. 1. 16	Mean.
	22°	22°	22°	22°	22°	21°	21°	21°	21°	21°	21°	21°	21°
	′	′	′	′	′	′	′	′	′	′	′	′	′
0	2·1	3·6	3·2	2·3	1·3	61·3	62·4	59·7	59·2	58·5	58·1	50·7	60·7
1	2·4	2·7	3·0	1·5	1·5	60·9	62·4	59·7	59·3	58·7	58·4	51·3	60·2
2	2·2	3·3	3·5	2·0	1·3	60·3	62·0	59·6	59·2	58·8	58·0	52·1	60·2
3	2·1	3·6	3·3	1·5	1·0	59·9	61·7	59·6	59·7	58·5	57·7	52·4	60·2
4	2·0	3·0	3·2	2·1	1·4	60·1	61·6	59·7	59·3	58·3	58·1	52·6	60·1
5	2·8	2·4	3·1	2·4	1·4	60·6	60·9	59·8	59·4	58·4	58·2	52·7	60·2
6	2·9	2·6	2·1	1·9	1·5	60·6	61·3	59·6	59·8	58·0	58·1	52·8	60·1
7	2·2	1·7	1·9	1·2	1·3	60·3	60·9	59·5	59·0	58·1	58·2	52·2	59·7
8	2·4	1·9	2·2	0·8	1·6	60·2	61·2	58·9	58·1	58·0	57·9	52·2	59·6
9	3·2	2·0	1·6	0·7	1·2	60·2	61·4	59·0	59·1	58·1	57·8	52·1	59·7
10	3·6	1·9	2·1	1·1	1·3	60·2	61·7	60·0	59·7	58·7	57·9	51·6	59·9
11	3·5	2·4	2·0	1·6	1·4	60·4	61·5	60·2	59·0	58·7	58·0	52·3	60·1
12	4·6	2·3	2·2	2·2	1·6	60·3	60·7	59·9	58·2	58·6	58·2	52·1	60·1
13	4·0	2·5	1·7	2·7	1·7	60·4	59·9	59·8	58·7	58·7	58·1	51·7	60·0
14	3·5	2·5	1·3	2·8	2·0	60·2	60·1	60·0	58·1	58·9	58·7	51·6	60·0
15	4·0	2·9	1·4	2·3	1·4	60·5	60·7	59·5	57·5	58·8	58·1	51·6	59·9
16	3·6	3·2	2·6	1·4	1·4	60·7	61·0	59·3	57·0	58·9	58·3	51·2	59·9
17	3·9	2·0	1·9	1·7	1·6	60·9	61·2	59·3	57·6	58·9	58·2	50·3	59·8
18	2·5	2·1	2·2	2·0	1·3	61·0	61·7	58·8	57·4	58·4	58·0	50·6	59·7
19	2·8	2·6	2·4	1·2	0·7	61·4	61·3	59·1	58·3	57·8	57·9	50·9	59·7
20	1·8	2·0	2·1	1·2	0·9	61·6	61·7	59·3	58·5	57·8	57·3	50·9	59·6
21	1·5	3·2	1·7	1·2	0·8	61·0	62·3	59·4	58·4	58·0	57·5	51·3	59·7
22	1·8	3·1	2·5	1·3	0·8	61·5	62·9	59·2	58·7	58·1	57·4	50·8	59·8
23	1·5	3·7	3·2	1·3	0·8	61·3	62·6	59·5	58·7	58·3	57·5	51·0	59·9

1855.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.												
	January. d h m 18. 1. 5	February. d h m 16. 0. 46	March. d h m 18. 1. 10	April. d h m 17. 1. 25	May. d h m 16. 0. 56	June. d h m 15. 1. 27	July. d h m 14. 1. 6	August. d h m 13. 1. 23	September. d h m 11. 0. 45	October. d h m 11. 0. 44	November. d h m 10. 0. 56	December. d h m 10. 1. 35	Mean.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
	′	′	′	′	′	′	′	′	′	′	′	′	′
0	49·0	49·5	50·1	49·1	49·7	52·1	49·7	50·2	47·2	46·4	45·9	45·0	48·7
1	48·6	49·8	49·8	49·1	49·6	51·2	48·9	49·8	47·2	46·1	45·9	46·3	48·5
2	49·1	49·7	49·3	49·4	50·2	51·0	48·8	49·4	48·0	45·5	46·1	46·8	48·6
3	49·5	49·9	48·9	49·3	50·2	51·7	49·0	49·5	47·2	45·6	45·2	46·5	48·5
4	49·4	49·0	48·6	49·1	49·6	51·4	49·1	48·8	47·3	45·1	45·2	46·4	48·3
5	49·2	48·8	48·8	49·1	49·8	51·0	48·0	48·7	47·1	45·3	45·4	45·8	48·1
6	50·4	47·8	48·8	49·1	49·9	50·7	48·9	49·3	47·0	45·4	46·2	46·0	48·4
7	49·8	48·2	49·1	48·9	50·6	50·1	49·4	48·9	47·4	45·9	45·6	46·3	48·4
8	49·7	48·2	48·3	48·5	50·2	50·3	49·7	47·9	47·0	46·3	46·3	46·4	48·2
9	49·8	49·5	48·7	49·3	50·2	49·9	49·7	47·9	47·9	46·1	46·0	46·4	48·5
10	49·6	49·4	48·4	49·5	50·8	49·1	49·5	47·6	48·2	46·2	46·0	47·0	48·4
11	49·5	49·2	48·3	49·8	51·0	48·9	50·2	48·2	47·6	45·9	46·1	47·0	48·5
12	49·3	49·4	48·2	50·2	50·7	49·6	50·2	49·0	47·4	45·9	45·9	46·7	48·5
13	49·6	49·3	49·0	50·1	50·3	49·8	50·1	48·8	47·3	45·9	45·7	46·9	48·6
14	49·6	48·5	49·6	49·7	50·4	49·9	50·2	48·2	47·7	46·3	46·1	47·3	48·6
15	49·4	48·9	49·2	49·6	50·0	49·6	50·2	48·0	47·1	46·9	45·9	47·4	48·4
16	48·8	48·4	48·8	49·0	50·2	49·9	49·3	48·3	46·3	46·6	45·8	47·4	48·2
17	48·8	48·3	49·1	48·6	50·9	50·2	48·9	48·3	46·3	46·3	46·0	47·5	48·3
18	48·7	48·6	48·7	49·1	51·0	50·4	48·7	48·4	46·3	45·7	46·0	47·3	48·2
19	48·8	47·7	49·1	48·5	50·0	51·1	48·8	48·6	46·7	45·7	45·7	47·1	48·2
20	48·6	47·1	48·7	48·9	50·5	51·5	49·2	49·4	46·8	45·8	45·9	47·0	48·3
21	48·4	47·8	48·8	48·8	50·5	51·5	48·1	49·4	47·2	46·4	45·7	46·6	48·3
22	48·3	48·0	49·1	48·9	49·9	51·8	47·8	50·2	47·4	46·3	45·6	46·3	48·3
23	48·4	49·0	48·9	49·9	50·0	52·6	48·4	50·6	47·4	46·7	45·9	46·2	48·5

TABLE XVIII.—MEAN LUNATION-DETERMINATION of the WESTERN DECLINATION of the MAGNET, &c.—*concluded.*

1856.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.													
	January. d h m 8. 1. 53	February. d h m 6. 1. 5	March. d h m 7. 1. 31	April. d h m 5. 0. 57	May. d h m 5. 1. 26	June. d h m 3. 1. 6	July. d h m 2. 0. 52	August. d h m 1. 1. 22	August. d h m 30. 0. 47	September. d h m 29. 0. 46	October. d h m 29. 0. 46	November. d h m 28. 1. 8	December. d h m 27. 0. 50	Mean.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
	′	′	′	′	′	′	′	′	′	′	′	′	′	′
0	45·3	45·7	45·1	43·4	43·8	43·7	45·0	45·2	45·1	41·6	41·1	40·7	37·4	43·3
1	44·9	46·1	45·5	43·3	44·8	44·1	45·1	44·6	44·9	41·7	41·3	40·5	37·4	43·4
2	45·5	46·2	45·9	43·8	44·1	43·8	44·8	43·7	43·8	41·7	41·4	40·1	37·4	43·3
3	45·2	46·3	45·9	44·0	44·2	43·6	45·2	42·7	41·5	41·3	41·4	40·2	37·6	43·0
4	45·8	46·0	45·8	44·1	44·2	43·9	44·8	42·7	40·7	41·5	41·2	40·6	37·6	43·1
5	45·8	46·3	45·7	43·6	44·6	44·0	44·5	43·1	40·6	41·2	41·4	40·1	37·5	42·9
6	46·1	46·0	45·6	43·6	44·7	43·9	44·6	42·9	41·1	41·3	41·4	40·1	37·6	43·0
7	46·1	45·6	45·4	43·4	44·5	44·1	44·5	43·7	42·5	41·4	41·4	39·9	37·5	43·1
8	46·1	45·9	45·6	43·5	44·3	44·3	44·2	43·5	43·5	41·0	41·5	40·0	37·0	43·1
9	46·1	45·7	45·7	43·7	44·4	44·7	44·3	44·0	42·0	41·7	41·2	40·5	37·0	43·2
10	46·1	45·1	45·9	44·0	44·0	44·1	44·2	44·4	41·8	42·1	41·0	40·0	37·3	43·2
11	46·6	46·3	46·1	44·4	43·5	44·6	44·4	43·8	41·3	41·6	40·9	39·5	37·3	43·1
12	46·1	46·6	46·1	44·7	42·9	44·2	44·0	43·9	42·2	40·8	40·9	39·9	37·2	43·0
13	46·4	45·9	46·1	44·8	42·8	43·9	44·9	43·4	41·8	40·3	41·2	40·6	37·1	43·0
14	46·4	46·3	45·7	45·0	42·6	43·4	45·0	43·7	42·0	40·1	41·2	40·1	36·7	42·9
15	46·2	46·2	45·9	44·4	42·4	43·0	44·8	44·0	41·3	40·2	40·7	39·9	36·7	42·7
16	45·7	45·9	45·9	44·3	42·8	43·5	44·7	44·0	42·6	40·7	40·7	40·2	36·1	42·8
17	45·8	45·9	45·8	43·9	43·1	43·4	44·5	43·6	43·5	40·1	40·8	40·3	36·2	42·8
18	45·6	45·9	45·7	43·7	43·0	43·1	45·0	43·2	44·2	40·1	41·1	40·6	36·2	42·9
19	45·7	45·1	46·0	43·5	43·0	44·4	44·4	44·1	45·4	39·7	41·0	41·3	36·3	43·1
20	45·3	45·1	45·3	43·8	43·0	43·9	44·9	44·4	45·5	39·6	40·7	41·1	35·7	42·9
21	45·1	44·9	45·2	43·8	42·5	43·9	45·0	44·8	45·3	40·4	40·9	41·0	35·8	43·0
22	45·3	45·3	45·3	42·9	42·5	43·3	45·3	44·9	46·4	41·0	41·3	40·9	36·5	43·1
23	45·2	45·3	44·9	43·5	43·4	43·1	45·0	44·6	45·8	41·8	41·0	40·5	36·6	43·1

1857.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of each Solar Day of each Lunation.												
	January. d h m 26. 1. 27	February. d h m 24. 0. 58	March. d h m 26. 1. 15	April. d h m 24. 0. 46	May. d h m 24. 1. 30	June. d h m 22. 1. 20	July. d h m 21. 1. 4	August. d h m 22. 1. 25	September. d h m 18. 0. 45	October. d h m 18. 0. 46	November. d h m 17. 1. 0	December. d h m 17. 1. 29	Mean.
	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°	21°
	′	′	′	′	′	′	′	′	′	′	′	′	′
0	36·3	36·8	35·8	37·2	34·4	36·1	34·7	35·8	36·9	35·0	32·9	33·0	35·4
1	36·7	37·0	35·6	36·9	34·2	35·8	34·6	35·5	36·4	35·0	32·7	31·4	35·2
2	36·5	37·1	35·5	36·8	33·8	35·5	34·5	34·9	36·0	35·1	32·4	30·4	34·9
3	36·6	36·8	35·5	36·0	33·6	34·7	34·4	35·0	36·2	35·2	32·5	29·8	34·7
4	36·6	36·2	35·7	35·3	33·7	34·5	34·5	35·1	35·9	35·0	32·2	29·9	34·5
5	36·3	36·0	35·8	35·2	33·6	34·3	34·1	35·2	36·4	35·0	32·3	30·0	34·5
6	36·2	36·1	36·1	35·8	33·5	34·6	34·5	35·2	36·5	35·0	32·5	29·7	34·6
7	36·0	36·3	36·1	36·6	34·2	34·4	35·0	34·8	36·9	34·6	33·0	29·9	34·8
8	36·5	36·5	35·7	36·6	35·1	34·5	34·7	35·3	36·9	35·1	32·7	30·5	35·0
9	36·4	36·5	35·9	36·7	34·9	34·5	34·5	35·5	37·0	35·4	32·5	30·6	35·0
10	36·5	36·2	36·3	35·8	34·3	34·6	34·9	35·4	37·1	35·3	32·6	31·1	35·0
11	36·8	36·5	36·3	35·8	34·7	34·7	35·1	35·8	37·1	35·1	32·9	31·9	35·2
12	37·0	36·9	36·6	36·1	35·1	35·4	34·7	35·6	36·9	35·7	32·9	32·5	35·5
13	37·0	36·7	36·8	36·4	35·3	36·0	34·9	35·4	37·1	35·8	33·3	32·6	35·6
14	37·1	36·6	36·6	36·8	35·0	35·9	35·5	35·4	37·5	35·7	33·7	32·9	35·7
15	36·7	36·1	36·5	37·0	35·1	36·1	35·5	35·5	37·1	35·8	33·9	32·8	35·7
16	36·4	36·0	36·2	37·0	35·4	36·5	35·6	35·8	37·0	36·1	33·6	34·1	35·8
17	36·2	35·9	36·0	36·7	35·8	35·5	35·3	35·5	37·1	35·2	33·4	34·6	35·6
18	36·0	36·1	35·5	36·1	35·4	35·2	35·4	35·7	36·9	35·4	33·1	34·8	35·5
19	36·0	36·1	35·7	35·8	34·8	35·5	34·9	35·8	37·1	35·5	32·9	34·6	35·4
20	36·3	36·2	35·5	35·7	34·7	35·4	35·2	36·3	37·4	35·4	32·8	34·5	35·5
21	36·4	36·2	35·7	36·0	34·8	35·5	35·1	36·1	37·9	35·2	32·4	34·0	35·4
22	36·2	36·4	35·8	36·0	34·9	35·5	35·0	36·2	38·0	35·1	32·4	33·5	35·4
23	36·2	36·5	35·8	36·5	34·7	35·3	35·1	35·8	38·2	34·7	32·4	33·0	35·4

TABLE XIX.—MEAN, through the RANGE of LUNATIONS, of the LUNATION-MEAN DETERMINATIONS of the LUNO-DIURNAL INEQUALITY of DECLINATION, exhibited separately for the different Years, with the MEAN for all the YEARS.

Lunar Hour.	Mean Luno-Diurnal Inequality in each Year.										Mean, 1848 to 1857.	Equivalent in terms of Horizontal Force.
	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.		
	′	′	′	′	′	′	′	′	′	′	′	
0	+ 0·1	+ 0·5	+ 0·1	+ 0·2	0·0	+ 0·3	+ 0·8	+ 0·3	+ 0·2	+ 0·2	+ 0·27	+ 0·000079
1	− 0·2	+ 0·4	+ 0·1	+ 0·1	− 0·2	+ 0·2	+ 0·3	+ 0·1	+ 0·3	− 0·0	+ 0·11	+ 32
2	+ 0·2	+ 0·5	+ 0·1	− 0·2	− 0·2	+ 0·2	+ 0·3	+ 0·2	+ 0·2	− 0·3	+ 0·10	+ 29
3	+ 0·4	+ 0·3	0·0	− 0·2	− 0·3	− 0·1	+ 0·3	+ 0·1	+ 0·1	− 0·5	− 0·01	− 3
4	+ 0·2	− 0·1	0·0	− 0·3	− 0·3	0·0	+ 0·2	− 0·1	0·0	− 0·7	− 0·11	− 32
5	+ 0·1	− 0·6	− 0·3	− 0·3	− 0·4	− 0·3	+ 0·3	− 0·3	− 0·2	− 0·7	− 0·27	− 79
6	+ 0·3	− 0·6	− 0·2	− 0·2	− 0·4	− 0·2	+ 0·2	0·0	− 0·1	− 0·6	− 0·18	− 52
7	+ 0·3	− 0·8	− 0·3	− 0·1	− 0·4	− 0·4	− 0·2	0·0	0·0	− 0·4	− 0·23	− 67
8	+ 0·4	− 0·7	− 0·3	+ 0·1	− 0·2	− 0·1	− 0·3	− 0·2	0·0	− 0·2	− 0·15	− 44
9	+ 0·4	− 0·6	− 0·1	+ 0·1	− 0·2	− 0·1	− 0·2	+ 0·1	+ 0·1	− 0·2	− 0·07	− 20
10	+ 0·4	− 0·4	+ 0·1	+ 0·2	0·0	− 0·1	0·0	0·0	+ 0·1	− c·2	+ 0·01	+ 3
11	+ 0·3	− 0·1	+ 0·2	+ 0·2	0·0	+ 0·1	+ 0·2	+ 0·1	0·0	0·0	+ 0·10	+ 29
12	+ 0·3	0·0	+ 0·3	+ 0·3	+ 0·2	+ 0·3	+ 0·2	+ 0·1	− 0·1	+ 0·3	+ 0·19	+ 55
13	+ 0·1	+ 0·2	+ 0·4	+ 0·2	+ 0·2	+ 0·3	+ 0·1	+ 0·2	− 0·1	+ 0·4	+ 0·20	+ 58
14	− 0·2	+ 0·2	+ 0·2	+ 0·1	+ 0·6	+ 0·2	+ 0·1	+ 0·2	− 0·2	+ 0·5	+ 0·17	+ 49
15	− 0·1	0·0	+ 0·1	0·0	+ 0·6	+ 0·5	0·0	0·0	− 0·4	+ 0·5	+ 0·12	+ 35
16	− 0·2	+ 0·1	+ 0·1	+ 0·1	+ 0·4	− 0·1	0·0	− 0·2	− 0·3	+ 0·6	+ 0·05	+ 15
17	− 0·3	+ 0·1	+ 0·1	+ 0·1	+ 0·1	− 0·1	− 0·1	− 0·1	− 0·3	+ 0·4	− 0·01	− 3
18	− 0·3	0·0	0·0	− 0·1	+ 0·1	− 0·3	− 0·2	− 0·2	− 0·2	+ 0·3	− 0·09	− 26
19	− 0·5	+ 0·1	− 0·1	− 0·2	+ 0·1	− 0·2	− 0·2	− 0·2	0·0	+ 0·2	− 0·10	− 29
20	− 0·7	+ 0·1	0·0	0·0	− 0·1	− 0·1	− 0·3	− 0·1	− 0·2	+ 0·3	− 0·11	− 32
21	− 0·7	− 0·2	0·0	0·0	− 0·1	0·0	− 0·2	− 0·1	− 0·1	+ 0·2	− 0·12	− 35
22	− 0·6	0·0	+ 0·1	+ 0·1	− 0·2	+ 0·2	− 0·1	− 0·1	0·0	+ 0·2	− 0·04	− 12
23	− 0·3	+ 0·2	0·0	+ 0·2	0·0	+ 0·2	0·0	+ 0·1	0·0	+ 0·2	+ 0·06	+ 17

REDUCTIONS OF MAGNETIC HORIZONTAL FORCE REFERRED TO THE MOON'S PLACE.

TABLE XX.—MEAN LUNATION-INEQUALITY of the MAGNETIC HORIZONTAL FORCE, exhibited separately for the different Years, with the MEAN for all the YEARS, corrected for the DAILY PROPORTION of SECULAR CHANGE of HORIZONTAL FORCE.

Day of the Lunation.	Mean Lunation-Inequality in each Year.										Mean, 1848 to 1857.	Mean corrected for Secular Change.	Fourth Mean of Successive Numbers.
	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.			
1	−0·0025	+0·0005	0·0000	−0·0004	+0·0002	0·0000	−0·0008	+0·0002	+0·0005	−0·0012	−0·00035	−0·00027	−0·00011
2	− 1	+ 2	+ 2	+ 2	+ 5	− 1	0	− 3	0	+ 1	+ 7	+ 15	+ 1
3	+ 9	− 4	+ 2	+ 1	− 2	− 7	0	− 5	− 2	+ 11	+ 3	+ 10	+ 7
4	− 11	− 1	− 1	+ 6	+ 2	0	+ 1	+ 1	+ 3	− 4	− 4	+ 2	+ 6
5	− 9	− 3	+ 6	+ 1	− 2	+ 2	+ 1	+ 4	+ 1	+ 3	+ 4	+ 10	+ 4
6	− 6	+ 4	+ 4	− 1	− 1	− 4	+ 3	+ 3	− 12	− 2	− 12	− 7	+ 3
7	− 2	− 7	+ 6	+ 7	− 1	+ 2	+ 5	− 2	− 6	+ 3	+ 5	+ 10	+ 5
8	+ 4	− 6	+ 1	+ 4	− 2	+ 2	+ 3	− 10	+ 6	+ 3	+ 5	+ 9	+ 6
9	+ 1	+ 1	+ 2	0	− 2	+ 3	+ 2	+ 1	− 6	− 5	− 3	0	+ 7
10	+ 11	− 1	− 3	+ 4	− 4	+ 8	− 3	+ 2	− 5	+ 3	+ 12	+ 15	+ 8
11	− 5	+ 5	− 8	+ 3	− 2	+ 12	− 2	+ 2	− 3	+ 6	+ 8	+ 10	+ 7
12	+ 6	+ 1	− 7	+ 1	− 2	+ 3	− 2	+ 2	− 8	+ 1	− 5	− 3	+ 2
13	− 7	− 4	+ 1	− 6	+ 2	+ 11	+ 3	− 2	− 11	+ 7	− 6	− 5	+ 1
14	+ 11	0	+ 3	+ 1	+ 1	+ 13	− 1	− 4	− 12	+ 7	+ 19	+ 19	− 3
15	− 21	− 5	+ 11	− 1	− 3	− 1	− 10	+ 3	− 5	+ 1	− 31	− 31	− 13
16	− 5	+ 2	+ 5	− 3	− 3	− 10	− 4	− 1	+ 3	+ 1	− 15	− 16	− 20
17	− 8	+ 6	+ 6	− 3	− 5	− 7	− 9	0	− 4	− 1	− 25	− 26	− 18
18	+ 1	− 3	+ 6	− 5	− 4	− 1	− 10	+ 1	− 3	+ 5	− 13	− 15	− 8
19	+ 18	+ 4	− 3	− 4	+ 2	− 2	− 6	0	+ 10	+ 1	+ 20	+ 17	+ 4
20	+ 8	+ 1	− 2	− 2	− 3	− 9	0	0	+ 8	+ 9	+ 10	+ 7	+ 13
21	− 10	+ 4	+ 1	+ 2	− 3	+ 6	+ 2	+ 10	+ 9	+ 5	+ 26	+ 22	+ 17
22	+ 16	+ 2	− 9	+ 7	0	− 3	+ 6	+ 6	+ 8	− 7	+ 26	+ 22	+ 16
23	+ 12	− 3	− 1	+ 2	+ 3	− 2	− 4	+ 7	+ 5	− 11	+ 8	+ 3	+ 12
24	+ 12	0	− 1	+ 2	+ 5	+ 14	− 5	+ 2	− 8	− 5	+ 16	+ 10	+ 9
25	+ 19	+ 4	− 4	+ 3	− 3	− 7	+ 5	− 3	+ 6	+ 1	+ 21	+ 15	+ 3
26	+ 2	− 1	− 5	− 2	+ 7	− 17	+ 12	− 3	+ 2	0	− 5	− 12	− 11
27	− 10	+ 1	− 14	− 5	+ 1	− 7	+ 10	− 3	− 6	− 1	− 34	− 41	− 22
28	+ 2	+ 2	− 2	− 6	− 1	− 2	+ 6	− 4	− 1	0	− 6	− 14	− 22
29	− 24	− 9	+ 3	+ 5	0	0	+ 4	+ 6	+ 12	− 5	− 8	− 16	− 18

TABLE XXI.—MEAN LUNAR-MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, uncorrected for TEMPERATURE, at every LUNAR HOUR of the LUNAR DAY, obtained by taking the MEAN of all the DETERMINATIONS at the same LUNAR HOUR through each LUNATION.

1848.

Lunar Hour.	Gottingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 6. 0. 43	February. d h m 5. 1. 14	March. d h m 5. 0. 47	April. d h m 4. 1. 16	May. d h m 3. 0. 53	June. d h m 2. 1. 34	July. d h m 1. 1. 15	July. d h m 30. 0. 53	August. d h m 29. 1. 12	September. d h m 28. 1. 21	October. d h m 27. 0. 45	November. d h m 26. 0. 59	December. d h m 26. 1. 20
0	0·1013	0·1013	0·1018	0·1029	0·1058	0·1078	0·0906	0·0930	0·0958	0·0966	0·1004	0·1006	0·1026
1	·1014	·1012	·1016	·1028	·1060	·1077	·0905	·0929	·0959	·0967	·1003	·1007	·1025
2	·1014	·1012	·1015	·1030	·1059	·1078	·0905	·0931	·0960	·0968	·1002	·1007	·1026
3	·1013	·1012	·1016	·1030	·1059	·1080	·0905	·0932	·0961	·0967	·1003	·1007	·1028
4	·1012	·1012	·1014	·1028	·1059	·1079	·0906	·0930	·0961	·0970	·1005	·1006	·1027
5	·1011	·1010	·1013	·1028	·1058	·1078	·0904	·0930	·0960	·0972	·1004	·1006	·1028
6	·1010	·1012	·1012	·1031	·1059	·1078	·0904	·0932	·0961	·0971	·1005	·1005	·1029
7	·1011	·1014	·1011	·1031	·1060	·1079	·0903	·0932	·0958	·0970	·1001	·1006	·1028
8	·1008	·1014	·1013	·1030	·1061	·1080	·0904	·0934	·0958	·0968	·1001	·1007	·1029
9	·1009	·1014	·1016	·1029	·1061	·1080	·0902	·0936	·0959	·0971	·1002	·1006	·1027
10	·1009	·1014	·1015	·1031	·1062	·1079	·0902	·0936	·0960	·0971	·1003	·1006	·1024
11	·1008	·1014	·1016	·1031	·1061	·1079	·0906	·0936	·0962	·0971	·1005	·1006	·1028
12	·1007	·1013	·1016	·1034	·1061	·1082	·0907	·0935	·0963	·0971	·1002	·1005	·1028
13	·1011	·1014	·1018	·1033	·1063	·1080	·0907	·0934	·0964	·0971	·1002	·1005	·1024
14	·1012	·1013	·1020	·1031	·1063	·1078	·0908	·0935	·0963	·0972	·1002	·1004	·1023
15	·1014	·1014	·1019	·1031	·1062	·1080	·0909	·0935	·0964	·0970	·1002	·1003	·1024
16	·1013	·1012	·1019	·1031	·1061	·1079	·0908	·0932	·0964	·0972	·1003	·1004	·1025
17	·1014	·1013	·1018	·1029	·1059	·1077	·0909	·0931	·0962	·0970	·1003	·1002	·1023
18	·1013	·1012	·1018	·1032	·1059	·1078	·0908	·0931	·0961	·0970	·1002	·1003	·1026
19	·1015	·1012	·1015	·1031	·1057	·1076	·0907	·0931	·0960	·0969	·1003	·1001	·1026
20	·1014	·1013	·1013	·1030	·1055	·1077	·0905	·0929	·0959	·0968	·1003	·1002	·1025
21	·1016	·1013	·1016	·1029	·1054	·1077	·0904	·0929	·0957	·0970	·1003	·1001	·1026
22	·1015	·1014	·1015	·1033	·1057	·1078	·0903	·0929	·0957	·0969	·1004	·1000	·1027
23	·1014	·1014	·1014	·1033	·1056	·1078	·0908	·0930	·0958	·0971	·1003	·1003	·1026

1849.

Lunar Hour.	Gottingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 24. 0. 54	February. d h m 23. 1. 15	March. d h m 24. 0. 45	April. d h m 23. 1. 12	May. d h m 22. 0. 52	June. d h m 21. 1. 38	July. d h m 20. 1. 20	August. d h m 18. 0. 57	September. d h m 17. 1. 18	October. d h m 16. 0. 44	November. d h m 15. 0. 58	December. d h m 15. 1. 17
0	0·1026	0·1025	0·1038	0·1013	0·0999	0·1001	0·0997	0·0993	0·1001	0·1001	0·1013	0·1014
1	·1027	·1026	·1038	·1013	·0999	·0999	·0996	·0994	·1003	·1001	·1013	·1016
2	·1029	·1028	·1039	·1015	·1001	·1000	·0997	·0996	·1004	·1002	·1015	·1016
3	·1028	·1027	·1041	·1016	·1001	·1000	·0997	·0996	·1005	·1001	·1015	·1020
4	·1029	·1028	·1041	·1018	·1000	·0999	·0996	·0994	·1003	·1001	·1016	·1018
5	·1028	·1028	·1037	·1018	·1003	·0998	·0994	·0993	·1003	·0999	·1014	·1020
6	·1028	·1027	·1034	·1017	·1002	·0998	·0994	·0991	·1001	·1001	·1014	·1022
7	·1026	·1025	·1036	·1019	·1004	·0997	·0994	·0991	·1001	·1002	·1012	·1023
8	·1027	·1025	·1035	·1017	·1005	·0999	·0993	·0990	·1002	·1003	·1011	·1023
9	·1023	·1026	·1035	·1017	·1005	·1000	·0993	·0991	·1000	·1003	·1013	·1023
10	·1022	·1027	·1033	·1018	·1003	·0998	·0993	·0991	·1002	·1002	·1013	·1025
11	·1022	·1029	·1035	·1017	·1003	·0998	·0995	·0992	·1002	·1001	·1014	·1026
12	·1024	·1028	·1036	·1018	·1002	·0999	·0994	·0993	·1002	·1001	·1014	·1026
13	·1024	·1028	·1034	·1016	·1004	·1000	·0994	·0994	·1002	·1001	·1014	·1027
14	·1025	·1028	·1032	·1014	·1004	·0998	·0994	·0993	·1002	·1001	·1013	·1027
15	·1024	·1026	·1035	·1014	·1003	·0998	·0994	·0995	·1003	·1000	·1013	·1025
16	·1024	·1026	·1036	·1014	·1005	·0999	·0991	·0995	·1003	·1000	·1013	·1021
17	·1024	·1025	·1036	·1013	·1002	·0998	·0992	·0995	·1002	·1000	·1014	·1023
18	·1024	·1024	·1039	·1014	·1000	·0998	·0993	·0994	·1000	·1000	·1012	·1022
19	·1024	·1025	·1036	·1013	·0999	·0999	·0992	·0995	·0999	·1000	·1013	·1022
20	·1024	·1024	·1034	·1012	·0996	·1000	·0992	·0994	·1001	·0999	·1012	·1021
21	·1024	·1025	·1035	·1011	·0997	·0999	·0993	·0992	·1001	·1000	·1011	·1023
22	·1024	·1025	·1037	·1011	·0998	·1001	·0995	·0993	·1002	·1000	·1012	·1023
23	·1026	·1026	·1039	·1012	·0997	·1001	·0995	·0992	·1003	·1002	·1013	·1024

TABLE XXI.—MEAN LUNAR-MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, &c.—*continued.*

1850.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 13. 0. 49	February. d h m 12. 1. 6	March. d h m 14. 1. 19	April. d h m 12. 0. 46	May. d h m 12. 1. 11	June. d h m 10. 0. 52	July. d h m 10. 1. 40	August. d h m 8. 1. 22	September. d h m 6. 0. 57	October. d h m 6. 1. 20	November. d h m 4. 0. 49	December. d h m 4. 1. 12
0	0·1043	0·1025	0·1015	0·1009	0·1011	0·0984	0·0971	0·0967	0·0978	0·0995	0·1005	0·1009
1	·1043	·1026	·1015	·1010	·1012	·0987	·0971	·0966	·0981	·0993	·1005	·1009
2	·1043	·1028	·1016	·1010	·1011	·0987	·0971	·0966	·0979	·0993	·1004	·1009
3	·1042	·1028	·1016	·1012	·1011	·0988	·0970	·0967	·0978	·0994	·1002	·1010
4	·1040	·1026	·1015	·1012	·1011	·0987	·0967	·0966	·0977	·0993	·1002	·1010
5	·1040	·1025	·1016	·1011	·1009	·0985	·0966	·0965	·0976	·0993	·1002	·1008
6	·1041	·1025	·1015	·1012	·1008	·0986	·0963	·0965	·0975	·0993	·1004	·1008
7	·1040	·1024	·1015	·1012	·1007	·0985	·0965	·0966	·0974	·0993	·1005	·1007
8	·1039	·1023	·1016	·1011	·1006	·0984	·0966	·0967	·0974	·0992	·1005	·1007
9	·1041	·1021	·1015	·1012	·1005	·0982	·0965	·0968	·0974	·0993	·1006	·1008
10	·1040	·1024	·1015	·1011	·1005	·0985	·0968	·0970	·0976	·0995	·1006	·1008
11	·1040	·1025	·1017	·1011	·1007	·0984	·0971	·0971	·0976	·0996	·1007	·1009
12	·1041	·1027	·1018	·1010	·1005	·0983	·0972	·0971	·0978	·0996	·1006	·1009
13	·1042	·1027	·1018	·1010	·1004	·0984	·0971	·0971	·0978	·0995	·1006	·1009
14	·1040	·1026	·1017	·1010	·1003	·0982	·0971	·0971	·0980	·0997	·1007	·1007
15	·1040	·1026	·1018	·1009	·1006	·0982	·0969	·0969	·0979	·0996	·1007	·1007
16	·1039	·1028	·1018	·1010	·1004	·0981	·0969	·0969	·0978	·0995	·1008	·1009
17	·1041	·1026	·1018	·1008	·1003	·0980	·0967	·0967	·0977	·0993	·1007	·1007
18	·1041	·1024	·1016	·1008	·1003	·0980	·0966	·0965	·0976	·0993	·1006	·1007
19	·1040	·1023	·1015	·1008	·1006	·0979	·0968	·0964	·0976	·0992	·1007	·1006
20	·1042	·1022	·1015	·1006	·1006	·0978	·0969	·0963	·0979	·0993	·1006	·1007
21	·1042	·1023	·1014	·1006	·1007	·0980	·0970	·0966	·0977	·0994	·1006	·1007
22	·1042	·1021	·1014	·1007	·1007	·0982	·0969	·0964	·0981	·0993	·1005	·1007
23	·1043	·1022	·1015	·1007	·1007	·0983	·0971	·0964	·0979	·0993	·1005	·1007

1851.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 2. 0. 46	February. d h m 1. 1. 7	March. d h m 3. 1. 17	April. d h m 1. 0. 40	May. d h m 1. 0. 49	May. d h m 31. 1. 14	June. d h m 29. 0. 57	July. d h m 28. 0. 41	August. d h m 27. 1. 19	September. d h m 25. 0. 53	October. d h m 25. 1. 18	November. d h m 23. 0. 52	December. d h m 23. 1. 26
0	0·1038	0·1037	0·1037	0·1029	0·1017	0·0994	0·1015	0·1008	0·1022	0·1023	0·1044	0·1064	0·1042
1	·1037	·1037	·1036	·1030	·1018	·0994	·1019	·1009	·1024	·1023	·1045	·1066	·1040
2	·1036	·1038	·1035	·1029	·1019	·0993	·1019	·1009	·1024	·1024	·1045	·1066	·1040
3	·1036	·1038	·1033	·1029	·1020	·0991	·1018	·1009	·1024	·1024	·1045	·1064	·1041
4	·1035	·1038	·1035	·1027	·1021	·0987	·1018	·1008	·1022	·1024	·1044	·1064	·1041
5	·1035	·1038	·1035	·1028	·1021	·0983	·1015	·1009	·1021	·1024	·1046	·1064	·1040
6	·1035	·1038	·1034	·1027	·1021	·0982	·1013	·1008	·1019	·1024	·1045	·1064	·1038
7	·1034	·1036	·1033	·1029	·1021	·0982	·1013	·1006	·1019	·1025	·1046	·1064	·1038
8	·1033	·1038	·1034	·1029	·1023	·0982	·1013	·1006	·1020	·1026	·1046	·1064	·1036
9	·1035	·1039	·1034	·1027	·1022	·0983	·1015	·1003	·1020	·1022	·1044	·1064	·1039
10	·1035	·1039	·1035	·1028	·1024	·0983	·1015	·1004	·1019	·1024	·1044	·1065	·1041
11	·1035	·1040	·1034	·1028	·1022	·0984	·1016	·1006	·1021	·1023	·1045	·1065	·1043
12	·1035	·1042	·1037	·1030	·1021	·0987	·1016	·1004	·1021	·1023	·1045	·1067	·1042
13	·1035	·1042	·1036	·1030	·1020	·0990	·1017	·1007	·1021	·1024	·1045	·1066	·1043
14	·1036	·1043	·1037	·1032	·1019	·0990	·1017	·1009	·1020	·1022	·1044	·1066	·1043
15	·1036	·1040	·1037	·1028	·1020	·0991	·1016	·1009	·1019	·1022	·1044	·1066	·1043
16	·1035	·1040	·1036	·1029	·1021	·0987	·1015	·1008	·1017	·1021	·1043	·1065	·1043
17	·1037	·1041	·1035	·1029	·1021	·0989	·1015	·1009	·1016	·1021	·1044	·1066	·1045
18	·1037	·1039	·1034	·1029	·1020	·0989	·1015	·1008	·1017	·1023	·1044	·1065	·1045
19	·1040	·1038	·1034	·1029	·1019	·0990	·1014	·1007	·1018	·1022	·1042	·1065	·1043
20	·1040	·1039	·1034	·1028	·1018	·0991	·1017	·1007	·1019	·1022	·1043	·1062	·1042
21	·1041	·1038	·1034	·1029	·1017	·0992	·1015	·1007	·1020	·1022	·1044	·1066	·1043
22	·1042	·1039	·1035	·1029	·1016	·0992	·1015	·1009	·1022	·1022	·1043	·1066	·1045
23	·1041	·1037	·1036	·1030	·1015	·0993	·1016	·1009	·1022	·1024	·1045	·1064	·1043

TABLE XXI.—MEAN LUNAR-MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, &c.—*continued.*

1852.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 21. 1. 3	February. d h m 20. 1. 21	March. d h m 20. 0. 44	April. d h m 19. 0. 46	May. d h m 19. 0. 56	June. d h m 18. 1. 24	July. d h m 17. 1. 6	August. d h m 15. 0. 45	September. d h m 14. 1. 13	October. d h m 13. 0. 44	November. d h m 12. 1. 15	December. d h m 11. 0. 56
0	0·1005	0·1008	0·1007	0·0980	0·1007	0·1000	0·0997	0·1003	0·1020	0·1025	0·1036	0·1027
1	·1008	·1010	·1007	·0982	·1007	·0999	·0998	·1001	·1023	·1023	·1037	·1025
2	·1008	·1010	·1009	·0982	·1006	·0997	·0998	·1002	·1018	·1023	·1035	·1028
3	·1010	·1009	·1007	·0980	·1005	·0995	·0998	·1005	·1019	·1025	·1037	·1031
4	·1006	·1009	·1003	·0975	·1005	·0996	·0997	·1002	·1016	·1023	·1037	·1031
5	·1006	·1011	·1005	·0974	·1007	·0993	·0996	·1006	·1016	·1024	·1037	·1030
6	·1005	·1010	·1004	·0975	·1008	·0992	·0997	·1004	·1015	·1024	·1037	·1032
7	·1005	·1010	·1001	·0975	·1007	·0993	·0997	·1005	·1017	·1024	·1035	·1033
8	·1007	·1008	·1002	·0976	·1006	·0994	·0997	·1003	·1017	·1024	·1034	·1035
9	·1007	·1009	·1002	·0975	·1004	·0992	·0998	·1002	·1017	·1025	·1036	·1037
10	·1008	·1008	·1005	·0977	·1005	·0992	·0999	·1002	·1018	·1024	·1036	·1037
11	·1010	·1011	·1004	·0977	·1005	·0993	·0998	·1001	·1019	·1025	·1034	·1037
12	·1012	·1012	·1005	·0975	·1005	·0993	·1000	·1002	·1019	·1024	·1036	·1036
13	·1012	·1012	·1005	·0975	·1004	·0992	·0998	·1003	·1021	·1024	·1034	·1035
14	·1010	·1015	·1005	·0977	·1005	·0992	·0999	·1002	·1020	·1023	·1035	·1035
15	·1009	·1014	·1004	·0978	·1005	·0991	·0999	·1001	·1020	·1024	·1035	·1034
16	·1010	·1014	·1005	·0979	·1007	·0990	·0998	·0999	·1020	·1024	·1035	·1033
17	·1007	·1012	·1008	·0980	·1006	·0989	·0998	·0998	·1020	·1026	·1036	·1031
18	·1006	·1010	·1008	·0981	·1007	·0989	·0995	·0999	·1018	·1024	·1035	·1031
19	·1006	·1011	·1005	·0982	·1007	·0992	·0996	·0999	·1019	·1025	·1035	·1026
20	·1008	·1012	·1007	·0979	·1007	·0993	·0995	·1001	·1020	·1027	·1033	·1026
21	·1010	·1011	·1005	·0980	·1008	·0993	·0996	·0999	·1020	·1026	·1034	·1027
22	·1011	·1010	·1005	·0981	·1009	·0995	·0995	·1002	·1022	·1024	·1036	·1025
23	·1009	·1008	·1005	·0982	·1008	·0996	·0997	·1003	·1020	·1025	·1036	·1028

1853.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 10. 1. 39	February. d h m 8. 1. 14	March. d h m 9. 0. 44	April. d h m 8. 0. 49	May. d h m 8. 0. 54	June. d h m 7. 1. 11	July. d h m 6. 0. 48	August. d h m 5. 1. 16	September. d h m 3. 0. 48	October. d h m 3. 1. 5	November. d h m 2. 1. 31	December. d h m 1. 1. 13	December. d h m 30. 1. 0
0	0·1012	0·1001	0·1000	0·1029	0·1033	0·1042	0·1020	0·1026	0·1024	0·1044	0·1065	0·1074	0·1027
1	·1012	·1002	·1001	·1031	·1038	·1041	·1020	·1027	·1025	·1044	·1066	·1075	·1028
2	·1013	·1003	·0998	·1028	·1038	·1039	·1019	·1026	·1027	·1043	·1066	·1075	·1030
3	·1011	·1002	·0997	·1029	·1038	·1040	·1019	·1025	·1027	·1043	·1066	·1074	·1029
4	·1012	·1002	·0999	·1027	·1039	·1040	·1017	·1026	·1025	·1042	·1067	·1075	·1029
5	·1011	·1001	·1001	·1026	·1039	·1040	·1016	·1026	·1025	·1042	·1066	·1075	·1027
6	·1012	·1003	·0998	·1024	·1042	·1041	·1014	·1025	·1024	·1040	·1066	·1075	·1026
7	·1012	·1003	·0999	·1023	·1044	·1043	·1016	·1025	·1025	·1040	·1064	·1075	·1026
8	·1010	·1002	·0997	·1024	·1046	·1043	·1016	·1026	·1026	·1039	·1064	·1075	·1025
9	·1011	·1001	·0995	·1023	·1046	·1044	·1018	·1025	·1026	·1038	·1064	·1075	·1023
10	·1012	·0999	·0999	·1024	·1048	·1045	·1018	·1026	·1027	·1039	·1063	·1076	·1021
11	·1011	·1000	·0996	·1025	·1046	·1044	·1014	·1024	·1028	·1040	·1064	·1075	·1023
12	·1012	·1001	·0992	·1025	·1046	·1045	·1016	·1028	·1026	·1039	·1063	·1074	·1021
13	·1012	·1001	·0904	·1027	·1046	·1045	·1016	·1026	·1027	·1039	·1063	·1076	·1021
14	·1013	·1002	·0996	·1029	·1046	·1045	·1016	·1027	·1028	·1041	·1063	·1075	·1021
15	·1014	·0999	·0996	·1026	·1045	·1044	·1018	·1028	·1027	·1041	·1064	·1076	·1022
16	·1011	·0999	·0995	·1025	·1042	·1042	·1017	·1024	·1024	·1041	·1064	·1075	·1023
17	·1012	·0999	·0994	·1026	·1041	·1042	·1017	·1025	·1021	·1041	·1063	·1075	·1021
18	·1012	·0999	·0992	·1025	·1040	·1045	·1017	·1025	·1022	·1041	·1064	·1077	·1022
19	·1011	·0999	·0996	·1027	·1038	·1042	·1018	·1026	·1021	·1041	·1064	·1078	·1023
20	·1011	·0998	·0994	·1026	·1037	·1042	·1017	·1026	·1019	·1040	·1066	·1078	·1024
21	·1010	·0998	·0995	·1026	·1039	·1040	·1017	·1028	·1020	·1040	·1066	·1076	·1026
22	·1009	·0999	·0999	·1026	·1038	·1040	·1015	·1024	·1020	·1042	·1068	·1075	·1028
23	·1010	·0999	·0999	·1028	·1037	·1041	·1016	·1025	·1023	·1042	·1068	·1077	·1028

TABLE XXI.—MEAN LUNAR-MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, &c.—*continued.*

1854.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 28. 0. 46	February. d h m 27. 1. 17	March. d h m 28. 0. 43	April. d h m 27. 0. 51	May. d h m 27. 1. 7	June. d h m 25. 0. 43	July. d h m 25. 1. 9	August. d h m 24. 1. 23	September. d h m 22. 0. 57	October. d h m 22. 0. 57	November. d h m 21. 1. 28	December. d h m 20. 1. 16
0	0·1026	0·1046	0·1032	0·1012	0·1013	0·1017	0·1020	0·1011	0·1041	0·1061	0·1080	0·1057
1	·1027	·1049	·1035	·1012	·1012	·1020	·1021	·1014	·1042	·1062	·1080	·1056
2	·1027	·1047	·1036	·1012	·1013	·1017	·1021	·1014	·1043	·1061	·1080	·1056
3	·1026	·1048	·1037	·1014	·1012	·1015	·1020	·1012	·1042	·1062	·1082	·1055
4	·1027	·1047	·1037	·1013	·1011	·1014	·1019	·1014	·1043	·1061	·1082	·1056
5	·1027	·1049	·1036	·1013	·1011	·1013	·1017	·1012	·1043	·1061	·1081	·1056
6	·1026	·1047	·1036	·1014	·1009	·1010	·1018	·1012	·1043	·1061	·1084	·1056
7	·1028	·1048	·1033	·1015	·1009	·1010	·1016	·1013	·1041	·1061	·1081	·1057
8	·1028	·1050	·1032	·1013	·1010	·1014	·1016	·1015	·1040	·1062	·1081	·1057
9	·1025	·1048	·1033	·1012	·1012	·1013	·1018	·1015	·1042	·1061	·1082	·1058
10	·1024	·1048	·1035	·1013	·1013	·1014	·1018	·1015	·1041	·1060	·1083	·1058
11	·1025	·1049	·1036	·1013	·1014	·1015	·1018	·1017	·1042	·1061	·1082	·1057
12	·1024	·1050	·1036	·1013	·1014	·1015	·1019	·1017	·1044	·1061	·1081	·1057
13	·1027	·1049	·1035	·1011	·1015	·1015	·1020	·1017	·1045	·1062	·1081	·1059
14	·1027	·1051	·1036	·1011	·1016	·1015	·1021	·1015	·1045	·1062	·1081	·1058
15	·1027	·1050	·1033	·1010	·1014	·1016	·1021	·1012	·1043	·1062	·1080	·1056
16	·1026	·1051	·1035	·1010	·1013	·1016	·1022	·1012	·1043	·1062	·1080	·1056
17	·1023	·1051	·1034	·1010	·1013	·1015	·1022	·1010	·1042	·1062	·1079	·1056
18	·1021	·1049	·1033	·1010	·1012	·1016	·1021	·1010	·1043	·1062	·1079	·1056
19	·1023	·1046	·1031	·1010	·1012	·1016	·1024	·1011	·1040	·1061	·1079	·1056
20	·1022	·1045	·1032	·1011	·1012	·1016	·1023	·1011	·1041	·1061	·1077	·1055
21	·1027	·1043	·1031	·1012	·1013	·1017	·1022	·1011	·1041	·1060	·1077	·1055
22	·1027	·1043	·1034	·1011	·1013	·1016	·1024	·1010	·1040	·1061	·1077	·1056
23	·1026	·1043	·1032	·1012	·1014	·1016	·1023	·1012	·1041	·1060	·1078	·1058

1855.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 18. 1. 5	February. d h m 16. 0. 46	March. d h m 18. 1. 10	April. d h m 17. 1. 25	May. d h m 16. 0. 56	June. d h m 15. 1. 27	July. d h m 14. 1. 6	August. d h m 13. 1. 23	September. d h m 11. 0. 45	October. d h m 11. 0. 44	November. d h m 10. 0. 56	December. d h m 10. 1. 35
0	0·1060	0·1019	0·1024	0·1011	0·1012	0·1027	0·1012	0·1012	0·1012	0·1020	0·1012	0·1008
1	·1061	·1022	·1025	·1009	·1013	·1025	·1014	·1012	·1012	·1018	·1011	·1010
2	·1061	·1021	·1025	·1008	·1011	·1026	·1013	·1015	·1012	·1017	·1012	·1011
3	·1062	·1022	·1025	·1011	·1012	·1028	·1011	·1014	·1014	·1019	·1012	·1013
4	·1062	·1023	·1024	·1011	·1012	·1030	·1013	·1016	·1011	·1018	·1011	·1013
5	·1062	·1023	·1025	·1011	·1015	·1028	·1013	·1018	·1010	·1017	·1011	·1014
6	·1063	·1021	·1026	·1011	·1011	·1028	·1012	·1014	·1010	·1020	·1012	·1013
7	·1063	·1020	·1024	·1011	·1009	·1029	·1010	·1011	·1008	·1018	·1012	·1014
8	·1063	·1020	·1027	·1012	·1010	·1028	·1008	·1012	·1010	·1017	·1011	·1013
9	·1063	·1019	·1027	·1011	·1012	·1025	·1010	·1010	·1010	·1017	·1010	·1014
10	·1062	·1023	·1027	·1012	·1011	·1026	·1010	·1009	·1008	·1018	·1011	·1012
11	·1062	·1022	·1027	·1012	·1015	·1029	·1011	·1010	·1009	·1020	·1010	·1012
12	·1062	·1023	·1027	·1012	·1015	·1027	·1008	·1009	·1009	·1019	·1010	·1012
13	·1059	·1021	·1028	·1012	·1015	·1025	·1011	·1009	·1010	·1019	·1010	·1012
14	·1059	·1023	·1027	·1014	·1018	·1026	·1014	·1011	·1009	·1020	·1009	·1013
15	·1060	·1021	·1027	·1013	·1016	·1024	·1013	·1010	·1009	·1018	·1009	·1011
16	·1059	·1022	·1028	·1014	·1017	·1024	·1014	·1010	·1010	·1020	·1010	·1012
17	·1057	·1021	·1026	·1013	·1014	·1023	·1015	·1009	·1010	·1019	·1009	·1011
18	·1057	·1020	·1027	·1011	·1015	·1024	·1014	·1010	·1010	·1021	·1009	·1010
19	·1056	·1019	·1026	·1010	·1014	·1022	·1013	·1011	·1011	·1020	·1008	·1009
20	·1055	·1019	·1025	·1009	·1015	·1026	·1014	·1008	·1012	·1020	·1009	·1009
21	·1055	·1019	·1023	·1008	·1015	·1026	·1015	·1007	·1011	·1020	·1010	·1008
22	·1058	·1020	·1021	·1008	·1015	·1025	·1013	·1008	·1011	·1020	·1010	·1009
23	·1058	·1019	·1025	·1011	·1013	·1025	·1015	·1011	·1013	·1020	·1012	·1008

TABLE XXI.—MEAN LUNAR-MONTHLY DETERMINATION of the HORIZONTAL MAGNETIC FORCE, &c.—*concluded.*

1856.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 8. 1. 53	February. d h m 6. 1. 5	March. d h m 7. 1. 31	April. d h m 5. 0. 57	May. d h m 5. 1. 26	June. d h m 3. 1. 6	July. d h m 2. 0. 52	August. d h m 1. 1. 22	August. d h m 30. 0. 47	September. d h m 29. 0. 46	October. d h m 29. 0. 46	November. d h m 28. 1. 8	December. d h m 27. 0. 50
0	0·1025	0·1028	0·1022	0·1038	0·1043	0·1037	0·1028	0·1025	0·1026	0·1099	0·1072	0·1083	0·1080
1	·1026	·1029	·1023	·1040	·1044	·1036	·1028	·1026	·1027	·1096	·1073	·1082	·1082
2	·1026	·1029	·1023	·1039	·1043	·1038	·1029	·1029	·1027	·1095	·1073	·1082	·1082
3	·1026	·1029	·1022	·1039	·1042	·1042	·1027	·1029	·1026	·1095	·1072	·1083	·1081
4	·1027	·1031	·1022	·1040	·1039	·1035	·1027	·1029	·1028	·1092	·1073	·1081	·1079
5	·1027	·1030	·1022	·1038	·1035	·1029	·1026	·1030	·1030	·1092	·1071	·1079	·1080
6	·1028	·1031	·1021	·1040	·1039	·1030	·1025	·1030	·1033	·1090	·1071	·1079	·1077
7	·1025	·1030	·1020	·1037	·1038	·1028	·1026	·1032	·1033	·1089	·1071	·1078	·1075
8	·1025	·1032	·1019	·1037	·1038	·1030	·1026	·1034	·1033	·1086	·1072	·1080	·1074
9	·1025	·1031	·1019	·1036	·1040	·1031	·1026	·1033	·1037	·1088	·1073	·1081	·1075
10	·1026	·1029	·1020	·1035	·1040	·1033	·1026	·1033	·1040	·1090	·1072	·1082	·1075
11	·1026	·1029	·1020	·1034	·1041	·1033	·1028	·1036	·1039	·1090	·1073	·1081	·1077
12	·1027	·1029	·1020	·1034	·1041	·1035	·1029	·1036	·1037	·1094	·1072	·1082	·1077
13	·1027	·1029	·1021	·1037	·1040	·1038	·1030	·1036	·1039	·1094	·1072	·1082	·1076
14	·1027	·1030	·1019	·1037	·1040	·1040	·1030	·1035	·1037	·1094	·1072	·1082	·1076
15	·1028	·1031	·1020	·1037	·1040	·1040	·1032	·1036	·1037	·1094	·1072	·1083	·1075
16	·1026	·1031	·1019	·1036	·1039	·1039	·1031	·1036	·1033	·1096	·1075	·1083	·1074
17	·1026	·1029	·1020	·1036	·1040	·1039	·1032	·1033	·1033	·1096	·1074	·1081	·1075
18	·1026	·1029	·1021	·1036	·1040	·1037	·1032	·1030	·1027	·1097	·1072	·1081	·1075
19	·1027	·1030	·1020	·1036	·1042	·1034	·1031	·1030	·1023	·1098	·1069	·1083	·1077
20	·1027	·1029	·1020	·1036	·1040	·1032	·1031	·1028	·1024	·1097	·1073	·1080	·1079
21	·1027	·1027	·1020	·1035	·1043	·1036	·1030	·1029	·1025	·1097	·1073	·1080	·1080
22	·1029	·1027	·1019	·1035	·1042	·1036	·1030	·1030	·1027	·1097	·1072	·1081	·1080
23	·1029	·1028	·1020	·1037	·1043	·1037	·1030	·1028	·1028	·1096	·1073	·1080	·1080

1857.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 26. 1. 27	February. d h m 24. 0. 58	March. d h m 26. 1. 15	April. d h m 24. 0. 46	May. d h m 24. 1. 30	June. d h m 22. 1. 20	July. d h m 21. 1. 4	August. d h m 20. 1. 25	S ptember. d h m 18. 0. 45	October. d h m 18. 0. 46	November. d h m 17. 1. 0	December. d h m 17. 1. 29
0	0·1113	0·1118	0·1112	0·1078	0·1088	0·1080	0·1078	0·1081	0·1109	0·1132	0·1149	0·1132
1	·1114	·1119	·1113	·1080	·1087	·1081	·1079	·1082	·1108	·1132	·1147	·1135
2	·1113	·1119	·1111	·1079	·1085	·1081	·1080	·1083	·1107	·1130	·1148	·1137
3	·1113	·1118	·1113	·1080	·1083	·1081	·1079	·1082	·1106	·1130	·1149	·1135
4	·1114	·1118	·1110	·1081	·1082	·1079	·1080	·1082	·1107	·1130	·1150	·1137
5	·1113	·1118	·1108	·1082	·1078	·1078	·1079	·1083	·1106	·1130	·1150	·1138
6	·1114	·1116	·1106	·1084	·1079	·1078	·1081	·1084	·1107	·1130	·1150	·1137
7	·1111	·1116	·1106	·1080	·1077	·1078	·1081	·1086	·1106	·1131	·1149	·1139
8	·1110	·1116	·1104	·1083	·1078	·1078	·1079	·1087	·1106	·1132	·1150	·1143
9	·1110	·1116	·1104	·1080	·1078	·1078	1081	·1086	·1106	·1134	·1150	·1142
10	·1111	·1117	·1103	·1077	·1078	·1077	·1081	·1089	·1108	·1135	·1149	·1142
11	·1111	·1117	·1104	·1078	·1077	·1080	·1082	·1089	·1109	·1137	·1152	·1142
12	·1112	·1118	·1105	·1079	·1076	·1079	·1084	·1088	·1109	·1137	·1153	·1144
13	·1112	·1118	·1106	·1080	·1077	·1079	·1084	·1085	·1109	·1137	·1152	·1143
14	·1112	·1119	·1107	·1080	·1078	·1079	·1083	·1088	·1108	·1133	·1151	·1140
15	·1112	·1119	·1107	·1079	·1078	·1080	·1084	·1088	·1107	·1133	·1151	·1140
16	·1114	·1120	·1106	·1078	·1081	·1080	·1083	·1086	·1106	·1132	·1150	·1139
17	·1115	·1121	·1106	·1079	·1082	·1081	·1082	·1085	·1106	·1132	·1151	·1137
18	·1114	·1121	·1106	·1079	·1083	·1080	·1082	·1084	·1106	·1131	·1149	·1136
19	·1113	·1120	·1107	·1079	·1084	·1081	·1082	·1084	·1107	·1131	·1148	·1132
20	·1114	·1118	·1108	·1077	·1085	·1079	·1080	·1084	·1105	·1132	·1148	·1132
21	·1115	·1118	·1108	·1078	·1086	·1080	·1079	·1081	·1106	·1131	·1147	·1128
22	·1114	·1118	·1109	·1079	·1087	·1080	·1079	·1080	·1106	·1131	·1147	·1129
23	·1113	·1118	·1111	·1080	·1087	·1081	·1081	·1081	·1109	·1134	·1148	·1131

TABLE XXII.—MEAN, through the RANGE of LUNATIONS, of the LUNATION-MEAN DETERMINATIONS of the LUNO-DIURNAL INEQUALITY of HORIZONTAL FORCE; exhibited separately for the different Years; with the Mean for all the Years.

Lunar Hour.	Mean Luno-Diurnal Inequality in each Year.										Mean 1848 to 1857.
	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	
0	−0·00004	−0·00005	+0·00008	+0·00005	+0·00005	+0·00007	−0·00003	−0·00002	+0·00001	+0·00001	+0·0000013
1	− 6	− 2	+ 13	+ 12	+ 9	+ 14	+ 8	+ 1	+ 5	+ 7	+ 62
2	− 2	+ 12	+ 13	+ 11	+ 6	+ 11	+ 6	+ 1	+ 8	+ 3	+ 69
3	+ 2	+ 17	+ 13	+ 7	+ 10	+ 8	+ 4	+ 10	+ 6	0	+ 77
4	− 1	+ 13	+ 3	+ 1	− 8	+ 5	+ 3	+ 11	− 5	+ 1	+ 23
5	− 6	+ 7	− 5	− 3	− 3	+ 5	− 1	+ 13	− 12	− 5	− 10
6	− 1	+ 2	− 6	− 12	− 5	− 2	− 3	+ 8	− 9	− 2	− 30
7	− 5	+ 3	− 8	− 13	− 6	− 1	− 7	− 2	− 18	− 7	− 64
8	− 2	+ 3	− 10	− 10	− 5	− 1	− 2	0	− 15	− 2	− 44
9	+ 2	+ 2	− 10	− 12	− 4	0	− 1	− 2	− 8	− 3	− 36
10	+ 2	+ 2	+ 1	− 5	+ 2	+ 3	+ 2	− 2	− 3	− 2	0
11	+ 10	+ 6	+ 10	− 1	+ 4	− 2	+ 7	+ 7	+ 2	+ 8	+ 51
12	+ 11	+ 8	+ 12	+ 5	+ 8	− 4	+ 9	+ 2	+ 6	+ 12	+ 69
13	+ 12	+ 9	+ 11	+ 10	+ 5	− 1	+ 13	0	+ 12	+ 11	+ 82
14	+ 11	+ 3	+ 8	+ 12	+ 8	+ 7	+ 15	+ 10	+ 11	+ 8	+ 93
15	+ 13	+ 3	+ 5	+ 6	+ 4	+ 5	+ 3	0	+ 15	+ 8	+ 62
16	+ 10	0	+ 4	− 2	+ 4	− 9	+ 5	+ 8	+ 10	+ 5	+ 35
17	0	− 3	− 7	+ 4	+ 2	− 12	− 2	− 3	+ 7	+ 7	− 7
18	+ 2	− 6	− 16	+ 2	− 5	− 10	− 7	− 2	− 2	+ 2	− 42
19	− 5	− 8	− 15	− 2	− 5	− 3	− 9	− 10	− 4	− 1	− 62
20	− 13	− 15	− 13	− 1	− 1	− 8	− 12	− 8	− 7	− 6	− 84
21	− 12	− 13	− 8	+ 3	+ 1	− 5	− 9	− 12	− 2	− 10	− 67
22	− 7	− 5	− 8	+ 9	+ 2	− 4	− 7	− 11	0	− 8	− 39
23	− 2	+ 3	− 5	+ 9	+ 7	+ 6	− 4	− 1	+ 3	+ 4	+ 20

REDUCTIONS OF MAGNETIC VERTICAL FORCE REFERRED TO THE MOON'S PLACE.

TABLE XXIII.—MEAN LUNATION-INEQUALITY of the MAGNETIC VERTICAL FORCE, exhibited separately for the different Years, with the Mean for all the Years.

Day of the Lunation.	Mean Lunation-Inequality in each Year.									Mean 1849 to 1857.
	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	
1	− 0·0002	+ 0·0001	+ 0·0004	+ 0·0005	0·0000	− 0·0008	− 0·0005	0·0000	+ 0·0002	− 0·00003
2	− 20	0	+ 1	+ 1	− 4	− 7	− 9	− 24	− 5	− 74
3	+ 4	− 3	+ 1	+ 6	+ 6	− 2	+ 2	− 1	− 13	0
4	− 11	0	0	+ 4	+ 7	0	+ 7	− 6	− 7	− 7
5	− 5	+ 6	− 5	+ 4	+ 1	− 10	− 13	− 5	− 3	− 33
6	− 24	− 10	− 2	− 9	+ 5	− 2	− 7	+ 3	− 7	− 59
7	0	+ 5	− 6	0	0	− 6	+ 4	0	+ 5	+ 2
8	0	0	+ 1	+ 3	+ 7	− 6	− 7	+ 4	+ 11	+ 14
9	− 5	− 2	− 4	− 5	+ 9	− 5	0	− 8	− 4	− 27
10	+ 8	− 5	− 6	+ 6	+ 10	− 7	− 5	− 6	− 10	− 17
11	+ 4	+ 1	+ 2	+ 1	− 13	− 3	− 10	+ 14	− 8	− 13
12	+ 13	− 3	− 5	+ 11	− 6	− 9	0	+ 1	− 4	− 2
13	− 2	+ 1	− 4	+ 14	+ 3	− 2	− 2	− 17	− 6	− 17
14	+ 5	+ 4	− 3	0	− 14	0	+ 1	+ 9	− 5	− 3
15	− 6	− 12	+ 5	− 1	+ 1	+ 1	+ 9	− 2	+ 15	+ 11
16	+ 7	− 3	+ 4	+ 2	+ 2	+ 2	0	+ 1	− 7	+ 9
17	+ 8	+ 3	+ 3	+ 1	− 3	− 6	− 4	− 4	− 7	− 10
18	+ 8	− 6	+ 6	− 4	+ 14	− 3	+ 6	+ 12	0	+ 37
19	+ 10	0	+ 1	− 3	+ 7	+ 4	+ 4	+ 16	0	+ 43
20	− 1	+ 1	+ 10	− 10	+ 3	+ 9	+ 12	− 3	+ 2	+ 26
21	+ 3	− 1	+ 11	− 1	− 1	+ 18	+ 16	− 6	+ 19	+ 78
22	− 5	+ 4	− 4	− 5	− 15	− 3	+ 3	+ 10	− 7	− 24
23	− 3	0	− 5	+ 2	− 1	+ 3	− 9	+ 13	+ 35	+ 17
24	− 5	+ 1	− 1	− 4	− 9	+ 7	− 16	− 8	+ 32	+ 3
25	0	+ 2	+ 1	− 2	− 18	+ 8	− 1	− 11	+ 1	− 22
26	+ 12	0	− 3	− 10	− 4	+ 8	+ 14	+ 2	− 1	+ 20
27	+ 5	+ 9	+ 4	− 20	− 1	+ 5	− 3	+ 5	− 4	+ 7
28	− 10	+ 5	− 2	− 13	+ 11	+ 1	+ 1	− 1	0	− 9
29	+ 7	− 3	0	+ 29	+ 16	− 1	+ 16	+ 4	+ 1	+ 68

TABLE XXIV.—MEAN LUNAR-MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE, uncorrected for Temperature, at every Lunar Hour of the Lunar Day, obtained by taking the Mean of all the Determinations at the same Lunar Hour through each Lunation.

1849.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 24. 0. 54	February. d h m 23. 1. 15	March. d h m 24. 0. 45	April. d h m 23. 1. 12	May. d h m 22. 0. 52	June. d h m 21. 1. 38	July. d h m 20. 1. 20	August. d h m 18. 0. 57	September. d h m 17. 1. 18	October. d h m 16. 0. 44	November. d h m 15. 0. 58	December. d h m 15. 1. 17
0	0·0260	0·0231	0·0208	0·0257	0·0258	0·0239	0·0206	0·0216	0·0243	0·0273	0·0269	0·0229
1	·0259	·0233	·0207	·0259	·0259	·0238	·0207	·0215	·0242	·0276	·0269	·0230
2	·0259	·0233	·0204	·0261	·0257	·0237	·0208	·0214	·0240	·0277	·0264	·0230
3	·0259	·0230	·0208	·0264	·0257	·0237	·0210	·0213	·0242	·0276	·0265	·0229
4	·0260	·0229	·0207	·0261	·0257	·0236	·0213	·0214	·0242	·0278	·0264	·0228
5	·0259	·0228	·0211	·0262	·0258	·0236	·0213	·0214	·0241	·0278	·0265	·0227
6	·0259	·0228	·0211	·0257	·0261	·0237	·0213	·0215	·0241	·0277	·0267	·0229
7	·0259	·0228	·0211	·0260	·0258	·0239	·0214	·0216	·0241	·0275	·0265	·0228
8	·0257	·0229	·0212	·0260	·0257	·0240	·0212	·0216	·0244	·0274	·0265	·0228
9	·0257	·0229	·0210	·0256	·0256	·0241	·0210	·0215	·0243	·0273	·0264	·0225
10	·0258	·0229	·0211	·0251	·0258	·0241	·0208	·0215	·0244	·0273	·0265	·0223
11	·0256	·0229	·0209	·0251	·0258	·0241	·0206	·0213	·0244	·0273	·0265	·0222
12	·0255	·0228	·0206	·0248	·0256	·0241	·0204	·0212	·0245	·0272	·0266	·0215
13	·0255	·0228	·0210	·0249	·0255	·0240	·0203	·0212	·0246	·0272	·0267	·0215
14	·0254	·0227	·0211	·0248	·0254	·0239	·0203	·0212	·0247	·0272	·0268	·0214
15	·0255	·0227	·0212	·0246	·0254	·0239	·0202	·0213	·0249	·0272	·0270	·0214
16	·0255	·0229	·0216	·0248	·0254	·0239	·0202	·0213	·0249	·0271	·0271	·0215
17	·0255	·0229	·0215	·0249	·0253	·0239	·0202	·0214	·0248	·0271	·0273	·0217
18	·0254	·0227	·0215	·0247	·0251	·0241	·0203	·0214	·0248	·0269	·0274	·0223
19	·0252	·0223	·0213	·0250	·0251	·0241	·0203	·0214	·0248	·0270	·0273	·0225
20	·0252	·0223	·0206	·0252	·0250	·0240	·0206	·0214	·0249	·0270	·0273	·0228
21	·0254	·0227	·0206	·0255	·0252	·0238	·0207	·0215	·0249	·0269	·0270	·0232
22	·0254	·0227	·0205	·0257	·0254	·0236	·0209	·0216	·0248	·0270	·0269	·0234
23	·0257	·0229	·0211	·0261	·0254	·0235	·0211	·0217	·0247	·0271	·0268	·0236

1850.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 13. 0. 49	February. d h m 12. 1. 6	March. d h m 14. 1. 19	April. d h m 12. 0. 46	May. d h m 12. 1. 11	June. d h m 10. 0. 52	July. d h m 10. 1. 40	August. d h m 8. 1. 22	September. d h m 6. 0. 57	October. d h m 6. 1. 20	November. d h m 4. 0. 49	December. d h m 4. 1. 12
0	0·0237	0·0237	0·0226	0·0224	0·0217	0·0215	0·0237	0·0236	0·0225	0·0217	0·0224	0·0226
1	·0236	·0238	·0227	·0225	·0217	·0218	·0238	·0236	·0224	·0217	·0225	·0226
2	·0235	·0237	·0229	·0225	·0217	·0215	·0239	·0237	·0222	·0217	·0225	·0226
3	·0233	·0235	·0230	·0226	·0217	·0215	·0238	·0236	·0222	·0217	·0225	·0226
4	·0233	·0234	·0231	·0225	·0218	·0215	·0238	·0237	·0221	·0219	·0226	·0226
5	·0233	·0233	·0231	·0226	·0219	·0214	·0239	·0237	·0221	·0221	·0225	·0227
6	·0231	·0233	·0230	·0225	·0217	·0213	·0240	·0238	·0223	·0223	·0224	·0229
7	·0229	·0233	·0229	·0226	·0214	·0212	·0239	·0239	·0222	·0224	·0224	·0230
8	·0230	·0231	·0229	·0226	·0214	·0212	·0239	·0239	·0224	·0225	·0224	·0231
9	·0230	·0230	·0227	·0225	·0215	·0211	·0239	·0237	·0226	·0226	·0224	·0233
10	·0229	·0230	·0226	·0223	·0215	·0212	·0240	·0237	·0227	·0226	·0224	·0234
11	·0229	·0229	·0227	·0223	·0216	·0212	·0241	·0236	·0229	·0226	·0224	·0234
12	·0230	·0230	·0227	·0222	·0217	·0210	·0241	·0237	·0232	·0225	·0224	·0236
13	·0233	·0230	·0227	·0222	·0212	·0210	·0241	·0235	·0232	·0224	·0224	·0237
14	·0233	·0231	·0227	·0222	·0214	·0210	·0241	·0234	·0233	·0224	·0225	·0236
15	·0233	·0233	·0225	·0220	·0218	·0206	·0240	·0233	·0232	·0222	·0226	·0236
16	·0234	·0234	·0225	·0219	·0218	·0207	·0241	·0234	·0230	·0220	·0227	·0234
17	·0234	·0235	·0226	·0218	·0218	·0208	·0241	·0233	·0228	·0217	·0228	·0233
18	·0235	·0236	·0226	·0218	·0218	·0209	·0240	·0232	·0227	·0217	·0228	·0231
19	·0235	·0237	·0225	·0216	·0218	·0210	·0240	·0231	·0226	·0217	·0228	·0229
20	·0235	·0237	·0225	·0218	·0217	·0212	·0239	·0232	·0225	·0218	·0228	·0228
21	·0237	·0238	·0225	·0219	·0217	·0214	·0237	·0234	·0223	·0218	·0226	·0227
22	·0236	·0238	·0225	·0221	·0217	·0216	·0237	·0235	·0223	·0218	·0227	·0226
23	·0237	·0238	·0224	·0224	·0217	·0216	·0238	·0237	·0225	·0217	·0226	·0227

TABLE XXIV.—MEAN LUNAR-MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE, &c.—*continued.*

1851.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 2. 0. 46	February. d h m 1. 1. 7	March. d h m 3. 1. 17	April. d h m 1. 0. 40	May. d h m 1. 0. 49	May. d h m 31. 1. 14	June. d h m 29. 0. 57	July. d h m 28. 0. 41	August. d h m 27. 1. 19	September. d h m 25. 0. 53	October. d h m 25. 1. 18	November. d h m 23. 0. 52	December. d h m 23. 1. 26
0	0·0252	0·0253	0·0246	0·0254	0·0255	0·0245	0·0211	0·0228	0·0220	0·0198	0·0192	0·0200	0·0198
1	·0250	·0253	·0245	·0252	·0253	·0244	·0213	·0229	·0220	·0199	·0188	·0199	·0198
2	·0254	·0253	·0244	·0250	·0251	·0243	·0214	·0229	·0220	·0201	·0189	·0200	·0197
3	·0252	·0252	·0243	·0248	·0249	·0243	·0214	·0229	·0220	·0202	·0189	·0200	·0196
4	·0251	·0252	·0242	·0247	·0247	·0244	·0214	·0229	·0217	·0203	·0190	·0200	·0192
5	·0250	·0252	·0242	·0247	·0245	·0244	·0213	·0229	·0216	·0203	·0190	·0201	·0192
6	·0251	·0251	·0241	·0246	·0244	·0244	·0212	·0228	·0214	·0202	·0192	·0202	·0192
7	·0251	·0251	·0242	·0248	·0244	·0245	·0213	·0227	·0212	·0201	·0193	·0202	·0192
8	·0251	·0250	·0242	·0248	·0245	·0245	·0214	·0226	·0211	·0200	·0193	·0203	·0194
9	·0250	·0250	·0243	·0248	·0245	·0247	·0215	·0226	·0208	·0199	·0193	·0204	·0193
10	·0251	·0249	·0243	·0249	·0247	·0248	·0217	·0225	·0208	·0200	·0192	·0205	·0194
11	·0251	·0249	·0242	·0251	·0248	·0249	·0217	·0224	·0207	·0202	·0190	·0205	·0195
12	·0252	·0248	·0243	·0252	·0250	·0250	·0216	·0223	·0206	·0202	·0188	·0207	·0195
13	·0252	·0247	·0243	·0254	·0251	·0249	·0213	·0224	·0207	·0200	·0188	·0208	·0196
14	·0252	·0249	·0245	·0255	·0251	·0249	·0211	·0223	·0211	·0198	·0189	·0208	·0198
15	·0251	·0250	·0246	·0256	·0253	·0248	·0212	·0225	·0214	·0196	·0190	·0208	·0199
16	·0251	·0250	·0247	·0257	·0251	·0248	·0213	·0227	·0214	·0193	·0191	·0207	·0200
17	·0252	·0252	·0246	·0259	·0251	·0248	·0214	·0227	·0216	·0192	·0190	·0206	·0200
18	·0251	·0253	·0246	·0259	·0252	·0248	·0215	·0226	·0213	·0192	·0189	·0206	·0201
19	·0252	·0254	·0246	·0258	·0252	·0248	·0214	·0225	·0214	·0193	·0189	·0205	·0202
20	·0254	·0256	·0246	·0258	·0252	·0248	·0212	·0224	·0215	·0194	·0189	·0204	·0202
21	·0254	·0254	·0247	·0257	·0252	·0247	·0212	·0224	·0216	·0196	·0189	·0204	·0200
22	·0253	·0255	·0247	·0257	·0254	·0247	·0212	·0225	·0218	·0196	·0188	·0204	·0199
23	·0253	·0255	·0247	·0255	·0255	·0246	·0213	·0226	·0220	·0197	·0188	·0204	·0198

1852.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 21. 1. 3	February. d h m 20. 1. 21	March. d h m 20. 0. 44	April. d h m 19. 0. 46	May. d h m 19. 0. 56	June. d h m 18. 1. 24	July. d h m 17. 1. 6	August. d h m 15. 0. 45	September. d h m 14. 1. 13	October. d h m 13. 0. 44	November. d h m 12. 1. 15	December. d h m 11. 0. 56
0	0·0213	0·0215	0·0214	0·0221	0·0216	0·0198	0·0172	0·0258	0·0248	0·0252	0·0217	0·0218
1	·0213	·0216	·0213	·0217	·0220	·0199	·0173	·0259	·0248	·0253	·0217	·0217
2	·0213	·0216	·0212	·0223	·0221	·0200	·0172	·0260	·0247	·0251	·0220	·0217
3	·0213	·0215	·0213	·0224	·0222	·0199	·0171	·0259	·0246	·0251	·0221	·0217
4	·0214	·0214	·0213	·0224	·0222	·0199	·0171	·0258	·0247	·0251	·0222	·0218
5	·0213	·0212	·0213	·0226	·0220	·0196	·0171	·0257	·0247	·0252	·0223	·0219
6	·0213	·0210	·0213	·0224	·0221	·0195	·0174	·0257	·0248	·0253	·0223	·0221
7	·0213	·0207	·0213	·0224	·0221	·0191	·0175	·0256	·0248	·0254	·0223	·0223
8	·0213	·0207	·0213	·0222	·0222	·0191	·0174	·0256	·0251	·0259	·0222	·0224
9	·0212	·0206	·0214	·0223	·0223	·0192	·0173	·0254	·0253	·0260	·0221	·0225
10	·0213	·0208	·0215	·0222	·0222	·0193	·0173	·0253	·0254	·0259	·0220	·0226
11	·0214	·0208	·0216	·0220	·0221	·0192	·0172	·0252	·0254	·0261	·0220	·0228
12	·0213	·0208	·0217	·0220	·0220	·0191	·0171	·0251	·0256	·0263	·0219	·0232
13	·0213	·0208	·0219	·0220	·0216	·0188	·0171	·0251	·0257	·0266	·0219	·0232
14	·0212	·0207	·0219	·0223	·0213	·0192	·0170	·0251	·0258	·0265	·0219	·0232
15	·0212	·0206	·0218	·0226	·0214	·0194	·0169	·0250	·0258	·0266	·0218	·0232
16	·0210	·0208	·0218	·0228	·0209	·0195	·0169	·0251	·0255	·0266	·0218	·0233
17	·0208	·0208	·0218	·0228	·0206	·0197	·0170	·0251	·0255	·0262	·0218	·0232
18	·0209	·0209	·0217	·0227	·0206	·0196	·0170	·0252	·0255	·0262	·0217	·0228
19	·0209	·0211	·0216	·0226	·0208	·0196	·0169	·0253	·0256	·0260	·0217	·0227
20	·0210	·0211	·0217	·0226	·0209	·0194	·0170	·0254	·0256	·0259	·0216	·0224
21	·0212	·0212	·0218	·0227	·0209	·0194	·0171	·0252	·0256	·0255	·0215	·0220
22	·0212	·0213	·0219	·0227	·0213	·0194	·0173	·0254	·0254	·0254	·0216	·0220
23	·0212	·0213	·0215	·0225	·0216	·0197	·0174	·0255	·0250	·0253	·0218	·0219

TABLE XXIV.—MEAN LUNAR-MONTHLY DETERMINATION of the VERTCAL MAGNETIC FORCE, &c.—*continued.*

1853.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 10. 1. 39	February. d h m 8. 1. 14	March. d h m 9. 0. 44	April. d h m 8. 0. 49	May. d h m 8. 0. 54	June. d h m 7. 1. 11	July. d h m 6. 0. 48	August. d h m 5. 1. 16	September. d h m 3. 0. 48	October. d h m 3. 1. 5	November. d h m 2. 1. 31	December. d h m 1. 1. 13	December. d h m 30. 1. 0
0	0·0226	0·0198	0·0187	0·0216	0·0213	0·0218	0·0229	0·0223	0·0217	0·0209	0·0201	0·0213	0·0240
1	·0230	·0194	·0186	·0214	·0214	·0213	·0227	·0225	·0218	·0209	·0203	·0212	·0237
2	·0232	·0193	·0185	·0208	·0214	·0216	·0227	·0227	·0218	·0210	·0204	·0212	·0238
3	·0232	·0188	·0176	·0202	·0214	·0217	·0226	·0228	·0217	·0209	·0206	·0212	·0237
4	·0229	·0186	·0175	·0200	·0210	·0217	·0227	·0229	·0217	·0209	·0208	·0212	·0238
5	·0227	·0184	·0173	·0198	·0208	·0218	·0227	·0230	·0218	·0208	·0209	·0211	·0239
6	·0224	·0183	·0171	·0198	·0208	·0218	·0229	·0232	·0219	·0212	·0210	·0211	·0239
7	·0220	·0182	·0170	·0197	·0207	·0217	·0229	·0232	·0220	·0213	·0211	·0211	·0238
8	·0216	·0180	·0170	·0198	·0206	·0216	·0231	·0232	·0217	·0214	·0213	·0211	·0239
9	·0218	·0181	·0169	·0198	·0205	·0216	·0232	·0235	·0217	·0214	·0214	·0211	·0238
10	·0213	·0181	·0169	·0201	·0204	·0215	·0232	·0230	·0217	·0214	·0213	·0211	·0237
11	·0206	·0179	·0170	·0202	·0203	·0213	·0233	·0228	·0215	·0214	·0212	·0211	·0236
12	·0196	·0178	·0172	·0203	·0204	·0211	·0235	·0227	·0215	·0215	·0209	·0212	·0235
13	·0199	·0179	·0176	·0206	·0204	·0212	·0237	·0228	·0216	·0215	·0207	·0212	·0236
14	·0199	·0178	·0180	·0209	·0206	·0213	·0238	·0228	·0215	·0213	·0206	·0213	·0235
15	·0200	·0180	·0181	·0213	·0209	·0213	·0236	·0228	·0215	·0213	·0205	·0211	·0236
16	·0204	·0184	·0182	·0215	·0210	·0213	·0235	·0227	·0215	·0212	·0204	·0211	·0236
17	·0208	·0190	·0185	·0215	·0211	·0213	·0234	·0227	·0212	·0213	·0202	·0210	·0234
18	·0203	·0192	·0189	·0217	·0210	·0214	·0232	·0226	·0211	·0212	·0201	·0212	·0233
19	·0207	·0194	·0188	·0216	·0210	·0215	·0230	·0225	·0210	·0211	·0199	·0211	·0233
20	·0212	·0194	·0190	·0213	·0210	·0215	·0229	·0222	·0212	·0211	·0198	·0210	·0233
21	·0216	·0191	·0193	·0213	·0211	·0219	·0228	·0222	·0213	·0210	·0198	·0210	·0232
22	·0221	·0194	·0189	·0215	·0210	·0221	·0228	·0224	·0214	·0210	·0198	·0212	·0234
23	·0226	·0200	·0185	·0214	·0210	·0221	·0229	·0225	·0214	·0209	·0199	·0213	·0236

1854.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 28. 0. 46	February. d h m 27. 1. 17	March. d h m 28. 0. 43	April. d h m 27. 0. 51	May. d h m 27. 1. 7	June. d h m 25. 0. 43	July. d h m 25. 1. 9	August. d h m 24. 1. 23	September. d h m 22. 0. 47	October. d h m 22. 0. 57	November. d h m 21. 1. 28	December. d h m 20. 1. 16
0	0·0246	0·0245	0·0261	0·0250	0·0249	0·0203	0·0216	0·0211	0·0205	0·0206	0·0209	0·0219
1	·0246	·0245	·0261	·0250	·0250	·0202	·0218	·0214	·0205	·0208	·0205	·0219
2	·0247	·0243	·0258	·0251	·0249	·0200	·0218	·0215	·0206	·0208	·0203	·0219
3	·0248	·0242	·0261	·0252	·0247	·0199	·0215	·0216	·0205	·0208	·0202	·0220
4	·0247	·0243	·0260	·0253	0250	·0202	·0213	·0217	·0204	·0208	·0199	·0221
5	·0247	·0244	·0256	·0253	·0245	·0203	·0211	·0215	·0203	·0207	·0200	·0220
6	·0249	·0245	·0254	·0252	·0246	·0204	·0210	·0215	·0204	·0206	·0203	·0219
7	·0249	·0245	·0254	·0249	·0246	·0205	·0207	·0214	·0203	·0208	·0203	·0219
8	·0248	·0244	·0255	·0248	·0246	·0206	·0207	·0213	·0203	·0206	·0206	·0220
9	·0248	·0243	·0257	·0247	·0248	·0207	·0207	·0212	·0205	·0208	·0207	·0221
10	·0248	·0243	·0256	·0247	·0248	·0209	·0208	·0212	·0206	·0206	·0208	·0221
11	·0247	·0244	·0258	·0247	·0248	·0211	·0213	·0212	·0206	·0208	·0207	·0221
12	·0248	·0245	·0258	·0247	·0249	·0211	·0211	·0211	·0209	·0208	·0207	·0221
13	·0249	·0245	·0257	·0247	·0249	·0212	·0211	·0209	·0211	·0207	·0208	·0220
14	·0249	·0245	·0260	·0246	·0252	·0213	·0208	·0209	·0212	·0206	·0209	·0221
15	·0247	·0244	·0260	·0246	·0248	·0213	·0209	·0209	·0210	·0206	·0212	·0225
16	·0249	·0242	·0263	·0247	·0248	·0213	·0210	·0208	·0210	·0205	·0211	·0222
17	·0248	·0243	·0265	·0246	·0248	·0213	·0211	·0208	·0210	·0205	·0211	·0224
18	·0248	·0244	·0267	·0247	·0246	·0212	·0213	·0207	·0210	·0205	·0210	·0226
19	·0248	·0247	·0266	·0246	·0247	·0211	·0216	·0207	·0210	·0207	·0210	·0225
20	·0246	·0249	·0263	·0245	·0247	·0210	·0216	·0206	·0211	·0209	·0211	·0225
21	·0247	·0250	·0263	·0246	·0245	·0207	·0216	·0206	·0210	·0211	·0210	·0224
22	·0247	·0251	·0261	·0247	·0244	·0204	·0215	·0210	·0209	·0211	·0209	·0223
23	·0247	·0249	·0260	·0248	·0245	·0205	·0215	·0212	·0211	·0210	·0208	·0222

TABLE XXIV.—MEAN LUNAR-MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE, &c.—*continued.*

1855.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 18. 1. 5	February. d h m 16. 0. 46	March. d h m 18. 1. 10	April. d h m 17. 1. 25	May. d h m 16. 0. 56	June. d h m 15. 1. 27	July. d h m 14. 1. 6	August. d h m 13. 1. 23	September. d h m 11. 0. 45	October. d h m 11. 0. 44	November. d h m 10. 0. 56	December. d h m 10. 1. 35
0	0·0211	0·0217	0·0229	0·0217	0·0222	0·0216	0·0209	0·0207	0·0203	0·0171	0·0189	0·0198
1	·0211	·0217	·0228	·0218	·0221	·0217	·0208	·0207	·0202	·0173	·0189	·0199
2	·0210	·0218	·0227	·0219	·0221	·0216	·0206	·0207	·0201	·0173	·0188	·0199
3	·0209	·0219	·0228	·0223	·0218	·0214	·0206	·0206	·0202	·0173	·0190	·0199
4	·0209	·0220	·0228	·0225	·0217	·0214	·0206	·0205	·0202	·0171	·0191	·0202
5	·0210	·0221	·0228	·0227	·0214	·0214	·0208	·0203	·0202	·0170	·0191	·0202
6	·0210	·0221	·0230	·0227	·0213	·0214	·0208	·0206	·0203	·0170	·0190	·0203
7	·0211	·0222	·0233	·0231	·0212	·0214	·0207	·0207	·0201	·0173	·0189	·0201
8	·0212	·0224	·0235	·0233	·0212	·0218	·0208	·0206	·0201	·0173	·0189	·0200
9	·0211	·0223	·0236	·0234	·0211	·0216	·0207	·0203	·0200	·0173	·0189	·0201
10	·0210	·0226	·0237	·0235	·0211	·0216	·0207	·0200	·0198	·0173	·0188	·0201
11	·0210	·0225	·0237	·0233	·0211	·0217	·0208	·0198	·0198	·0173	·0188	·0201
12	·0210	·0223	·0238	·0229	·0215	·0216	·0208	·0199	·0198	·0174	·0188	·0201
13	·0210	·0220	·0239	·0228	·0218	·0211	·0209	·0202	·0198	·0175	·0187	·0202
14	·0210	·0218	·0239	·0227	·0221	·0211	·0208	·0205	·0200	·0174	·0188	·0204
15	·0210	·0218	·0240	·0227	·0223	·0212	·0209	·0206	·0200	·0174	·0188	·0204
16	·0210	·0217	·0239	·0226	·0226	·0215	·0210	·0209	·0200	·0174	·0188	·0205
17	·0210	·0217	·0237	·0225	·0227	·0215	·0211	·0210	·0199	·0177	·0187	·0204
18	·0210	·0217	·0236	·0224	·0226	·0214	·0212	·0209	·0197	·0171	·0187	·0203
19	·0211	·0218	·0234	·0222	·0225	·0215	·0211	·0207	·0199	·0169	·0188	·0200
20	·0211	·0218	·0232	·0220	·0225	·0214	·0212	·0210	·0201	·0170	·0188	·0200
21	·0210	·0218	·0232	·0221	·0227	·0216	·0212	·0210	·0203	·0173	·0188	·0200
22	·0209	·0217	·0230	·0220	·0226	·0216	·0211	·0209	·0204	·0173	·0189	·0200
23	·0210	·0216	·0232	·0219	·0225	·0215	·0211	·0207	·0205	·0174	·0189	·0201

1856.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 8. 1. 23	February. d h m 6. 1. 5	March. d h m 7. 1. 31	April. d h m 5. 0. 57	May. d h m 5. 1. 24	June. d h m 3. 1. 6	July. d h m 2. 0. 52	August. d h m 1. 1. 22	August. d h m 30. 0. 47	September. d h m 29. 0. 45	October. d h m 29. 0 46	November. d h m 28. 1. 8	December d h m 27. 0. 50
0	0·0212	0·0223	0·0214	0·0226	0·0217	0·0207	0·0144	0·0114	0·0091	0·0106	0·0100	0·0130	0·0125
1	·0211	·0223	·0214	·0227	·0218	·0204	·0143	·0117	·0094	·0101	·0101	·0130	·0125
2	·0211	·0221	·0214	·0229	·0219	·0204	·0141	·0121	·0094	·0101	·0102	·0128	·0128
3	·0212	·0220	·0215	·0231	·0222	·0204	·0139	·0123	·0093	·0101	·0102	·0129	·0129
4	·0213	·0223	·0216	·0231	·0222	·0205	·0137	·0123	·0095	·0101	·0103	·0128	·0130
5	·0212	·0225	·0216	·0231	·0224	·0202	·0137	·0123	·0095	·0101	·0103	·0128	·0130
6	·0212	·0225	·0216	·0231	·0222	·0202	·0137	·0127	·0095	·0100	·0103	·0127	·0130
7	·0215	·0225	·0216	·0230	·0219	·0200	·0137	·0126	·0096	·0098	·0104	·0125	·0129
8	·0214	·0224	·0216	·0228	·0218	·0200	·0140	·0129	·0096	·0098	·0106	·0123	·0129
9	·0213	·0224	·0216	·0228	·0216	·0201	·0143	·0134	·0097	·0099	·0105	·0119	·0127
10	·0212	·0223	·0215	·0227	·0216	·0198	·0147	·0136	·0099	·0101	·0105	·0120	·0126
11	·0210	·0222	·0216	·0227	·0213	·0202	·0151	·0136	·0100	·0100	·0104	·0120	·0126
12	·0208	·0220	·0217	·0226	·0213	·0206	·0153	·0135	·0100	·0103	·0103	·0120	·0125
13	·0206	·0218	·0217	·0225	·0214	·0208	·0155	·0135	·0101	·0108	·0103	·0121	·0123
14	·0205	·0218	·0217	·0225	·0211	·0211	·0156	·0130	·0100	·0109	·0103	·0121	·0123
15	·0206	·0218	·0217	·0224	·0212	·0211	·0157	·0128	·0099	·0114	·0102	·0121	·0124
16	·0207	·0221	·0216	·0225	·0213	·0210	·0159	·0125	·0097	·0116	·0102	·0121	·0125
17	·0207	·0223	·0217	·0223	·0214	·0209	·0158	·0123	·0096	·0117	·0103	·0121	·0126
18	·0209	·0224	·0218	·0222	·0214	·0208	·0158	·0124	·0094	·0117	·0105	·0122	·0127
19	·0208	·0223	·0218	·0222	·0215	·0205	·0156	·0117	·0093	·0117	·0105	·0122	·0127
20	·0210	·0222	·0219	·0222	·0216	·0203	·0152	·0118	·0093	·0119	·0103	·0123	·0128
21	·0211	·0222	·0217	·0222	·0216	·0204	·0154	·0114	·0091	·0116	·0102	·0123	·0129
22	·0211	·0222	·0214	·0222	·0217	·0204	·0148	·0111	·0088	·0114	·0103	·0125	·0127
23	·0212	·0222	·0213	·0224	·0217	·0205	·0144	·0113	·0089	·0113	·0105	·0127	·0127

TABLE XXIV.—MEAN LUNAR-MONTHLY DETERMINATION of the VERTICAL MAGNETIC FORCE, &c.—*concluded.*

1857.

Lunar Hour.	Göttingen Mean Solar Time of the beginning of the First Lunar Day of each Lunation.											
	January. d h m 26. 1. 27	February. d h m 24. 0. 58	March. d h m 26. 1. 15	April. d h m 24. 0. 46	May. d h m 24. 1. 30	June. d h m 22. 1. 20	July. d h m 21. 1. 4	August. d h m 20. 1. 25	September. d h m 18. 0. 45	October. d h m 18. 0. 46	November. d h m 17. 1. 0	December. d h m 17. 1. 29
0	0·0148	0·0158	0·0152	0·0143	0·0127	0·0083	0·0075	0·0070	0·0071	0·0060	0·0112	0·0097
1	·0149	·0158	·0147	·0144	·0128	·0087	·0074	·0070	·0071	·0060	·0111	·0095
2	·0148	·0155	·0150	·0144	·0128	·0088	·0073	·0070	·0073	·0060	·0110	·0097
3	·0148	·0154	·0149	·0144	·0129	·0089	·0072	·0072	·0076	·0059	·0109	·0100
4	·0148	·0152	·0152	·0143	·0129	·0088	·0072	·0073	·0076	·0061	·0105	·0100
5	·0147	·0151	·0151	·0144	·0129	·0087	·0073	·0075	·0078	·0063	·0103	·0102
6	·0145	·0150	·0151	·0142	·0128	·0082	·0075	·0078	·0078	·0066	·0097	·0103
7	·0143	·0150	·0149	·0142	·0127	·0084	·0075	·0080	·0079	·0069	·0093	·0103
8	·0141	·0150	·0148	·0143	·0124	·0086	·0076	·0082	·0079	·0071	·0090	·0104
9	·0139	·0151	·0149	·0142	·0123	·0087	·0077	·0084	·0079	·0073	·0090	·0105
10	·0138	·0150	·0149	·0143	·0125	·0091	·0079	·0087	·0078	·0075	·0088	·0105
11	·0137	·0151	·0149	·0143	·0125	·0090	·0081	·0085	·0074	·0077	·0088	·0107
12	·0135	·0151	·0149	·0144	·0124	·0091	·0086	·0085	·0073	·0078	·0087	·0108
13	·0134	·0153	·0149	·0146	·0124	·0087	·0088	·0084	·0073	·0079	·0088	·0108
14	·0133	·0154	·0149	·0148	·0121	·0087	·0089	·0084	·0071	·0081	·0088	·0108
15	·0133	·0154	·0148	·0148	·0121	·0088	·0088	·0082	·0070	·0082	·0091	·0107
16	·0135	·0153	·0147	·0148	·0120	·0090	·0083	·0080	·0069	·0079	·0093	·0106
17	·0137	·0154	·0146	·0147	·0120	·0091	·0082	·0079	·0070	·0075	·0094	·0104
18	·0139	·0155	·0146	·0148	·0122	·0090	·0079	·0078	·0073	·0070	·0098	·0104
19	·0141	·0155	·0144	·0148	·0122	·0085	·0077	·0074	·0071	·0065	·0100	·0103
20	·0144	·0155	·0143	·0147	·0123	·0083	·0076	·0072	·0072	·0063	·0102	·0104
21	·0148	·0154	·0143	·0147	·0124	·0080	·0078	·0070	·0073	·0060	·0104	·0104
22	·0149	·0154	·0143	·0145	·0124	·0080	·0078	·0068	·0071	·0059	·0105	·0102
23	·0151	·0155	·0143	·0145	·0125	·0081	·0077	·0068	·0073	·0058	·0108	·0101

TABLE XXV.—MEAN, through the RANGE of LUNATIONS, of the LUNATION-MEAN DETERMINATIONS of the LUNO-DIURNAL INEQUALITY of VERTICAL FORCE; exhibited separately for the different Years; with the Mean for all the Years.

Lunar Hour.	Mean Luno-Diurnal Inequality in each Year.									Mean, 1849 to 1857.	Equivalent in Terms of Horizontal Force.
	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.		
0	+0·00011	−0·00002	+0·00008	−0·00008	+0·00024	−0·00001	−0·00013	−0·00012	−0·00002	+0·000006	+0·000015
1	+ 15	+ 3	+ 2	− 6	+ 14	+ 2	− 12	− 12	− 4	+ 2	+ 5
2	+ 7	+ 1	+ 3	0	+ 14	− 3	− 16	− 8	− 3	− 6	− 15
3	+ 12	− 3	− 3	− 1	− 3	− 5	− 14	− 3	+ 2	− 20	− 51
4	+ 11	0	− 12	+ 1	− 6	− 3	− 12	+ 2	0	− 19	− 49
5	+ 5	+ 3	− 13	− 3	− 10	− 14	− 12	+ 2	+ 3	− 43	− 111
6	+ 16	+ 3	− 17	0	− 4	− 12	− 8	+ 2	− 3	− 26	− 67
7	+ 15	− 2	− 15	− 3	− 7	− 18	− 3	− 3	− 4	− 44	− 113
8	+ 15	+ 1	− 15	+ 2	− 7	− 14	+ 6	− 2	− 4	− 20	− 51
9	+ 3	0	− 15	+ 3	− 4	− 11	0	− 2	0	− 29	− 75
10	0	0	− 10	+ 7	− 9	− 6	− 2	+ 1	+ 7	− 13	− 33
11	− 8	+ 3	− 8	+ 5	− 16	+ 1	− 4	+ 2	+ 7	− 20	− 51
12	− 23	+ 7	− 7	+ 8	− 16	+ 3	− 4	+ 4	+ 10	− 20	− 51
13	− 20	+ 3	− 7	+ 8	− 6	+ 3	− 4	+ 8	+ 12	− 3	− 8
14	− 23	+ 6	− 2	+ 8	− 1	+ 8	+ 1	+ 4	+ 12	+ 14	+ 36
15	− 19	0	+ 5	+ 9	+ 4	+ 7	+ 6	+ 7	+ 11	+ 33	+ 85
16	− 12	0	+ 6	− 7	+ 8	+ 6	+ 13	+ 10	+ 3	+ 30	+ 77
17	− 9	− 3	+ 9	− 3	+ 14	+ 9	+ 13	+ 10	0	+ 44	+ 113
18	− 9	− 5	+ 8	− 3	+ 12	+ 12	+ 2	+ 14	+ 2	+ 37	+ 95
19	− 12	− 9	+ 8	− 3	+ 6	+ 16	− 6	+ 3	− 12	− 10	− 26
20	− 3	− 8	+ 10	− 5	+ 2	+ 14	− 3	+ 3	− 12	− 2	− 5
21	+ 6	− 7	+ 8	− 9	+ 4	+ 12	+ 5	− 2	− 13	+ 3	+ 8
22	+ 10	− 3	+ 11	− 3	+ 12	+ 8	0	− 14	− 18	+ 3	+ 8
23	+ 19	+ 3	+ 12	− 4	+ 17	+ 9	0	− 10	− 9	+ 41	+ 105