



ROYAL OBSERVATORY, GREENWICH.

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R E S U L T S

OF

MAGNETICAL AND METEOROLOGICAL

OBSERVATIONS.

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1861.



ROYAL OBSERVATORY, GREENWICH.

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INDICATIONS

OF

MAGNETOMETERS.

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1861.

The establishment of Assistants in the Magnetical and Meteorological Department of the Royal Observatory consisted during the year 1861, of Mr. James Glaisher, the Superintendent, and Mr. Thomas Downs; with three supernumerary assistants, to aid in the observations and reductions.

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For description of the three Magnetometers, the method of observing by the Telescope, and the method of reducing the observations, the reader is referred to the *Greenwich Magnetical and Meteorological Observations* for 1847, Introduction, page i to xlii; and to corresponding parts of the preceding volumes.

During the year 1861, Telescope-Observations of the Magnetometers have usually been made four times every day, except on Sundays, on which days two or three observations only have been taken; but, though these observations are employed in forming the base-lines on the Photographic sheets, their immediate results are not necessarily given in the following pages.

Observations were made of the Horizontal Circle of the Theodolite by which the DECLINATION MAGNET is observed, corresponding to the Astronomical Meridian, on January 8, February 6, March 4, April 20, May 13, 18, July 3, 31, August 10, September 20, November 6, 27, December 11, 23, and 24; and the constancy of its readings was checked by the observations of a fixed mark on many other days.

Observations were made of the Collimation of the DECLINATION MAGNETOMETER; of the Torsion-force of its Suspension skein; and of the Collimation of the Theodolite-Telescope; on 1860, December 28, 29, and 31.

Observations of the Angle of Torsion of the HORIZONTAL FORCE MAGNETOMETER were made on 1861, January 2, 4, and again on July 13 and 17, after the restoration of the brass suspension, which gave way on June 22. The angles determined were  $43^{\circ}.46'$  and  $44^{\circ}.7'$  respectively.

Observations were made for the times of vibration and readings of the scale for different readings of the torsion-circle on the same days; and the general conclusion was, that the scale-readings and the times of vibration had nearly the same value, when the reading of the torsion-circle was  $142^{\circ}.30'$  (marked end West), and  $230^{\circ}.20'$  (marked end East) on January 2 and 4; from July 12 these values were  $142^{\circ}.30'$  and  $230^{\circ}.30'$  respectively. The reading adopted for the adjustment of the torsion-circle throughout the year (marked end West) was  $142^{\circ}.30'$ .

The numbers used for the variation of horizontal force for a disturbance through one division of the scale, in parts of the whole horizontal force, are 0.0020051 till June 21; and 0.0019808 from July 12 to the end of the year.

The correction for temperature is  $0.0000809 \times (t-32) + 0.000000762 \times (t-32)^2$ , where  $t$  is the temperature in degrees of Fahrenheit's scale. This formula, which represents the mean of the results deduced from temperature-experiments made with each end of the magnet alternately near the measuring apparatus, is preferable to that given in the volumes before 1850, which were based on experiments made in one position of the magnet. The correction for temperature is *not* applied to any of the results of observations.

Observations of the times of vibration of the VERTICAL FORCE MAGNETOMETER have usually been made three or four times a week. The adopted time of vibration for the year was 15.6.

Observations for the time of vibration in a horizontal plane were made in 1859, April 19, when the time of vibration was found to be  $24^{\text{h}}.258$  from 700 vibrations.

The value of the disturbing force, in terms of the whole vertical force, for one division of the scale, is inferred to be 0.0015275: and this number has been used throughout the year.

The correction for temperature is  $0.00013845 \times (t-32) + 0.000004054 \times (t-32)^2$ . This formula, like that for the Horizontal Force Magnetometer, is deduced from temperature-experiments made in both positions of the magnet. The correction is *not* applied to any of the results of observation.

The methods adopted in the use of the Photographic Apparatus; in the determination of zeros, both for time and for magnetic indications; and in the translation into numbers of the indications given by the Photographic Traces for arbitrary times; are in every respect the same as those described in the Addendum to the Introduction to the *Greenwich Magnetical and Meteorological Observations*, 1847, pages lxxxiii to xc. The only important alterations that have been made are, that (as mentioned at the end of that Introduction) coal-gas charged with the vapour of coal-naphtha is used to give the light required for forming the Photographic Trace; and that the cylinders carrying the Photographic paper (both that which receives the traces of the Declination Magnet and the Horizontal Force Magnet, and that which receives the traces of the Vertical Force Magnet and the Barometer), are now made to revolve in  $24^{\text{h}}$ . It may be mentioned also that, commencing with the year 1858, the observations are referred to Greenwich Mean Time instead of Göttingen Mean Time as heretofore.

It is proper to add, that, in measuring the ordinates of the Vertical Force Curves, the same difficulty that is mentioned in preceding volumes has still occasionally been felt. Apparently without cause, the curve is dislocated; one part being raised above or depressed below the contiguous part, in the direction of the ordinate, usually by small quantities. In all cases the displacement is accompanied by vibration, the original position being at the extremity of the arc of vibration, and the new position being at its center; showing that there has been no want of delicacy in the movement, and that the change is precisely the same as would be caused by the quiet application of a small weight upon one end of the magnet.

In general the ordinates of the Photographic Curves have been measured so frequently, including all maxima and minima, that a reader, laying down a succession of points by means of the given times as abscissæ and the given measures of force as ordinates, connecting these points by straight lines, and attending to the symbols as explained in the foot-notes, will very nearly produce the original curves.

At the times when the Vertical Force Trace is dislocated, two ordinates have been taken for the same abscissa; these are connected by a brace, and the difference of the numbers indicates the amount of the disturbance.

INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Jan. 1 1. 0 3. 0 9. 0 21. 10	21. 14. 18* 11. 53* 10. 22* 11. 51*	Jan. 1 0. 38 2. 17 3. 40 4. 33 7. 0 7. 14 7. 26 7. 34 7. 37 7. 50 8. 8 10. 7 11. 6 11. 45 13. 24 14. 33 16. 45 18. 3 19. 4 21. 30	(†) ·0999 ·0997 *** ·0991 ·0996 *** ·1005 ·1014 ·1012 ·1008 ·1011 ·1011 ·1009 *** ·1004 ·1010 ·1008 *** ·1013 *** ·1012 *** ·1021 *** ·1018 ·1020 *** ·1013 (†)	Jan. 1 0. 37 2. 15 2. 45 8. 13 12. 50 18. 7 21. 42 23. 59	(†) ·02041 ·01962 {·01910 ·01953 ·01952 ·02111 ·02501 ·02872 ·03081	Jan. 1 1. 0 3. 0 9. 0 21. 10	48. 3 49. 2 49. 0 50. 0 47. 5 48. 0 38. 2 39. 6		Jan. 3 19. 0 20. 8 23. 0	21. 11. 30 12. 0 *** 15. 40 (†)	Jan. 3 13. 2 13. 17 15. 52 20. 8 21. 48	·1080 ·1079 *** ·1094 *** ·1091 *** ·1081 (†)			Jan. 3 19. 0 20. 8 23. 0		
Jan. 2 1. 0 3. 0 9. 0 21. 0	21. 14. 46* 12. 16* 7. 47* 12. 56*	Jan. 2 0. 0 0. 50 3. 7 7. 43 10. 15 16. 37 19. 34 23. 59		Jan. 2 0. 0 0. 50 3. 7 7. 43 10. 15 16. 37 19. 34 23. 59	·03081 {·03097 ·03036 ·02945 ·02693 ·02758 ·03034 ·03031 ·02862	Jan. 2 0. 0 1. 0 3. 0 6. 0 9. 0 12. 0 18. 0 21. 0	39. 6 40. 0 42. 3 41. 6 42. 0 39. 7 41. 6 33. 8 35. 5 34. 0 35. 8		Jan. 4 1. 50 2. 25 3. 0 3. 45 4. 40 5. 0 7. 5 8. 10 8. 30 9. 3 9. 15 9. 30 10. 10 11. 0 11. 45 12. 1 12. 20 15. 5 15. 28 17. 50 21. 25	(†) 21. 17. 20 *** 15. 20 15. 30 17. 0 17. 45 16. 30 *** 16. 0 14. 0 14. 0 10. 20 12. 0 10. 0 *** 15. 13 16. 33 17. 7 17. 40 14. 30 12. 0 *** 20. 36 13. 0 14. 30 *** 12. 0 15. 50 (†)	Jan. 4 0. 0 6. 26 11. 45 19. 16 22. 35 23. 59	·02913 ·02467 ·02296 ·02275 ·02356 ·02300	Jan. 4 0. 0 3. 0 9. 0 21. 20	1. 0 3. 0 9. 0 39. 0 37. 0 40. 4 40. 5			
Jan. 3 0. 0 2. 0 4. 10 5. 0 6. 15 9. 50 10. 48 11. 14 11. 52 14. 0 14. 21 15. 10	21. 13. 5 *** 10. 15 *** 10. 10 10. 30 9. 0 8. 25 9. 0 7. 0 9. 0 9. 50 11. 14 9. 0 9. 50 12. 25 9. 0 ***	Jan. 3 0. 13 1. 20 3. 47 9. 10 10. 46 11. 14 11. 18 11. 26 11. 52 11. 18 11. 26 11. 52	(†) ·1059 *** ·1062 *** ·1051 *** ·1069 *** ·1072 ·1082 ·1078 ·1081 ·1074 ***	Jan. 3 0. 0 1. 0 9. 18 14. 26 17. 27 22. 32 25. 59	·02862 ·02813 ·02102 ·02280 ·02433 ·02859 ·02913	Jan. 3 0. 0 1. 0 3. 0 9. 0 21. 15	40. 0 38. 5 40. 6 38. 7 43. 0 42. 2 41. 6 32. 3 34. 4		Jan. 5 1. 0 3. 0 4. 0 8. 0 12. 0 21. 30 21. 50 23. 22 23. 59	(†) 21. 15. 37* 10. 30 11. 0 10. 0 10. 20 11. 30 *** 10. 30 *** 11. 0 13. 0	Jan. 5 1. 0 1. 47 4. 42 8. 45 14. 47 23. 7 23. 59	·0968* ·0970 *** ·0966 *** ·0970 ·0967 ·0971 ·0967 *** ·0979 *** ·0982 *** ·1000 ***	Jan. 5 0. 0 2. 42 4. 42 8. 45 14. 47 23. 7 23. 59	·02300 ·02123 ·01947 ·01821 ·02102 ·02803 ·02832	Jan. 5 1. 0 3. 0 9. 0 21. 10	42. 2 42. 2 43. 0 42. 2 41. 9 32. 0 34. 0	

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

On January 2 the Horizontal Force Magnet was under adjustment.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
		Jan. 5 18. 52	·1007 ***														
		21. 30	·1004														
		21. 38	·1007														
		21. 46	·1003 ***														
		23. 32	·1011														
		23. 59	·1002														
Jan. 6		Jan. 6		Jan. 6	Jan. 6						Jan. 6						
0. 0	21. 13. 0	0. 0	·1002 ***	0. 0	·02832	10. 23	35. 43	37. 0			11. 7	·0984 ***					
0. 45	13. 40	0. 42	·1008	0. 42	·02852	21. 0	30. 0	31. 8			11. 50	·0996 ***					
2. 43	10. 15	0. 16	·0997	3. 50	·02611 ***						12. 46	·0991 ***					
3. 45	11. 0	0. 40	·1009 ***	5. 46	·02543						16. 15	·0997 ***					
4. 17	10. 0		·1003 ***	6. 40	·02614 ***						16. 46	·1000 ***					
4. 41	12. 25	1. 2	·1004	11. 45	·02560						17. 45	·0997 ***					
5. 14	10. 0		·1008	18. 17	·02921						21. 43	·0996 ***					
5. 30	14. 0	1. 30	·1004	23. 30	·02757						22. 50	·0981 ***					
5. 49	14. 0	1. 46	·0997 ***	23. 59	·02716						23. 13	·0986 ***					
6. 6	23. 10		·1008								23. 50	·0979					
6. 21	10. 0	2. 22	·0999								23. 59	·0980					
6. 46	4. 0	2. 35	·0996						Jan. 7	21. 14. 15	Jan. 7	·0980 ***	Jan. 7	·02716	Jan. 7	1. 0	34. 0
7. 9	12. 0	2. 47	·1000 ***						0. 0	14. 30	0. 0	·0980 ***	0. 0	·02456	0. 0	37. 1	35. 0
7. 33	12. 0	4. 0	·1001						1. 0	11. 35	0. 46	·0982	2. 9	·01751	3. 0	37. 1	37. 6
7. 50	15. 0	4. 7	·1008						2. 30	11. 35	0. 50	·0977	12. 52	·02320	9. 0	39. 0	39. 0
8. 4	15. 0	4. 26	·1000 ***						5. 25	11. 40	1. 7	·0985	23. 7	·02372	21. 0	31. 6	33. 2
8. 22	12. 40		·1001						7. 38	10. 5	1. 16	·0981 ***					
8. 31	14. 30	4. 40	·1001						8. 0	9. 10	10. 35	·0981 ***					
9. 0	12. 0	4. 43	·1012						8. 30	10. 35	***	·0978					
9. 15	12. 0	4. 46	·1000						11. 2	11. 50	2. 40	·0978					
10. 8	11. 10	5. 10	·1031						11. 46	***	3. 14	·0978					
10. 50	13. 0	5. 16	·1028						13. 45	11. 0	3. 30	·0975					
11. 29	11. 40	5. 46	·0973						14. 15	9. 30	4. 2	·0975					
11. 41	9. 45	5. 50	·0983						15. 45	11. 30	4. 20	·0976 ***					
12. 30	9. 35	6. 10	·0951 ***						16. 40	10. 20	5. 26	·0972 ***					
14. 0	12. 30		·0947						21. 30	***	6. 15	·0975 ***					
14. 15	11. 30	6. 18	·0947						23. 7	13. 0	6. 46	·0972 ***					
15. 7	12. 25	6. 50	·0991						23. 28	16. 0	9. 26	·0982					
15. 30	11. 20	7. 3	·0976						23. 59	14. 45	10. 3	·0979 ***					
16. 35	14. 20	7. 15	·0977							17. 0	11. 0	·0984					
17. 45	11. 0	7. 18	·0975 ***								11. 15	·0980 ***					
21. 24	11. 30	7. 32	·0983								12. 2	·0986					
23. 8	14. 0	7. 52	·0987								12. 7	·0983					
23. 25	13. 10	8. 8	·0978								12. 32	·0989					
23. 59	14. 15	8. 17	·0987 ***								13. 7	·0984 ***					
		8. 50	·0976								17. 20	·0997 ***					
		9. 30	·0986 ***								19. 46	·0996					
		9. 32	·0980								20. 58	·0995					
		9. 46	·0985 ***								21. 23	·0997 ***					
		10. 26	·0988														
		10. 45	·0984														
		10. 59	·0987														

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.





Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.			
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.		
Jan. 11 23. 22 23. 41 23. 59	21. 13. 50 12. 10 13. 10	Jan. 11 18. 33 19. 34 19. 45 19. 50 20. 4 20. 26 20. 43 21. 47 22. 0 22. 47 23. 7 23. 59	.0990 *** .0972 .0978 .0972 .0980 *** .0970 .0976 *** .0966 .0956 *** .0961 .0956 *** .0960																
Jan. 12 0. 0 0. 36 0. 53 1. 25 1. 45 3. 40 5. 7 6. 13 8. 38 8. 44 9. 6 11. 46 12. 13 13. 14 14. 52 15. 16 15. 25 15. 51 16. 14 17. 3 19. 45 22. 30 22. 55 23. 25 23. 49 23. 59	21. 13. 10 13. 55 12. 0 14. 10 13. 0 11. 0 14. 0 10. 0 9. 0 10. 40 8. 35 7. 30 14. 5 4. 50 11. 40 9. 30 10. 25 8. 30 10. 50 9. 15 8. 50 12. 30 11. 0 14. 0 12. 15 13. 0	Jan. 12 0. 0 0. 37 0. 46 1. 14 1. 43 2. 18 3. 2 3. 37 4. 46 5. 20 6. 40 7. 52 8. 7 8. 26 8. 43 8. 50 10. 36 10. 56 11. 20 11. 42 12. 0 12. 11 12. 32 13. 5 14. 6 15. 32 18. 22 19. 10	.0960 .0961 .0959 .0961 *** .0959 *** .0962 *** .0951 *** .0959 *** .0963 *** .0959 *** .0968 *** .0967 .0971 .0966 .0969 .0962 *** .0971 .0964 .0967 .0963 .0972 .0966 .0975 .0950 *** .0963 *** .0972 *** .0973 .0976 ***	Jan. 12 0. 0 2. 15 3. 27 9. 20 13. 17 23. 59	.01836 .01735 .01813 .01841 *** .01912 .02193	Jan. 12 1. 0 3. 0 9. 0 22. 45	41. 0 43. 3 42. 7 39. 0	41. 2 43. 7 43. 3 40. 5	Jan. 12 0. 0 0. 15 1. 10 1. 40 1. 55 2. 37 3. 55 5. 0 5. 15 5. 35 5. 54 6. 40 8. 30	21. 13. 0 17. 0 *** 9. 30 14. 0 14. 10 10. 0 8. 0 6. 30 7. 0 6. 0 9. 10 9. 40 8. 55 8. 30 10. 30 8. 35 10. 40 7. 30 7. 50 6. 30 8. 30 *** 12. 0 11. 50 12. 50 11. 0 13. 30 11. 0 14. 50 13. 0 13. 0 12. 30 13. 0 (†)	Jan. 12 22. 50 23. 20 23. 59	.0961 .0964 *** .0955	Jan. 13 0. 0 0. 7 0. 29 0. 53 1. 20 1. 55 2. 31 3. 6 5. 13 7. 32 7. 54 9. 10 14. 13 15. 24 16. 45 17. 12 18. 9 19. 46 21. 10 23. 22	Jan. 13 0. 0 2. 2 10. 7 22. 20 23. 59	.0955 .0955 .0950 .0956 .0941 .0941 .0952 .0941 .0953 *** .0949 .0956 .0971 .0975 .0970 .0987 .0976 .0983 .0975 .0956 .0960 (†)	Jan. 13 10. 23 21. 0	.02193 .02184 .01836 .02471 .02470	Jan. 13 10. 23 21. 0	43. 0 36. 7 43. 0 37. 2
Jan. 14 0. 0 0. 15 1. 10 1. 40 1. 55 2. 37 3. 55 5. 0 5. 15 5. 35 5. 54 6. 40 8. 30	21. 11. 30 11. 0 13. 0 10. 30 13. 40 9. 20 10. 0 11. 30 5. 0 8. 0 9. 30 8. 0	Jan. 14 0. 0 0. 15 1. 10 1. 40 1. 55 2. 37 3. 55 5. 0 5. 15 5. 35 5. 54 6. 40 8. 30	(†) .0958 .0955 .0959 .0942 .0951 *** .0956 *** .0950 .0951 .0961 .0956 .0960	Jan. 14 0. 0 1. 42 8. 37 13. 6 22. 15 23. 59	.02470 .02421 .02057 .02192 .02606 .02672	Jan. 14 1. 0 3. 0 9. 0 21. 0	39. 5 41. 9 40. 7 35. 0 39. 6 41. 2 40. 2 36. 2												

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermo- meters.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermo- meters.			
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.		
Jan. 14		Jan. 14																	
9. 22 9. 46 9. 54 10. 7 10. 35 10. 47 11. 10 14. 7 16. 0 16. 51 23. 0 23. 30 23. 59	21. 10. 15 5. 35 21. 6. 15 20. 58. 30 21. 8. 10 7. 0 9. 10 10. 0 9. 15 7. 30 15. 0 13. 15 13. 30	6. 10 6. 22 7. 16 7. 22 7. 52 9. 0 9. 40 9. 46 10. 16 10. 30 10. 43 11. 40 12. 17 14. 3 14. 42 14. 50 15. 15 15. 46 17. 16 18. 59 20. 45 22. 15 22. 57 23. 18	.0958 .0961 .0961 .0958 .0964 (†) .0966* .0979 .0988 .0967 .0967 .0972 .0972 .0975 .0972 .0977 .0975 .0977 .0978 .0984 .0980 .0979 .0964 .0959 .0963 (†)	h m		h m	o o						h m		h m	o o			
Jan. 15		Jan. 15		Jan. 15		Jan. 15													
0. 30 1. 10 1. 40 2. 5 2. 50 3. 13 4. 7 4. 35 5. 0 5. 36 8. 25 12. 10 12. 44 14. 51 15. 20 15. 52 16. 30 17. 30 20. 45 23. 59	21. 13. 0 13. 30 12. 0 12. 35 11. 30 9. 40 11. 0 9. 0 8. 15 10. 0 8. 35 10. 0 10. 10 8. 30 10. 50 9. 15 11. 0 10. 15 14. 30	1. 0 3. 0 9. 30 21. 13 11. 12 13. 50 16. 38 23. 4 23. 59	.0957* .0957* .0973* .0968* .02672 .02635 .02311 .02370 .02442 .02610 .02921 .02931	o o 1. 37 7. 25	.02672 .02635 .02311 .02370 .02442 .02610 .02921 .02931	1. 0 3. 0 9. 30 21. 13	38. 0 40. 0 38. 2 32. 0	38. 0 39. 4 39. 3 33. 9											
Jan. 16		Jan. 16		Jan. 16		Jan. 16													
0. 0 0. 50	21. 14. 30 14. 0	1. 0	(†) .0965*	o o 1. 42	.02931 .02852	o o 1. 0	34. 0 35. 7	35. 0 36. 1											
Jan. 16		Jan. 16																	
3. 30 6. 10: 10. 30 11. 15 12. 42 12. 50 13. 1 14. 15 20. 15 23. 59	21. 9. 30 9. 0 6. 10 7. 15 6. 30 8. 0 7. 0 8. 20 9. 10 14. 0	1. 28 3. 32 4. 36 *** 8. 18 9. 36 *** 12. 48 13. 15 14. 2 *** 18. 30 20. 8 22. 13 22. 45 23. 3 23. 59	.0967 .0961 .0959 *** .0957 .0954 *** .0958 .0967 *** .0961 *** .0971 *** .0970 .0957 .0956 .0960 .0956																
Jan. 16		Jan. 16																	
6. 46: 11. 22 16. 21 23. 59		6. 46: 11. 22 16. 21 23. 59	.02257 .01979 .01918 .02021																
Jan. 16		Jan. 16																	
3. 0 6. 0 9. 0 12. 0 18. 0 21. 0		3. 0 6. 0 9. 0 12. 0 18. 0 21. 0	39. 0 41. 1 41. 8 42. 8 40. 5 40. 7 41. 0																
Jan. 17		Jan. 17																	
0. 0 0. 57 1. 30 3. 6 6. 10 6. 39 7. 15 11. 45 13. 0 13. 36 14. 30: 15. 15 15. 55 17. 35: 21. 0 23. 59	21. 14. 0 11. 30 13. 0 9. 50 9. 15 7. 0 9. 0 8. 10 8. 40 13. 0 8. 40 10. 15 9. 5 9. 50 8. 30 13. 5	0. 0 0. 7 0. 30 0. 46 0. 52 1. 36 2. 27 5. 36 6. 28 6. 52 14. 20 16. 16 18. 26 19. 46 22. 33 23. 59	.0956 .0956 .0963 .0960 .0952 .0955 .0950 *** .0952 .0960 *** .0970 *** .0977 .0979 .0978 *** .0952 *** .0948																
Jan. 17		Jan. 17																	
0. 0 1. 57 11. 6 13. 50 22. 43 23. 59		0. 0 1. 57 11. 6 13. 50 22. 43 23. 59	.02021 .01932 .02011 .01982 .02056 .02419 .02407																
Jan. 17		Jan. 17																	
0. 0 1. 0 3. 0 9. 0 21. 0 40. 2		0. 0 1. 0 3. 0 9. 0 21. 0 40. 2	41. 6 42. 8 45. 7 45. 5 40. 2 41. 0																
Jan. 18		Jan. 18																	
0. 0 2. 40 4. 44 5. 45 6. 6 9. 45 11. 20 12. 27 13. 0 15. 23 15. 46 16. 27 17. 5	21. 13. 5 12. 0 7. 35 10. 30 9. 20 7. 30 8. 0 7. 30 5. 30 9. 35 8. 10 10. 0 7. 30 ***	0. 0 0. 50 1. 28 2. 16 2. 46 3. 17 4. 22 *** 6. 50 7. 32 *** 10. 43	.0948 *** .0947 .0949 .0942 .0942 .0948 *** .0942 *** .0950 *** .0962																
Jan. 18		Jan. 18																	
0. 0 1. 50 5. 32 5. 46 11. 36 22. 20 23. 59		0. 0 1. 50 5. 32 5. 46 11. 36 22. 20 23. 59	.02407 .02286 .01955 .01996 .02003 .02062 .02557 .02456																
Jan. 18		Jan. 18																	
1. 0 3. 0 9. 0 21. 0		1. 0 3. 0 9. 0 21. 0	43. 0 46. 0 47. 0 41. 0 44. 6 46. 3 48. 0 41. 8																

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## INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.					
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.				
Jan. 21 15. 30 16. 15 19. 36 22. 6 22. 31 23. 0 23. 40 23. 59	21. 11. 10 10. 30 *** 10. 0 13. 0 12. 25 14. 30 13. 30 16. 0	Jan. 21 8. 31 9. 20 9. 51 10. 12 10. 17 10. 26 10. 58 11. 16 14. 0 15. 49 18. 56 20. 47 21. 4 21. 27 21. 45 22. 6 22. 20 22. 45 23. 35 23. 48 23. 59	.0967 .0963 .0970 .0984 .0978 .0983 .0970 .0977 *** .0979 *** .0976 *** .0977 *** .0973 .0964 .0961 .0955 .0960 .0957 .0960 *** .0952 .0959 .0954																		
Jan. 22 0. 2 0. 45 2. 35 2. 50 3. 10 4. 15 5. 15 6. 5 6. 16 6. 37 6. 53 7. 12 7. 40 7. 51 8. 15 8. 36 8. 55 9. 33 9. 53 10. 0 10. 26 11. 3 11. 32 11. 56 12. 3 12. 17	21. 17. 0 13. 50 *** 15. 0 13. 10 14. 10 *** 9. 40 14. 0 *** 7. 30 12. 0 8. 0 21. 9. 25 20. 29. 10 21. 11. 10 20. 55. 0 21. 9. 40 1. 0 8. 45 11. 40 8. 10 9. 30 4. 30 *** 7. 44 10. 15 7. 30 10. 0 13. 15 10. 50	Jan. 22 0. 0 0. 8 0. 16 0. 57 1. 56 2. 10 2. 35 2. 46 3. 15 3. 46 4. 59 5. 20 5. 36 5. 45 6. 0 6. 11 6. 33 6. 45 6. 49 7. 6 7. 10 7. 20 7. 44 8. 0 8. 17 8. 30 8. 43 8. 48	.0954 .0955 .0948 *** .0946 *** .0952 .0949 .0956 .0947 .0954 .0936 .0959 .0950 .0967 .0961 .0994 .0997 .0925 .0936 .0922 .0961 .0946 .0980 .0915 .0950 .0928 .0934 .0946 .0934	Jan. 22 0. 0 3. 41 6. 30 6. 49 7. 10 7. 26 8. 17 8. 40 12. 33 13. 17 16. 36 22. 13 23. 59	.02859 .02623 .02421 .02501 .02762 .02505 *** .02436 .02477 *** .02409 *** .02328 *** .02477 *** .02691 .02700	Jan. 22 1. 0 3. 0 9. 0 21. 0	41.3 41.8 44.0 45.0 45.1 41.6 42.2														
		Jan. 22 12. 40 12. 55 14. 0 14. 30 15. 0 15. 10 18. 28 18. 32 18. 44 18. 50 19. 30 19. 42 20. 7 21. 20 23. 59	21. 14. 0 8. 0 *** 12. 0 *** 10. 5 11. 10 9. 50 *** 10. 30 5. 35 12. 10 7. 10 *** 21. 9. 30 20. 55. 0 21. 14. 30 *** 12. 0 *** 13. 30	Jan. 22 9. 3 9. 12 9. 18 9. 43 9. 48 10. 3 10. 25 10. 36 10. 45 10. 56 11. 8 11. 30 11. 45 12. 17 13. 36 14. 22 14. 47 15. 20 17. 16 18. 37 18. 45 18. 50 18. 58 19. 7 19. 50 20. 2 20. 35 20. 41 22. 30 23. 4 23. 59	.0939 .0930 .0937 *** .0930 .0936 .0926 .0941 .0939 .0935 .0937 .0932 .0921 .0927 .0915 *** .0944 *** .0936 *** .0944 *** .0940 *** .0954 *** .0953 .0941 .0961 .0942 .0954 *** .0948 .0965 *** .0927 .0938 *** .0917 *** .0930 .0916																
		Jan. 23 0. 0 1. 15 1. 45 2. 15 2. 54 4. 0 4. 40 4. 55 5. 21 7. 7 7. 35 7. 51 8. 6 8. 30	21. 13. 30 *** 13. 25 17. 30 16. 0 18. 30 15. 0 7. 0 7. 40 12. 15 8. 30 10. 30 9. 0 9. 10 6. 0	Jan. 23 0. 0 0. 46 0. 51 1. 17 1. 33 1. 48 2. 32 3. 47 4. 5 4. 18 4. 55 6. 4 6. 47 7. 6	.0916 .0920 .0925 .0914 .0915 .0908 .0926 *** .0934 .0930 .0921 .0947 .0943 .0946 .0954	Jan. 23 0. 0 1. 48 4. 7 4. 36 5. 41 7. 50 9. 32 10. 34 13. 47 14. 31 16. 22 22. 30	.02700 .02631 .02492 .02491 .02398 .02307 .02285 *** .02252 .02371 .02337 .02309 *** .02748 ***	Jan. 23 0. 0 1. 0 3. 0 6. 0 9. 0 12. 0 18. 0 21. 0	43.0 43.2 43.7 45.0 45.7 45.6 44.9 45.3 44.5 45.0 41.0 42.0 40.5 42.5												

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.	
Jan. 24 22.40 23.7 23.59	21.17.0 21.0 18.10	Jan. 24 15.27 15.36 15.47 17.5 17.16 17.47 18.0 18.47 19.36 19.47 20.36 20.47 21.40 21.47 23.40 23.44 23.59	.0920 .0932 .0918 .0912 .0923 .0928 .0923 .0941 .0925 .0930 .0917 .0928 .0900 .0911 .0912 .0921 .0903															
Jan. 25 0.0 0.36 1.0 1.22 1.35 1.45 1.55 2.10 2.17 2.44 2.52 3.15 3.25 3.31 3.45 4.5 4.25 4.31 4.39 4.55 5.0 5.10 5.17 5.28 5.40 5.54 6.0 6.10 6.14 6.18 6.25 6.32	21.18.30 18.30 22.25 18.40 23.30 20.15 22.30 19.30 24.30 17.30 19.30 15.25 15.0 17.0 17.55 21.22.30 20.49.0 51.15 20.47.20 21.3.0 1.10 10.0 5.30 8.35 2.30 11.30 9.10 12.0 8.30 22.30 13.0 21.22.0	Jan. 25 0.0 1.6 1.21 1.35 1.43 1.56 2.4 2.15 2.26 2.35 2.46 3.17 3.22 3.47 4.17 4.36 4.47 5.6 5.13 5.30 5.45 5.50 6.7 6.15 6.19 6.25 6.31 6.50 6.57 7.6 7.17	.0903 .0927 .0912 .0921 .0910 .0918 .0912 .0938 .0921 .0938 .0915 .0923 .0914 .0925 .0893 .0962 .0970 .0935 .0906 .0913 .0942 .0930 .0937 .0962 .0932 .0945 .0878 .0921 .0910 .0919 .0899	Jan. 25 0.0 1.7 4.15 4.37 5.18 5.46 6.48 8.40 8.51 9.22 9.40 10.2 10.39 12.17 14.46 15.45 16.20 17.58 19.15 23.2 23.59	.02250 .02269 .02071 .02130 .01931 .01936 .01876 .01902 .01843 .01887 .01772 .01839 .01863 .01740 .01823 .01796 .01668 .01751 .01762 .02028 .02031	Jan. 25 1.0 3.0 9.0 21.0	50.0 52.3 53.1 50.3	50.5 52.0 52.5 51.8										
Jan. 25 6.41 6.55 7.10 7.25 7.31 7.46 7.55 8.6 8.15 8.39 8.49 9.4 9.21 9.30 9.50 9.55 10.8 10.40 10.58 11.13 11.45 11.55 12.1 12.15 12.30 13.7 13.22 14.10 14.45 14.55 15.24 15.47 16.25 16.45 17.53 18.30 18.50 19.40 20.10 20.25 20.30 20.47 21.38 21.55 22.30 23.59	20.53.10 21.2.5 6.20 3.0 9.15 9.30 7.30 9.0 5.0 4.30 15.0 3.0 8.0 28.5 4.10 6.0 1.10 1.0 21.5.0 20.57.0 21.6.0 4.0 6.10 0.0 4.30 5.5 21.7.30 20.59.0 21.14.30 9.30 1.0 25.0 5.35 11.0 17.0 19.10 15.40 20.0 18.0 20.5 14.35 9.35 10.30 16.35 19.30	Jan. 25 7.25 8.30 8.42 8.57 9.8 9.27 9.36 9.52 10.2 10.50 11.7 11.26 11.41 12.0 12.15 12.27 13.34 14.12 14.35 15.10 15.37 15.45 15.50 16.12 16.38 16.45 16.56 17.11 17.45 18.45 19.5 19.34 20.8 21.40 22.17 23.0 Jan. 26 0.0 0.47 0.15 2.10	.0908 *** .0905 .0925 .0889 .0899 .0937 .0883 .0908 .0896 .0924 .0901 .0925 .0916 .0942 .0926 .0941 .0918 .0947 .0935 *** .0945 .0934 .0916 .0927 .0922 .0943 .0929 .0938 .0933 *** .0937 *** .0928 .0915 .0910 *** .0925 *** .0902 *** .0923 *** .0912 (†)															

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																												
							Of H.F. Magnet.	Of V.F. Magnet.								Of H.F. Magnet.	Of V.F. Magnet.																											
Jan. 27 13. 40 16. 30 20. 5 20. 45 23. 59	21. 9. 30 10. 55 9. 30 7. 0 14. 30	Jan. 27 13. 20 15. 0 18. 53 21. 7 22. 6 23. 44 23. 59	*0938 *** *0937 *** *0944 *** *0921 *** *0927 *0919 *0913	h m		h m	o	o	Jan. 29 9. 55 10. 40 11. 55 12. 46 13. 25 14. 17 14. 45 16. 10 17. 0 17. 34 17. 51 18. 5 21. 2 23. 59	21. 42. 10 20. 59. 10 21. 7. 0 5. 0 13. 0 4. 30 9. 30 *** 11. 35 *** 10. 0 10. 50 9. 0 10. 30 *** 10. 0 *** 16. 50	Jan. 29 7. 10 7. 18 7. 33 8. 36 9. 20 9. 46 10. 5 10. 42 12. 33 12. 47 13. 15 14. 20 15. 7 17. 6 17. 45 19. 50 20. 37 21. 56 23. 17 23. 59	*0951 *0945 *0952 *** *0949 *0932 *0965 *0960 *0916 *** *0937 *0930 *0952 *** *0940 *** *0941 *** *0952 *0960 *** *0964 *** *0961 *** *0940 *** *0932 *** *0932	h m	h m	o	o	Jan. 30 0. 0 0. 25 0. 33 0. 40 1. 4 1. 47 6. 30 10. 15 15. 55 20. 45 22. 35 23. 59	21. 17. 0 19. 30 17. 0 19. 0 13. 10 14. 50 9. 30 8. 10 10. 55 8. 15 13. 0 16. 0	Jan. 30 0. 0 0. 27 *** 1. 0 1. 56 2. 17 4. 36 6. 35 *** 10. 3 15. 8 19. 53 22. 2 23. 59	*0932 *0937 *** *0926 *0937 *0935 *0937 *0949 *** *0949 *** *0956 *** *0961 *** *0937 *** *0922	Jan. 30 0. 0 3. 6 10. 8 17. 40 23. 20 23. 59	*02449 *02391 *02153 *02231 *02320 *02300	Jan. 30 0. 0 1. 0 3. 0 6. 0 10. 25 12. 0 18. 0 21. 0	42. 3 43. 1 46. 0 47. 0 47. 0 48. 1 46. 8 44. 5 45. 7	43. 2 44. 8 46. 3 47. 5 48. 1 47. 7 45. 3 45. 7	Jan. 29 0. 0 1. 40 2. 10 5. 34 6. 16 6. 43 7. 5 7. 25 7. 30 7. 48 8. 24 9. 13 9. 35	21. 14. 30 16. 35 14. 50 9. 25 10. 0 8. 50 9. 30 5. 5 6. 0 4. 0 7. 40 21. 7. 0 20. 41. 0	Jan. 29 0. 0 1. 17 1. 36 1. 45 *** 3. 20 4. 35 5. 16 5. 27 5. 52 6. 36 7. 0	*0926 *0928 *0934 *0929 *** *0933 *** *0929 *0935 *0933 *0938 *0936 *0938	(†)	(†)	Jan. 29 1. 0 3. 0 9. 0 21. 0	43. 0 45. 0 48. 7 51. 5 44. 3	19. 53 22. 2 23. 59	*0961 *** *0937 *** *0922	Jan. 31 0. 0 0. 20 0. 46 1. 16 2. 45	21. 16. 0 17. 0 15. 55 17. 0 15. 0	Jan. 31 0. 0 0. 12 0. 26 0. 55 1. 26	*0922 *0918 *0925 *0920 *0925 ***	Jan. 31 0. 0 1. 17 3. 20 6. 13 9. 6 10. 25	*02300 *02231 *01995 *01662 *01725 *01786	Jan. 31 0. 0 1. 0 3. 0 9. 0 21. 0	47. 6 48. 4 51. 2 50. 4 46. 0	47. 3 48. 6 51. 2 50. 4 47. 6
Jan. 29 0. 0 1. 40 2. 10 5. 34 6. 16 6. 43 7. 5 7. 25 7. 30 7. 48 8. 24 9. 13 9. 35	21. 14. 30 16. 35 14. 50 9. 25 10. 0 8. 50 9. 30 5. 5 6. 0 4. 0 7. 40 21. 7. 0 20. 41. 0	Jan. 29 0. 0 1. 17 1. 36 1. 45 *** 3. 20 4. 35 5. 16 5. 27 5. 52 6. 36 7. 0	*0926 *0928 *0934 *0929 *** *0933 *** *0929 *0935 *0933 *0938 *0936 *0938	(†)	(†)	Jan. 29 1. 0 3. 0 9. 0 21. 0	43. 0 45. 0 48. 7 51. 5 44. 3	19. 53 22. 2 23. 59	*0961 *** *0937 *** *0922	Jan. 31 0. 0 0. 20 0. 46 1. 16 2. 45	21. 16. 0 17. 0 15. 55 17. 0 15. 0	Jan. 31 0. 0 0. 12 0. 26 0. 55 1. 26	*0922 *0918 *0925 *0920 *0925 ***	Jan. 31 0. 0 1. 17 3. 20 6. 13 9. 6 10. 25	*02300 *02231 *01995 *01662 *01725 *01786	Jan. 31 0. 0 1. 0 3. 0 9. 0 21. 0	47. 6 48. 4 51. 2 50. 4 46. 0	47. 3 48. 6 51. 2 50. 4 47. 6																										

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							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.																								
Feb. 2 13.44 13.58 14.16 15.12 15.58 17.23 21.44 22.36 23.59	21. 7. 0 7. 20 13. 0 6. 40 9. 10 *** 7. 35 *** 9. 10 12. 0 13. 30	Feb. 2 9. 5 9. 18 9. 58 10. 15 10. 50 11. 2 11. 15 12. 35 13. 6 13. 45 14. 15 14. 37 15. 13 16. 27 19. 50 21. 26 22. 37 23. 36 23. 59	.0938 .0930 .0941 .0935 .0942 .0937 .0944 *** .0944 .0954 .0943 .0962 .0955 .0954 .0961 *** .0963 .0955 .0940 .0946 .0942	" "	" "	" "	o o	o o	Feb. 4 17.50 20.50 23.59	21. 9. 50 8. 0 14. 10	Feb. 4 9.35 10.8: 10.42 12. 0 14. 26 17. 20 19. 27 20.46 21.49 22. 28 23.59	.0943 .0961 .0944 .0953 *** .0953 *** .0956 .0957 .0950 *** .0937 *** .0940 *** .0936	" "	" "	Feb. 5 0. 0 1.35 2. 9 2.39 3. 5 5.25 9. 0 15. 0 20.46 23.30 23.59	21. 14. 10 *** 14. 40 13. 0 13. 0 12. 0 9. 40 9. 55 10. 30 *** 8. 0 12. 15 12. 50	Feb. 5 0. 0 2. 7 4.42 6.55 8.16 9.38 11.40 13.52 16.40 18.28 19.46 20.17 22. 7 23.59	.0936 *** .0930 *** .0936 .0947 .0952 .0952 *** .0959 *** .0954 .0961 .0963 .0962 .0963 .0946 *** .0937	Feb. 5 0. 0 1.47 6. 0 9.37 15.36 18.47 23.59	.02031 { .02040 .02262 .02063 .02061 .02144 .02223 .02250	Feb. 5 1. 0 3. 0 9. 0 21. 15	49.0 50.0 49.8 48.0	49.0 49.3 49.7 48.0	Feb. 3 0. 0 0.23 1. 0 1.58 5.30 6.35 8.46 11.30 17.55 18.50 19.40 21.35 22.55 23.59	21. 13. 30 13. 30 15. 10 15. 0 10. 30 10. 55 8. 45 9. 15 *** 9. 30 10. 45 9. 5 9. 10 14. 0 *** 14. 0	Feb. 3 0. 0 0.18 0.35 1.15 3.42 5. 0 5.16 *** 6.15 11.36 14.35 20.13 23.27 23.59	.0942 .0941 .0943 .0942 .0954 .0956 .0951 *** .0958 *** .0956 *** .0961 *** .0960 *** .0937 .0935	Feb. 3 0. 0 2.15: 9. 8 14.16 22.45 23.59	.02843 .02842 .02573 .02420 .02500 .02494	Feb. 3 8.30 21. 0	45.5 43.8	46.0 44.5	Feb. 6 0. 0 0.31 0.52 1. 5 1.46 2.10 2.30 2.50 3.51 5.45 7. 6 9.25 12.13 12.36 12.50 16.55	21. 12. 50 12.40 14.10 13.30 15.30 13.10 14.30 14. 0 9. 0 *** 11. 0 9. 0 8. 0 9. 0 7. 5 13.30 *** 10. 5 ***	Feb. 6 0. 0 1.37 6.12 14.47 17.36 22.45 23.59	.0937 *** .0937 .0931 .0934 *** .0936 .0940 .0936 .0937 .0941 *** .0940 *** .0931 *** .0938 .0938 .0934	Feb. 6 0. 0 1.37 6.12 14.47 17.36 22.45 23.59	.02250 .02231 .01976 .02010 .02122 .02489 .02531	Feb. 6 0. 0 1. 0 3. 0 6. 0 9. 0 12. 0 18. 0 21. 0	49.4 50.2 51.7 53.0 53.0 52.0 47.5 48.2	49.2 49.8 50.6 52.0 51.6 47.9 48.0
Feb. 3 0. 0 0.23 1. 0 1.58 5.30 6.35 8.46 11.30 17.55 18.50 19.40 21.35 22.55 23.59	21. 13. 30 13. 30 15. 10 15. 0 10. 30 10. 55 8. 45 9. 15 *** 9. 30 10. 45 9. 5 9. 10 14. 0 *** 14. 0	Feb. 3 0. 0 0.18 0.35 1.15 3.42 5. 0 5.16 *** 6.15 11.36 14.35 20.13 23.27 23.59	.0942 .0941 .0943 .0942 .0954 .0956 .0951 *** .0958 *** .0956 *** .0961 *** .0960 *** .0937 .0935	Feb. 3 0. 0 2.15: 9. 8 14.16 22.45 23.59	.02843 .02842 .02573 .02420 .02500 .02494	Feb. 3 8.30 21. 0	45.5 43.8	46.0 44.5	Feb. 6 0. 0 0.31 0.52 1. 5 1.46 2.10 2.30 2.50 3.51 5.45 7. 6 9.25 12.13 12.36 12.50 16.55	21. 12. 50 12.40 14.10 13.30 15.30 13.10 14.30 14. 0 9. 0 *** 11. 0 9. 0 8. 0 9. 0 7. 5 13.30 *** 10. 5 ***	Feb. 6 0. 0 1.37 6.12 14.47 17.36 22.45 23.59	.0937 *** .0937 .0931 .0934 *** .0936 .0940 .0936 .0937 .0941 *** .0940 *** .0931 *** .0938 .0938 .0934	Feb. 6 0. 0 1.37 6.12 14.47 17.36 22.45 23.59	.02250 .02231 .01976 .02010 .02122 .02489 .02531	Feb. 6 0. 0 1. 0 3. 0 6. 0 9. 0 12. 0 18. 0 21. 0	49.4 50.2 51.7 53.0 53.0 52.0 47.5 48.2	49.2 49.8 50.6 52.0 51.6 47.9 48.0																								

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							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Feb. 6 21. 25: 22. 2 22. 24 22. 35 23. 10 23. 45 23. 59	21. 7. 0 9. 10 8. 0 11. 0 11. 50 14. 30 14. 0	Feb. 6 5. 27 8. 4 10. 7 10. 48 11. 50 12. 7 12. 20 12. 46 14. 30 18. 36 19. 50 21. 47 22. 6 22. 20 22. 45 23. 7 23. 36 23. 59	.0938 *** .0933 *** .0934 .0938 *** .0936 .0939 .0947 .0941 *** .0941 *** .0961 *** .0962 *** .0945 .0948 .0939 .0945 .0939 .0925 .0929														
Feb. 7 0. 0 2. 30 3. 0 3. 26 3. 45: 10. 40 11. 15 12. 43 16. 0 17. 11 17. 26 17. 45 21. 25: 23. 10 23. 45 23. 59	21. 14. 0 *** 15. 0 12. 30 13. 30 11. 10 9. 0 7. 5 10. 0 *** 12. 0 8. 5 9. 40 8. 5 *** 6. 30 *** 13. 0 11. 5 14. 0	Feb. 7 0. 0 0. 35 0. 45 1. 44 2. 18 2. 27 3. 5 3. 18 3. 29 3. 40 4. 8 4. 33 5. 38 8. 16 11. 40 11. 49 12. 17 13. 32 18. 5 19. 15 22. 33	.0929 .0936 .0932 *** .0937 .0937 .0939 *** .0932 .0934 .0937 .0931 .0934 *** .0932 *** .0941 *** .0945 *** .0951 .0946 .0952 *** .0950 *** .0963 *** .0963 *** .0933 ***	Feb. 7 0. 0 1. 5 2. 27 6. 12 7. 46 8. 7 8. 28 14. 20 17. 25 23. 59	.02531 .02500 .02448 .02062 .01953 .01961 .02020 .02092 .02173 .02415	Feb. 7 0. 0 1. 0 3. 0 9. 0 21. 0	48.3 48.8 49.8 51.5 52.3 48.0										
Feb. 8 0. 0 1. 50 2. 0 2. 15 2. 30 4. 10 5. 24 5. 50 7. 44 8. 7 9. 15 17. 0 21. 0: 23. 10 23. 59	21. 14. 0 *** 14. 30 13. 30 15. 20 13. 0 11. 0 9. 0 11. 0 9. 10 6. 40 8. 30 11. 0 8. 0 12. 20 13. 0	Feb. 8 0. 0 0. 8 1. 6 1. 33 2. 4 2. 18 2. 35 3. 17 4. 18 4. 45 5. 18 5. 36 5. 45 7. 15 7. 37 8. 20 8. 36 8. 56 11. 18 13. 3	.0930 .0931 *** .0927 .0930 .0926 .0932 .0928 .0931 .0930 .0932 .0923 .0924 .0922 .0936 .0935 .0942 .0952 .0947 .0950 .0953 ***	Feb. 8 0. 0 0. 8 1. 6 1. 33 2. 4 2. 18 2. 35 3. 17 4. 18 4. 45 5. 18 5. 36 5. 45 7. 15 7. 37 8. 20 8. 36 8. 56 11. 18 13. 3	.02415 .02360 .02049 .02049 .02122 .02088 .02195 .02520 .02498 (f)	Feb. 8 0. 0 0. 8 1. 6 1. 33 2. 4 2. 18 2. 35 3. 17 4. 18 4. 45 5. 18 5. 36 5. 45 7. 15 7. 37 8. 20 8. 36 8. 56 11. 18 13. 3											
Feb. 9 0. 0 1. 58 3. 36 4. 30: 9. 20 9. 39 10. 17 11. 15 11. 30 11. 50 15. 5 15. 35 17. 40 20. 10 21. 30: 22. 46 23. 0	21. 13. 0 15. 20 *** 14. 30 12. 15 8. 35 6. 10 8. 30 8. 10 9. 0 5. 40 10. 35 9. 40 10. 30 *** 8. 40 *** 9. 45 *** 13. 50 13. 0	Feb. 9 0. 0 1. 55 2. 26 3. 15 3. 42 4. 17 5. 35 8. 6 10. 5 10. 33 11. 27 11. 45 11. 52 12. 17 12. 46 13. 47 14. 42	.0926 .0941 .0940 .0947 .0954 .0949 *** .0955 *** .0959 *** .0955 .0959 .0960 .0976 .0975 .0966 .0960 .0962 *** .0961	Feb. 9 0. 0 1. 55 2. 26 3. 15 3. 42 4. 17 5. 35 8. 6 10. 5 10. 33 11. 27 11. 45 11. 52 12. 17 12. 46 13. 47 14. 42	(f)	Feb. 9 0. 0 1. 0 3. 0 9. 0 22. 31	49.6 50.2 51.6 48.2 49.8 43.0 43.5										

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Feb. 9 23. 32 23. 59	21. 16. 5 15. 5	Feb. 9 15. 15 16. 37 17. 13 19. 35 21. 7 21. 42 21. 10 22. 45 23. 0 23. 59	.0966 .0968 .0965 *** .0969 *** .0963 .0959 .0960 .0954 .0956 .0945	h m		h m	o	o	Feb. 10 22. 50 23. 25 23. 59	21. 15. 0 14. 0 19. 0	Feb. 10 17. 50 18. 18 18. 50 20. 6 20. 12 21. 7 21. 16 22. 35 23. 30 23. 42	.0963 .0971 *** .0963 .0963 .0957 .0944 .0945 *** .0925 .0938 .0932 (†)	h m		h m	o	o
Feb. 10 0. 0 0. 35 1. 0 1. 15 1. 36 2. 10 2. 42 3. 0 3. 20 4. 33 5. 35 5. 54 6. 40 7. 0 7. 5 7. 20 7. 45	21. 15. 5 19. 0 18. 20 17. 0 19. 10 18. 0 13. 55 14. 10 17. 0 12. 0 12. 0 13. 0 12. 0 2. 35 3. 30 1. 10 10. 30 ***	Feb. 10 0. 0 0. 45 0. 50 1. 8 1. 56 2. 18 *** 3. 26 *** 4. 45 5. 6 5. 27 5. 48 6. 7 6. 26 6. 56 7. 17 7. 34 7. 50 8. 18 *** 9. 22 *** 10. 0 10. 5 10. 17 10. 35 10. 46 11. 11 11. 33 11. 47 12. 20 12. 40 *** 13. 10 13. 18 13. 30 13. 47 14. 15 14. 40 15. 8 15. 36 16. 7 8. 30 ***	.0945 .0948 .0944 .0949 .0937 .0948 *** .0954 *** .0950 .0955 .0950 .0962 .0951 .0958 .0934 .0934 .0952 .0946 .0953 *** .0959 *** .0953 .0958 .0951 .0983 .0985 .0955 .0962 .0945 .0950 .0958 .0952 .0955 .0962 .0966 .0957 .0963 .0958 *** .0965 .0960 ***	Feb. 10 0. 0 2. 20 7. 0 7. 26 9. 15 10. 50 11. 15 13. 53 16. 30 20. 45 23. 59	.02810 .02861 .02682 .02725 .02678 .02720 .02709 *** .02848 *** .02822 .02850 .02781	Feb. 10 7. 25 21. 0	45.0 40.0 45.5 41.0	Feb. 11 0. 0 0. 40 1. 55 2. 16 3. 23 3. 41 5. 54 6. 24 6. 54 7. 45 9. 16 9. 45 10. 2 10. 45 11. 7 11. 28 11. 42 12. 15 12. 46 13. 25 14. 0 16. 45 17. 20 18. 50 21. 55 22. 5 23. 30 23. 46 23. 59	21. 19. 10 25. 30 15. 30 17. 0 *** 13. 0 14. 0 9. 0 4. 0 7. 30 2. 55 21. 7. 45 20. 57. 30 21. 9. 30 3. 20 7. 0 5. 30 6. 0 10. 0 8. 10 10. 0 *** 10. 0 13. 35 *** 9. 35 *** 7. 0 11. 0 *** 14. 5 12. 10 13. 5	Feb. 11 0. 0 0. 47 3. 17 6. 43 9. 17 10. 6 10. 43 14. 22 20. 16 23. 59	.02781 .02743 (†) .02600 .02271 .02232 .02250 .02231 .02500 .02858 .02631	Feb. 11 1. 0 3. 0 9. 0 21. 0	42.2 45.0 43.0 34.2 43.0 45.3 44.0 37.0				

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.					
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.				
Feb. 18 0. 0 1. 0 3. 15 4. 38 5. 50 6. 10 7. 26 7. 55 8. 25 9. 36 10. 0 10. 30 10. 40 12. 45 17. 30 21. 30 23. 25 23. 59	21. 13. 50 14. 30 *** 15. 0 *** 14. 30 9. 0 11. 40 10. 5 5. 35 6. 5 8. 0 *** 6. 0 7. 5 5. 0 6. 50 8. 0 9. 0 4. 0 11. 10 14. 50	Feb. 18 0. 0 1. 6 3. 32 4. 11 4. 56 5. 35 5. 44 6. 5 6. 20 6. 45 7. 45 8. 6 8. 50 12. 11 17. 46 20. 0 22. 17 23. 59	'0936 *** '0941 *** '0933 '0938 '0930 '0938 '0933 '0938 '0933 '0941 *** '0937 '0945 '0941 *** '0945 *** '0961 *** '0958 *** '0933 *** '0930	Feb. 18 0. 0 2. 56 8. 8 8. 26 12. 50 20. 15 22. 30 23. 59	'02430 '02365 '01772 '01830 '01897 '02320 '02392 '02384	Feb. 18 1. 0 3. 0 9. 5 21. 0	49. 6 52. 3 54. 5 49. 0	50. 2 52. 2 53. 5 49. 7	Feb. 20 16. 30 18. 25 19. 24 20. 20 20. 32 20. 55 22. 2 22. 20 23. 35 23. 59	21. 7. 10 *** 7. 0 10. 0 6. 5 7. 0 5. 55 9. 0 12. 0 14. 0 15. 0	Feb. 20 11. 28 14. 37 15. 36 20. 27 22. 6 22. 17 23. 59	'0963 '0969 '0962 *** '0961 *** '0937 '0942 *** '0928	Feb. 21 0. 0 0. 55 1. 30 2. 7 2. 40 3. 40 4. 40 4. 51 5. 3 5. 10 5. 45 6. 25 6. 32 6. 44 7. 0 7. 15 7. 40 7. 46 8. 30 8. 40 9. 2 9. 19 9. 39 10. 8 10. 45 11. 7 11. 45 12. 46 13. 0 13. 16 13. 45	21. 15. 0 *** 17. 0 16. 30 18. 30 15. 30 *** 15. 35 11. 15 12. 0 10. 30 21. 12. 0 20. 59. 0 21. 14. 0 11. 0 10. 30 13. 0 12. 5 4. 10 5. 0 *** 2. 0 4. 35 6. 30 3. 0 7. 30 8. 30 21. 5. 55 20. 49. 10 21. 0. 30 2. 10 7. 10 7. 40 11. 10 *** 11. 0 10. 0 *** 10. 20 *** 7. 0 10. 55 15. 30 18. 0	Feb. 21 0. 0 4. 7 6. 0 11. 27 18. 16 22. 27 23. 50	'0928 *** '0922 *** '0937 '0931 *** '0945 '0942 '0955 '0950 '0954 '0934 *** '0955 '0930 *** '0929 '0916 '0924 *** '0917 *** '0923 '0933 *** '0939 '0925 '0936 '0912 '0930 '0923 *** '0920 '0938 *** '0928 *** '0940 *** '0946 *** '0948 ***	Feb. 21 0. 0 1. 0 3. 0 9. 0 21. 0	51. 2 51. 8 53. 3 52. 6 47. 8	51. 3 51. 6 53. 1 52. 7 48. 3		
Feb. 19 0. 0 1. 0 1. 25 1. 55 2. 30 3. 35 4. 15 6. 10 16. 10 20. 45 20. 50 21. 7 21. 16 23. 59	21. 14. 55 18. 30 15. 15 14. 10 17. 30 10. 35 12. 25 9. 40 9. 15 5. 10 7. 30 8. 0 5. 30 *** 13. 0	Feb. 19 0. 0 1. 11 2. 45 3. 21 3. 46 4. 42 10. 15 17. 42 19. 50 22. 42 23. 59	'0930 *** '0913 *** '0925 '0913 '0920 *** '0920 *** '0941 *** '0957 *** '0956 *** '0928 *** '0926	Feb. 19 0. 0 1. 2 2. 46 5. 32 11. 7 16. 38 23. 59	'02384 '02360 '02200 '01892 '01983 *** '01990 '02187 '02650	Feb. 19 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	51. 3 53. 8 53. 0 47. 0 46. 6 47. 2 47. 4 47. 4	51. 4 53. 2 53. 5 47. 5 47. 5 47. 4 47. 3	Feb. 20 0. 0 0. 10 0. 21 1. 30 5. 40 10. 45 15. 0	21. 13. 0 14. 5 13. 5 15. 35 9. 40 *** 6. 30 9. 30 *** 10. 47	Feb. 20 0. 0 3. 6 5. 55 6. 46 7. 15 10. 35 10. 47	'0926 *** '0933 '0953 '0955 '0959 *** '0961 '0970	Feb. 20 0. 0 1. 17 5. 16 9. 45 13. 40 15. 6 20. 17 22. 16 23. 59	'02650 '02683 '02581 '02673 '02798 '02873 '02800 '02876 '02862	Feb. 20 0. 0 1. 0 2. 0 3. 0 6. 0 9. 0 12. 0 18. 0 21. 0	48. 2 48. 9 50. 0 50. 7 50. 7 50. 0 49. 3 49. 0 49. 0	48. 3 48. 8 49. 3 49. 4 49. 3 49. 0 49. 8 49. 0 49. 5	Feb. 20 15. 7 16. 0 18. 35 21. 0 22. 2 22. 40 23. 59	11. 0 10. 0 *** 10. 20 *** 7. 0 10. 55 15. 30 18. 0	Feb. 20 13. 12 14. 24 17. 45 20. 15	'0928 *** '0940 *** '0946 *** '0948 ***

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
		Feb. 21 22. 17 23. 59	0923 *** 0920														
Feb. 22 0. 0 0. 20 0. 45 1. 5 1. 35 2. 30 6. 0 7. 15 7. 39 7. 46 7. 58 8. 11 9. 0 10. 20 10. 46 11. 0 11. 55 12. 18 13. 30 14. 10 14. 40 15. 2 17. 0 20. 54 23. 0 23. 59	21. 18. 0 19. 0 23. 0 23. 0 17. 15 19. 30 11. 0 9. 35 7. 10 8. 0 4. 0 9. 30 1. 0 7. 5 4. 10 5. 0 3. 0 0. 55 9. 0 7. 0 4. 0 6. 25 8. 20 6. 10 12. 30 14. 15	Feb. 22 0. 0 0. 26 1. 7 1. 18 2. 40 4. 0 8. 0 8. 15 8. 42 10. 19 10. 47 11. 20 13. 36 14. 15 15. 7 15. 48 19. 0 19. 46 20. 17 21. 42 22. 46 23. 15 23. 35 23. 59	0920 *** 0914 0916 0910 0920 *** 0915 *** 0922 0938 0914 *** 0928 0923 0931 *** 0932 0939 0936 0943 *** 0940 *** 0929 0930 *** 0917 *** 0918 0912 0915 0912	Feb. 22 0. 7 3. 6 4. 17 6. 18 14. 43 23. 59	(†) 02391 02163 02009 01952 01932 02190	Feb. 22 1. 0 3. 0 9. 0 21. 0	51. 4 51. 3 54. 0 54. 0 54. 2 50. 0 52. 0		Feb. 24 0. 0 0. 44 1. 17 1. 45 2. 30 4. 44 5. 20 5. 45 8. 0 8. 25 10. 14 10. 43 12. 0 12. 50 13. 20 13. 46 18. 55 19. 41 20. 40 23. 59	21. 12. 40 14. 0 17. 40 14. 40 15. 10 10. 15 6. 0 8. 30 9. 0 7. 0 8. 0 4. 0 4. 50 12. 0 6. 10 8. 15 7. 10 9. 15 7. 20 *** 12. 45 13. 4 13. 35 14. 2 15. 43 18. 26 21. 27 21. 44 22. 51 23. 0 23. 59	Feb. 24 0. 0 1. 37 12. 29 13. 20 16. 52 23. 59	0936 *** 0930 0937 0933 0944 *** 0948 *** 0937 0943 0942 0947 *** 0937 0939 0937 0948 *** 0946 0954 0962 0958 0958 0952 *** 0955 *** 0955 *** 0934 0935 *** 0923 0916 *** 0921	Feb. 24 0. 0 1. 37 12. 29 13. 20 16. 52 23. 59	02490 02563 02765 02764 02890 02839	Feb. 24 10. 10 21. 0	48. 5 49. 5 46. 2 46. 6	
Feb. 23 0. 0 1. 50 3. 0 5. 0 10. 30 14. 0 20. 55 23. 0 23. 59	21. 14. 15 16. 30 15. 0 10. 30 10. 0 10. 0 6. 30 11. 55 12. 40	Feb. 23 0. 0 0. 56 4. 36 5. 5 8. 25 10. 30 18. 35 19. 47 20. 45 22. 40	0912 0910 *** 0937 0934 *** 0941 0940 *** 0948 *** 0946 *** 0938 *** 0931	Feb. 23 0. 0 1. 36 5. 37 13. 5 23. 59	02190 02188 01967 02002 02490	Feb. 23 1. 0 3. 0 9. 0 22. 0	52. 6 53. 7 53. 0 48. 0 53. 0 50. 5	Feb. 25 0. 0 1. 55 5. 0 7. 35 8. 20 9. 5 10. 0 11. 15 18. 0 21. 15 23. 25 23. 45	21. 15. 35 16. 0 10. 40 9. 50 7. 15 9. 30 7. 50 9. 20 10. 15 9. 10 7. 0 15. 0 13. 45	Feb. 25 0. 0 1. 52 10. 45 21. 30 23. 59	02837 02751 02290 02932 *** 02814	Feb. 25 1. 0 3. 0 9. 0 21. 0	49. 4 49. 8 51. 0 51. 6 50. 5 51. 2 43. 3 45. 3				

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Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Feb. 25 23. 59	21. 14. 50	Feb. 25 22. 42 22. 49 23. 59	.0920 .0926 *** .0936				o	o	Feb. 27 6. 30 6. 55 7. 15 7. 25 7. 40 7. 45 7. 55 8. 8 8. 23 8. 34 8. 44 8. 55 9. 17 9. 25 9. 38 9. 53 10. 0 10. 11 10. 40 10. 53 11. 10 11. 30 12. 30 13. 17 13. 34 14. 31 15. 25 15. 43 16. 2 17. 0 17. 8 17. 24 17. 33 17. 48 18. 5 18. 29 18. 55 19. 40 20. 44 23. 59	21. 27. 0 18. 0 8. 30 21. 13. 0 20. 47. 30 56. 0 20. 54. 0 21. 9. 35 2. 0 6. 0 4. 0 8. 0 3. 5 4. 35 21. 0. 0 20. 59. 0 21. 0. 0 20. 59. 0 52. 40 20. 53. 0 21. 2. 0 20. 40. 0 (†) 46. 40 *** 58. 30 55. 10 *** 59. 0 56. 0 56. 30 20. 53. 30 21. 5. 0 5. 0 9. 5 9. 35 7. 35 9. 0 6. 0 10. 0 11. 0 *** 8. 20 *** 20. 0	Feb. 27 5. 6 5. 17 5. 40 5. 55 6. 33 6. 44 6. 50 7. 6 7. 17 7. 29 7. 43 7. 48 8. 3 8. 10 8. 22 9. 11 9. 27 9. 40 10. 18 10. 42 10. 57 11. 32 11. 42 12. 2 12. 7 12. 22 12. 47 13. 8 13. 20 13. 46 15. 0 15. 27 16. 0 16. 59 17. 45 18. 27 18. 46 20. 5 20. 48 21. 40 22. 12 22. 20 22. 27 23. 8 23. 36 23. 42	Feb. 27 15. 16 19. 18: 23. 36 23. 59	.02150 *** .02294 *** .02331 .02302				
Feb. 26 0. 0 0. 35 1. 15 2. 52 4. 0 10. 10: 16. 20 20. 0 20. 45 21. 0 21. 40 23. 5 23. 56	21. 14. 55 13. 0 15. 20 *** 14. 0 *** 10. 30 7. 35 9. 10 7. 25 4. 35 6. 20 7. 0 *** 14. 5 *** 14. 0 (†)	Feb. 26 0. 0 1. 7 1. 36 2. 17 4. 13 9. 6 9. 17 11. 56 12. 8 13. 7 14. 3 15. 15 15. 36 15. 45 16. 40 18. 46 21. 45 23. 28 23. 45 23. 47 23. 59	.0936 .0932 .0938 .0931 *** .0927 *** .0947 .0941 *** .0948 .0944 *** .0954 *** .0949 *** .0951 .0957 .0954 .0960 *** .0959 .0941 (†) .0944 .0942 .0949 .0946	Feb. 26 0. 0 1. 35: 7. 0 12. 7: 22. 15 23. 59	.02814 .02790 .01945 .01796 .02536 .02643	Feb. 26 1. 0 3. 0 9. 0 20. 0 21. 0	47. 8 47. 7 51. 3 52. 2 52. 5 43. 4 45. 0 43. 2 45. 2										
Feb. 27 0. 15 1. 15 1. 24 1. 35 1. 54 2. 5 2. 30 2. 40 3. 8 3. 16 3. 30 3. 33 4. 0 4. 15 4. 42 4. 55 5. 8 5. 35 6. 7	(†) 21. 18. 15 *** 22. 0 27. 30 24. 0 20. 50 22. 20 17. 40 20. 30 21. 30 29. 40 23. 0 25. 0 18. 5 20. 30 14. 0 15. 30 13. 10 17. 0 8. 0	Feb. 27 0. 0 0. 33 1. 4 1. 8 1. 15 1. 22 1. 27 1. 45 2. 3 2. 20 2. 39 3. 7 3. 16 3. 30 3. 35 3. 50 4. 16 4. 28	.0946 .0938 *** .0945 .0940 .0959 .0942 .0946 .0933 .0940 *** .0931 .0936 *** .0931 .0955 .0936 .0942 .0915 .0927 .0919 ***	Feb. 27 0. 0 1. 47: 3. 55 6. 43 7. 6 7. 17 7. 36 7. 48 8. 20 10. 26 10. 45 11. 50 12. 5 13. 7	.02643 *** .02602 *** .02371 *** .02143 .02182 .02071 .02032 .02100 *** .02003 *** .01991 .02048 *** .01970 .02023 *** .01998 ***	Feb. 27 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 21. 0 22. 0 23. 0	45. 7 46. 0 47. 2 48. 3 48. 3 49. 0 50. 3 50. 0 50. 0 50. 0 50. 7 49. 4 49. 2 49. 2 48. 8 45. 5 46. 0 46. 0 47. 2 47. 0 47. 7 47. 3 47. 9										

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INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																									
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.																								
Mar. 6 18. 30 20. 15 23. 59	° 8. 0 4. 0 16. 40	Mar. 6 17. 12 17. 45 19. 13 23. 12 23. 59	.0944 .0947 .0943 *** .0913 *** .0914	Mar. 6 23. 59	.02731	Mar. 6 20. 0 21. 0 22. 0 23. 0	46.5 46.8 46.8 47.0	47.4 47.3 47.0 46.8	Mar. 6 4. 10 5. 14 5. 19 5. 45 5. 55 6. 20 7. 0 7. 16 7. 30 8. 7 8. 24 8. 40 9. 0 9. 24 9. 30 9. 44 9. 57 10. 31 10. 45 11. 0 11. 44 11. 50 12. 1 12. 10 12. 35 13. 7 13. 32 13. 45 14. 5 14. 15 14. 47 15. 11 15. 23 15. 36 15. 45 16. 3 16. 30 16. 38 16. 43 16. 48 19. 10 20. 0 20. 5 20. 10 22. 0 22. 25 22. 35 22. 45 23. 45 23. 58	° 23. 5 *** 24. 30 29. 30 14. 0 20. 30 14. 50 21. 15 14. 30 17. 25 8. 10 21. 11. 0 20. 58. 0 21. 9. 0 7. 30 4. 0 21. 4. 30 20. 55. 0 21. 14. 10 21. 9. 10 20. 55. 5 21. 28. 30 0. 0 8. 0 4. 25 21. 18. 35 20. 59. 30 20. 59. 10 21. 4. 40 0. 0 6. 5 0. 0 4. 15 11. 35 *** 12. 10 15. 30 *** 15. 10 8. 0 9. 50 9. 0 12. 0 *** 8. 15 *** 10. 30 21. 15. 0 10. 30 *** 17. 20 21. 0 18. 5 23. 0 19. 20 21. 15	6. 40 7. 4 7. 16 7. 39 8. 25 8. 29 8. 40 8. 55 9. 32 9. 46 10. 30 10. 54 (†) 11. 13 11. 44 11. 48 11. 55 11. 59 12. 1 12. 14 12. 21 12. 40 13. 11 13. 27 13. 49 13. 59 14. 10 (†) 14. 30 15. 14 15. 17 15. 24 15. 29 15. 31 15. 40 15. 44 15. 47 15. 55 16. 0 16. 9 16. 12 16. 15 16. 20 16. 26 16. 34 16. 39 16. 45 16. 49 16. 55 18. 11 18. 28 18. 54 19. 0 19. 29 19. 37 19. 42 19. 45 19. 47	.0907 .0888 .0903 .0886 *** .0900 .0894 .0916 .0889 .0882 .0856 .0912 .0852 (†) .0852 .0912 .0903 .0910 .0905 .0907 .0882 .0920 .0854 .0886 .0897 .0870 .0873 .0852 (†) .0852 14. 30 15. 14 15. 17 15. 24 15. 29 15. 31 15. 40 15. 44 15. 47 15. 55 16. 0 16. 9 16. 12 16. 15 16. 20 16. 26 16. 34 16. 39 16. 45 16. 49 16. 55 18. 11 18. 28 18. 54 19. 0 19. 29 19. 37 19. 42 19. 45 19. 47	Mar. 9 9. 42 10. 17 10. 26 10. 45 15. 17 17. 16 18. 35 23. 59	.02042 .01879 .01918 .01830 (†) .02381 .02730 .02822 .02768	Mar. 9 0. 0 1. 10 1. 40 2. 15 5. 0 11. 0 17. 30 21. 5 23. 10 23. 59	21. 16. 45 16. 0 16. 30 14. 5 9. 35 *** 8. 30 8. 15 *** 5. 35 13. 30 14. 40	Mar. 7 0. 0 1. 10 1. 40 2. 15 5. 0 11. 0 17. 30 21. 5 23. 10 23. 59	.0914 *** .0920 .0914 *** .0924 *** .0929 .0935 .0935 *** .0936 *** .0951 .0962 .0965 .0959 *** .0937 *** .0930	Mar. 7 0. 0 1. 56 6. 3 6. 27 9. 25 12. 43 17. 28 20. 37 23. 59	.02731 .02679 .02132 {.02117 .02176 *** .02203 .02351 .02573 *** .02580 *** .02442	Mar. 7 0. 0 1. 0 3. 0 9. 0 21. 0	47.5 48.3 51.0 51.4 50.8	47.2 48.2 51.0 50.8 51.5	Mar. 8 0. 0 5. 0 8. 30 16. 45 18. 52 19. 32 23. 0	21. 14. 50 9. 15 9. 0 8. 30 9. 0 4. 55 *** 22. 50 (†)	Mar. 8 0. 0 3. 2 9. 36 12. 45 17. 3 19. 5 19. 29 19. 37 19. 46 21. 52 23. 59	.0930 *** .0923 *** .0940 *** .0935 .0943 .0939 .0950 .0938 .0949 *** .0938 .0939	Mar. 8 0. 0 1. 6 3. 18 5. 17 13. 36 20. 7 20. 46 21. 55 23. 59	.02442 .02396 .02095 .02016 .02180 .02742 .02843 .02861 .02812	Mar. 8 1. 0 3. 0 9. 0 21. 0	55.6 57.8 57.8 48.2	55.4 57.5 58.5 49.8	Mar. 9 0. 15 1. 15 1. 46 2. 15 2. 50 3. 0 3. 21 3. 50	(†) 21. 22. 30 *** 28. 0 24. 10 26. 30 23. 30 26. 0 23. 0 25. 0	Mar. 9 0. 0 1. 10 1. 44 2. 40 2. 58 3. 14 3. 30 6. 3 6. 27	.0939 .0942 .0925 .0919 .0924 .0921 .0925 (†) .0898 .0902	Mar. 9 0. 0 1. 46 4. 40 5. 37 6. 15 6. 45 7. 7	.02812 *** .02576 *** .02160 *** .02137 .02062 .02051 .02150 ***	Mar. 9 1. 0 3. 0 9. 45 22. 36	51.3 53.9 53.3 48.8	51.6 54.7 53.7 49.2

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.





Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Mar. 15 h m 21. 20 21. 54 22. 51 23. 20 23. 59	° ' " 21. 17. 20 15. 0 *** 21. 30 *** 21. 0 24. 10	Mar. 15 h m 16. 20 18. 36 19. 45 20. 56 22. 2	° '0948 *** '0960 '0961 '0937 '0935 (†)	h m h m		h m h m	° °	° °	Mar. 17 h m 20. 40 22. 8 23. 59	° ' " 21. 11. 0 *** 16. 0 30. 0	Mar. 17 h m 16. 46 18. 55 20. 20 21. 7	° '0970 *** '0976 *** '0961 '0945 (†)	h m h m		h m h m	° °	° °
Mar. 16 0. 0 0. 22 1. 3 1. 40 5. 8 6. 30 7. 55 9. 40 14. 5 14. 55 16. 25 19. 20 21. 0 23. 59	21. 24. 0 *** 24. 5 *** 21. 45 22. 10 *** 15. 40 16. 0 14. 40 16. 0 17. 35 14. 10 13. 20 15. 0 13. 49 13. 5 14. 42 11. 0 *** 15. 15	Mar. 16 h m 0. 37 1. 26 2. 18 3. 7 3. 36 4. 7 7. 45 8. 15 *** 13. 20 13. 49 14. 42 15. 40 18. 55 22. 16 22. 30 23. 59	(†) '0926 *** '0927 '0941 '0943 '0949 '0945 *** '0956 '0950 *** '0956 '0966 '0965 '0959 *** '0972 *** '0944 '0937 *** '0941	Mar. 16 h m 0. 40 3. 30 6. 0 10. 36 16. 7 19. 16 23. 59	(†)	Mar. 16 h m 1. 0 3. 0 9. 16 20. 40	47. 3 47. 0 49. 0 48. 0 41. 0	47. 0 49. 1 48. 5 42. 0	Mar. 18 0. 0 1. 0 1. 28 2. 9 2. 25 2. 54 3. 30 6. 35 14. 21 14. 42 15. 30 16. 25 19. 40 19. 45 20. 25 21. 52 23. 15 23. 59	21. 30. 0 *** 28. 0 31. 10 28. 0 29. 0 27. 35 29. 5 *** 21. 30 15. 30 14. 0 19. 0 14. 15 *** 10. 0 12. 5 10. 30 13. 40 22. 0 24. 0	Mar. 18 h m 0. 29 0. 48 0. 59 1. 17 1. 38 2. 6 2. 47 3. 13 3. 30 4. 8 4. 46 5. 50 8. 22 13. 36 14. 37 15. 5 15. 26 16. 7 17. 50 18. 48 19. 6 19. 33 19. 42 22. 40 23. 0 23. 42 23. 59	(†) '0938 *** '0947 '0939 '0951 '0935 *** '0931 *** '0933 '0936 '0943 '0946 '0919 '0937 *** '0949 *** '0957 *** '0961 '0957 '0959 '0971 *** '0979 *** '0969 '0975 '0968 '0973 *** '0933 '0941 '0927 '0935	h m h m		h m h m	° °	° °
Mar. 17 0. 0 1. 20 3. 35 4. 0 8. 51 9. 8 9. 44 10. 20 11. 15 13. 0 13. 31 14. 0 15. 10 15. 50 16. 27 17. 3 18. 30 19. 39	21. 15. 20 *** 19. 0 *** 18. 30 16. 40 *** 12. 40 9. 10 13. 5 12. 0 14. 30 *** 14. 40 18. 15 15. 35 14. 0 13. 12 12. 30 14. 10 14. 0 *** 11. 0 ***	Mar. 17 h m 0. 0 0. 46 1. 22 3. 15 3. 36 4. 42 5. 18 5. 41 6. 27 8. 36 8. 55 9. 47 10. 25 *** 12. 36 13. 12 13. 40 14. 28 14. 46 15. 29 16. 5	'0941 *** '0947 '0947 '0961 '0958 '0970 '0970 '0966 '0971 *** '0967 '0975 '0962 '0970 *** '0973 '0978 '0972 '0979 '0973 '0971 *** '0977 ***	Mar. 17 h m 0. 0 1. 50 4. 43 9. 45 13. 48 16. 19 16. 50 19. 12 23. 17 23. 59	'02300 '02272 '02291 '02183 '02243 '02329 '02310 *** '02131 '02082	Mar. 17 h m 9. 35 21. 0	43. 2 39. 5	44. 8 40. 6	Mar. 19 0. 0 0. 44 1. 15 2. 0 2. 30 3. 5 4. 0 4. 40 4. 52 5. 10	21. 24. 10 26. 50 23. 30 26. 30 25. 15 26. 0 *** 24. 50 19. 15 21. 30 16. 0	Mar. 19 h m 0. 0 0. 6 0. 32 0. 50 1. 32 3. 35 3. 47 3. 58 4. 7 9. 42	'0935 '0942 '0922 '0908 '0929 *** '0941 '0939 '0946 '0941 ***	h m h m		h m h m	° °	° °

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.













Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																				
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.																			
Apr. 2 14. 25 15. 15 15. 44 16. 29 17. 25 20. 15 23. 59	21. 5. 0 6. 20 4. 50 6. 0 21. 5. 5 20. 58. 55 21. 15. 10	Apr. 2 12. 7 12. 22 13. 7 16. 26 17. 45 19. 39 22. 8 23. 59	.0958 .0953 .0960 *** .0964 .0967 .0959 .0931 *** .0925																																	
Apr. 3 0. 0 1. 40 5. 30 6. 55 9. 0 14. 0 21. 4 23. 59	21. 15. 15 17. 35 7. 0 6. 0 7. 5 21. 6. 55 (†) 20. 59. 0 21. 12. 0	Apr. 3 0. 0 1. 8 2. 59 6. 22 7. 5 7. 47 14. 45 21. 0 21. 4 23. 5 23. 59	.0925 .0928 *** .0925 *** .0943 .0952 .0949 *** .0964 (†) .0948* .0955 *** .0935 *** .0935	Apr. 3 0. 0 1. 37 4. 40 5. 26 7. 5 22. 47 23. 59	.01620 .01586 .01150 .01115 .01210 .01992 .01973	Apr. 3 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	51.3 51.7 53.0 53.8 54.5 55.0 55.6 54.3 53.0 47.7 48.0 48.0 48.0 49.0 49.6	51.7 52.9 53.8 54.8 55.0 56.1 54.5 53.1 48.2 48.0 48.3 49.0 49.6	Apr. 4 0. 0 1. 25 3. 10 4. 55 6. 15 8. 49 13. 15 14. 0 15. 9 15. 16 15. 45 16. 10 16. 20 16. 46 17. 8 18. 40 19. 5 19. 40 19. 48 20. 5 20. 21 20. 30 20. 44 21. 15 22. 24	21. 12. 0 15. 0 13. 0 9. 0 6. 35 6. 0 9. 25 7. 35 6. 45 11. 30 8. 0 12. 35 11. 0 8. 0 8. 35 3. 15 21. 6. 0 20. 54. 35 21. 1. 30 20. 53. 30 59. 35 20. 56. 0 21. 1. 0 20. 59. 0 *** 21. 4. 40	Apr. 4 0. 0 1. 22 1. 50 3. 35 6. 15 7. 28 11. 45 11. 56 12. 22 13. 32 15. 7 15. 19 15. 31 15. 35 16. 12 16. 41 18. 15 18. 44 19. 40 19. 45 20. 7	.0935 .0935 .0931 *** .0934 *** .0947 .0947 *** .0957 .0961 .0955 .0962 *** .0966 .0982 .0976 .0982 *** .0969 .0988 *** .0983 .0991 .0972 .0983 .0962	Apr. 4 0. 0 2. 5 5. 13 7. 15 11. 48 16. 56 21. 45 23. 8 23. 59	.01973 .01850 .01293 *** .01250 *** .01328 .01672 *** .02107 *** .02150 .02133	Apr. 4 0. 0 1. 0 3. 0 9. 0 21. 0	50.3 51.7 54.0 55.0 47.4 50.7 51.8 54.9 55.7 48.2	Apr. 4 0. 0 21. 14. 30 23. 44 23. 59	Apr. 4 20. 18 20. 33 20. 45 23. 0 23. 8 23. 37	.0971 .0955 .0961 .0939 .0927 .0915 (†)	Apr. 4 0. 0 0. 35 2. 6 2. 30 4. 45 5. 15 5. 44 6. 40 7. 15 9. 0 9. 40 10. 11 10. 40 12. 45 15. 10 17. 45 18. 15 21. 7 21. 35 23. 59	21. 14. 5 18. 0 16. 40 13. 35 10. 5 6. 0 4. 30 7. 15 7. 0 10. 0 2. 10 9. 35 5. 0 9. 25 8. 30 5. 45 3. 10 20. 59. 30 21. 0. 30 13. 50	Apr. 4 1. 0 2. 6 2. 17 3. 19 5. 6 7. 13 7. 37 8. 16 9. 29 9. 46 10. 20 10. 46 14. 11 18. 15 21. 0 21. 16 22. 50 23. 59	.0923* .0934 .0942 .0935 *** .0941 .0935 *** .0952 *** .0956 .0964 *** .0962 *** .0971 .0985 .0950 .0959 *** .0961 *** .0979 (†) .0958* .0961 *** .0943 .0945	Apr. 5 0. 0 2. 12 7. 0 10. 26 21. 35 23. 59	Apr. 5 0. 0 2. 12 7. 0 10. 26 21. 35 23. 59	.02133 .02068 .01680 .01552 .02310 .02204	Apr. 5 1. 0 3. 0 9. 0 21. 0	51.5 53.8 54.5 45.3 51.4 54.2 54.5 46.4	Apr. 5 0. 0 3. 15 7. 30 10. 0 19. 26 23. 59	.02204 .02002 .01476 .01125 .01134 .01547 .01652	Apr. 6 0. 0 0. 50 1. 45 2. 10 6. 0 11. 55 13. 45 14. 55 16. 30 16. 45 18. 8 18. 40 19. 9 19. 26 20. 20 21. 15 23. 30	21. 14. 0 15. 45 14. 0 15. 0 6. 40 8. 0 8. 0 5. 10 5. 35 3. 30 4. 30 21. 2. 0 20. 57. 30 21. 1. 40 20. 59. 30 21. 1. 0 14. 0	Apr. 6 0. 0 3. 15 7. 30 10. 0 19. 26 23. 59	.0945 .0939 .0946 .0941 *** .0956 *** .0961 *** .0966 .0975 *** .0973 .0976 .0976 .0970 ***	Apr. 6 1. 0 3. 0 9. 0 21. 3	49.0 52.4 53.4 47.6 49.8 52.6 53.0 48.7

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Apr. 6 23. 59	21. 14. 35	Apr. 6 17. 11 17. 46 18. 47 19. 8 19. 46 21. 25 23. 59	.0976 *.0974 *** .0959 .0964 *.0963 *** .0947 *** .0942														
Apr. 7 0. 0 1. 0 5. 43 6. 6 7. 54 8. 30 9. 0 9. 27 10. 45 11. 20 11. 41 12. 54 14. 50 17. 40 18. 16 19. 2 19. 24 20. 35 22. 10 23. 59	21. 14. 40 16. 10 6. 0 7. 5 1. 30 7. 0 5. 0 11. 10 1. 35 6. 0 5. 5 8. 0 8. 10 5. 0 1. 25 21. 0. 30 20. 58. 35 21. 0. 0 7. 0 *** 17. 35	Apr. 7 0. 0 0. 39 4. 20 4. 37 5. 5 6. 4 6. 45 7. 6 7. 18 7. 50 8. 17 8. 46 9. 7 9. 26 9. 47 10. 8 10. 37 11. 9 11. 34 11. 47 13. 3 16. 59 18. 8 18. 26 18. 42 19. 43 21. 50 22. 55 23. 46	.0942 *.0950 *** .0961 .0966 *.0958 *** .0970 .0983 .0975 .0975 *** .0963 .0968 .0953 .0955 .0968 .0938 .0966 .0952 .0966 .0962 *.0966 *.0963 .0976 .0977 .0975 .0980 *** .0968 .0948 *** .0942 *.0935 (†)	Apr. 7 0. 0 2. 29 6. 45 10. 47 18. 46 23. 59	.01652 .01682 .01100 .01380 .01845 .01711	Apr. 7 9. 0 21. 0	51. 0 45. 1	52. 0 45. 2									
Apr. 8 0. 0 0. 50 1. 6 1. 40 1. 56 2. 50 4. 54	21. 17. 35 17. 30 *** 20. 0 17. 10 18. 20 18. 0 *** 12. 10	Apr. 8 1. 0 2. 30 3. 47 4. 17 4. 40 4. 56	(†) *.0942 *.0940 *** .0946 .0952 .0962 *** .0959	Apr. 8 0. 0 9. 0 14. 46 15. 15 21. 45 23. 59	.01711 .01070 .01253 .01220 {.01825 {.01795 .01580	Apr. 8 1. 0 3. 0 9. 0 21. 0	50. 3 52. 7 52. 5 45. 0	50. 2 52. 8 52. 5 45. 0									
Apr. 8 5. 41 6. 52 7. 25 8. 0 8. 55 9. 45 10. 5 10. 50 11. 4 11. 27 11. 41 12. 0 12. 10 13. 25 14. 4 14. 40 15. 8 15. 36 16. 55 19. 40 20. 42 23. 59	21. 6. 30 7. 50 5. 45 7. 10 8. 0 4. 15 6. 0 2. 5 5. 35 0. 30 21. 3. 40 20. 58. 5 20. 57. 40 21. 1. 10 20. 58. 30 21. 12. 35 20. 58. 20 20. 58. 0 21. 6. 0 *** 0. 0 *** 0. 30 *** 13. 35	Apr. 8 5. 30 6. 18 7. 6 7. 26 7. 45 8. 16 8. 31 9. 4 9. 47 10. 12 10. 47 11. 0 11. 15 11. 47 12. 2 12. 21 12. 46 14. 4 14. 45 15. 2 15. 26 16. 35 18. 19 19. 50 22. 9 23. 12 23. 59	.0944 *.0955 *.0958 .0950 .0948 .0955 .0949 *** .0962 *** .0954 *.0959 *** .0954 *.0966 .0947 .0963 .0960 .0971 .0955 *** .0973 *** .0961 .0962 .0979 *** .0958 *** .0967 .0957 .0927 .0925 .0928														
Apr. 9 0. 0 1. 0 1. 50 5. 30 7. 30 8. 0 8. 25 9. 10 10. 0 11. 15 11. 27 12. 0 13. 47 14. 20 15. 0 16. 35 17. 0 18. 7 20. 5 20. 50	21. 13. 40 *** 15. 10 15. 30 7. 0 7. 0 5. 45 8. 0 21. 6. 0 20. 58. 35 *** 21. 2. 35 1. 10 4. 0 6. 25 2. 0 1. 0 4. 5 4. 0 5. 10 0. 0 1. 35	Apr. 9 0. 0 1. 8 1. 35 1. 46 2. 37 5. 3 5. 17 8. 22 8. 39 9. 12 10. 26 10. 56 11. 20 11. 42 12. 48 13. 46 15. 12 15. 26 15. 45	.0928 .0937 .0934 .0939 .0934 .0946 .0943 .0956 .0952 .0956 *** .0944 .0945 .0961 .0952 *** .0956 .0972 *** .0963 .0968 .0963	Apr. 9 0. 0 1. 0 1. 50 5. 30 7. 30 8. 0 8. 25 9. 10 10. 0 11. 15 11. 27 12. 0 13. 47 14. 20 15. 0 16. 35 17. 0 18. 7 20. 5 20. 50	.01580 .01523 .00986 *** .01365 .01750 .01682	Apr. 9 1. 0 3. 0 9. 0 21. 0 22. 0 23. 0	50. 3 53. 0 52. 7 45. 7 47. 0 48. 3	50. 2 53. 0 52. 8 46. 5 47. 2 48. 1									

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol: attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																							
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.																						
Apr. 9 23. 45 23. 59	21. 14. 30 14. 35	Apr. 9 17. 5 17. 45 18. 17 18. 26 18. 40 18. 49 19. 20 20. 39 22. 4 23. 59	.0967 .0963 .0971 .0967 .0971 .0965 .0971 .0961 .0940 .0943																																				
Apr. 10 0. 0 1. 15 6. 35 8. 40 10. 10 13. 0 17. 30 19. 45 20. 30 23. 59	21. 14. 35 14. 30 5. 30 4. 40 6. 30 7. 0 21. 5. 35 20. 58. 45 20. 59. 0 21. 15. 30	Apr. 10 0. 0 2. 46 3. 47 7. 50 10. 15 10. 26 11. 53 12. 17 12. 38 13. 4 13. 27 13. 42 14. 3 14. 20 15. 17 17. 38 18. 17 20. 16 22. 7 22. 35 23. 20 23. 59	.0943 .0947 *** .0942 *** .0951 .0960 .0956 *** .0961 .0966 .0966 .0974 *** .0971 .0975 .0966 .0973 .0973 .0980 .0986 .0964 .0943 .0933 *** .0933 .0939	Apr. 10 0. 0 2. 6 4. 40 7. 6 12. 45 20. 30 23. 59	.01682 .01563 .01010 .01290 .01515 .02347 .01963	Apr. 10 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	49. 2 51. 7 53. 6 56. 3 57. 0 58. 4 56. 5 53. 5 45. 5 44. 5 45. 0 46. 7 48. 2	49. 0 51. 6 53. 6 56. 2 57. 0 57. 6 57. 0 54. 3 54. 7 54. 6 46. 2 7. 47 2. 48	Apr. 11 0. 0 0. 30 1. 36 3. 40 5. 30 7. 40 8. 0 8. 20 9. 40 10. 35 10. 45 11. 0 11. 33 11. 47	21. 15. 30 16. 45 17. 10 9. 50 7. 0 6. 50 1. 30 3. 0 4. 30 3. 0 3. 0 4. 30 3. 0 3. 0 3. 10 6. 5	Apr. 11 0. 0 3. 36 3. 47 5. 18 5. 33 5. 47 6. 7 7. 5 8. 3 8. 18 8. 43 9. 3 9. 16 9. 42 9. 49 10. 13	.0939 .0945 .0950 .0952 .0945 .0954 .0941 .0955 .0947 .0951 .0940 .0945 .0937 .0939 .0937 .0941 .0937	Apr. 11 0. 0 1. 19 4. 5 5. 50 7. 26 12. 37 21. 35 23. 59	.01963 .01960 .01397 .01130 .01242 .01370 .02108 .02080	Apr. 11 0. 0 1. 0 3. 0 9. 0 21. 10	50. 0 52. 3 56. 3 58. 5 49. 4	51. 0 52. 2 56. 4 59. 0 50. 3	Apr. 11 12. 11 13. 5 14. 25 15. 2 15. 35 16. 5 16. 54 17. 40 18. 10 18. 23 19. 2 19. 14 19. 28 19. 43 20. 40 23. 59	21. 5. 0 20. 57. 35 20. 59. 30 21. 4. 0 3. 15 6. 30 2. 30 4. 30 2. 0 21. 3. 5 20. 59. 0 21. 0. 30 20. 59. 0 21. 0. 10 17. 0	Apr. 11 10. 28 10. 40 11. 2 11. 18 11. 52 12. 13 12. 46 14. 21 15. 3 15. 34 16. 3 17. 36 18. 55 20. 47 21. 10	.0946 .0935 .0943 .0940 .0952 .0949 .0957 *** .0952 .0955 .0953 .0962 *** .0958 *** .0961 *** .0941 (†) .0932*	Apr. 12 0. 0 0. 54 1. 30 1. 55 2. 30 4. 10 6. 20 9. 0 14. 5 14. 40 15. 24 18. 42 19. 10 19. 19 19. 42 20. 50 21. 40 23. 55 23. 59	21. 17. 0 18. 30 17. 0 17. 0 14. 10 10. 25 5. 0 7. 35 7. 20 10. 0 5. 5 6. 30 3. 20 5. 0 3. 15 7. 0 6. 30 16. 15 15. 30	Apr. 12 (†) 0. 32 1. 29 2. 3 2. 37 4. 15 4. 28 5. 14 5. 36 6. 29 8. 16 9. 26 13. 7 13. 48 14. 20 15. 17 16. 28 17. 46 18. 45 20. 16 20. 41 22. 40 23. 43 23. 59	.0934 .0929 .0933 .0930 .0944 .0950 *** .0944 .0948 .0938 *** .0952 .0949 *** .0963 .0969 .0968 .0973 .0971 *** .0974 .0972 *** .0955 .0955 *** .0939 *** .0939 .0933	Apr. 12 0. 0 1. 31 3. 46 6. 17 10. 18 13. 36 19. 8 22. 12 23. 59	.02080 .02022 .01570 .01258 .01342 .01581 .02150 .02341 .02217	Apr. 12 1. 0 3. 0 9. 0 21. 0	54. 7 58. 0 59. 7 50. 0	55. 0 58. 6 59. 8 51. 0	Apr. 13 0. 0 2. 0	21. 15. 30 *** 16. 0	Apr. 13 0. 0 2. 28 4. 5	.0933 .0941 .0955	Apr. 13 0. 0 2. 5 9. 0	.02217 .02110 .02046 (†)	Apr. 13 1. 0 3. 0 9. 0	53. 7 56. 0 55. 7	53. 0 55. 7 55. 7
Apr. 13 0. 0 2. 0	21. 15. 30 *** 16. 0	Apr. 13 0. 0 2. 28 4. 5	.0933 .0941 .0955	Apr. 13 0. 0 2. 5 9. 0	.02217 .02110 .02046 (†)	Apr. 13 1. 0 3. 0 9. 0	53. 7 56. 0 55. 7	53. 0 55. 7 55. 7																															

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.







Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Apr. 19 6. 25 7. 0 8. 17 8. 36 9. 10 10. 20 12. 35 12. 57 15. 45 16. 40 18. 0 18. 40 19. 0 19. 30 20. 0 23. 45 23. 59	21. 10. 0 20. 56. 0 *** 21. 7. 0 5. 0 4. 30 8. 30 *** 9. 15 7. 30 *** 11. 0 7. 35 *** 7. 30 *** 4. 0 5. 0 1. 0 0. 30 *** 19. 0 18. 0	Apr. 19 5. 19 5. 34 5. 46 6. 5 6. 12 6. 37 6. 55 7. 26 7. 37 7. 50 8. 8 8. 27 8. 53 9. 35 10. 15 12. 30 12. 46 13. 7 *** 14. 5 *** 15. 46 17. 28 18. 17 18. 30 18. 45 *** 20. 17 21. 40 21. 47 22. 17 22. 46 *** 23. 20 23. 59	0959 0952 0957 0963 0957 0955 0933 0963 0961 0953 0956 0949 0956 0951 0958 0960 0968 0957 *** 0965 *** 0966 *** 0966 *** 0970 0965 0973 *** 0966 *** 0940 0944 0935 0935 *** 0925 0933	b	H	b	H	o	o	b	H	b	H	b	H	o	o
Apr. 20 0. 0 1. 0 1. 55 2. 6 3. 26 3. 44 4. 11 5. 32 6. 24 6. 53 7. 26 7. 38 8. 0	21. 18. 0 18. 50 16. 0 17. 0 *** 13. 0 15. 10 9. 0 *** 10. 40 *** 21. 9. 0 20. 50. 30 21. 2. 30 1. 25 6. 10 ***	Apr. 20 0. 0 *** 0923 *** 0938 *** 0929 0943 0932 0941 0936 0944 0943 0953 0953 0926 0969	Apr. 20 0. 0 2. 28 4. 40 *** 7. 8 02091 *** 10. 6 02017 *** 11. 52 02123 12. 17 02092 13. 6 { 02160 02253 *** 17. 17 02663 *** 22. 40 02650	Apr. 20 1. 0 3. 0 9. 32 22. 54	51. 5 54. 7 52. 2 43. 0	51. 2 54. 0 52. 7 43. 6	Apr. 21 0. 0 0. 30 0. 45 2. 15 2. 40 4. 38 4. 45 5. 20 5. 55 6. 10 6. 41 7. 25 7. 46 8. 0 8. 24	21. 14. 15 18. 15 17. 10 *** 19. 10 17. 0 *** 12. 15 13. 0 11. 25 3. 0 4. 35 0. 30 6. 15 5. 0 0. 0 5. 0	Apr. 21 0. 0 0. 35 1. 7 (†) 3. 30 4. 16 5. 45 6. 15 6. 41 6. 48 7. 6 7. 13 7. 53 8. 26 8. 38 8. 52 9. 26	Apr. 21 0. 0 3. 10 9. 0 11. 46. 15. 15 20. 17 22. 36 23. 59	02579 02478 01980 01932 02060 02450 { 02483 02430 02400	Apr. 21 8. 0 21. 0	49. 5 44. 6	50. 5 45. 2			

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.





Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.			
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.		
Apr. 27 19. 55 22. 40 23. 59	21. 0. 0 8. 25 13. 30	Apr. 27 12. 11 13. 13 14. 52 15. 30 16. 9 16. 39 18. 14  20. 9 23. 15 23. 59	.0974 .0973 .0977 .0974 .0981 .0977 .0981 ***  .0975 .0950 .0957								Apr. 29 19. 15  21. 20 21. 36 21. 50 23. 59	20. 59. 0 *** 21. 3. 0 6. 15 6. 0 21. 12. 0	Apr. 29 16. 28: 17. 5  18. 20 18. 44 19. 12  21. 47 21. 55 23. 45 23. 59	.0974 .0966 ***  .0971 .0977 .0969 ***  .0943 .0948 .0931 .0931					
Apr. 28 0. 0 1. 43: 3. 52 4. 25 4. 40 6. 15 10. 40 11. 30 12. 5 13. 7 14. 32 14. 54 15. 44 20. 30 21. 20 23. 59	21. 13. 35 16. 0 13. 30 11. 0 11. 15 8. 10 7. 10 6. 0 7. 30 3. 10 *** 6. 40 5. 0 *** 6. 35 *** 2. 0 2. 35 *** 13. 30	Apr. 28 0. 0 0. 37 1. 45 1. 56 3. 15 6. 11 *** 8. 40 8. 46 9. 34 9. 56 10. 45 11. 4  12. 27 12. 46  13. 26 14. 20 14. 42 15. 15  17. 5 18. 37 21. 16  23. 8 23. 37	.0958 .0953 .0963 .0959 .0963 (†) .0960 *** .0974 .0970 .0976 .0970 .0976 .0972 *** .0976 .0971 *** .0977 .0971 *** .0981 *** .0976 *** .0958 *** .0934 .0933 (†)	Apr. 28 0. 0 2. 45  9. 42 13. 50: 20. 29 22. 46: 23. 59	.02678 .02602 (†) .02110 .02048 .02371 .02431 .02377	Apr. 28 9. 45 21. 0	49. 4 46. 5	50. 2 47. 3	Apr. 30 0. 0 1. 5 1. 52 4. 0 6. 45: 8. 15 10. 50 11. 26 12. 3 12. 45 13. 30 14. 5 15. 15 16. 25  18. 15 18. 36 19. 0 19. 15  20. 15 21. 20 21. 50 22. 5 23. 59	21. 12. 5 14. 0 14. 0 9. 45 6. 0 7. 10 7. 0 4. 5 6. 35 7. 30 7. 35 4. 40 6. 0 3. 10 *** 2. 25 4. 0 2. 15 2. 25 *** 0. 10 0. 10 3. 5 3. 10 11. 45	Apr. 30 0. 0 0. 47 1. 6 1. 37 3. 19 3. 50 4. 8 4. 45 5. 7 *** 7. 49 *** 10. 16 *** 11. 8 11. 26 *** 12. 5 *** 12. 40 13. 6 *** 14. 45 *** 16. 39 *** 17. 56 *** 19. 45  21. 43 22. 7 23. 59	.0931 .0929 .0934 .0926 .0932 .0938 .0934 .0945 .0941 *** .0955 *** .0954 *** .0960 .0954 *** .0961 *** .0955 .0970 *** .0957 *** .0959 *** .0963 *** .0959 *** .0945 .0934 *** .0933	Apr. 30 0. 0 0. 55 5. 36 13. 50 21. 30 23. 59	.02700 .02572 .01776 .01809 .02160 .02143	Apr. 30 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	52. 7 56. 3 57. 3 52. 0 52. 0 52. 4 53. 1	52. 2 55. 5 56. 5 53. 0 52. 5 53. 2 53. 7		
Apr. 29 0. 0 1. 30 2. 0 3. 20: 6. 50:  15. 0 15. 21 16. 40  18. 0 18. 15	21. 13. 35 17. 5 15. 40 14. 10 7. 0 *** 8. 0 12. 0 9. 0 *** 2. 30 4. 30 *** 15. 22	Apr. 29 0. 56 1. 18 2. 12 3. 47 6. 45 6. 51 7. 17 8. 29	(†) .0930 .0943 .0921 .0941 .0945 .0949 .0943 .0950 *** .0959 .0966 .0961	Apr. 29 0. 0 2. 11 4. 45 7. 17 11. 58: 16. 45 20. 6 23. 59	.02377 .02200 .01829 .01902 .01926 .02376 .02840 *** .02700	Apr. 29 1. 0 3. 0 9. 0 21. 0	51. 0 54. 7 53. 2 45. 2	51. 6 54. 3 53. 8 45. 2	May 1 0. 0 0. 10 1. 0 2. 0 2. 10 2. 45 4. 45  6. 52	21. 11. 55 12. 35 13. 0 12. 0 15. 0 13. 10 12. 0 *** 7. 45 ***	May 1 0. 0 1. 18 1. 46 2. 12 2. 44 3. 17 3. 38 *** 4. 37 4. 45	.0933 .0935 .0930 .0951 .0936 .0945 .0938 *** .0948 .0952	May 1 0. 0 2. 7 3. 36 7. 20 7. 45 11. 6 14. 35	.02143 *** .02032 *** .01820 *** .01847 .01890 .01843 .02004	May 1 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0	54. 7 56. 0 56. 8 57. 8 58. 5 58. 7 58. 0 56. 6 51. 2 50. 5	55. 0 56. 0 57. 0 58. 3 58. 5 58. 7 59. 0 57. 0 52. 0 51. 5		

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

HORIZONTAL FORCE.—April 25. The times are approximate only, and may be from two minutes to three minutes in error.  
HORIZONTAL FORCE.—April 27. The times are approximate only, and may be from ten minutes to fifteen minutes in error.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
May 1 13.30 14.55 16.0  19.5 20.20 23.0 23.59	21. 7. 0 7. 0 8.30 *** 3.35 0. 0 8. 5 11. 0	May 1 5.5 5.37 5.50 6.25 6.46 6.51 7.26  10.37 14.2 15.45 18.10 18.47 20.40 23.7 23.20 23.59	.0945 .0953 .0945 .0942 .0948 .0955 .0946 *** .0950 *** .0961 *** .0961 *** .0967 .0971 .0965 .0941 .0944 .0937	May 1 17.29 21.8 23.47 23.59	.02263 .02702 .02580 .02607	May 1 21.0 22.0 23.0	51.0 51.9 53.0	51.6 52.6 53.7	May 3 20.35 23.59	0.15 14.30	May 3 7.42 12.38 14.6 16.17 20.43 21.56 22.42	.0955 *** .0964 *** .0960 *** .0967 *** .0964 .0949 .0947 (†)	May 3 22.34 23.59	.02572 *** .02183	h m o o		
May 2 0.0 1.30 5.0 7.0 10.13 10.55 12.25 13.15 15.0 17.7 17.55 19.45 21.20 23.59	21. 11. 0 13.30 10.40 7.35 8.15 6.0 8.0 3.35 6.45 5.0 7.0 2.45 8.30 14.35	May 2 0.0 4.40 1.0 2.57 3.16 5.40 6.49 7.12 7.44 10.37 11.0 12.46 14.45 17.12 20.6 23.7	.0937 *** .0930 .0939 .0935 *** .0940 .0943 .0951 .0944 *** .0955 .0951 *** .0957 *** .0955 *** .0967 *** .0975 *** .0949 (†)	May 2 0.0 4.40 7.45 14.7 17.56 20.42 21.11 23.59	.02607 .01921 {.01837 {.01892 .02130 .02532 .02710 {.02678 {.02202 .02290	May 2 0.0 1.0 2.0 3.0 9.0 21.0	54.0 56.8 57.6 58.3 58.5 53.0	54.6 56.3 57.4 58.3 58.4 53.6	May 4 0.0 0.8 0.15 1.0 1.30 3.14 3.32 4.0 5.0 6.36 6.53 7.7 7.38 7.58 8.10 9.25 9.40 10.5 10.55 11.45 12.10 12.35 13.40 15.15 16.6 16.40 16.54	21. 14. 30 14.10 17.0 15.0 *** 16.15 *** 14.0 15.10 13.0 *** 12.30 7.35 4.20 6.0 8.15 6.0 8.10 *** 8.0 2.0 6.0 3.35 4.0 6.5 4.30 9.0 7.30 7.10 5.15 6.40 ***	May 4 (†) .0950* .0952* .0971 .0946 *** 5.42 .0943 .0967 .0952 .0955 *** 7.20 7.26 7.46 8.6 8.18 8.34 8.46 9.8 9.33 10.27 11.53 12.52 13.5 13.11 13.47 14.3 14.20	May 4 0.0 0.37 4.56 10.13 20.41 23.59	.02183 .02163 (†) .01910 .01713 .02430 .02471	May 4 1.0 3.0 9.0 21.15	50.0 52.5 52.7 48.2	50.6 52.3 53.6 48.3	
May 3 0.0 3.0 6.0 10.40 11.32 12.0 12.55 15.0 18.45	21. 14. 35 *** 9.25 8.0 10.25 9.0 10.30 8.0 8.0 *** 1.5 ***	May 3 1.0 1.56 2.45 3.34 3.43 4.6 4.23 4.56 5.30 7.16	.0944* .0942 .0940 .0947 .0944 .0948 .0943 .0951 .0947 .0956	May 3 0.0 0.57 2.36 4.17 5.12 8.26 12.45 17.25 19.4	.02290 .02208 .02127 .01948 {.01907 {.01974 .01890 .02196 .02683 {.02658 {.02501 ***	May 3 1.0 3.0 9.0 21.0	57.0 59.0 56.2 47.7	56.8 58.4 57.0 49.0	May 3 20.40 20.53 23.8 23.25 23.59	21. 4. 0 3.0 *** 6.0 15.0 16.30	May 3 16.0 19.40 20.25 21.34 22.6 22.45 23.30 23.55	.0973 *** .0968 .0950 *** .0942 .0930 .0935 .0931 .0942 (†)	May 3 23.59				

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																			
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.																		
May 5 0. 0 1. 0 1. 30 4. 50 7. 0 8. 28 9. 13 9. 50 10. 15 10. 55 11. 15 13. 10 13. 40 17. 30 19. 51 22. 15 23. 59	21. 16. 35 19. 0 18. 0 *** 13. 0 4. 50 7. 45 4. 25 6. 10 4. 30 7. 0 5. 30 *** 7. 0 9. 0 *** 7. 50 1. 45 6. 0 11. 0	May 5 0. 0 2. 16 3. 45 4. 43 5. 4 6. 8 6. 20 6. 51 7. 37 8. 3 8. 16 8. 45 9. 14 9. 42 10. 4 10. 55 11. 40 11. 46 12. 5 12. 24 12. 43 12. 50 13. 7 13. 17 14. 8 18. 33 20. 0 22. 45 23. 59	(+) 0947 *** 0954 *** 0942 0948 *** 0945 0956 0935 0953 0956 0949 0952 0943 0946 0955 *** 0950 *** 0953 0958 0955 0958 0968 0963 0966 0958 0953 0961 0961 0941 0941	May 5 0. 0 2. 35 4. 48 11. 10 17. 7 19. 55 23. 59	02471 02322 02123 01728 01990 02230 02289	May 5 8. 36 21. 0	53. 8 49. 3	54. 2 50. 2	May 6 20. 17 21. 6 23. 5 23. 59	0948 0955 *** 0943 0949	May 6 0. 0 0. 55 1. 45 3. 55 4. 36 4. 45 10. 0 11. 35 12. 40 14. 20 17. 50 19. 6 19. 20 19. 45 21. 40 22. 5 23. 30 23. 59	21. 15. 5 17. 0 14. 45 13. 0 11. 0 8. 0 6. 30 *** 8. 5 6. 0 8. 0 5. 30 3. 0 0. 30 1. 0 7. 30 6. 30 14. 45 14. 0	May 7 0. 0 0. 55 1. 45 3. 55 4. 36 4. 45 10. 0 11. 35 12. 40 14. 20 17. 50 19. 6 19. 20 19. 45 21. 40 22. 5 23. 30 23. 59	0949 0955 0952 0955 0959 0952 *** 0957 0954 *** 0961 *** 0958 *** 0964 *** 0967 *** 0962 *** 0964 *** 0972 *** 0969	May 7 0. 0 2. 42 6. 0 10. 16 20. 7 21. 20 23. 18	02608 02610 02230 02185 02648 02603 02532 02590 (+)	May 7 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	51. 7 53. 0 53. 8 48. 0 48. 0 47. 2 48. 5 48. 8	May 6 0. 0 1. 18 2. 17 2. 39 3. 44 6. 20 9. 15 9. 40 10. 0 10. 16 11. 31 13. 0 14. 8 14. 40 15. 30 18. 30 19. 4 21. 30 23. 59	21. 11. 0 13. 0 13. 30 11. 30 *** 9. 30 6. 0 7. 0 21. 6. 0 20. 58. 10 21. 3. 30 2. 30 8. 50 *** 9. 0 7. 0 8. 0 *** 4. 0 1. 10 *** 6. 0 15. 0	May 6 0. 0 2. 18 5. 0 11. 35 13. 26 19. 45 23. 59	0941 *** 0940 *** 0950 *** 0940 *** 0936 0941 0937 *** 0940 0951 0945 *** 0941 *** 0955 *** 0961 *** 0956	May 6 0. 0 2. 18 5. 0 11. 35 13. 26 19. 45 23. 59	02289 02120 *** 01762 01813 { 01912 01983 02710 02608	May 6 1. 0 3. 0 9. 0 21. 0	53. 3 55. 8 56. 3 48. 2	53. 5 56. 3 49. 2	May 8 0. 45 1. 30 2. 15 4. 30 4. 46 5. 27 7. 15 10. 20 11. 54 12. 10 12. 30 13. 10 13. 50 14. 15 14. 50 15. 4 15. 20 17. 2 17. 45 18. 0 18. 23 18. 45	21. 14. 30 15. 0 12. 0 *** 10. 0 13. 0 9. 15 *** 5. 0 3. 0 0. 0 11. 0 10. 55 8. 15 5. 20 4. 0 5. 0 4. 0 5. 45 6. 0 4. 0 0. 35 4. 0 1. 45 ***	May 8 0. 33 1. 0 3. 0 5. 30 6. 17 7. 5 7. 37 8. 0 8. 45 9. 40 9. 46 10. 35 11. 14 11. 42 11. 53 12. 10 12. 34 12. 50 13. 17 13. 29 14. 6 15. 30 18. 36 21. 45	0969 0961 (+) 0957 0967 0985 0964 0977 0967 0974 0962 0969 0963 0961 0953 0958 0965 0955 0963 0986 0978 0980 0970 0969 0981 0951	May 8 0. 36 1. 17 9. 48 11. 20 12. 46 21. 6	(+) 02362 { 02383 02096 01622 01630 01572 02103 (+)	May 8 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	48. 0 48. 0 48. 8 49. 4 51. 8 51. 5 52. 4 53. 2 53. 0 49. 0 49. 0 49. 0 48. 7 49. 4 49. 4 50. 2 50. 2
May 6 0. 0 1. 18 2. 17 2. 39 3. 44 6. 20 9. 15 9. 40 10. 0 10. 16 11. 31 13. 0 14. 8 14. 40 15. 30 18. 30 19. 4 21. 30 23. 59	21. 11. 0 13. 0 13. 30 11. 30 *** 9. 30 6. 0 7. 0 21. 6. 0 20. 58. 10 21. 3. 30 2. 30 8. 50 *** 9. 0 7. 0 8. 0 *** 4. 0 1. 10 *** 6. 0 15. 0	May 6 0. 0 2. 18 5. 0 11. 35 13. 26 19. 45 23. 59	0941 *** 0940 *** 0950 *** 0940 *** 0936 0941 0937 *** 0940 0951 0945 *** 0941 *** 0955 *** 0961 *** 0956	May 6 0. 0 2. 18 5. 0 11. 35 13. 26 19. 45 23. 59	02289 02120 *** 01762 01813 { 01912 01983 02710 02608	May 6 1. 0 3. 0 9. 0 21. 0	53. 3 55. 8 56. 3 48. 2	53. 5 56. 3 49. 2	May 8 0. 45 1. 30 2. 15 4. 30 4. 46 5. 27 7. 15 10. 20 11. 54 12. 10 12. 30 13. 10 13. 50 14. 15 14. 50 15. 4 15. 20 17. 2 17. 45 18. 0 18. 23 18. 45	21. 14. 30 15. 0 12. 0 *** 10. 0 13. 0 9. 15 *** 5. 0 3. 0 0. 0 11. 0 10. 55 8. 15 5. 20 4. 0 5. 0 4. 0 5. 45 6. 0 4. 0 0. 35 4. 0 1. 45 ***	May 8 0. 33 1. 0 3. 0 5. 30 6. 17 7. 5 7. 37 8. 0 8. 45 9. 40 9. 46 10. 35 11. 14 11. 42 11. 53 12. 10 12. 34 12. 50 13. 17 13. 29 14. 6 15. 30 18. 36 21. 45	0969 0961 (+) 0957 0967 0985 0964 0977 0967 0974 0962 0969 0963 0961 0953 0958 0965 0955 0963 0986 0978 0980 0970 0969 0981 0951	May 8 0. 36 1. 17 9. 48 11. 20 12. 46 21. 6	(+) 02362 { 02383 02096 01622 01630 01572 02103 (+)	May 8 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	48. 0 48. 0 48. 8 49. 4 51. 8 51. 5 52. 4 53. 2 53. 0 49. 0 49. 0 49. 0 48. 7 49. 4 49. 4 50. 2 50. 2																			

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.



INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.	
May 8 19. 45 22. 30 23. 59	21. 0. 0 8. 0 14. 5	23. 15	.0952 (†)						May 10 15. 45 16. 25 16. 55 18. 30 19. 15 20. 39 21. 44 23. 59	21. 5. 55 3. 0 4. 0 0. 15 3. 0 3. 35 6. 0 14. 30	May 10 9. 22 9. 46 10. 5 10. 42 11. 7 11. 56 12. 34 13. 30 14. 42 15. 45 16. 20 16. 45 17. 17 19. 45 20. 17 21. 36 22. 38 23. 5 23. 20 23. 45 23. 59							
May 9 0. 0 1. 0 2. 10 2. 25 4. 0 5. 0 7. 45 9. 0 9. 24 10. 10 11. 50 12. 2 13. 52 14. 10 15. 19 17. 20 20. 0 21. 0 22. 30 23. 59	21. 14. 10 15. 40 *** 13. 0 14. 0 10. 0 7. 35 8. 0 6. 35 7. 0 4. 30 6. 40 10. 5 5. 0 6. 45 3. 20 *** 5. 0 *** 3. 0 4. 25 11. 0 15. 0	May 9 1. 0 3. 0 3. 6 3. 55 4. 13 5. 0 5. 46 6. 30 6. 45 7. 6 7. 45 8. 15 *** 9. 7 9. 21 9. 40 11. 3 11. 56 12. 15 *** 13. 15 13. 50 *** 15. 7 15. 38 *** 18. 56 21. 53 22. 14 22. 26 22. 55 23. 26 23. 50 23. 59	(†)	May 9 1. 0 1. 45 5. 46 11. 43 13. 47 19. 36 22. 26 23. 0 23. 59	(†)	May 9 0. 0 1. 0 3. 0 9. 0 21. 0	51. 5 51. 5 52. 2 52. 2 54. 0 54. 0 55. 5 54. 3 50. 0 50. 2		May 11 0. 0 1. 10 2. 0 3. 40 4. 15 6. 40 11. 8 11. 47 12. 15 13. 0 14. 15 14. 46 16. 45 17. 20 17. 43 19. 11 20. 15 21. 0 23. 5 23. 59	21. 14. 30 15. 0 12. 40 *** 11. 0 8. 35 7. 0 4. 50 5. 45 4. 0 5. 30 5. 35 6. 0 3. 0 4. 0 1. 45 *** 2. 15 0. 35 1. 15 8. 0 12. 10	May 11 0. 0 2. 8 7. 0 12. 45 18. 10 23. 59	May 11 0. 0 0. 8 0. 20 1. 0 3. 0 9. 0 22. 15	May 11 0. 0 2. 8 7. 0 12. 45 18. 10 23. 59	May 11 1. 0 3. 0 9. 0 22. 15	52. 5 52. 4 54. 7 54. 8 55. 2 55. 2 54. 0			
May 10 0. 0 1. 0 2. 35 6. 45 8. 30 8. 47 9. 17 9. 30 9. 45 12. 30 13. 0 15. 0	21. 15. 5 16. 0 14. 30 7. 30 7. 0 3. 0 8. 0 5. 0 6. 30 *** 4. 10 6. 0 6. 0	May 10 0. 0 0. 16 1. 0 2. 17 2. 40 3. 15 3. 46 6. 17 7. 42	.0980 .0983 (†) .0980 .0983 .0996 .0991 *** 1.000 *** .0994 ***	May 10 0. 0 2. 37 9. 46 16. 7 19. 43 21. 30 23. 59	.01936 .01863 .01554 .01810 {.02012 {.02072 {.01986 {.02007	May 10 1. 0 3. 0 9. 0 21. 0	52. 0 52. 4 53. 0 53. 8 53. 6 48. 0 50. 2	May 12 0. 0 0. 40 0. 48 1. 30 2. 0 4. 15 5. 30 7. 30 12. 20 14. 22	21. 12. 15 14. 0 15. 35 14. 30 15. 15 10. 0 9. 45 6. 35 9. 15 6. 0	May 12 0. 0 0. 42 0. 49 1. 28 *** 3. 19 *** 4. 2 4. 46 4. 56	May 12 0. 0 1. 45 4. 45 6. 20 6. 46 13. 26 18. 37	May 12 8. 0 21. 0	59. 5 59. 5 52. 6 53. 0					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.	
May 12 14. 46 15. 15 15. 51  17. 15 17. 40 18. 0 18. 21  19. 26  20. 54 21. 28 21. 40  23. 27 23. 45 23. 59	21. 3. 55 5. 30 4. 0 3. 40 7. 35 4. 30 1. 30 *** 0. 15 *** 1. 45 5. 0 3. 30 *** 12. 55 12. 0 14. 0	May 12 5. 35 6. 46 9. 30 9. 48 10. 9 10. 25 10. 25 11. 17 11. 42 12. 3 12. 17 14. 8 14. 17 14. 38 16. 45 17. 20 18. 17  19. 16 19. 43  20. 56 21. 17 21. 42 22. 17 23. 22	'1007 *** '1011 *** '1011 '1007 '1012 '1007 '1008 '1004 '1011 '1006 '1012 '1015 '1011 '1013 '1005 '1016 ***  '1008 '1010 ***  '0997 '1000 '0993 '0990 '0996 (†)	May 12 22. 17 23. 59	{ '02443 '02396 '02407	h h o o			May 13 23. 59	21. 11. 25	May 13 19. 55 20. 29  22. 5 22. 42	'1026 '1018 ***  '1012 '1005 (†)	h h o o		h h o o			
May 13 0. 0 0. 14 4. 0 5. 10 7. 15 9. 20 10. 45 11. 0 11. 25 11. 44 11. 55 12. 2 12. 36 14. 35 15. 45 15. 55 16. 30 16. 44  18. 44 19. 10 19. 23 20. 27 21. 30	21. 14. 0 14. 50 *** 9. 20 7. 0 *** 4. 0 6. 0 *** 6. 0 2. 35 2. 0 8. 0 5. 0 6. 0 3. 0 6. 0 5. 0 7. 0 5. 30 *** 7. 30 *** 1. 40 21. 1. 40 20. 59. 0 21. 6. 0 3. 25	May 13 (†) 1. 0 3. 0 4. 50 5. 47 6. 28 6. 45 7. 7 8. 5 9. 34 10. 15 *** 10. 46 10. 57 11. 15 11. 46 12. 2 12. 2 12. 26 12. 43 13. 10 14. 20 16. 29 18. 5 19. 4	(†) '0992* '0997* '0996 '1000 '1003 '1000 '1009 '1002 '1005 '1003 *** '1010 '1007 '1028 '1004 '1017 '1011 '1014 '1007 *** '1005 *** '1014 *** '1013 *** '1004	May 13 0. 0 1. 45 6. 0 10. 16 16. 55  20. 56 23. 59	'02407 '02402 '02108 '01970 '02531 ***  '02490 '02231	May 13 1. 0 3. 0 9. 0 21. 0	55. 0 55. 0 56. 6 57. 5 57. 1 51. 7 50. 4		May 14 0. 0 0. 36  1. 57 3. 0 5. 30 9. 5 9. 30 12. 55  15. 10 15. 30 16. 15 17. 55 18. 10 18. 30 18. 57  19. 45 21. 10 22. 40 22. 49 23. 59	21. 11. 20 12. 0 *** 11. 25 9. 0 7. 0 6. 15 2. 0 *** 6. 40 *** 7. 30 11. 45 5. 30 1. 40 2. 35 2. 30 0. 30 *** 1. 45 2. 25 7. 30 7. 0 11. 0	May 14 (†) 1. 0 1. 15 2. 6 3. 27 7. 6 9. 26 9. 48  11. 8  15. 13 15. 29 16. 16 17. 45 18. 13 18. 50 19. 50 22. 50  19. 50 22. 50	'(†) '1004* '1004 *** '0996 *** '1009 '1016 '1017 '1023 *** '1017 ***  '1030 '1026 '1033 '1037 '1041 '1037 '1043 '1012 (†)	May 14 0. 0 0. 45 1. 9 2. 46 7. 17 10. 40 19. 56 22. 40 23. 8	'02231 '02042 '02013 '01702 '01876 '01896 '02576 '02690 '02663 (†)	May 14 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	57. 4 61. 2 63. 0 56. 5 57. 0 58. 0 58. 6 59. 2	57. 3 61. 5 63. 0 57. 0 58. 0 58. 6 59. 2	
May 15 0. 0 1. 15 3. 50 6. 10 7. 40 8. 25 9. 45 11. 50 17. 7 18. 30 19. 41 20. 40 21. 0  22. 44 22. 54 23. 25 23. 59	21. 11. 0 12. 30 10. 10 6. 30 6. 15 2. 10 7. 0 7. 0 6. 25 *** 4. 30 *** 20. 58. 5 *** 21. 5. 10 2. 10 *** 10. 35 9. 5 16. 30 18. 0	May 15 (†) 1. 0 1. 26 3. 50  5. 50 6. 12 6. 40 7. 38 8. 37 11. 26 13. 47 14. 18 14. 47 14. 57 15. 5 15. 17  18. 10 21. 0	'(†) '1010* '1002 '1015 (†) '1018 '1025 '1015 '1028 '1007 '1021 *** '1029 '1034 '1033 '1037 '1030 '1040 *** '1037 (†) '1093*	May 15 0. 30 1. 37 4. 6  10. 45 12. 43 18. 56 23. 59	'02500 '02396 '01823 *** '01910 '02009 '02602 *** '02523	May 15 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 8 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	60. 8 61. 9 63. 3 65. 0 65. 5 66. 6 66. 8 67. 3 67. 2 66. 8 66. 4 60. 5 60. 5 60. 7 60. 0 61. 2 60. 9 61. 7 61. 2	61. 5 62. 3 63. 8 65. 5 66. 5 66. 8 67. 2 67. 8 66. 4 60. 4 60. 5 60. 5 60. 0 60. 9 61. 2										

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

(1)

INDICATIONS OF THE MAGNETOMETERS

Table with columns: Greenwich Mean Solar Time, Western Declination, Horizontal Force in parts of the whole H. F. uncorrected for Temperature, Vertical Force in parts of the whole V. F. uncorrected for Temperature, Readings of Thermometers (Of H. F. Magnet, Of V. F. Magnet), and similar columns for days May 16, 17, and 18.

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
May 18 10. 0 10. 40 10. 54 11. 10 11. 39 12. 38 12. 49 13. 7 14. 2 14. 35 14. 55 15. 38 15. 52 16. 25 16. 50 17. 8 17. 46 18. 0 18. 36 19. 10 19. 35 19. 54 22. 30 23. 59	21. 0. 15 10. 55 4. 30 6. 30 3. 20 7. 0 6. 0 11. 30 0. 30 3. 0 20. 59. 40 21. 2. 40 2. 0 3. 0 2. 20 5. 0 4. 35 6. 20 5. 0 0. 35 21. 2. 30 20. 59. 30 *** 21. 8. 5 14. 10																
May 19 0. 0 1. 25 1. 46 2. 14 2. 28 3. 0 3. 45 4. 25 5. 20 5. 27 5. 54 6. 30 7. 0 8. 58 9. 15 9. 25 9. 40 11. 0 12. 40 13. 15 13. 31 14. 14 15. 13 16. 0 17. 7 18. 55 19. 40 20. 45	21. 14. 10 14. 50 13. 0 14. 15 13. 10 13. 40 8. 15 9. 35 *** 7. 10 8. 30 3. 0 7. 30 6. 0 5. 30 2. 0 6. 40 1. 45 5. 0 *** 1. 20 6. 50 5. 30 8. 25 8. 0 5. 0 5. 0 *** 1. 45 4. 0 4. 0	May 19 8. 34 21. 8	*1112* *1151*	May 19 0. 0 2. 17 6. 36 11. 37 15. 8 19. 45 22. 30 23. 59	*02285 *02221 *01446 *** *01470 *** *01708 *** *02223 *02440 *02438	May 19 8. 34 21. 8	61. 0 52. 5 60. 7 53. 2										
May 19 23. 7 23. 59	21. 11. 15 12. 45																
May 20 0. 0 0. 43 1. 42 6. 40 7. 25 7. 55 9. 0 9. 20 9. 50 14. 40 15. 20 16. 45 20. 30 23. 59	21. 12. 55 14. 30 13. 30 4. 40 6. 0 1. 45 5. 0 1. 40 4. 50 7. 25 4. 20 3. 0 *** 1. 0 10. 20	May 20 1. 0 3. 0 9. 0 21. 0	*1155* *1170* *1157* *1140*	May 20 0. 0 2. 6 5. 5 8. 17 10. 6 10. 50 12. 26 15. 45 17. 36 21. 30 23. 59	*02438 *02209 {*01470 *01502 *01650 *** {*01623 *01678 *01608 *01662 {*01627 *01690 *01830 *02022 *02388 *02375	May 20 1. 0 3. 0 9. 0 21. 0	56. 6 61. 0 69. 0 63. 3 57. 5 61. 4 70. 0 62. 5										
May 21 0. 0 1. 40 4. 55 6. 45 11. 48 13. 0 15. 55 17. 8 17. 55 18. 24 20. 40 23. 45 23. 59	21. 10. 20 9. 50 7. 20 3. 0 *** 3. 0 5. 0 0. 30 1. 0 2. 20 0. 30 1. 0 10. 0 5. 15	May 21 1. 0 1. 50 2. 20 3. 0	(†) *1138* *1139 *1137 *1143 *** *1140 *** *1159 *** *1137 *1140 *** *1135 ***	May 21 0. 0 1. 15 4. 17 8. 55 9. 8 10. 12 12. 6 14. 45 19. 15 21. 36 23. 59	*02375 *02270 *01678 *** *01610 *01672 *01623 {*01660 *01763 *01910 *02483 {*02436 *02271 *02320	May 21 1. 0 3. 0 9. 0 21. 0 22. 0 23. 0	66. 3 68. 0 71. 9 63. 2 63. 7 64. 2										
May 21 23. 7 23. 59	21. 11. 15 12. 45																
May 22 0. 0 0. 25 0. 40 2. 10	21. 5. 15 7. 0 6. 0 6. 40	May 22 1. 0 3. 0 9. 0 21. 0	*1147* *1150* *1130* *1141*	May 22 0. 0 3. 42 8. 4 9. 43	*02320 *02377 *02263 *02250	May 22 0. 0 1. 0 2. 0 3. 0	64. 2 65. 0 65. 4 65. 7 65. 0 65. 5 65. 9 66. 2										

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

HORIZONTAL FORCE.—May 18, 19, 20, and 22. The Photographic Traces on these days were either entirely lost, or so faint they could not be used.

INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
May 22 7. 0 8. 17 8. 55 10. 0 11. 15 13. 0 14. 15 17. 0 17. 30 17. 50 18. 30 19. 5 21. 30 22. 25 22. 45 23. 10 23. 59	21. 0. 15 21. 0. 0 20. 58. 25 21. 0. 0 20. 59. 40 59. 0 59. 50 59. 0 57. 20 58. 0 20. 56. 10 21. 2. 40 3. 30 10. 30 13. 40 11. 40			May 22 13. 0 16. 35 19. 46 20. 27 21. 0	.02203 .02398 *** .02340 .02376 (†) .02246*	May 22 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	66.0 66.9 67.7 67.2 62.7 62.5 62.8 64.8 66.0 66.2	66.2 67.2 67.8 67.4 63.2 63.0 63.5 64.9 66.0	May 24 8. 0 9. 51 10. 27 11. 7 12. 50 15. 30 16. 5 17. 25 19. 15 19. 30 20. 10 23. 45 23. 59	21. 0. 0 *** 20. 57. 15 21. 2. 20 20. 58. 15 21. 0. 0 20. 59. 40 58. 0 58. 0 53. 30 55. 0 20. 53. 50 21. 6. 25 6. 0		May 24 5. 47 6. 16 6. 47 7. 0 7. 9 7. 20 7. 40 7. 49 8. 21 8. 48 9. 43 10. 34 10. 46 12. 17 14. 16 14. 30 14. 43 18. 11 19. 17 21. 5 22. 44 23. 59	.1150 .1186 .1148 .1155 .1149 .1156 .1155 .1163 .1150 .1141 *** .1158 .1149 *** .1155 *** .1155 .1161 .1155 *** .1162 *** .1148 *** .1136 .1122 .1125	12. 6 16. 11 21. 36 23. 35	{.01574 .01670 .02253 *** .02250 .02214 (†)		
May 23 0. 0 0. 25 1. 14 1. 40 2. 18 2. 32 3. 40 7. 0 7. 10 7. 25 9. 10 10. 18 10. 45 12. 22 13. 25 17. 25 19. 0 20. 0 22. 0 23. 59	21. 11. 40 12. 50 9. 10 12. 15 9. 0 11. 0 *** 21. 7. 0 *** 20. 58. 0 21. 0. 0 20. 57. 20 *** 20. 56. 30 *** 21. 1. 10 20. 59. 0 *** 20. 57. 0 21. 0. 0 *** 20. 55. 0 *** 55. 0 *** 20. 51. 35 *** 21. 1. 10 5. 15	May 23 0. 0 0. 11 0. 33 0. 47 1. 7 *** 3. 55 4. 18 4. 46 5. 8 5. 45 7. 13 7. 22 7. 45 10. 44 11. 13 11. 32 12. 47 12. 56 13. 12 15. 26 18. 20 19. 5 20. 18 21. 47 23. 59	.1136 .1137 .1127 .1127 .1120 *** .1126 .1144 .1137 .1143 .1132 *** .1140 .1157 .1150 *** .1140 .1168 .1157 *** .1149 .1156 .1146 .1152 .1151 .1142 .1136 *** .1122 *** .1137	May 23 0. 0 1. 35 4. 43 11. 37 13. 38 17. 44 23. 59	.02132 .02021 .01450 *** .01537 .01650 .02375 *** .02273	May 23 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	67.5 68.5 70.6 72.3 73.0 72.6 60.8	67.2 68.6 70.5 71.7 73.0 73.5 58.6	May 25 0. 0 2. 20 7. 0 7. 45 8. 10 9. 40 10. 0 11. 0 11. 15 11. 33 12. 0 12. 20 14. 10 15. 0 15. 30 15. 56 15. 15 19. 30 20. 30 23. 59	21. 6. 0 7. 0 0. 35 21. 1. 0 20. 59. 30 21. 1. 0 21. 2. 0 *** 20. 59. 30 56. 20 20. 56. 40 21. 1. 30 0. 0 *** 21. 0. 0 20. 52. 30 53. 25 57. 0 56. 10 *** 57. 30 20. 56. 0 ***	May 25 0. 0 9. 0 22. 30	.1125 *** .1142 .1143 .1149 .1143 .1156 .1148 .1155 .1150 .1158 .1151 .1155 7.46 .1154 *** .1148 *** .1156 10.46 .1158 .1149 *** .1151 *** .1164 *** .1157 ***	3. 0 9. 0 22. 30	-01325* -01015* -00715*	May 25 1. 0 3. 0 9. 0 22. 30	61.5 63.0 63.8 59.5	56.3 62.7 63.0 59.0
May 24 0. 0 2. 10 6. 0 7. 40	21. 5. 15 7. 10 21. 2. 20 *** 3. 12 20. 57. 10	May 24 0. 0 1. 46 2. 42 3. 12 10. 42	.1137 .1138 .1147 *** .1144 ***	May 24 0. 0 0. 45 2. 30 6. 40 10. 42	.02273 .02276 .02100 .01642 .01450	May 24 1. 0 3. 0 9. 0 21. 0	61.8 63.5 65.5 59.0	60.7 63.5 66.0 56.8			May 24 12. 47 14. 8 15. 55	.1151 *** .1164 *** .1157 ***					

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

May 25. A suspicion had reigned over the results of the Vertical Force for several days, and on this day its box was opened, and the magnet thoroughly examined. It settled so that its spot of light fell off the paper. Its motion seemed to be free, and on May 27 its adjustments were altered so that the spot of light fell properly on the paper.





AT THE ROYAL OBSERVATORY, GREENWICH, IN THE YEAR 1861.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																			
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.																		
June 3 P H 8. 5 8. 45 10. 40 12. 15 15. 50 16. 38 17. 0 19. 6 20. 24 21. 30 23. 59	20. 59. 10 21. 1. 0 20. 59. 30 21. 0. 10 20. 57. 0 54. 10 54. 10 51. 20 59. 30 20. 57. 45 21. 4. 30	June 3 P H 4. 28 4. 46 5. 25 6. 18 6. 46 7. 37 8. 16 9. 5 10. 36 10. 54 11. 55 14. 29 17. 8 18. 8 19. 36 21. 35 22. 33 23. 15 23. 59	.1174 *** .1179 .1158 *** .1166 .1161 .1165 .1161 .1166 *** .1153 .1157 .1156 *** .1161 *** .1163 .1160 *** .1143 *** .1150 *** .1152 .1145 *** .1145	June 3 P H 21. 0 23. 59	.02056 *** .02013	June 3 P H 1. 0 3. 0 9. 0 20. 0 21. 8 22. 0 23. 0	60.5 60.5 61.0 61.0 57.4 57.3 58.0 58.6 59.0 59.7	60.5 60.5 61.0 61.0 57.4 57.3 58.0 58.6 59.0 59.7	June 4 P H 0. 0 1. 0 2. 15 3. 0 3. 24 4. 0 5. 25 7. 10 11. 40 12. 20 13. 45 15. 0 16. 35 17. 54 18. 10 18. 40 19. 0 19. 35 20. 25 21. 10 23. 30 23. 59	21. 4. 30 5. 10 8. 35 9. 0 7. 15 7. 30 21. 3. 10 20. 59. 25 *** 20. 59. 0 21. 1. 0 20. 57. 20 21. 1. 0 20. 56. 20 *** 54. 0 54. 35 51. 30 53. 10 51. 15 56. 0 20. 55. 40 21. 3. 10 6. 0	June 4 P H 0. 0 0. 16 1. 0 1. 35 1. 56 2. 8 2. 19 2. 40 3. 7 4. 10 4. 17 4. 36 5. 13 6. 0 6. 28 6. 50 7. 6 7. 18 7. 35 7. 42 8. 7 8. 39 9. 9	.1145 .1148 (†) .1151 .1155 .1161 .1176 *** .1177 .1169 .1177 .1155 *** .1163 .1158 .1163 *** .1160 *** .1182 .1173 .1175 .1165 .1174 .1167 .1171 .1166 .1172 .1169	June 4 P H 0. 0 9. 18 11. 39 18. 53 23. 59	.02013 *** .01980 .02032 *** .02071 *** .01963	June 4 P H 1. 0 3. 0 9. 0 20. 0 21. 8 22. 0 23. 0	60.5 61.0 61.0 57.4 57.3 58.0 58.6 59.0 59.7	60.5 61.0 61.0 57.4 57.3 58.0 58.6 59.0 59.7	June 5 P H 0. 0 0. 40 1. 30 5. 0 6. 20 7. 35 8. 0 8. 15 8. 52 9. 15 10. 0 10. 36 11. 10 12. 30 15. 5 16. 16 17. 0 17. 30 18. 10 20. 10 21. 0 23. 20 23. 59	21. 6. 0 8. 0 8. 0 21. 1. 20 20. 59. 35 21. 0. 0 20. 57. 30 20. 57. 40 21. 2. 0 20. 59. 0 21. 0. 35 20. 58. 0 21. 0. 0 20. 57. 5 *** 59. 0 57. 40 54. 50 55. 30 53. 0 *** 57. 20 20. 55. 30 *** 21. 2. 0 4. 0	June 5 P H 0. 0 0. 21 0. 42 0. 58 *** 2. 45 3. 7 3. 42 5. 40 6. 11 6. 43 7. 8 7. 20 7. 49 8. 20 10. 35 11. 16 11. 27 11. 43 13. 26 17. 11 20. 53 23. 17	.1156 .1154 .1162 .1157 *** .1158 .1175 .1167 *** .1177 .1172 .1177 .1169 .1171 .1165 .1170 *** .1166 *** .1172 .1168 .1174 *** .1166 *** .1174 *** .1158 *** .1164 (†)	June 5 P H 0. 0 3. 8 10. 17 16. 0 20. 8 21. 55 23. 59	.01963 .01890 .01573 .01802 .02020 *** .01976 .01930	June 5 P H 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	59.5 60.0 60.2 61.8 61.4 62.0 62.0 63.3 63.7 62.8 62.8 61.9 61.6 58.9 58.6 58.0 58.0 58.0 58.4 58.5	59.5 60.0 60.2 61.8 61.4 62.0 62.0 63.3 63.7 62.8 62.8 61.9 61.6 58.9 58.6 58.0 58.0 58.0 58.4 58.5	June 6 P H 0. 0 2. 13	21. 4. 5 7. 50	June 6 P H 1. 0	(†) .1158*	June 6 P H 0. 0 3. 7	.01930 .01983	June 6 P H 0. 0 1. 0	58.0 58.5 58.5	58.0 58.5 58.5

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.



INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
June 6 3. 7 3. 35 6. 30 11. 0 15. 30 15. 55 16. 45 18. 10 19. 55 23. 59	21. 1. 30 21. 6. 30 21. 0. 15 20. 57. 30 59. 0 58. 0 58. 10 55. 0 20. 54. 0 21. 8. 0	June 6 1. 52 2. 35 2. 47 5. 5 5. 26 6. 0 12. 46 14. 27 15. 46 18. 34 21. 17 21. 39 21. 53 23. 59	•1158 *** •1162 •1158 •1172 •1170 •1175 •1176 •1174 •1175 •1175 •1167 •1169 •1164 •1166	June 6 6. 46 12. 7 18. 17 23. 59	•01983 {•02042 •01990 *** •02073 *** •01976	June 6 3. 0 3. 0 4. 0 9. 0 21. 0	58. 8 58. 8 58. 8 58. 3 55. 8	58. 7 58. 6 59. 0 58. 8 56. 3	June 8 2. 35 4. 15 6. 15 7. 30 8. 15 10. 50 14. 15 15. 10 20. 0 23. 0	21. 8. 15 6. 30 1. 30 21. 1. 0 20. 57. 0 21. 0. 0 20. 59. 30 21. 2. 0 20. 55. 5 21. 3. 10 (†)	June 8 1. 25 1. 50 2. 35 3. 12 3. 48 4. 17 5. 42 7. 6 7. 37 8. 4 8. 35 10. 6 10. 47 11. 4 11. 26 11. 50 12. 27 14. 5 14. 46 15. 47 18. 8 20. 55 22. 10 23. 16 23. 59	•1164 •1165 •1173 •1161 •1164 •1173 *** •1167 •1174 •1178 •1173 •1175 *** •1165 *** •1171 •1185 •1175 •1170 •1175 •1169 •1179 •1179 •1166 (†) •1160* •1153 •1159	June 8 15. 50 21. 7 22. 6 23. 59	•01964 •02298 {•02231 •02160 •02169	June 8 22. 10	55. 2 56. 1	
June 7 0. 0 2. 30 5. 45 6. 0 6. 55 8. 0 9. 8 9. 54 13. 45 14. 16 15. 10 17. 30 17. 45 18. 15 18. 39 19. 2 19. 17 20. 10 21. 0 21. 30 23. 59	21. 8. 10 10. 5 21. 1. 45 20. 59. 0 57. 55 59. 30 54. 35 58. 0 20. 58. 0 21. 0. 5 20. 56. 15 56. 40 54. 0 54. 30 52. 20 54. 30 52. 10 53. 0 58. 0 20. 58. 0 21. 6. 50	June 7 0. 0 1. 50 2. 15 2. 36 2. 52 3. 19 3. 45 4. 9 4. 47 5. 46 6. 11 7. 56 8. 35 9. 11 10. 10 11. 4 11. 48 12. 15 14. 6 15. 3 15. 46 17. 0 18. 51 20. 39 21. 50 22. 19 23. 36 23. 59	•1166 •1176 •1172 •1179 •1173 •1176 •1174 •1179 •1174 •1177 •1172 *** •1175 •1166 •1168 *** •1159 *** •1166 *** •1157 •1164 *** •1167 •1171 •1167 •1178 *** •1171 *** •1150 •1153 •1145 *** •1155 •1151	June 7 0. 0 2. 7 7. 50 15. 15 21. 16 23. 59	•01976 •02000 •01610 •01822 •02089 •02030	June 7 1. 0 3. 0 9. 0 21. 0	57. 8 60. 3 62. 0 58. 3	58. 1 60. 3 62. 0 58. 0	June 9 10. 10 21. 0	20. 56. 17* 55. 45*	June 9 0. 0 0. 49 1. 17 2. 55 3. 18 4. 45 5. 0 6. 12 6. 26 6. 45 7. 27 8. 3 10. 45 11. 34 12. 6 13. 8 14. 17 16. 45 18. 34 22. 10 23. 45 23. 59	•1159 •1167 •1163 •1184 •1184 •1187 •1183 *** •1190 •1185 •1190 *** •1177 •1181 •1173 •1181 •1175 •1176 •1168 *** •1173 •1167 •1144 •1142 •1143	June 9 0. 0 6. 26 13. 37 21. 37 23. 59	•02169 *** •02183 •01950 {•02110 •02047 •02180	June 9 10. 10 21. 0	59. 5 59. 0 60. 5 59. 3	
June 8 0. 0 0. 45 1. 5	21. 6. 50 7. 0 8. 10	June 8 0. 0 0. 39 12. 7	•1151 •1172 *** •01811	June 8 0. 0 12. 7	•02030 *** •01811	June 8 1. 0 3. 0 9. 45	60. 8 60. 8 61. 3	60. 3 60. 7 61. 2	June 8 23. 45 23. 59	•1142 •1143	June 8 23. 45 23. 59	•1142 •1143	June 8 23. 45 23. 59	•1142 •1143	June 8 23. 45 23. 59	•1142 •1143	

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dialocated, and the difference of the numbers included by the brace shows the amount of the displacement.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.								
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.							
June 10 h m 1. 0 2. 30 6. 15 10. 0 15. 15 18. 25 20. 50 23. 59	° ' " (†) 21. 3. 0 21. 3. 55 20. 57. 0 54. 45 56. 35 *** 52. 0 20. 51. 0 21. 3. 5	June 10 h m 0. 0 1. 7 2. 8 3. 14 4. 8 6. 43 7. 26 10. 18 13. 7 13. 48 16. 7 18. 16 19. 18 21. 50 23. 39	·1143 ·1152 *** ·1175 ·1177 ·1171 *** ·1173 ·1175 ·1170 *** ·1175 ·1174 *** ·1183 *** ·1184 ·1166 *** ·1154 *** ·1157	June 10 h m 0. 0 0. 20 3. 12 9. 6 14. 25 20. 10 23. 5	·02180 { ·02178 ·01543 ·01520 ·01848 ·02002 ·02330 ·02350 { ·02255 ·02180	June 10 h m 1. 0 3. 0 9. 0 21. 0	60.8 60.3 62.8 62.3 63.0 63.0 61.6 58.7		June 11 h m 21. 0 21. 7 21. 20 21. 30 21. 45 21. 49 23. 0	20. 53. 0 51. 10 53. 35 50. 45 53. 40 20. 51. 30 21. 0. 10 (†)	June 11 h m 13. 36 13. 47 13. 56 *** 15. 13 *** 16. 46 *** 18. 21 18. 37 19. 32 *** 21. 19 ·1156 21. 43 ·1147 21. 50 ·1160 22. 7 ·1145 22. 16 ·1157 22. 47 ·1140 23. 9 ·1147 23. 20 ·1140 23. 38 ·1162 23. 59 ·1178	June 11 h m 0. 0 0. 45 1. 7 1. 11 1. 17 2. 23 2. 36 2. 45 2. 49 3. 17 3. 56 4. 8 4. 17 4. 40 4. 48 4. 87 5. 2 5. 12 5. 35 5. 180 5. 2. 5 5. 46 ·1191 6. 20 ·1147 *** 7. 43 ·1170 *** 9. 18 ·1171 9. 44 ·1179 10. 13 ·1173 10. 37 ·1178 10. 50 ·1172 11. 6 ·1175 11. 24 ·1162 *** 12. 38 ·1154 ***	June 11 h m 0. 0 3. 15 4. 7 7. 38 11. 16 18. 5 18. 28	·02180 *** ·01821 { ·01923 ·02372 ·02290 { ·02362 ·02348 *** ·02770 ·02783 (†)	June 11 h m 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	64.7 63.9 66.5 65.5 67.3 67.1 62.9 61.2 63.0 62.8 63.6 63.1 64.0 63.2		June 12 h m 1. 0 3. 0 9. 0 21. 0	21. 9. 45* 21. 9. 20* 20. 55. 45* 21. 0. 59*	June 12 h m 0. 0 0. 42 1. 10 1. 19 1. 36 1. 47 1. 52 2. 8 2. 34 2. 46 3. 31 3. 49 4. 7 4. 16 4. 32 4. 43 5. 8 6. 18 6. 42 7. 0 7. 17 7. 36 7. 50 8. 12 8. 35 8. 47 9. 8 9. 29 10. 4 10. 15 10. 26	June 12 h m 1. 0 3. 0 9. 0 21. 0	·02347* ·02427* ·02388* ·02665*	June 12 h m 0. 0 1. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	64.8 63.8 65.3 64.5 66.0 66.3 66.5 65.5 68.0 67.5 67.0 67.0 61.7 61.9 64.0 62.0 66.0 63.0 66.7 64.2 67.6 66.5

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

June 12. There are no Photographic Traces of the movements of the Declination and Vertical Force magnets on this day.





INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
June 18 23. 50	21. 5. 20	June 18 21. 50 23. 59	.1146 *** .1151								June 21 9. 0 21. 13	.1175* .1159*	June 21 4. 42 7. 51 10. 19 17. 36 17. 45 19. 47 23. 59	.02657 *** .02652 .02610 .03051 .02980 .02729 .02529	June 21 9. 0 21. 13	72. 7 68. 2	74. 0 69. 0
June 19 1. 0 3. 0	20. 59. 24* 21. 9. 52*	June 19 0. 0 1. 6 1. 47 2. 7 2. 45 3. 3 3. 50 5. 10 5. 18 5. 50 6. 36 7. 37 8. 26 8. 57 11. 35 12. 3 13. 7 13. 36 13. 56 15. 56 17. 0 17. 55 18. 27 20. 45 21. 16 21. 39 21. 53 22. 17 23. 59	.1151 .1156 .1163 .1161 *** .1162 .1170 *** .1159 .1166 .1161 .1174 .1175 .1157 *** .1168 .1163 *** .1165 *** .1171 .1161 .1164 .1161 *** .1171 .1171 .1168 .1171 *** .1162 .1167 .1158 .1160 .1147 *** .1165	June 19 0. 0 1. 45 4. 6 6. 15 6. 26 12. 18 20. 17 23. 59	.03170 .03068 {.02750 {.02927 {.02640 {.02663 {.02860 {.02983 {.03562 {.02740 {.02810	June 19 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	67. 0 68. 3 68. 3 70. 0 70. 6 72. 0 73. 8 73. 0 75. 5 74. 8 71. 8 73. 1 67. 8 67. 0 67. 0 67. 2 67. 3 69. 2 69. 8 70. 9 71. 9 73. 0 76. 5 71. 2			June 19 0. 0 21. 3. 40 5. 5 21. 0. 30 20. 58. 0 53. 30 20. 57. 0 21. 0. 5 *** 20. 58. 10 54. 30 59. 0 56. 0 58. 45 55. 25 59. 35 56. 40 57. 30 55. 20 56. 15 54. 0 54. 0 52. 35 54. 10 50. 50 56. 55 55. 0 20. 58. 40 21. 1. 15 4. 50	June 22 (†) 0. 35 3. 10 5. 15 7. 15 7. 50 8. 30 9. 0 10. 32 11. 25 12. 3 12. 25 13. 0 14. 0 14. 53 15. 45 16. 35 17. 3 17. 24 17. 35 17. 55 18. 6 18. 54 19. 44 20. 55 21. 18 21. 40 22. 50 23. 59	June 22 0. 0 1. 58 2. 49 4. 36 7. 55 10. 15 14. 20 17. 45 *** 20. 40 22. 27 23. 59	.02529 .02521 .02480 .02302 .02240 .02188 .02362 .02570 *** .02496 .02503 .02458	June 22 1. 0 3. 0 9. 0 22. 30	70. 8 72. 7 71. 8 68. 0	74. 0 73. 0 73. 0 69. 0	
		June 20 1. 0 3. 0 9. 0 21. 0	.1149* .1160* .1157* .1150*	June 20 0. 0 1. 48 8. 45 11. 16 14. 11 20. 50 22. 36 23. 59	.02810 *** .02819 *** .02316 .02352 .02430 .02911 .02958 .02840	June 20 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	67. 3 69. 2 68. 2 69. 8 69. 5 70. 9 70. 8 71. 9 71. 5 73. 0 75. 7 76. 5 70. 5 71. 2		June 20 21. 4. 50 *** 7. 10 *** 4. 0 4. 0 21. 0. 15 20. 54. 0 58. 10 *** 56. 15 57. 40 56. 0 20. 57. 40 *** 21. 0. 0	June 23 0. 0 3. 10 7. 5 9. 40 11. 30 14. 17 18. 46 19. 37 21. 35 23. 59	.02458 .02362 .02300 .02120 .02135 .02271 .02570 {.02480 {.02442 {.02470 {.02423 .02445	June 23 9. 0 21. 0	70. 0 64. 0	71. 2 66. 6			
		June 21 1. 0 3. 0	.1156* .1150*	June 21 0. 0	.02840 ***	June 21 1. 0 3. 0	72. 8 74. 0 73. 3 74. 8		June 21 21. 0. 0								

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

June 19. From this day till June 21<sup>d</sup>, 21<sup>st</sup>, the Declination Magnet was resting against some portion of the case enclosing it; it was then liberated, and worked as usual afterwards.

June 20 and 21. The Photographic Traces either failed or were too faint for use.

On June 22 the southern projection of the brass suspension-piece affixed to the top of the vertical support of the Horizontal Force Magnet gave way, and was not restored till July 12.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.			Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		
							Of H. F. Magnet.	Of V. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.	
June 23 16. 30 18. 8 20. 20. 21. 36 21. 44 22. 10 23. 59	20. 56. 0 56. 0 *** 52. 10 55. 0 54. 0 20. 57. 0 21. 2. 5																		
June 24 0. 0 3. 10. 4. 0 4. 50 7. 10 9. 40. 16. 7 17. 0 18. 10 18. 53 19. 50 20. 10 21. 10	21. 2. 5 5. 30 4. 50 21. 2. 10 20. 56. 30 59. 35 59. 0 55. 0 52. 55 53. 30 51. 30 56. 15 20. 57. 0 (†)			June 24 0. 0 1. 7 2. 22 4. 45 8. 16. 11. 41 18. 46 20. 5 23. 59	0. 2445 0. 2402 (†) 0. 1843 0. 1640 0. 1896 0. 1990 *** 0. 2698 0. 2565 *** 0. 2530	June 24 1. 0 3. 0 9. 0 21. 0	68. 6 70. 4 72. 2 65. 0												
June 25 0. 28 0. 45 1. 24 2. 12 3. 15 3. 39 8. 22 8. 44 9. 30 9. 54 13. 26 13. 44 15. 35 17. 27 19. 13 19. 42 19. 54 20. 52 21. 17 22. 52 23. 8 23. 35 23. 59	(†) 21. 6. 40 8. 30 8. 20 10. 10 7. 40 8. 30 0. 25 21. 2. 10 20. 54. 30 21. 0. 10 21. 3. 15 20. 58. 0 58. 20 53. 50 55. 20 20. 53. 0 21. 0. 45 20. 59. 0 21. 4. 30 3. 25 6. 30 6. 0		June 25 0. 0 7. 4 10. 50 16. 45 22. 50 23. 59	0. 2530 *** 0. 2628 0. 2621 0. 2530 *** 0. 2667 *** 0. 2610 0. 2543 0. 2500	June 25 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	65. 7 65. 7 64. 0 62. 0 60. 5 61. 7 62. 5 62. 7 63. 4													
June 26 2. 0 3. 0 5. 0 6. 15. 8. 0	(†) 21. 14. 45 14. 25 12. 0 9. 0 8. 30		June 26 0. 0 2. 8 7. 20 14. 49	0. 2500 0. 2432 0. 1992 *** 0. 2250 ***	June 26 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0	63. 0 63. 7 64. 8 66. 0 66. 0 67. 0	62. 8 63. 9 64. 6 65. 5 66. 0 66. 9												
June 26 10. 30 12. 45 13. 24 13. 36 13. 53 14. 25 16. 40 17. 15 20. 16 20. 35 21. 5 22. 46 23. 30 23. 59	21. 7. 0 (†) 7. 0 9. 35 7. 35 11. 30 5. 0 5. 40 21. 8. 30 20. 59. 0 21. 0. 25 0. 0 3. 40 7. 30 11. 0																		
June 26 22. 32. 23. 59	0. 2651 0. 2608																		
June 26 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	66. 6 67. 0 64. 5 66. 5 60. 7 64. 0 60. 2 62. 0 61. 0 62. 8 62. 2 63. 7 63. 1 64. 3																		
June 27 0. 0 2. 0 6. 15 9. 25 14. 55 17. 55 18. 10 18. 36 21. 30 23. 25	21. 11. 0 13. 0 *** 9. 30 6. 20 9. 0 4. 30 5. 55 4. 0 *** 5. 0 14. 0 (†)																		
June 27 0. 0 4. 43 8. 15 13. 30 20. 28. 23. 59	0. 2608 0. 2088 0. 2263 0. 2359 0. 2476 0. 2921 0. 3003																		
June 27 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 12	64. 0 65. 3 66. 6 67. 8 67. 8 68. 0 68. 8 68. 5 62. 2 64. 2																		
June 28 0. 40 2. 20. 3. 11 4. 50 7. 10 14. 0 14. 35 15. 9 16. 14 18. 0 19. 25 21. 55 23. 25 23. 59	21. 12. 0 14. 0 10. 0 *** 10. 0 6. 5 5. 55 7. 45 5. 55 7. 40 21. 0. 30 20. 59. 0 *** 21. 3. 0 10. 0 10. 0																		
June 28 0. 0 4. 52 5. 17 7. 45 12. 46 19. 51 21. 17 23. 59	0. 3003 0. 2510 0. 2658 0. 2658 0. 2821 0. 2660 0. 2790 0. 3220 0. 3210 0. 2963 0. 2907																		
June 28 1. 0 3. 0 9. 0 21. 15	67. 3 69. 7 70. 6 66. 5 67. 0																		
June 29 0. 0 1. 50 2. 37 7. 23	0. 2907 0. 2843 0. 3105 0. 3081 0. 3362 0. 3350 0. 3422																		
June 29 1. 0 3. 0 9. 0 22. 31	67. 5 69. 0 66. 3 68. 3 61. 0 62. 0																		

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

June 25, DECLINATION.—The times may be a little in error, but they are closely approximate: the error will probably not amount to 5".

INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
June 29 14. 0 17. 5 17. 25 18. 10 18. 41 18. 52 18. 58 21. 15 22. 45 23. 59	21. 4. 40 2. 30 4. 0 4. 0 2. 0 4. 5 2. 25 4. 0 12. 35 12. 0			June 29 8. 45 14. 26 21. 29 23. 59	.03390 .03802 .02990 .02893					July 2 11. 15 11. 50 15. 45 17. 0 19. 15 23. 59	21. 6. 0 3. 0 *** 2. 30 21. 0. 0 20. 58. 0 21. 10. 45			July 2 21. 0 23. 59	.02873 .02663 .02510	July 2 23. 0	64. 0 64. 8
June 30 0. 0 0. 25 1. 40 5. 20 9. 0 10. 30 13. 30 15. 0 15. 55 18. 45 19. 5 19. 16 19. 54 20. 15 21. 45 22. 10 23. 10 23. 59	21. 12. 5 14. 40 14. 30 7. 0 5. 0 2. 0 5. 10 *** 9. 0 21. 1. 5 (†) 20. 57. 25 59. 30 58. 0 20. 58. 0 21. 1. 30 *** 5. 45 4. 0 9. 30 10. 0			June 30 0. 0 3. 45 9. 16 14. 45 19. 5 22. 30 23. 59	.02893 *** .02618 .02370 .02563 *** {.02880 .02500 .02492 .02410	June 30 9. 0 21. 0	63. 9 65. 4 61. 7 61. 0		July 2 19. 15 19. 32 19. 50 20. 54 21. 43 23. 10 23. 59	21. 1. 45 20. 59. 0 21. 5. 0 *** 4. 0 10. 20 10. 10			July 2 19. 15 19. 32 19. 50 20. 54 21. 43 23. 10 23. 59	.02510 .02043 .02138 .02220 .02936 .02637 {.02558 .02463 .02420	July 3 0. 0 6. 3 8. 18 11. 26 18. 12 19. 46 21. 17 23. 59	0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	64. 2 65. 3 64. 9 65. 8 65. 5 66. 5 67. 5 68. 0 68. 5 69. 4 68. 0 69. 2 65. 8 67. 2 61. 0 64. 0 62. 2 62. 0 62. 5 63. 2 63. 7 64. 0 64. 3
July 1 0. 0 1. 0 2. 50 4. 10 7. 15 12. 47 13. 5 16. 25 18. 30 21. 43 23. 25 23. 59	21. 10. 0 (†) 14. 8 13. 0 9. 10 5. 35 2. 30 4. 0 21. 3. 30 *** 20. 58. 35 *** 21. 3. 5 9. 15 8. 30			July 1 0. 0 1. 30 2. 43 4. 0 8. 17 8. 46 12. 47 20. 16 22. 15 23. 59	.02410 .02196 .02010 {.02183 .02720 *** .02920 .02870 .03010 .03592 .03372 .03307	July 1 1. 0 3. 0 9. 0 21. 0	65. 5 68. 6 72. 3 66. 8		July 2 20. 50 21. 45 23. 0 23. 59	2. 0 4. 0 12. 0 2. 40			July 2 20. 50 21. 45 23. 0 23. 59	.02420 .02335 {.02456 .02402 .02463 .02427 .02476 *** .02508 *** .02390 .02342	July 4 0. 0 3. 46 7. 18 8. 43 11. 43 15. 17 21. 52 23. 59	0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	64. 7 64. 8 65. 2 65. 3 65. 4 65. 4 65. 0 64. 5 62. 6 61. 6
July 2 0. 0 1. 30 5. 15 10. 55	21. 8. 30 10. 0 *** 4. 0 *** 4. 30			July 2 0. 0 5. 4 7. 45 9. 50 16. 39	.03307 .02728 {.02760 .02837 .02870 .03350	July 2 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0	68. 6 70. 0 66. 8 63. 4 63. 8 63. 8 64. 0 64. 4		July 3 0. 0 1. 30 5. 15 10. 55	21. 2. 45 3. 0 (†)			July 3 0. 0 3. 47 9. 50	.02342 .02196 .01923	July 5 1. 0 3. 0 9. 20	64. 0 65. 6 66. 8	

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																																														
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.																																													
July 5 3. 0 3. 25 6. 30 9. 0 11. 30 12. 0 14. 15 15. 40 17. 35 19. 27 21. 45 23. 59	21. 10. 16* 10. 0 4. 35 4. 35 6. 25 4. 0 4. 0 21. 6. 0 20. 59. 30 20. 57. 30 21. 1. 45 12. 0			July 5 16. 0 18. 45 21. 17 22. 15 23. 59	.02263 .02440 (†) .02193 .02228 .02190	July 5 21. 0	61. 0	61. 7	July 8 15. 5 17. 35 19. 5 19. 26 19. 50 20. 10 20. 18 20. 42 21. 15 22. 15 23. 59	21. 3. 30 0. 0 *** 21. 2. 20 20. 59. 0 21. 4. 0 1. 30 4. 55 1. 0 8. 25 4. 25 11. 35			July 8 21. 50 23. 59	.02348 .02243 *** .02190			July 8 21. 50 23. 59	.02348 .02243 *** .02190			July 9 0. 0 0. 35 1. 50 2. 5 2. 20 3. 30 4. 52 5. 20 5. 51 6. 25 6. 44 7. 22 7. 45 8. 45 9. 16 9. 25 9. 45 10. 1 10. 20 10. 44 11. 5 12. 25 12. 50 13. 35 14. 35 14. 55 15. 25 17. 0 20. 40 20. 47 21. 15 21. 35 22. 10 23. 59	21. 11. 35 15. 40 16. 10 14. 40 16. 0 10. 0 8. 0 10. 0 9. 30 6. 0 7. 0 7. 0 3. 30 21. 3. 25 20. 57. 0 59. 40 20. 59. 0 21. 6. 0 21. 6. 0 20. 58. 15 21. 4. 35 6. 10 4. 0 3. 0 *** 6. 0 3. 0 5. 0 *** 1. 40 *** 3. 30 2. 0 7. 0 6. 0 9. 0 10. 0			July 9 0. 0 2. 8 5. 26 8. 10 10. 13 10. 44 13. 30 23. 59	.02190 *** .02063 .01630 *** .01923 .01942 .01903 .02002 .02621 .02604	July 9 1. 0 3. 0 9. 0 20. 9 21. 0 22. 0 23. 0	66. 8 68. 4 70. 9 64. 8 65. 0 64. 3 65. 2 64. 7 65. 4	July 10 0. 0 2. 43 8. 17	.02604 .02523 *** .01950 ***	July 10 0. 0 1. 0 2. 0 3. 0 4. 0	65. 3 66. 2 66. 8 68. 3 69. 0 69. 5	July 6 0. 0 2. 0 4. 50 6. 30 9. 45 11. 54 12. 0 12. 30 13. 10 15. 30 18. 50 22. 50 23. 59	21. 12. 0 13. 5 7. 5 3. 20 6. 0 6. 0 8. 0 3. 55 5. 0 21. 3. 25 20. 58. 30 21. 12. 0 13. 0			July 6 0. 0 5. 26 8. 35 12. 46 20. 40 23. 59	.02190 .01812 .01640 .01702 .01970 .01902	July 6 1. 0 3. 0 9. 0 22. 30	64. 3 66. 8 67. 0 68. 0 66. 3 67. 5	July 7 0. 0 2. 20 5. 0 9. 45 11. 15 12. 11 12. 58 13. 40 14. 5 14. 45 15. 20 19. 30 21. 0 22. 5 23. 10 23. 59	21. 13. 0 12. 30 5. 45 4. 35 7. 10 4. 40 11. 0 4. 30 6. 55 3. 30 21. 4. 0 *** 20. 58. 15 21. 3. 30 5. 30 9. 40 10. 0			July 7 0. 0 5. 7 14. 6 21. 17 23. 59	.01902 *** .01680 *** .01890 .02356 *** .02260	July 7 9. 0 21. 0	69. 5 70. 2 65. 8	July 8 0. 0 2. 30 4. 45 8. 10 8. 45 9. 45	21. 10. 0 9. 30 5. 30 (†) 4. 20 3. 30 6. 0 ***			July 8 0. 0 2. 15 4. 40 8. 17 11. 56 19. 15	.02260 .02123 .01820 (†) .01831 .02007 .02530 ***	July 8 1. 0 3. 0 9. 0 21. 8	68. 6 70. 7 68. 6 61. 8 63. 5	July 10 0. 0 1. 50 2. 31 4. 10	21. 10. 0 *** 10. 0 11. 0 11. 40 ***			July 10 0. 0 1. 0 2. 0 3. 0 4. 0	65. 3 66. 2 66. 8 68. 3 69. 0 69. 5

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.



INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																									
							Of H.F. Magnet.	Of V. F. Magnet.								Of H.F. Magnet.	Of V. F. Magnet.																								
July 10 4. 51 5. 35 6. 5 7. 10 8. 0 8. 35 9. 0 9. 10 9. 27 9. 54 10. 40 11. 0 12. 8 12. 25 13. 30 13. 55 16. 15 16. 40 17. 22 17. 42 17. 55 19. 0 19. 6 19. 36 19. 58 20. 24 20. 29 20. 36 20. 50 21. 33 22. 45 23. 0	21. 11. 0 7. 5 21. 9. 0 20. 56. 35 21. 3. 25 20. 59. 15 20. 59. 15 21. 2. 55 20. 51. 30 21. 3. 0 20. 53. 30 21. 2. 0 2. 0 21. 7. 10 20. 52. 15 21. 3. 35 1. 0 2. 20 0. 30 5. 30 21. 5. 30 20. 59. 30 21. 3. 45 7. 30 21. 2. 30 20. 58. 30 59. 10 20. 58. 10 21. 1. 35 1. 30 7. 10 7. 0 (†)			July 10 10. 8 13. 3 18. 55 23. 59	'01892 *** '02080 '02813 '02420	July 10 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	71. 3 69. 3 64. 7 61. 0 62. 7 65. 2 66. 1	70. 9 70. 2 68. 4 61. 8 61. 8 63. 3 63. 9	July 11 0. 5 1. 12 1. 54 2. 37 3. 17 3. 56 4. 43 5. 8 6. 47 7. 20 7. 45 8. 25 8. 46 9. 21 9. 35 10. 25	(†) 21. 11. 15 13. 50 11. 0 12. 10 15. 15 14. 5 9. 45 14. 20 5. 15 7. 10 5. 30 6. 35 11. 0 5. 10 7. 35 6. 0 (†)			July 11 0. 0 2. 8 9. 17 13. 10 15. 45 20. 10 23. 59	'02420 '02308 '01702 '01938 '02210 '02523 '02418	July 11 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	67. 6 68. 2 69. 6 71. 3 69. 0 68. 6 62. 7	65. 2 66. 3 67. 1 68. 7 69. 0 68. 6 62. 7	July 11 18. 0 19. 10 19. 50 20. 44 22. 50 23. 59	20. 57. 30 *** 21. 6. 0 *** 4. 0 1. 0 7. 15 9. 0			July 12 0. 0 3. 8 5. 45 6. 30 7. 20 7. 40 8. 0 9. 0 12. 44 13. 0 18. 25 20. 0 20. 50 21. 10 21. 45 23. 40	21. 9. 0 11. 0 9. 10 6. 30 6. 0 1. 0 4. 0 21. 6. 32 (†) 20. 59. 40 21. 2. 0 (†) 21. 1. 20 *** 20. 58. 40 21. 0. 0 2. 30 2. 0 9. 0 (†)	July 12 3. 0 9. 0 21. 0	'0944* '0954* '0958*	July 12 0. 0 2. 5 7. 45 9. 43 12. 14 14. 46 19. 7 22. 5 23. 59	'02418 '02361 '01650 '01783 *** '01796 *** '01875 '02130 '02172 '02110	July 12 1. 0 3. 0 9. 0 21. 0	66. 2 68. 8 72. 3 69. 0 69. 8	July 12 0. 0 3. 0 7. 46 10. 0 14. 18 23. 59	'02110 *** '02080 '01865 '01870 '02090 '02603	July 13 1. 0 3. 0 9. 0 20. 25	70. 6 72. 0 70. 5 66. 0 67. 2	July 13 0. 0 3. 0 7. 46 10. 0 14. 18 23. 59	'0962* '0984 '0980 '0987 '0981 '0989 '0979 '0997 '0981 '0975 '0975 '0983 '0975 '0984 '0977 '0974 (†)	July 13 0. 0 10. 0 13. 41 14. 15 14. 57 15. 29 20. 0 20. 40	'02603 '02559	July 14 8. 30 21. 0	70. 8 66. 8 66. 7	July 14 0. 0 1. 20	'0960 '0959

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.	
July 14		July 14		July 14		July 14			July 16		July 16		July 16		July 16			
3.18 5.15 6.35 7.18 7.26 8.30 10.36 11.7 11.30 11.47 12.18 13.5 13.27 16.50 18.10 18.28 18.52 19.10 20.5 21.51 23.59	21. 9. 10 5. 0 21. 5. 0 20. 57. 10 57. 40 (†) 57. 32* 57. 15 58. 30 54. 20 20. 54. 10 21. 1. 30 20. 59. 30 21. 1. 45 (†) 3. 0 1. 20 4. 0 2. 30 3. 30 1. 0 2. 15 9. 30	1. 28 3. 28 4. 17 5. 15 5. 19 5. 45 6. 23 7. 7 7. 29 8. 0 8. 21 8. 44 10. 0 10. 15 11. 13 11. 30 11. 58 12. 42 13. 11 13. 42 14. 15 15. 27 18. 55 (†) 21. 0	.0969 .0982 .0971 .0979 .0973 .0994 .1005 .0988 .1005 .0989 .0977 .0968 .0974 .0967 .0963 .0969 .0966 .0978 .0968 .0981 .0968 .0979 .0978 (†) .0938*	7.15 9.19 13.45 20.3 23.59	.02280 .02130 *** .02168 .02550 .02605													
July 15		July 15		July 15		July 15			July 17		July 17		July 17		July 17			
1. 0 4.30 5.44 6.45 11. 0 15.15 15.40 16.44 17.3 17.40 17.55 18.55 20.25 23. 0 23.59	(†) 21. 10. 30 11. 30 9. 20 4. 30 7. 30 (†) 7. 5 7. 30 5. 0 6. 45 2. 0 21. 3. 0 20. 59. 0 20. 59. 10 21. 7. 0 9. 5	1. 0 3. 0 9. 0 21. 0 7. 5 7. 30 5. 0 6. 45 2. 0 21. 3. 0 20. 59. 0 20. 59. 10 21. 7. 0 9. 5	.1027* .1023* .1027* .1014* (†) .02510 .02458 .02510 .02372	0. 0 3. 7 9. 28 16. 6 16. 45 18. 43 22. 17 23. 59	.02605 .02589 .02360 .02653 .02742 { .02510 .02458 .02510 .02372	1. 0 3. 0 9. 0 21. 0	66.3 67.8 69.0 64.0	68.4 68.8 69.7 65.0	July 17	21. 11. 40 12. 0 *** 9. 30 10. 25 5. 0 *** 4. 0 5. 35 3. 30 4. 10 3. 0 7. 0 1. 15 0. 30 (†) 1. 0 2. 0 0. 0 0. 20 *** 8. 0 9. 0	July 17	3. 0 9. 0 21. 0 1051* 1057* 1044* 12. 4 14. 45 20. 50 23. 59	July 17	0. 0 3. 47 9. 5 10183 101986 102450 102401	July 17	0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	67.8 69.3 70.8 71.2 71.5 71.8 71.2 69.0 65.6 65.2 65.0 65.3 65.8	67.7 68.8 70.0 70.5 71.0 71.8 71.0 69.2 65.6 65.2 65.7 66.2 66.3
July 16		July 16		July 16		July 16			July 18		July 18		July 18		July 18			
0. 0 1.15 2.10 3.30 5.10 7.15 9.40 10.25 10.44	21. 9. 5 11. 50 12. 0 11. 0 6. 40 *** 6. 0 5. 0 2. 10 6. 20	1. 0 3. 0 9. 0 21. 0	.1027* .1024* .1008* .1005* (†) .01920 .02380 .02372	0. 0 2.17 4.29 8.50 10.35 11.11 15.45 20.46 23.59	.02372 .02229 .01980 .01592 .01709 .01672 .01920 .02380 .02372	1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	68.0 71.2 72.7 65.5 65.3 66.0 66.0 66.6	68.8 71.3 73.8 66.0 66.0 66.3 67.0	July 18	0. 0 2.32 2.46 6. 0 7.51 8. 0 10. 5 10.50 12.45 14.40 14.45 15.30 16.40 20. 0 23. 5 23.30 (†)	July 18	1. 0 3. 0 9. 0 21. 0 1044* 1039* 1061* 1046* 11.37 16.18 21.30 23.59	July 18	0. 0 3.34 5.40 9.46 *** 102065 102302 102630 102436	July 18	0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	66.3 67.0 67.6 68.0 69.2 68.2 65.0	66.8 67.7 68.3 68.6 69.5 69.8 65.7

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.  
 July 15 to 30. There was no Photographic Register of the Horizontal Force.

INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
July 19 P M 1. 0 1. 45 5. 14 5. 44 8. 45 11. 15 11. 50 15. 20 18. 10 20. 45 23. 45 23. 59	° ' " (†) 21. 10. 56* 10. 0 5. 35 3. 0 6. 30 5. 10 7. 50 21. 4. 40 20. 58. 20 20. 59. 30 21. 7. 0 8. 35	July 19 P M 1. 0 3. 0 9. 0 21. 9	*1057* 0. 0 *1054* *1059* *1047*	July 19 P M 0. 0 6. 5 8. 17 12. 0 13. 20 13. 42 15. 50 16. 15 17. 43 18. 27 19. 46 21. 45 23. 59	*02436 *02447 *02396 *02435 {*02483 *02450 *02443 *02396 *02470 *02447 *02490 *02446 *02463 *02370 *02354	July 19 P M 1. 0 3. 0 9. 0 21. 9	66° 0' 66° 8' 66° 8' 68° 0' 68° 0' 66° 2'	66° 8' 67° 3' 68° 0' 67° 2'	July 22 P M 9. 0 21. 0	° ' " 21. 4. 17* 3. 43*	July 22 P M 9. 0 21. 0	*1059* *1036*	July 22 P M 11. 26 13. 57 17. 20 20. 10 23. 59	*01684 *01770 *02043 *02130 *02092	July 22 P M 9. 0 21. 0	69° 0' 69° 6' 66° 3' 66° 8'	69° 6' 66° 8'
July 20 0. 0 1. 50 2. 52 3. 44 4. 53 5. 30 6. 26 7. 15 9. 5 9. 25 9. 54 10. 25 11. 13 13. 0 13. 10 13. 30 14. 10 14. 50 15. 15 22. 30	21. 8. 35 11. 0 9. 40 10. 5 *** 6. 30 7. 0 *** 2. 40 4. 50 *** 4. 10 0. 30 21. 1. 45 20. 58. 0 21. 4. 35 5. 50 3. 0 6. 0 5. 0 7. 30 6. 20 (†) 8. 6*	July 20 1. 0 3. 0 9. 0 22. 30	*1047* *1057* *1075* *1016*	July 20 0. 0 2. 15 5. 27 10. 3 15. 0 22. 17 23. 59	*02354 *02350 *02203 *01910 *02132 (†) *02243 *02143	July 20 1. 0 3. 0 9. 0 22. 30	68° 0' 68° 3' 69° 8' 71° 8' 72° 0' 65° 8'	68° 3' 69° 8' 72° 0' 66° 0'	July 23 0. 0 1. 25 1. 45 2. 15 5. 0 10. 50 17. 15 18. 5 19. 16 20. 55 22. 15 23. 59	21. 8. 0 12. 10 11. 25 13. 0 *** 3. 35 5. 10 (†) 21. 1. 0 20. 58. 35 20. 58. 0 *** 21. 0. 30 8. 0 14. 0	July 23 1. 0 3. 0 9. 0 21. 0	*1034* *1053* *1051* *1042*	July 23 0. 0 1. 37 9. 20 14. 0 17. 38 20. 45 23. 59	*02092 *01986 *01510 *01720 *02030 *02292 *02100	July 23 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	67° 8' 69° 1' 69° 6' 63° 0' 63° 0' 63° 0' 63° 3'	68° 7' 69° 5' 70° 0' 64° 0' 64° 0' 64° 3' 64° 7'
July 21 2. 30 5. 0 7. 35 8. 10 8. 55 10. 30 21. 0	(†) 21. 14. 0 7. 0 2. 0 2. 0 4. 35 4. 45 (†) 0. 32*	July 21 9. 0 21. 0	*1056* *1036*	July 21 0. 0 2. 46 10. 15 12. 26 20. 40 23. 59	*02143 *02042 *01663 *01704 *02063 *01980	July 21 9. 0 21. 0	70° 0' 71° 0' 67° 0'	71° 0' 67° 2'	July 24 1. 0 3. 0 9. 0 21. 0	21. 13. 23* 10. 42* 0. 33* 2. 45*	July 24 1. 0 3. 0 9. 0 21. 0	*1053* *1060* *1058* *1044	July 24 0. 0 3. 15 5. 50 8. 20 9. 12 9. 56 10. 29 10. 45 12. 4 12. 40 13. 37 14. 19 16. 3 16. 56 19. 8 22. 42 23. 59	*02100 *02129 *02060 *01926 *01912 *01836 *01862 *01840 *01852 *01807 *01872 *01863 *** *01970 *** *01942 *02040 *02091 *02010	July 24 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	63° 4' 63° 3' 63° 9' 64° 9' 65° 2' 65° 5' 66° 7' 66° 7' 67° 0' 67° 0' 66° 3' 66° 6' 67° 0' 67° 0' 67° 0' 67° 5' 67° 8' 68° 0'	64° 7' 64° 5' 64° 9' 65° 2' 65° 5' 67° 3' 67° 7' 68° 0' 67° 2' 67° 0' 67° 3' 67° 8' 67° 8' 68° 5'
July 21 2. 30 5. 0 7. 35 8. 10 8. 55 10. 30 21. 0	(†) 21. 14. 0 7. 0 2. 0 2. 0 4. 35 4. 45 (†) 0. 32*	July 21 9. 0 21. 0	*1056* *1036*	July 21 0. 0 2. 46 10. 15 12. 26 20. 40 23. 59	*02143 *02042 *01663 *01704 *02063 *01980	July 21 9. 0 21. 0	70° 0' 71° 0' 67° 0'	71° 0' 67° 2'	July 25 1. 0 3. 0 9. 0 21. 0	21. 10. 46* 11. 10* 6. 4* 1. 49*	July 25 1. 0 3. 0 9. 0 21. 0	*1022* *1041* *1064* *1027*	July 25 0. 0 3. 22 11. 15 15. 36 19. 15 20. 14 21. 0	*02010 *01908 *01934 *02005 {*02167 *02130 *02123 (†) *02074*	July 25 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	68° 3' 69° 0' 69° 3' 70° 0' 69° 8' 68° 8' 65° 8'	68° 8' 69° 8' 69° 4' 70° 0' 69° 7' 69° 5' 66° 5'
July 22 1. 0 3. 0	21. 7. 35* 9. 47*	July 22 1. 0 3. 0	*1040* *1044*	July 22 0. 0 9. 17	*01980 *01672	July 22 1. 0 3. 0	69° 3' 70° 8'	69° 5' 70° 3'									

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
July 26 1. 0 3. 0 9. 0 21. 14	21. 11. 15* 10. 30 1. 55* 5. 44*	July 26 1. 0 3. 0 9. 0 21. 14	.1037* .1061* .1067* .1053*	July 26 1. 0 3. 0 9. 0 12. 12. 17. 18 21. 29	(+) .01973 .01790 .01778 .01660 .01662 .02040 .01829 (+)	July 26 1. 0 3. 0 9. 0 21. 14	67.6 68.3 67.8 63.6	68.2 69.0 69.2 63.1	July 30 8. 30 10. 45 18. 40 19. 44 22. 50 23. 59	21. 7. 0 7. 0 (+) 2. 10 0. 0 6. 0 7. 50	July 30 3. 0 4. 40 8. 39 12. 20 18. 16 23. 5 23. 59	.02056* .02379 .02246 .02390 (+) .02728 .02448 .02382	July 30 21. 0 22. 0 23. 0	63.0 64.0 65.1	63.3 64.2 66.0		
July 27 0. 30 0. 50 1. 30 4. 0 6. 0 8. 25 8. 50 9. 55 21. 20	(+) 21. 11. 20 11. 0 13. 0 7. 50 4. 0 21. 3. 5 20. 59. 30 21. 3. 30 (+) 20. 57. 59*	July 27 1. 0 3. 0 9. 0 21. 20	.1026* .1044* .1054* .1049*	July 27 1. 0 1. 18 4. 35 8. 18 14. 6 19. 43 21. 20 22. 6 23. 59	(+) .01440* .01472 .01008 .01347 .01550 .01886 (+) .01882* .01887 .01762	July 27 1. 0 3. 0 9. 0 21. 20	66.8 69.0 68.3 64.0	67.5 70.3 70.2 65.2	July 31 0. 0 2. 0 4. 55 7. 0 14. 45 19. 15 23. 35 23. 59	21. 7. 55 10. 55 6. 10 (+) 4. 0 21. 4. 0 20. 57. 30 21. 12. 45 12. 25	July 31 0. 0 4. 45 6. 56 11. 0 16. 45 21. 46 23. 17	.1060 *** .1061 *** .1073 *** .1064 *** .1070 .1073 .1080 .1074 .1057 .1055 (+) .1046*	July 31 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	66.0 66.8 68.0 69.0 70.0 70.0 69.2 68.0 65.0 65.0 65.8 66.3 66.9	65.8 67.2 68.1 69.0 69.8 69.8 69.2 68.6 66.2 66.0 66.2 66.8 67.7		
July 28 8. 10 21. 0	21. 5. 1* 0. 15*	July 28 8. 10 21. 0	.1058* .1048*	July 28 0. 0 2. 17 4. 6 7. 56 12. 36 19. 50 21. 22	.01762 .01580 .01352 .01690 .01796 .02502 .02506 (+)	July 28 8. 10 21. 0	69.0 63.9	69.5 63.8	Aug. 1 0. 0 1. 15 3. 35 4. 46 5. 2 6. 36 7. 25 8. 44 10. 15 10. 56 11. 46 12. 14 12. 39 13. 5 14. 0 15. 15 15. 45 16. 3 16. 35 17. 30 18. 28 19. 45 23. 15 23. 59	Aug. 1 21. 12. 25 14. 0 9. 0 *** 7. 5 5. 10 5. 15 1. 30 3. 0 2. 0 21. 6. 15 20. 57. 25 20. 57. 30 21. 2. 35 21. 4. 0 20. 56. 0 21. 0. 0 20. 59. 40 21. 2. 0 20. 59. 10 20. 58. 0 *** 21. 0. 30 *** 20. 58. 0 21. 11. 0 15. 0 17. 10	Aug. 1 1. 0 4. 42 5. 46 7. 50 9. 45 12. 35 13. 44 21. 15 23. 59	(+) .1066* .1064 *** .1061 .1074 .1063 .1078 .1043 *** .1063 .1059 .1057 .1076 .1057 .1067 .1057 .1060 .1056 .1064 .1058 9. 23 .1064 .1061 .1053 .1068 *** .1051 .1050 .1066 ***	Aug. 1 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	67.3 68.0 69.3 70.8 71.0 71.0 65.0	68.6 69.6 70.0 71.5 72.0 72.0 66.3		
July 29 1. 0 1. 30 3. 45 4. 30 6. 20 8. 10 8. 48 9. 20 11. 0 15. 45 16. 15 16. 30 16. 53 17. 47 19. 55 21. 50 23. 59	(+) 21. 10. 53* 10. 30 11. 0 7. 0 1. 10 1. 35 3. 30 2. 40 5. 20 3. 30 7. 35 7. 35 5. 0 6. 35 1. 0 4. 15 12. 15	July 29 1. 0 3. 0 9. 0 21. 0	.1057* .1058* .1065* .1052*	July 29 0. 50 6. 42 7. 58 8. 13 9. 18 12. 7 18. 25 20. 4 21. 25 23. 59	(+) .02407 .01829 .01730 .01763 .01778 .01823 .01770 .01812 .02153 .02328 .02342 .02264	July 29 1. 0 3. 0 9. 0 21. 0	66.8 68.8 69.5 65.2	67.2 69.2 70.0 65.5	July 30 0. 0 6. 15	21. 12. 15 *** 9. 30 ***	July 30 1. 0 3. 0 9. 0 21. 0	.1051* .1055* .1069* .1064*	July 30 0. 0 0. 27 1. 0	.02264 .02243 (+) .02226*	July 30 1. 0 3. 0 9. 0 20. 0	67.4 69.3 68.4 62.0	68.0 69.7 69.2 61.9

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.  
 July 22, 24, 25, 26, and 28. The Photographic Traces of the Declination Magnet were too faint for use.







Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.				
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.			
				Aug-12 8. 48 11. 42 13. 50 16. 40 19. 28 23. 15								Aug-14 13. 46 14. 25 15. 27 15. 56 16. 40 17. 59 18. 27								
Aug-13 1. 0 2. 20 4. 53 5. 10 6. 30 11. 0 17. 15 18. 50 20. 25 20. 55 22. 30	(+) 21. 10. 30 10. 0 4. 0 5. 10 2. 30 21. 3. 0 20. 59. 0 21. 6. 35 6. 0 12. 0 (+)	Aug-13 1. 0 1. 23 *** 3. 49 6. 46 7. 8 *** 10. 43 16. 45 *** 18. 53 20. 3 21. 17 22. 15 23. 9	(+) 1048* 1051 *** 1047 *** 1047 1050 *** 1055 *** 1064 *** 1059 1042 1035 1044 1045 (+)	Aug-13 0. 50 8. 13 13. 55 18. 56 21. 30 22. 36	(+) 02942 02140 02402 02910 02583 02495 (+)	Aug-13 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	71.8 73.2 73.3 75.0 76.7 75.2 66.5 68.2 66.8 67.6 67.3 68.5 67.8 69.4			Aug-15 1. 0 1. 15 1. 30 2. 14 3. 0 3. 16 5. 45 7. 15 9. 0 10. 45 11. 21 11. 50	(+) 21. 14. 26* 15. 55 16. 0 12. 0 10. 40 8. 25 3. 20 2. 0 5. 0 *** 3. 15 4. 55 3. 0 (+) 21. 5. 0 *** 20. 59. 0 21. 2. 0 0. 25 2. 15 *** 3. 0 8. 0 (+)	Aug-15 0. 0 0. 36 1. 7 3. 0 6. 18 6. 47 *** 7. 40 *** 11. 6 12. 3 13. 36	1053 1047 1059 1072* 1056 1064 *** 1055 *** 1058 1064 *** 1059	Aug-15 1. 0 3. 6 9. 45 14. 17 15. 56 16. 13 *** 20. 25 (+) 21. 0	(+) 01692* 01710 01463 01690 01792 01758 *** 02002 (+) 01622*	Aug-15 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	71.2 71.4 71.2 71.8 71.5 72.5 71.8 73.2 72.5 73.0 72.8 74.0 66.7 68.0			
Aug-14 1. 0 4. 25 5. 30 6. 50 9. 0 10. 0 12. 0 12. 54 13. 25 21. 0	(+) 21. 13. 0* 10. 0 *** 7. 15 7. 0 (+) 4. 44* 4. 15 3. 50 1. 30 5. 0 (+) 8. 37*	Aug-14 1. 0 3. 0 3. 28 3. 50 4. 35 4. 44 5. 6 5. 9 5. 35 5. 50 6. 7 6. 36 6. 40 7. 15 7. 29 *** 8. 6 *** 8. 42 11. 45 11. 56 12. 5 12. 46 13. 5	(+) 1051* 1062* 1059 1053 *** 1058 1053 1065 1060 1094 1051 1046 *** 1055 1047 1067 1062 *** 1068 *** 1061 *** 1066 1081 1052 1079 1074	Aug-14 1. 0 3. 0 4. 45 9. 34 12. 7 15. 46 16. 26 18. 25 21. 0	(+) 02422* 02332* 02173 01930 02048 02260 02257 02360 (+) 01652*	Aug-14 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	68.3 70.2 70.8 71.0 71.0 72.5 72.0 73.3 73.5 72.8 73.7 71.0 71.6 64.5 65.5 69.0 69.5 69.3 70.0 70.8 70.3			Aug-16 0. 30 0. 50 1. 30 2. 39 2. 50	(+) 21. 10. 10 11. 5 9. 10 8. 40 7. 0 *** 3. 45	Aug-16 1. 0 2. 5 2. 21 2. 46 3. 34 3. 45	1058* 1061 1067 1062 1078 1070	Aug-16 0. 15 5. 11 9. 40 12. 3 14. 50 15. 40	(+) 01640 01803 01764 01813 01830 01769 ***	Aug-16 1. 0 3. 0 9. 0 21. 0	66.8 69.0 67.3 68.9 67.0 68.0 61.8 63.3			

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

August 11. DECLINATION AND HORIZONTAL FORCE.—The times are approximate only, and may be in error to the amount of 15 minutes.  
August 12. Declination and Horizontal Force Photographic Traces were too faint for use.









Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Aug. 26 10. 0 11. 55 12. 28 16. 20 17. 55 19. 40 23. 10	21. 5. 0 5. 10 3. 0 4. 0 2. 0 1. 30 14. 0 (†)	Aug. 26 5. 46 6. 45 7. 3 8. 41 10. 58 11. 27 13. 13 16. 29 20. 6 22. 40 23. 30	.1066 *** .1060 .1065 *** .1058 *** .1060 .1066 *** .1059 .1065 *** .1049 *** .1051 .1046 (†)														
Aug. 27 0. 15 1. 35 4. 10 7. 30 9. 7 9. 35 9. 58 11. 50 12. 30 15. 30 19. 30 22. 45 23. 59	(†) 21. 13. 30 13. 0 4. 0 1. 30 3. 0 1. 0 2. 20 3. 25 2. 30 3. 55 0. 5 13. 10 13. 15	Aug. 27 1. 0 3. 0 9. 0 21. 0 1. 0 2. 37 5. 18 8. 0 13. 46 18. 30 21. 6 21. 45 23. 59	.1040* .1046* .1052* .1039* 1. 0 2. 37 5. 18 8. 0 13. 46 18. 30 21. 6 21. 45 23. 59	Aug. 27 0. 0 2. 37 5. 18 8. 0 13. 46 18. 30 21. 6 21. 45 23. 59	.01328 .00950 .00543 .00786 .01050 .01512 .01785 .01780 .01622	Aug. 27 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	68.3 70.5 71.5 73.0 72.8 74.0 65.6 67.0 66.3 67.2 67.5 68.3 68.4 69.2										
Aug. 28 0. 0 0. 46 4. 8 7. 25 9. 50 10. 20 11. 0 13. 30 14. 58 15. 30 16. 15 18. 40 19. 30 21. 40 22. 45	21. 13. 15 13. 0 2. 0 2. 0 2. 10 6. 0 1. 0 21. 2. 10 20. 58. 0 59. 20 57. 0 20. 57. 30 21. 0. 20 2. 35 7. 15 (†)	Aug. 28 0. 0 4. 35 7. 30 9. 21 11. 30 13. 17 20. 16 23. 59	.1049 .1050 *** .1037 .1042 *** .1032 *** .1035 .1043 .1045 .1048 .1063 .1052 .1056 .1052 .1065 .1065 .1074 .1067 .1060 .1045	Aug. 28 0. 0 4. 35 7. 30 9. 21 11. 30 13. 17 20. 16 23. 59	.01622 .01050 .00748 .00890 .00921 .01020 .01683 .01725	Aug. 28 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	69.5 70.2 70.7 71.2 72.0 72.9 73.0 73.9 74.2 75.2 75.0 71.8 66.7 67.1 66.8 67.2 68.2 67.5 69.0										
Aug. 28 21. 10. 0 11. 55 12. 28 16. 20 17. 55 19. 40 23. 10	21. 10. 0 5. 10 3. 0 4. 0 2. 0 1. 30 14. 0 (†)	Aug. 28 21. 43 22. 4 22. 16 (†)	.1046 .1051 .1047 (†)														
Aug. 29 0. 15 1. 15 3. 55 5. 30 7. 0 9. 20 21. 0	(†) 21. 11. 30 12. 5 6. 0 3. 30 3. 30 21. 4. 27* 20. 59. 33*	Aug. 29 0. 56 6. 2 7. 20 9. 41 11. 43 13. 33 14. 20 17. 7 17. 25 18. 46 21. 0	(†) .1053 *** .1051 .1060 .1065 *** .1061 .1064 .1066 .1064 .1065 (†) .1052*	Aug. 29 0. 0 2. 51 6. 18 7. 15 9. 43 12. 45 17. 50 20. 7 21. 0	.01725 .01562 .01208 .01162 .01150 .01296 .01872 .01613 (†) .01509*	Aug. 29 0. 0 1. 0 2. 0 3. 0 4. 0 9. 20 21. 0	67.8 70.0 68.0 70.0 69.1 71.0 70.0 71.8 71.0 72.5 64.0 65.8										
Aug. 30 0. 42 1. 30 4. 30 6. 47 8. 44 12. 20 15. 25 19. 45 23. 0	(†) 21. 14. 10 11. 0 3. 30 0. 10 3. 55 3. 25 3. 0 0. 50 2. 20 (†)	Aug. 30 1. 0 3. 0 9. 0 21. 0 1. 0 0. 36 4. 45 9. 6 13. 7 19. 16 23. 35	.1042* .1050* .1062* .1052* 1. 0 0. 36 4. 45 9. 6 13. 7 19. 16 23. 35	Aug. 30 1. 0 3. 0 9. 0 21. 0	.01312 .00820 .00603 .00850 {.01482 .01443 .01080 (†)	Aug. 30 1. 0 3. 0 9. 0 21. 0	66.8 68.3 68.0 70.4 69.3 70.7 61.5 63.0										
Aug. 31 0. 0 0. 35 4. 0 5. 46 11. 15 12. 35 17. 22 20. 25 22. 0 23. 0 23. 59	21. 11. 30 11. 30 4. 10 2. 30 5. 30 4. 0 2. 30 0. 40 9. 0 11. 20 13. 0	Aug. 31 (†) 1. 0 1. 7 1. 36 2. 6 3. 29 6. 4 7. 15 8. 34 8. 43 9. 18 10. 3 11. 37 11. 46 12. 27	(†) .1049* .1048 .1055 .1047 *** .1047 *** .1053 *** .1063 *** .1062 .1066 *** .1054 .1062 *** .1061 .1066 .1062	Aug. 31 0. 7 2. 16 5. 45 8. 20 10. 11 14. 36 19. 18 21. 45 23. 59	.01152 .00920 .00286 .00470 .00532 .00905 .01504 .01223 .01110	Aug. 31 1. 0 3. 0 9. 0 22. 10	65.5 67.0 68.2 70.3 71.2 71.8 62.5 64.0										

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.  
August 30. The Photographic Trace of the Horizontal Force Magnet was too faint for use.



Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.				
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.			
Sept. 4 19. 13 20. 37 22. 25 23. 12	20. 57. 0 20. 59. 30 21. 10. 0 10. 10 (†)	Sept. 4 18. 45 19. 47 22. 24 23. 45	.1061 .1056 .1027 .1043 (†)																	
Sept. 5 0. 0 0. 15 0. 30 0. 46 1. 32 2. 5 2. 55 3. 30 4. 20 6. 0 6. 13 6. 28 7. 2 7. 10 8. 43 9. 15 9. 43 11. 40 13. 35 14. 20 14. 46 15. 0 15. 23 15. 51 16. 45 17. 0 17. 30 17. 55 18. 25 18. 35 18. 50 19. 6 19. 30 19. 50 23. 0	21. 9. 40 9. 40 13. 15 10. 30 12. 0 9. 0 9. 10 6. 30 6. 35 2. 20 1. 0 21. 1. 30 20. 58. 0 21. 0. 0 *** 20. 52. 10 55. 50 20. 54. 0 *** 21. 0. 35 21. 3. 20 20. 59. 30 21. 3. 0 3. 0 5. 40 2. 0 2. 5 1. 30 *** 4. 10 *** 4. 50 1. 10 3. 0 3. 0 1. 30 5. 45 4. 30 *** 10. 0 (†)	Sept. 5 0. 45 2. 6 2. 42 3. 37 4. 10 *** 5. 12 6. 15 6. 45 6. 50 7. 8 7. 18 7. 46 8. 5 8. 47 9. 10 9. 28 9. 45 9. 56 10. 32 10. 47 11. 13 11. 36 11. 46 12. 7 *** 12. 45 12. 49 13. 43 *** 15. 47 17. 30 17. 46 17. 58 18. 9 18. 34 18. 50 19. 15 20. 6 20. 45 21. 4 21. 29 ***	(†) .1043 *** .1048 .1038 .1059 .1046 *** .1047 *** .1054 .1041 .1049 .1043 .1057 .1054 *** .1059 .1056 .1076 .1061 .1065 .1055 *** .1061 .1066 *** .1056 *** .1060 *** .1049 .1033 .1035 .1031 .1046 .1030 .1045 *** .1048 *** .1043 .1063 .1039 ***		(†)	Sept. 5 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0 0. 0 1. 0 2. 0 3. 0 4. 0 7. 30 10. 6 10. 44 10. 55 13. 40 15. 25 16. 20 16. 53 17. 40 18. 35 20. 5 23. 8 23. 59	67.569.8 68.870.4 70.071.5 71.372.6 72.273.6 73.074.5 68.370.1		Sept. 6 0. 0 1. 0 1. 50 2. 8 6. 40 7. 30 10. 6 10. 44 10. 55 13. 40 15. 25 16. 20 16. 53 17. 40 18. 35 20. 5 23. 8 23. 59	(†) 21. 10. 0 12. 30 10. 20 *** 2. 0 3. 0 *** 21. 4. 5 20. 58. 30 21. 1. 0 *** 2. 10 (†) 6. 20 1. 30 21. 2. 0 20. 59. 30 21. 1. 0 *** 20. 57. 0 21. 11. 0 11. 50		Sept. 6 0. 0 2. 17 8. 50 11. 16 15. 8 19. 20 20. 37 21. 40 23. 59	.1048 .1033 *** .1046 *** .1063 .1060 .1065 .1058 .1070 *** .1054 .1066 .1061 .1065 .1058 .1065 .1061 .1074 *** .1066 *** .1076 .1072 *** .1082 .1075 .1077 *** .1065 *** .1042 *** .1047 *** .1040 *** .1044		Sept. 6 0. 0 2. 17 8. 50 11. 16 15. 8 19. 20 20. 37 21. 40 23. 59	.10473 .10452 .10567 .10768 {.10420 .10251 .10547 .10456 .10510 .10368		Sept. 6 1. 0 3. 0 9. 0 21. 0	70.3 70.8 67.0 60.0	71.4 71.5 68.8 61.2
		Sept. 7 0. 0 0. 22 0. 30 2. 0 3. 45 3. 53 5. 0 6. 10 6. 55 7. 43	21. 11. 50 13. 45 12. 0 10. 0 4. 5 5. 0 2. 30 2. 30 0. 35 21. 1. 30	Sept. 7 0. 0 4. 0 9. 36 14. 29 20. 45 23. 46	.1044 *** .1049 *** .1063 *** .1056 .1063 *** .1055 ***		Sept. 7 0. 0 4. 0 9. 36 14. 29 20. 45 23. 46	.10368 .101032 .00770 .01002 {.01496 .01450 .01328 (†)		Sept. 7 1. 0 3. 0 9. 0 22. 34	62.5 64.7 65.3 59.5	64.8 65.8 67.2 60.8								

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

September 1 to 4. The times both of the Declination and Horizontal Force may be in error to 5 or 10 minutes. The Photographic Trace of the Declination Magnet, on the 3rd, is too faint for use.

INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Sept. 7 8. 0 8. 15 8. 39 9. 10 10. 10 15. 0 15. 40 16. 28 17. 8 17. 43 18. 10 19. 30 22. 40 23. 45 23. 59	20. 59. 0 21. 0. 0 20. 57. 0 20. 58. 10 21. 1. 30 2. 25 1. 0 *** 3. 5 2. 10 0. 0 21. 0. 30 20. 58. 25 21. 13. 30 13. 40 12. 10	Sept. 7 6. 20 6. 46 7. 47 8. 23 *** 8. 48 9. 2 9. 46 *** 11. 41 *** 12. 49 *** 13. 45 *** 17. 56 *** 22. 16 *** 23. 59 ***	*1059 *1067 *1060 *1079 *** *1070 *1077 *1062 *** *1061 *** *1073 *** *1069 *** *1078 *** *1054 *** *1054	h h		h h	o o		Sept. 7 4. 39 6. 56 7. 35 8. 21 11. 11 16. 47 19. 22 20. 39 23. 21	21. 2. 40 21. 2. 10 20. 59. 30 21. 1. 30 *** 1. 20 21. 2. 0 20. 58. 0 20. 57. 20 21. 8. 40 (†)	Sept. 9 4. 18 4. 42 5. 25 7. 13 7. 34 8. 58 9. 20 *** 9. 49 11. 30 11. 47 13. 13 15. 15 17. 18 21. 0 23. 0	*1046 *1051 *** *1047 *1054 *1060 *1055 *1065 *** *1058 *1056 *1059 *1057 *1063 *1063 *1040 *1032 (†)	Sept. 9 7. 56 12. 30 15. 18 19. 17 21. 45	*00780 *00892 *01060 *01405 *01548 (†)	h h	o o	
Sept. 8 0. 0 0. 30 1. 30 2. 13 2. 30 2. 50 3. 0 3. 39 4. 0 6. 14 7. 35 9. 27 10. 25 11. 5 19. 40 22. 30 23. 45	21. 12. 10 15. 0 17. 0 13. 0 13. 25 11. 10 12. 35 7. 0 8. 0 *** 21. 6. 10 20. 45. 50 21. 1. 0 0. 0 21. 1. 5 (†) 20. 58. 10 21. 8. 50 10. 15 (†)	Sept. 8 0. 0 0. 20 0. 48 *** 1. 57 2. 6 2. 33 2. 45 3. 5 3. 32 4. 17 4. 46 *** 5. 26 5. 45 6. 13 6. 40 6. 46 6. 55 7. 17 7. 46 8. 0 8. 16 8. 29 8. 45 9. 28 21. 0	*1054 *1062 *1054 *** *1060 *1054 *1062 *1059 *1071 *1053 *1078 *1068 *** *1081 *1070 *** *1077 *1058 *1064 *1054 *1069 *1060 *1061 *1055 *1060 *1053 *** *1059 (†) *1041*	1. 18 6. 6 9. 18 9. 46 18. 32 20. 15 23. 59	(†)	Sept. 8 8. 37 21. 0	65.566.2 62.363.0		Sept. 8 1. 0 3. 0 9. 0 21. 0	21. 10. 26* 6. 3* 21. 1. 59* 20. 58. 7*	Sept. 10 1. 0 1. 51 2. 47 8. 15 12. 13 15. 51 19. 3 19. 21 20. 30 23. 15	(†) *1046* *1041 *1047 *1053 *1065 *1080 *1070 *1073 *1063 *1061 (†)	Sept. 10 0. 15 2. 7 4. 8 5. 29 8. 58 20. 6 23. 59	(†) *01461 *01223 *00910 *00802 *00850 *00942 *01870 *01508	Sept. 10 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	64.765.5 66.867.7 65.067.0 56.958.9 56.758.6 57.259.3 57.860.2	
Sept. 9 0. 16 1. 42 3. 43	(†) 21. 10. 20 11. 20 4. 30	Sept. 9 1. 0 2. 46 3. 7	(†) *1046* *1045 *1050	Sept. 9 0. 0 1. 6 3. 43 5. 49	*00978 *00930 *00475 *00688	Sept. 9 1. 0 3. 0 9. 0 21. 0	65.266.3 66.268.3 66.868.6 61.563.0		Sept. 9 19. 16 21. 7 23. 59	19. 16 *1083 *** *1070 *** *1068							

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instance they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.







Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Sept. 17 15. 51 16. 30 16. 47 17. 20 18. 55 19. 45 21. 16 23. 0	21. 0. 35 5. 0 4. 30 1. 5 21. 2. 0 20. 58. 30 *** 21. 8. 0 *** 11. 5 (†)	Sept. 17 17. 10 18. 23 19. 29 19. 56 21. 12 22. 6 22. 17 23. 8 23. 59	*1067 *** *1078 *1065 *1066 *** *1048 *** *1060 *** *1055 *** *1065 *** *1061	h h		h h	o o	o o	h h	o / //	Sept. 18 22. 50 23. 59	*1051 *1050	h h		h h	o o	o o
Sept. 18 0. 0 5. 30 6. 30 7. 30 8. 45 9. 11 9. 20 9. 31 9. 52 10. 20 10. 48 11. 10 13. 25 14. 15 15. 28 16. 45 17. 15 17. 40 19. 9 19. 20 19. 28 19. 40 19. 50 22. 0 22. 40 23. 10	21. 13. 0 21. 1. 40 20. 55. 30 58. 30 *** 57. 0 50. 0 53. 45 48. 0 53. 30 57. 0 55. 20 57. 10 20. 54. 0 21. 2. 5 20. 57. 30 21. 0. 5 21. 0. 10 20. 58. 0 *** 20. 57. 35 21. 0. 0 20. 58. 40 21. 1. 10 0. 15 12. 0 10. 45 12. 50 (†)	Sept. 18 0. 0 3. 17 5. 11 6. 45 9. 0 20. 37 21. 39 22. 7 6. 44 7. 7 7. 23 7. 37 7. 49 9. 5 9. 36 9. 42 10. 6 10. 56 11. 15 11. 42 13. 15 14. 14 14. 42 15. 26 16. 7 17. 16 18. 45 19. 17 20. 16 21. 41 22. 16	*1061 (†) *1052* *1056 *1056 *1044 *** *1044 *1049 *** *1042 *1054 *1046 *1052 *1046 *1051 *1077 *1061 *1077 *** *1049 *1056 *1052 *** *1069 *** *1064 *1054 *1075 *1065 *** *1061 *1068 *** *1057 *** *1062 *** *1044 *** *1044	o o 3. 17 5. 11 6. 45 9. 0 20. 37 21. 39 22. 7	*01691 *00978 *01173 *01230 (†) *01178* *01651 *01670 *01658 (†)	Sept. 18 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	57. 3 59. 7 59. 3 60. 4 61. 0 62. 5 63. 1 65. 0 64. 0 66. 5 65. 2 66. 5 64. 8 66. 2 64. 0 65. 3 60. 4 62. 3 60. 0 61. 2 60. 0 61. 3 60. 4 61. 9 61. 0 62. 5	Sept. 19 1. 0 3. 0 9. 0 21. 0	21. 16. 20* 21. 12. 41* 20. 57. 24* 21. 4. 10*	Sept. 19 1. 0 3. 0 9. 0 21. 0	*1076* *1051 *1043 *1074 *1072 *1056 *1055 *1045 *1055 *1031 *1041 *1036 *1043 *1039 *1047 *1045 *1058 *1051 *1061 *1060 *1069 *1059 *1065 *1062 *1077 *1076 *1091 *** *1073 *1057 *1041 *1049 *1046 *1051 (†)	o. 40 3. 0 3. 45 6. 10 9. 36 11. 45 12. 17 16. 13 17. 5 17. 33 21. 57 23. 59	Sept. 19 (†) *10605 *10450 *10462 *10190 *101242 *101270 *10392 *10403 *101690 *101712 *101690 *101968 *101998	Sept. 19 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	62. 7 64. 2 63. 7 65. 4 64. 8 66. 7 65. 0 67. 0 64. 2 65. 7 61. 2 61. 7		
Sept. 20 22. 40 23. 10	10. 45 12. 50 (†)	Sept. 20 14. 14 14. 42 15. 26 16. 7 17. 16 18. 45 19. 17 20. 16 21. 41 22. 16	*1064 *1054 *1075 *1065 *** *1061 *1068 *** *1057 *** *1062 *** *1044 *** *1044			Sept. 20 1. 0 2. 18 4. 44 5. 7 5. 54 12. 0 21. 0	(†) 21. 10. 54* 21. 9. 0 20. 59. 0 20. 56. 15 21. 0. 35 21. 1. 40 (†) 20. 57. 55*	Sept. 20 1. 0 3. 0 3. 7 3. 28 4. 7 4. 18 4. 47 5. 17 6. 38 7. 45 12. 16 16. 13 16. 38	(†) *1066* *1062* *1051 *1040 *1054 *1051 *1035 *1053 *1058 *1056 *1063 *** *1079 *1073 ***	o. 0 2. 0 2. 48 3. 30 4. 8 7. 17 11. 13 15. 40 19. 36 21. 47 23. 59	Sept. 20 1. 0 3. 0 9. 0 21. 0	62. 8 64. 2 65. 3 65. 7 63. 8 65. 3 56. 8 58. 3					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

September 19. The Photographic Trace of the Declination was too faint for use, and the times of the Horizontal Force are somewhat doubtful.

September 20. The times of both the Declination and Horizontal Force may be in error to the amount of 5 or 10 minutes.



Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																										
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.																									
Sept. 24 2. 43 3. 0 4. 13 9. 20 10. 10 10. 19 10. 50 11. 19 12. 30 12. 45 14. 20 15. 24 18. 20 20. 25 21. 44 23. 0 23. 24 23. 59	21. 12. 20 8. 0 3. 20 *** 21. 1. 45 20. 57. 0 58. 10 54. 0 49. 15 56. 0 20. 54. 20 21. 1. 55 1. 0 21. 1. 0 *** 20. 58. 10 *** 21. 0. 30 7. 35 6. 0 *** 8. 0	Sept. 24 2. 42 2. 56 3. 40 5. 12 6. 46 6. 57 7. 15 9. 38 11. 37 11. 37 12. 56 16. 25 18. 13 20. 48 22. 17 22. 35 22. 50 22. 56 23. 59	'1032 '1056 '1046 '1063 *** '1068 '1079 '1065 *** '1064 *** '1074 *** '1056 *** '1072 *** '1073 *** '1057 *** '1059 '1046 '1051 '1047 *** '1063	Sept. 24 21. 45 22. 17 22. 50 23. 18	'01825 '01804 '01830 '01786 '01775 (†)	Sept. 24 21. 0 22. 0 23. 0	57. 0 58. 8 57. 0 58. 7 57. 2 58. 7		Sept. 25 0. 0 0. 40 0. 54 1. 55 2. 10 2. 44 2. 58 4. 30 5. 44 6. 10 6. 20 6. 52 7. 7 7. 41 8. 6 8. 25 8. 54 9. 25 10. 10 10. 40 11. 45 12. 5 14. 0 14. 15 14. 47 15. 13 15. 39	21. 8. 0 6. 0 13. 30 *** 8. 0 12. 0 13. 35 7. 0 *** 6. 30 21. 3. 55 20. 59. 20 21. 0. 15 20. 51. 0 55. 0 57. 10 57. 0 59. 30 57. 0 59. 0 56. 10 20. 58. 55 21. 1. 0 0. 0 9. 15 7. 0 6. 35 11. 30 8. 0	Sept. 25 0. 0 1. 17 3. 8 7. 46 14. 42 20. 41 23. 6 23. 59 4. 8 5. 26 5. 51 6. 35 6. 43 6. 56 7. 8 7. 15 8. 7 11. 43 12. 0 15. 47 17. 0 19. 8 23. 20	'1063 '1040 '1043 '1058 '1043 *** '1064 *** '1057 *** '1076 '1067 '1078 '1067 '1086 '1067 '1072 *** '1058 *** '1070 '1075 *** '1070 '1076 *** '1076 *** '1076 *** '1057	Sept. 25 1. 17 3. 8 7. 46 14. 42 20. 41 23. 6 23. 59	(†) '01430 '01392 '01206 '01291 '01543 '01583 '01542	Sept. 25 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	58. 0 59. 0 59. 5 59. 1 60. 0 60. 8 60. 5 61. 0 61. 0 62. 2 59. 5 56. 7 58. 7 56. 0 58. 5 56. 6 57. 5 57. 0 58. 7 57. 3 59. 2		Sept. 25 15. 53 16. 10 17. 23 18. 30 20. 50 23. 59	21. 1. 20 4. 10 1. 0 *** 21. 1. 0 *** 20. 58. 0 *** 21. 7. 0	Sept. 25 23. 59	'1060		Sept. 25 0. 0 1. 6 7. 7 9. 52 12. 17 22. 22 23. 34	'01542 '01510 '01072 '01021 '01080 '01823 '01650 '01650 (†)	Sept. 26 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	58. 3 59. 0 60. 6 61. 2 61. 0 61. 5 62. 0 62. 5 53. 1 55. 6	Sept. 26 0. 0 1. 5 1. 38 1. 50 2. 51 3. 55 4. 10 4. 54 6. 15 7. 0 7. 23 8. 0 8. 14 8. 50 9. 30 12. 50 13. 25	21. 7. 5 8. 30 6. 20 8. 10 7. 5 4. 0 21. 4. 5 20. 58. 30 21. 1. 35 0. 30 21. 1. 0 20. 56. 30 57. 30 52. 40 59. 0 20. 58. 0 21. 1. 0 *** 1. 10 2. 25 1. 30 3. 30 21. 1. 45 20. 57. 35 21. 5. 0	Sept. 26 0. 0 1. 3 1. 19 1. 45 3. 7 3. 49 4. 35 5. 2 5. 35 5. 46 6. 36 6. 48 7. 15 7. 47 8. 10	'1060 *** '1063 '1054 '1062 *** '1059 *** '1064 '1053 '1069 '1071 '1066 '1069 '1065 '1072 '1066 '1066 '1059 '1078 *** '1068 *** '1071 '1076 *** '1072 *** '1077 '1083 *** '1080 *** '1081 *** '1070 '1075 '1063 '1060	Sept. 26 0. 0 1. 6 7. 7 9. 52 12. 17 22. 22 23. 34	'01542 '01510 '01072 '01021 '01080 '01823 '01650 '01650 (†)	Sept. 26 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	58. 3 59. 0 60. 6 61. 2 61. 0 61. 5 62. 0 62. 5 53. 1 55. 6	Sept. 27 0. 0 1. 40 3. 45 6. 0 9. 33	21. 5. 0 6. 0 21. 2. 10 20. 59. 20 21. 0. 10	Sept. 27 0. 0 2. 6 3. 0	'1060 *** '1058 *** '1061	Sept. 27 1. 0 1. 26 4. 40 7. 25	(†) '01550 '01490 '00990 '01232	Sept. 27 1. 0 3. 0 9. 0 21. 0	58. 7 62. 3 62. 4 59. 0 59. 1 63. 0 63. 5 60. 0

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.



Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Oct. 2 22.50 23.30	21. 8. 0 8. 0 (†)	Oct. 2 16.19 17. 7 18.25 19.18 22.13 22.39 23.59	*1081 *** *1087 *1087 *1092 *1090 *1085 *1085	h h		h h	o o	o o	Oct. 5 20.30 23. 0	20.59. 0 21. 4.45 (†)	h h		h h		h h	o o	o o
Oct. 3 0. 0 0.30 1. 5. 3. 0 5.36 7.10 8.40 13.30 21.16 23.53	21. 7.10 6.15 7.30 21. 3.25 20.59. 0 20.58.50 21. 0.10 21. 1. 0 (†) 20.58.55 21. 7.30 (†)	Oct. 3 0. 0 0.13 1. 0 1.30 *** 3.15 4.46 6.15 *** 8.16 13.47 21. 0	*1085 *1085 (†) *1085* *1082 *** *1073 *** *1070 *1080 *** *1083 *1085 (†) *1073*	0.39 1.47 4.56 7.25 11.56 21. 0	(†) *03030 *02992 *02570 *02442 *02537 (†) *02977*	Oct. 3 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	60.5 61.8 63.0 64.1 64.9 64.0 60.6	62.0 63.0 64.4 66.5 65.0 61.2	Oct. 5 6.25 12.15 12.45 13.18 17.43 21.14 22.10 22.43	21. 3.55 5.10 9.20 8.40 (†) 8.30 7.40 8.45 6.35 6.20 0. 0 1.35 3.30 (†)	Oct. 6 0. 0 0.40 1.45 2.20 6.25 12.15 12.45 13.18 17.43 21.14 22.10 22.43	0. 0 0.41 1.45 6. 0 12.28 12.52 12.59 13.12 13.32 16. 4 22.15 (†)	*1037 *1032 *1084 (†) *1018 *1017 *1008 *1011 *1007 *1020 *1013 *1035 (†)	Oct. 6 0. 0 2.15 9.31 16.45 20.43 21.50 23.59	*02443 *02459 *02378 *02473 (†) *02608 *02646 *02643	Oct. 6 6.38 21. 0	64.4 63.0 66.2 64.3
Oct. 4 0.15 0.55 4. 0 7.30 9.30 15.30 17.31 18.20 20.45 22.30 22.50 23.20 23.35 23.59	(†) 21. 8. 0 9. 5 21. 2. 0 20.59. 0 21. 0.10 21. 1.15 20.58.55 59.50 *** 20.56.30 *** 21. 2. 0 7.20 *** 7.20 5. 0 6.30	Oct. 4 0.13 2.26 4. 7 9. 8 14.55 18.28 22.29 22.49 23.26	(†) *1060 *1067 *1065 *1079 *1083 *** *1091 *** *1073 *1085 *** *1077 (†)	0.15 2.45 6.16 8.48 14. 0 20.15 22.42 23.59	(†) *02963 *02748 *02350 *02331 *02506 *02857 *02920 *02886	Oct. 4 1. 0 3. 0 9. 0 21. 0	63.6 66.1 64.2 59.5	64.3 66.6 66.0 61.2	Oct. 7 1. 0 2.12 2.35 4.30 9. 5 9.25 9.55 11.50 13. 3 13.42 14. 0 14.45 15.30 17.10 17.28 18.23 19.15 19.45 21. 0 23. 0 23.10	(†) 21. 9.30 7. 0 7.15 *** 2.30 21. 1. 0 20.53.35 59. 0 *** 58. 5 20.57.30 21. 2.35 8.28 20.58.40 20.57. 0 21. 0. 5 21. 1. 0 20.59. 0 20.59.15 21. 2.30 20.59. 0 *** 20.59.15 21. 9. 0 9.10 (†)	Oct. 7 0. 0 2. 6 5.17 7. 8 9.33 13.50 20.29 22.13 23.59	*1073 *1078 *1073 *** *1080 *1074 *** *1078 *** *1075 *** *1081 *** *1070 *1083 *1077 *** *1083 *1081 *1073 *1092 *1074 *1085 *1082 *1086 *1082 *** *1064 *** *1065 (†)	Oct. 7 1. 0 3. 0 9. 0 21. 0	*02643 *02582 *02210 *02092 *02130 *02205 *02263 *02679 *02750 *02743	Oct. 7 1. 0 3. 0 9. 0 21. 0	65.2 67.6 68.4 69.0 62.5 64.7	
Oct. 5 0. 0 0.53 1.40 2.20 3.15 8. 0 12. 0 17.30	21. 6.30 10. 0 *** 7. 0 *** 21. 3.10 20.59. 0 21. 0.30 21. 1. 0	Oct. 5 1. 0 1.27 4.38 10.26 15.55 18.46 21.25 23. 4	(†) *1081* *1077 *1083 *1080 *1084 *1082 *1063 *1065 (†)	0. 0 2.41 7. 0 10.16 16.45 23.59	*02886 *02847 *02439 *02282 *02270 *02443	Oct. 5 1. 0 3. 0 9. 0 22. 0	61.8 63.6 66.5 63.1	63.0 65.3 68.0 65.2	Oct. 8 0.55	(†) 21. 8.45	Oct. 8 1. 0	(†) *1066*	Oct. 8 0. 0 1. 0	*02743 *02704*	Oct. 8 1. 0 3. 0	66.2 67.8 66.8 70.2	

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.







Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.			
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.		
Oct. 14 16.45 17.45 18.14 19.50 20.55 21.22 22.15 23.45 23.59	21. 2. 20 1. 0 2. 10 *** 1. 0 *** 3. 0 1. 0 1. 30 7. 35 7. 5	Oct. 14 14. 6 16.45 17.10 18.40 19.43 21.53 23. 5 23.59	*1078 *** *1085 *1080 *** *1093 *** *1078 *** *1077 *** *1070 *** *1075	" "	" "	" "	" "	" "	Oct. 16 22.14 23.40 23.59	20. 59. 30 21. 6. 20 7. 0	Oct. 16 14. 30 17.39 18.50 21.45 22.58 23.59	*1092 *** *1099 *1097 *1079 *1076 *1081	" "	" "	" "	" "	" "	Oct. 16 14. 30 17.39 18.50 21.45 22.58 23.59	*1092 *** *1099 *1097 *1079 *1076 *1081
Oct. 15 0. 0 1.29 1.47 4.50 5.21 6. 6 9.18 9.47 10.25 10.53 11.15 11.50 12.45 14.10 15. 0 16.23 17.11 17.40 20.41 22. 8 22.30 23.59	21. 7. 5 6.40 8. 0 *** 21. 2. 0 20.57.15 59.35 *** 59.20 55.25 57. 5 56. 0 57. 0 20.56. 0 21. 0. 5 1. 0 0.20 2. 5 21. 0.30 21. 0.50 *** 20.56. 0 21. 1. 0 0.20 *** 7.10	Oct. 15 0. 0 1.34 2.16 5. 5 5.28 9.13 9.46 9.58 10.20 12. 3 16.15 17. 4 17.42 18.45 20.36 21.18 22. 3 22.26 22.45 23.59	*1075 *1074 *1067 *** *1065 *1075 *** *1081 *1095 *1088 *1097 *** *1082 *1089 *1096 *1094 *1096 *1080 *1080 *1074 *1066 *1070 *1069	Oct. 15 0. 0 1.31 3. 6 6. 7 8.27 19.43 23.59	*03790 *03853 *03730 *03322 *03180 *03695 *03770	Oct. 15 1. 0 3. 0 9. 0 20. 0 21. 0 22. 0 23. 0	61.64.2 64.867.0 63.566.7 60.062.0 60.062.0 60.162.2 60.262.2	Oct. 15 11. 0 11.50 14.15 14.49 15.45 16.31 16.52 17.35 18.15 19.38 20.30 21.45 23. 7 23.59	20.59. 0 21. 0.50 1. 30 0. 0 0. 5 3.35 7.10 1.30 21. 0. 0 20.59.30 *** 21. 7. 0 *** 7. 5	Oct. 17 0. 0 1. 0 4.50 6.51 7.26 8.10 11. 0 11.50 14.15 14.49 15.45 16.31 16.52 17.35 18.15 19.38 20.30 21.45 23. 7 23.59	21. 7. 0 7.45 0.10 20.59. 5 56.20 59.30 20.59. 0 21. 0.50 1.30 0. 0 21. 0. 0 20.59.30 *** 21. 7. 0 *** 7. 5	Oct. 17 0. 0 2. 7 8.26 10.17 13.43 22. 0 23.59	*1081 *1078 *1084 *1092 *1091 *** *1096 *** *1099 *** *1104 *1114 *1105 *1107 *1081 *1085 *** *1079 *1083 *1081 (†)	Oct. 17 0. 0 2. 7 8.26 10.17 13.43 22. 0 23.59	*03790 *03732 *03276 *03244 *03283 *03576 *03568	Oct. 17 0. 0 1. 0 2. 0 3. 0 4. 0 9. 0 21. 0	55.657.2 56.558.1 57.759.0 58.459.8 59.060.0 59.062.0 55.157.7		
Oct. 16 0. 0 1. 0 2. 8 4.30 7.22 9.45 10.17 11.20 12. 0 13.50 14.15 18.40 19.45 20.38	21. 7.10 10. 0 10. 0 3. 0 0.35 21. 0.50 20.59. 0 21. 2.30 20.58. 0 21. 6. 0 2. 5 *** 21. 1. 5 20.59.10 56. 0	Oct. 16 0. 0 2. 6 2.27 4. 0 4.46 6. 5 8.53 11.15 11.46 12.45 13.10 13.48	*1069 *** *1083 *1076 *1089 *1085 *1089 *** *1087 *** *1091 *1103 *1088 *1088 *1095	Oct. 16 0. 0 2. 7 8.36 12.37 17.45 20. 7 22.36 23.59	*03770 *03835 *03710 *03742 *03963 *04092 *03823 *03790	Oct. 16 0. 0 1. 0 2. 0 3. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	60.362.0 61.062.6 61.062.7 61.263.0 61.063.2 60.062.0 57.859.7 54.057.2 54.057.0 53.756.2 54.056.3 54.556.6	Oct. 16 0. 0 10.44 11.45 15.20 17.40 18. 3 18.40 19.15 21.25 22.55 23.59	21. 7.10 10. 0 21. 0. 0 *** 1.35 *** 0.25 2. 0 21. 2. 0 20.59.50 21. 5. 0 21. 5. 0 8. 0	Oct. 18 0. 45 11.34 12. 4 12.40 13. 7 17. 2 19.18 21.27 22.46 23.59	(†) *1089 *** *1067 *** *1079 *** *1090 *** *1090 *1097 *1090 *** *1099 *1096 *1100 *1098 *** *1107 *** *1103 *1085 *1080 *1086	Oct. 18 0. 0 2. 5 4.45 7.50 10.12 12.52 22.17 23.59	*03568 *03490 *03193 *03002 *02975 *03086 *03672 *03715	Oct. 18 1. 0 3. 0 9. 0 21. 0	58.059.2 60.461.2 59.561.2 52.055.2				

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.			
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.		
Oct. 19 0. 0 1. 0 2. 24 3. 15 6. 53 12. 5 15. 15 15. 47 16. 20 18. 30 19. 50 20. 10 20. 45 23. 0 23. 59	21. 8. 0 *** 8. 35 7. 0 21. 3. 20 20. 58. 35 21. 1. 0 21. 1. 55 1. 0 21. 2. 0 20. 59. 30 21. 1. 0 20. 58. 40 20. 59. 0 21. 7. 0 7. 45	Oct. 19 0. 0 2. 7 6. 15 11. 35 11. 00 11. 06 11. 45 12. 28 18. 7. *** 19. 24 19. 53 *** 21. 0 21. 16	•1086 *** •1077 *** •1092 •1100 •1106 •1104 •1115 •1102 •1105 *** •1097 •1099 *** •1083 •1087 (†)	Oct. 19 0. 0 1. 5 4. 16 7. 15 9. 56 13. 20 20. 45 23. 59	•03715 •03710 •03273 •02988 •02910 •02975 •03330 •03355	Oct. 19 1. 0 3. 0 9. 0 22. 5	55.8 57.6 59.0 61.4 54.2 57.0		Oct. 21 11. 20 13. 50 14. 30 16. 0 18. 20 20. 20 21. 41 21. 55 23. 15 23. 59	20. 55. 30 21. 1. 10 20. 59. 0 21. 1. 30 21. 1. 30 20. 57. 50 21. 0. 40 0. 0 6. 35 6. 45	Oct. 21 13. 11 14. 3 14. 50 16. 7 17. 15 18. 46 *** 22. 35 22. 47 23. 42 23. 59	•1093 •1091 •1095 •1093 •1099 •1101 *** •1073 •1076 *** •1073 •1075							
Oct. 20 0. 0 0. 9 0. 15 0. 45 1. 30 1. 45 2. 0 2. 55 3. 51 4. 14 5. 15 6. 15 10. 8 10. 18 10. 30 10. 51 11. 20 11. 35 13. 6 13. 40 14. 30 18. 40 20. 43 23. 59	21. 8. 0 9. 0 7. 30 7. 30 10. 0 7. 10 12. 20 *** 11. 35 8. 5 8. 0 3. 30 21. 1. 10 20. 59. 50 57. 40 58. 10 56. 45 58. 0 56. 20 20. 59. 0 21. 5. 30 1. 5 21. 1. 15 20. 57. 20 21. 6. 0	Oct. 20 0. 29 1. 3 1. 42 2. 0 2. 14 4. 0 4. 43 6. 38 7. 54 10. 48 11. 11 11. 26 11. 42 11. 57 12. 27 13. 13 18. 57 21. 8	(†) •1089 •1084 •1093 •1082 •1092 •1089 •1096 •1099 •1105 •1096 •1099 •1095 •1092 •1104 •1096 •1101 •1085 (†)	Oct. 20 0. 0 1. 17 4. 6 8. 36 12. 37 13. 55 20. 35 23. 59	•03355 •03368 •03248 •02976 •02890 •02900 •03132 •03204	Oct. 20 9. 0 21. 0	60.0 56.2 62.0 58.5		Oct. 22 0. 0 0. 30 1. 2 1. 42 5. 0 8. 40 9. 39 14. 5 17. 35 18. 5 18. 35 19. 15 21. 25 23. 10	21. 6. 45 7. 50 9. 55 6. 0 *** 2. 35 (†) 0. 30 1. 30 *** 1. 35 0. 5 1. 0 0. 0 21. 0. 5 *** 20. 58. 0 21. 5. 20 (†)	Oct. 22 0. 0 2. 17 5. 2 6. 15 *** 5. 17 *** 6. 36 6. 53 (†) 9. 0 9. 33 *** 13. 2 *** 15. 37 *** 16. 26 17. 42 18. 27 18. 55 *** 21. 58 *** 23. 16 (†)	•1075 •1088 •1081 •1088 *** •1089 *** •1082 •1087 (†) •1092* •1092 *** •1099 *** •1105 *** •1111 *** •1109 •1105 •1109 *** •1089 *** •1087 (†)	Oct. 22 0. 0 2. 17 5. 2 6. 15 (†) 8. 45 10. 43 14. 15 19. 0 23. 59	•02970 •02866 •02743 •02733 (†) •02796 •02930 •03062 •03366 •03476					
Oct. 21 0. 0 1. 0 2. 0 5. 30 8. 50 9. 20 9. 44 10. 40	21. 6. 5 (†) 8. 3* 6. 10 1. 5 21. 0. 0 20. 58. 35 59. 0 55. 35	Oct. 21 0. 0 2. 36 5. 41 7. 8 10. 22 10. 43 11. 45 12. 7	•1076 •1089 *** •1095 •1098 •1097 •1100 •1084 •1089 ***	Oct. 21 0. 0 6. 6 11. 7 15. 0 21. 17 23. 59	•03204 •02947 •02843 •02830 •02978 •02970	Oct. 21 1. 0 3. 0 9. 0 21. 0	59.0 60.3 61.2 62.5 60.0 60.7		Oct. 23 1. 18 1. 45 4. 30 6. 44 8. 45 11. 0 14. 30 16. 25 18. 0 19. 32 19. 48 20. 15	21. 5. 40 6. 30 21. 1. 35 20. 59. 0 21. 1. 0 20. 59. 0 21. 1. 5 20. 58. 35 59. 50 58. 20 58. 30 55. 10 20. 59. 15	Oct. 23 1. 0 1. 7 8. 10 12. 2 15. 5 16. 31 17. 52 19. 17 19. 21 19. 33	•1079* •1079 *** •1103 *** •1102 *** •1108 •1107 •1111 •1106 •1100 •1109	Oct. 23 0. 0 1. 18 4. 4 7. 5 9. 22 20. 6 22. 22 23. 59	•03476 •03472 •03195 •03025 •02983 •03076 •03044 •03067					
Oct. 23 0. 0 1. 0 2. 0 5. 30 8. 50 9. 20 9. 44 10. 40	21. 6. 0 (†) 8. 3* 6. 10 1. 5 21. 0. 0 20. 58. 35 59. 0 55. 35	Oct. 23 0. 0 2. 36 5. 41 7. 8 10. 22 10. 43 11. 45 12. 7	•1076 •1089 *** •1095 •1098 •1097 •1100 •1084 •1089 ***	Oct. 23 0. 0 6. 6 11. 7 15. 0 21. 17 23. 59	•03204 •02947 •02843 •02830 •02978 •02970	Oct. 23 1. 0 3. 0 9. 0 21. 0	59.0 60.3 61.2 62.5 60.0 60.7		Oct. 23 1. 18 1. 45 4. 30 6. 44 8. 45 11. 0 14. 30 16. 25 18. 0 19. 32 19. 48 20. 15	21. 5. 40 6. 30 21. 1. 35 20. 59. 0 21. 1. 0 20. 59. 0 21. 1. 5 20. 58. 35 59. 50 58. 20 58. 30 55. 10 20. 59. 15	Oct. 23 1. 0 1. 7 8. 10 12. 2 15. 5 16. 31 17. 52 19. 17 19. 21 19. 33	•1079* •1079 *** •1103 *** •1102 *** •1108 •1107 •1111 •1106 •1100 •1109	Oct. 23 0. 0 1. 18 4. 4 7. 5 9. 22 20. 6 22. 22 23. 59	•03476 •03472 •03195 •03025 •02983 •03076 •03044 •03067					
Oct. 25 0. 0 1. 0 2. 0 5. 30 8. 50 9. 20 9. 44 10. 40	21. 6. 0 (†) 8. 3* 6. 10 1. 5 21. 0. 0 20. 58. 35 59. 0 55. 35	Oct. 25 0. 0 2. 36 5. 41 7. 8 10. 22 10. 43 11. 45 12. 7	•1076 •1089 *** •1095 •1098 •1097 •1100 •1084 •1089 ***	Oct. 25 0. 0 6. 6 11. 7 15. 0 21. 17 23. 59	•03204 •02947 •02843 •02830 •02978 •02970	Oct. 25 1. 0 3. 0 9. 0 21. 0	59.0 60.3 61.2 62.5 60.0 60.7		Oct. 25 1. 18 1. 45 4. 30 6. 44 8. 45 11. 0 14. 30 16. 25 18. 0 19. 32 19. 48 20. 15	21. 5. 40 6. 30 21. 1. 35 20. 59. 0 21. 1. 0 20. 59. 0 21. 1. 5 20. 58. 35 59. 50 58. 20 58. 30 55. 10 20. 59. 15	Oct. 25 1. 0 1. 7 8. 10 12. 2 15. 5 16. 31 17. 52 19. 17 19. 21 19. 33	•1079* •1079 *** •1103 *** •1102 *** •1108 •1107 •1111 •1106 •1100 •1109	Oct. 25 0. 0 1. 18 4. 4 7. 5 9. 22 20. 6 22. 22 23. 59	•03476 •03472 •03195 •03025 •02983 •03076 •03044 •03067					

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.



Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Oct. 25 21. 51 22. 0 22. 45	21. 3. 30 2. 55 4. 30 (†)	Oct. 25 19. 0 19. 42 21. 17 21. 55 23. 0 23. 59	.1088 *** .1066 *** .1087 .1075 *** .1075 .1068														
Oct. 26 0. 0 1. 28 1. 53 2. 30 2. 46 3. 45 4. 14 6. 0 7. 40 8. 11 8. 23 8. 46 8. 55 9. 3 9. 14 9. 25 12. 30 13. 40 14. 27 15. 6 17. 0 19. 30 20. 45 21. 15 23. 0	21. 4. 30 5. 25 8. 30 5. 30 7. 30 *** 6. 18 3. 50 5. 30 1. 40 21. 1. 30 20. 56. 30 42. 20 54. 0 52. 30 54. 0 53. 5 20. 57. 0 (†) 21. 0. 10 1. 0 7. 10 2. 15 *** 0. 10 *** 3. 35 *** 21. 1. 0 20. 59. 20 21. 4. 30 (†)	Oct. 26 0. 0 0. 56 1. 28 1. 55 4. 34 7. 17 7. 55 8. 13 7. 8 7. 46 8. 5 8. 16 8. 35 8. 46 9. 0 10. 6 *** 14. 0 17. 16 21. 6 23. 0 23. 23 23. 59	.1068 *** .1070 .1064 *** .1085 .1091 .1085 .1060 .1105 .1085 22. 0 .1077 .1081 .1076 *** .1089 *** .1086 *** .1100 *** .1096 *** .1095 .1084 .1085	Oct. 26 0. 0 0. 56 2. 45 4. 34 7. 17 7. 55 8. 13 14. 45 18. 33 22. 0	.04021 .04073 .04040 .03892 .03830 .03866 .03839 .04043 .04329 (†) .04350*	Oct. 26 1. 0 3. 0 9. 0 22. 0	59. 360. 7 60. 861. 7 58. 561. 0 52. 054. 2										
Oct. 27 0. 15 3. 0 3. 50 9. 24 13. 14 13. 18 13. 40 14. 0 14. 45 15. 15 15. 32 15. 50 16. 50	(†) 21. 7. 0 4. 45 2. 0 0. 15 0. 0 21. 2. 15 20. 57. 10 58. 30 57. 30 21. 0. 0 20. 57. 0 59. 20 *** 20. 59. 0	Oct. 27 0. 0 3. 35 6. 13 10. 36 12. 48 13. 5 13. 16 13. 34 13. 43 14. 42	.1085 *** .1093 *** .1100 *** .1098 *** .1100 .1124 .1097 .1102 .1093 *** .1093 ***	Oct. 27 0. 0 1. 25 6. 50 9. 17 11. 0 17. 3 19. 17 21. 48 23. 59	.04243 .04220 .03842 .03770 .03770 .03869 .03896 {.03982 .04077 .04080	Oct. 27 8. 0 21. 0	56. 058. 5 51. 854. 7										
Oct. 27 17. 12 18. 0 18. 47 19. 16 20. 0 20. 54 21. 58 22. 30 23. 30 23. 59	21. 2. 20 21. 1. 40 20. 59. 0 21. 2. 0 0. 10 *** 6. 5 1. 0 3. 0 5. 5 5. 0	Oct. 27 15. 43 16. 10 17. 57 18. 28 18. 46 20. 17 21. 35 22. 23	.1101 .1094 *** .1111 .1111 .1119 *** 1100 *** .1110 *** .1106 (†)														
Oct. 28 0. 0 1. 0 2. 45 3. 38 4. 10 4. 40 4. 54 5. 16 5. 20 5. 31 5. 53 6. 3 6. 10 6. 50 7. 4 7. 30 8. 22 8. 35 8. 45 9. 0 9. 15 9. 39 10. 55 11. 50 13. 35 14. 15 14. 45 15. 55 17. 38 19. 5 20. 30 21. 45 23. 15 23. 59	21. 5. 5 (†) 5. 26* 3. 0 *** 3. 20 7. 0 6. 35 8. 0 0. 30 21. 1. 35 20. 54. 0 21. 3. 30 6. 30 4. 0 7. 0 4. 55 21. 3. 0 0. 10 21. 4. 0 20. 52. 0 56. 5 55. 0 59. 50 *** 59. 30 *** 20. 54. 20 *** 21. 0. 0 21. 0. 10 20. 57. 20 21. 0. 20 1. 55 21. 2. 0 *** 20. 59. 40 21. 0. 0 *** 4. 0 4. 0	Oct. 28 0. 0 2. 7 4. 37 6. 35 9. 10 11. 47 16. 41 21. 17 21. 35 22. 48 23. 59	.04080 .04042 .03823 *** .03730 *** .03678 .03709 .03862 .04136 .04097 .04120 .04078	Oct. 28 0. 0 3. 0 9. 0 21. 0	54. 055. 8 56. 058. 6 55. 057. 3 50. 852. 3												

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.



Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.	
Nov. 2 15.30 15.50 17.0 18.24 20.45 22.0 23.59	21. 2.10 1.0 *** 2.0 *** 21. 2.45 *** 20.59.0 *** 20.59.30 21. 6.0	Nov. 2 13.7 18.6 19.7 19.30 20.3 22.8 23.59	*** 1102 *** 1115 *** 1116 1109 *** 1113 *** 1104 *** 1104															
Nov. 3 0.0 0.45 1.30 1.51 3.25 7.15 11.30 17.0 19.0 20.23 21.45 23.59	21. 6.0 7.25 6.45 7.40 3.10 0.30 0.0 21. 2.0 20.59.5 *** 21. 0.30 6.45	Nov. 3 0.0 1.35 3.12 4.46 6.36 10.42 12.23 12.46 14.31 17.12 19.35 20.50 21.47 23.5	1104 *** 1110 *** 1106 *** 1113 *** 1112 *** 1113 *** 1117 1114 *** 1120 1127 1126 *** 1118 *** 1116 *** 1106 1105	Nov. 3 0.0 4.0 10.30 17.0 21.0 23.59	04130 03942 03725 03940 04200 03880 03942	Nov. 3 8.40 21.0	47.3 50.2 41.0 45.0											
Nov. 4 0.0 0.20 3.40 9.30 14.10 20.0 20.45	21. 6.50 7.25 21. 2.30 20.59.40 21. 0.30 20.59.0 59.30 (†)	Nov. 4 0.0 2.0 3.57 7.36 14.20 18.17 21.6	1105 1110 1105 1114 1113 1114 1100 (†)	Nov. 4 0.0 3.0 8.0 14.0 17.15 21.0	03942 03710 03241 03160 03180 03180 (†)	Nov. 4 1.0 3.0 9.0 21.10	45.8 47.9 48.2 50.1 50.8 52.3 53.1											
Nov. 5 1.15 2.42	21. 5.5 3.0 ***	Nov. 5 0.56 2.43	1107 *** 1100 ***	Nov. 5 1.0 1.55	03100 03125 03250 (†)	Nov. 5 1.0 3.0 9.0 20.0	54.8 55.2 56.3 56.3 54.0 55.5 49.4 51.0											
Nov. 5 4.55 6.50 9.0 11.30 17.0 21.0 23.50	21. 2.0 3.15 *** 1.0 *** 2.0 21. 1.25 20.57.10 21. 8.35 (†)	Nov. 5 4.47 6.3 6.45 7.12 7.48 9.40 13.35 16.12 18.46 22.31 22.46 23.59	1103 1097 1099 1095 1101 *** 1099 *** 1109 1117 1115 *** 1096 *** 1103 *** 1100	Nov. 5 4.55 6.50 9.0 11.30 17.0 21.0 23.50														
Nov. 6 0.50 1.15 2.6 2.36 3.0 5.29 6.0 7.15 8.8 9.2 10.10 11.45 15.15 19.15 20.14 21.44 22.25 23.30 23.59	21. 9.0 7.0 5.10 6.0 2.0 2.50 1.0 21. 0.40 20.54.30 20.59.30 21. 0.15 2.55 *** 21. 2.0 *** 20.59.0 *** 21. 0.10 3.25 *** 10.0 *** 9.10	Nov. 6 0.0 1.55 2.51 3.42 4.6 5.45 8.7 8.39 9.4 10.26 15.43 17.35 19.40 20.46 21.45 23.59	1100 *** 1100 *** 1106 *** 1103 1099 *** 1101 *** 1099 1094 1102 *** 1099 *** 1115 *** 1123 *** 1123 *** 1107 *** 1109 *** 1082	Nov. 6 0.0 1.0 2.0 3.0 6.0 9.0 12.0 18.0 20.0 22.0 23.0	04095 04070 03580 03555 04005	Nov. 6 0.0 1.0 2.0 3.0 4.0 5.0 6.0 9.0 12.0 18.0 20.0 22.0 23.0	51.0 52.7 53.5 54.2 54.8 53.9 54.8 55.0 55.7 55.0 55.7 49.5 52.0 48.1 50.7 48.0 50.8 48.7 51.2											
Nov. 7 0.0 1.0 1.9 1.32 1.55 2.9 2.40 3.0	21. 9.10 (†) 10.0 7.50 8.20 6.5 8.0 6.0 10.35	Nov. 7 0.0 0.45 2.0 4.35 5.38 6.16 6.30 6.45 7.12	1082 *** 1081 1085 1078 *** 1086 *** 1080	Nov. 7 0.0 1.0 2.0 3.0 9.10 21.0	04005 04030 03060 03735 03768 03645 03805 03620 03560	Nov. 7 0.0 1.0 2.0 3.0 9.10 21.0	50.3 52.2 52.3 54.2 55.0 54.1 55.0 46.0 49.0											

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.



Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.			
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.		
Nov. 9 15.35 16.15 16.44 17.22 18.35 20.39 21.35 22.55 23.59	21. 1. 15 20. 59. 10 21. 0. 50 21. 0. 35 20. 58. 30 20. 59. 0 21. 2. 5 4. 30 6. 0	Nov. 9 12. 27 16. 10 19. 12 21. 5 23. 59	.1104 *** .1115 *** .1113 *** .1099 *** .1100	h m		h m	o	o			Nov. 11 18. 0 19. 38 20. 0 20. 24 21. 0 21. 30 22. 15 22. 34 23. 45 23. 59	21. 0. 30 20. 59. 10 21. 2. 0 20. 59. 0 21. 0. 25 20. 59. 0 21. 3. 25 2. 0 7. 35 6. 0	Nov. 11 17. 5 17. 42 18. 35 19. 15 20. 10 21. 7 22. 19 23. 59	.1107 .1114 .1111 .1116 *** .1095 *** .1110 .1107 *** .1096	h m		h m	o	o
Nov. 10 0. 0 0. 25 0. 45 2. 5 3. 10 3. 24 4. 3 4. 25 5. 5 5. 40 6. 39 6. 55 8. 15 9. 24 10. 55 11. 20 11. 53 12. 30 16. 0 21. 45	21. 6. 0 8. 30 6. 30 6. 20 3. 30 3. 20 0. 45 3. 0 1. 0 2. 0 1. 10 21. 1. 50 20. 59. 35 20. 59. 30 21. 1. 35 1. 0 5. 20 1. 0 21. 2. 10 1. 0 1. 40 (†)	Nov. 10 0. 0 2. 36 3. 5 3. 32 4. 17 7. 7 10. 6 11. 10 11. 31 11. 46 12. 15 12. 56 16. 43 18. 35 21. 51	.1100 *** .1097 .1101 .1094 .1101 .1096 .1103 .1100 .1109 .1105 .1111 .1104 *** .1107 .1109 *** .1092 (†)	Nov. 10 0. 0 12. 30 19. 45 21. 55	.04120 .03982 .03615 .03910 .03940 (†)	Nov. 10 9. 25 21. 0	50.5 46.8	51.5 50.0		Nov. 12 0. 0 0. 20 0. 45 1. 10 1. 41 2. 16 3. 0 4. 30 6. 30 7. 40 8. 0 8. 23 9. 45 12. 55 13. 28 13. 50 15. 44 16. 5 16. 55 17. 15 18. 15 19. 15 20. 50 21. 15 23. 40 23. 59	21. 6. 0 5. 20 7. 0 9. 0 7. 5 3. 0 6. 30 21. 1. 25 20. 59. 0 21. 0. 0 20. 56. 0 20. 56. 10 21. 0. 55 1. 0 5. 30 0. 35 1. 5 2. 20 1. 25 2. 30 1. 25 3. 0 0. 0 1. 25 6. 0 5. 30	Nov. 12 0. 0 2. 5 7. 15 7. 50 7. 55 11. 0 14. 6 21. 45 23. 59	.1096 *** .1085 .1093 *** .1092 .1100 .1095 .1099 .1103 .1102 .1113 *** .1115 *** .1093 *** .1096	Nov. 12 0. 0 2. 5 7. 15 7. 50 7. 55 11. 0 14. 6 21. 45 23. 59	.04062 .03980 .03522 .03520 .03564 .03518 .03540 .04075	Nov. 12 1. 0 3. 0 9. 0 20. 0 21. 15 22. 0 23. 0	50.7 52.3 54.2 47.0 46.3 46.3 46.5	51.6 54.0 55.0 48.0 35.0 35.0 50.0	
Nov. 11 1. 0 1. 15 1. 31 1. 50 3. 15 5. 0 6. 55 12. 40 13. 8 13. 19 14. 35 15. 0 16. 15 17. 32	(†) 21. 9. 24 7. 20 5. 0 6. 0 4. 0 1. 25 0. 0 1. 55 5. 30 4. 0 (†) 4. 0 6. 0 21. 1. 50 20. 59. 40	Nov. 11 1. 0 1. 22 1. 47 3. 12 6. 41 8. 2 9. 56 10. 42 12. 36 13. 31 14. 7 15. 46	(†) .1083 .1085 .1090 *** .1081 *** .1091 *** .1095 *** .1094 .1100 *** .1099 .1105 .1100 *** .1107	Nov. 11 1. 0 1. 58 6. 30 6. 56 9. 40 11. 15 17. 15 22. 20 23. 59	(†) .03980 .03940 .03496 .03530 .03645 .03615 .03680 .03685 .03926 .04080 .04062	Nov. 11 1. 0 3. 0 9. 0 21. 0	50.3 52.8 52.5 47.3	50.8 53.0 53.3 49.2		Nov. 13 0. 0 1. 10 5. 30 11. 35 13. 25 18. 15 18. 45 19. 55 21. 0 21. 25 22. 36 23. 59	21. 5. 30 3. 15 21. 0. 10 20. 58. 0 21. 2. 0 1. 55 21. 0. 0 20. 59. 30 (†) 20. 59. 2 21. 3. 0 9. 0 9. 30	Nov. 13 0. 0 3. 20 8. 30 14. 0 23. 0 23. 59	.1096 .1100 (†) .1094 .1098 .1099 .1094 .1100 *** .1105 *** .1105 .1107 .1105 ***	Nov. 13 0. 0 3. 20 8. 30 14. 0 23. 0 23. 59	.04075 .04117 .03960 .03830 .04082 .04085	Nov. 13 0. 0 1. 0 2. 0 3. 0 4. 0 6. 0 9. 0 12. 0 18. 0 20. 0 21. 0 22. 0 23. 0	47.0 48.0 49.0 50.2 50.9 52.0 52.0 51.6 49.5 49.0 49.0 49.6 50.3	50.0 50.0 50.5 51.2 51.0 52.2 52.2 51.8 50.2 49.8 50.0 50.2 50.4	

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.





Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.	
Nov. 17 17.55 20.35 21.43 23.59	21. 2.50 21. 1.35 20. 59.0 21. 5.25	Nov. 17 15.20 18.17 20.40 23.45 23.59	.1127 *** .1141 *** .1139 *** .1113 .1115															
Nov. 18 0.0 0.20 1.8 1.25 1.53 2.5 2.53 5.0 6.39 7.15 7.54 8.45 9.5 10.8 10.40 11.23 12.14 12.24 12.44 13.3 13.15 13.53 14.25 15.14 15.45 16.15 17.0 17.15 19.0 20.15 21.30 22.45 23.30	21. 5.25 21. 6.0 21. 5.15 21. 7.0 21. 4.0 21. 5.5 21. 5.0 21. 1.0 20. 59.40 21. 0.35 20. 59.0 21. 59.0 21. 53.30 21. 57.0 21. 56.20 21. 58.30 21. 58.30 21. 56.50 20. 59.45 21. 5.0 20. 55.0 21. 59.10 21. 1.35 20. 57.30 21. 2.0 21. 1.0 21. 9.30 21. 5.30 21. 5.35 21. 7.25 21. 11.0	Nov. 18 0.0 1.0 3.0 5.55 6.42 7.45 8.14 8.46 9.30 9.55 12.9 12.52 13.15 13.33 13.40 13.48 13.59 15.7 17.13 18.56 19.13 20.36 21.55 22.13 22.39 22.52 23.13 23.59	(†) .1114* .1111* .1111 .1109 .1113 .1111 .1114 .1109 .1114 .1120 .1117 .1129 .1123 .1126 .1125 .1131 .1124 .1135 .1119 .1121 .1118 .1099 .1101 .1096 .1097 .1091 .1095	Nov. 18 0.0 2.15 8.10 11.0 13.54 19.50 23.0 23.59	.02875 .02872 .02450 .02553 .02525 .02780 .02930 .02930	Nov. 18 1.0 3.0 9.20 21.0	39.0 41.2 43.2 37.0 40.5 42.4 44.2 40.0											
Nov. 19 0.20 1.25 2.20 2.40 3.15	(†) 21. 10.30 8.0 6.30 8.0 7.30	Nov. 19 1.0 3.0 4.47 5.50 6.3	(†) .1094* .1091 .1083 .1093 .1093 .1089 .1095	Nov. 19 0.0 1.30 4.36 12.45 21.15 23.0 23.59	.02936 .02840 .02500 .02860 .02943 .03007 .03540 .03550 .03470	Nov. 19 1.0 3.0 9.0 21.0 23.0	41.2 44.2 46.8 44.2 45.2 46.2 47.5											
Nov. 19 4.28 4.37 4.58 5.8 5.17 5.30 6.2 6.10 6.45 7.0 7.35 8.10 8.25 8.44 9.0 9.41 10.42 10.50 11.10 12.0 15.45 18.35 20.40 21.30 22.40 23.14 23.59	21. 2.30 21. 4.0 21. 2.30 21. 4.50 21. 3.30 21. 5.15 21. 2.35 21. 3.45 21. 1.20 21. 3.15 20. 59.0 21. 0.0 20. 58.30 21. 59.0 21. 57.15 21. 59.0 21. 55.40 21. 56.50 20. 59.0 21. 1.5 20. 59.0 20. 59.0 21. 1.0 2.0 4.30 4.0	Nov. 19 6.38 6.47 7.5 7.47 8.7 9.36 10.35 10.48 11.7 12.6 16.27 20.20 23.15 23.59	.1086 .1093 .1088 .1090 .1085 *** .1098 *** .1098 .1105 .1097 .1109 *** .1117 .1108 *** .1093 *** .1097															
Nov. 20 0.0 4.0 4.30 10.30 12.0 16.0 18.15 21.0 21.51 23.59	21. 4.0 21. 1.25 20. 59.45 21. 59.30 20. 59.0 21. 1.20 20. 59.10 21. 58.0 20. 59.20 21. 3.30	Nov. 20 0.0 2.37 4.48 14.11 18.3 20.56 23.5 23.59	.1097 .1086 .1094 .1105 .1118 .1109 .1100 .1100	Nov. 20 0.0 1.15 3.20 4.45 6.0 9.0 14.45 21.0 23.59	.03470 .03400 .03136 .03232 .03248 .03650 .03592 .03780 .03962 .03910	Nov. 20 0.0 1.0 2.0 3.0 6.0 9.0 12.0 21.0 22.0 23.0	45.2 48.3 50.0 52.0 53.2 50.5 49.4 48.0 48.3 49.6 51.1											
Nov. 21 0.0 1.15 3.25 5.8 7.40 9.0 12.45 13.25 13.50 17.15 18.10 20.23 20.53 23.35 23.59	21. 3.30 21. 4.0 21. 0.55 20. 59.30 21. 0.0 20. 58.0 21. 0.55 20. 59.10 21. 0.15 21. 1.30 20. 59.0 20. 57.30 21. 1.30 21. 4.0	Nov. 21 0.0 1.17 3.40 5.38 5.50 7.26	.1100 .1100 .1091 .1097 .1092 *** .1101 *** .1097 .1105 .1097 .1095 .1099 .1097 .1101 .1100	Nov. 21 0.0 1.0 6.5 12.0 15.15 23.10 23.59	.03910 .03875 .03462 .03400 .03271 .03425 .03396	Nov. 21 0.0 1.0 2.0 3.0 9.0 21.0	51.0 51.7 52.7 53.8 53.8 55.5 52.8 52.2 53.0 53.8 55.0 55.0 55.0											

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

VERTICAL FORCE.—November 15<sup>d</sup>. 22<sup>h</sup>. The adjustments were altered so that the scale-reading was diminished by 11<sup>div</sup>.27, or by 0.01684 parts of the whole Vertical Force.



Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.	
Nov. 25 8. 22 8. 37 9. 5 9. 35 10. 20 13. 53 15. 11 16. 0 18. 50 20. 30 21. 0	20. 55. 35 50. 0 55. 30 56. 10 52. 35 59. 40 58. 0 58. 35 59. 30 59. 30 59. 9*	Nov. 25 8. 40 9. 16 10. 13 11. 17 12. 18 13. 51 15. 10 18. 31 19. 12 21. 6	.1109 .1097 .1111 .1101 .1107 .1103 .1109 .1109 .1111 .1098 (f)	h m		h m	o	o	Nov. 25 8. 30 8. 30 14. 0 20. 8 20. 45 23. 9 23. 59	21. 1. 5 0. 10 2. 0 21. 0. 0 20. 58. 5 21. 3. 20 3. 0	Nov. 27 6. 26 22. 2 8. 27 12. 3 20. 17 23. 59	.1085 *** .1101 *** .1107 *** .1115 *** .1100	Nov. 27 22. 2 23. 59	.03940 .03624 .03652	Nov. 27 23. 0	48. 4 49. 8	o	o
Nov. 26 0. 47 1. 15 2. 0 2. 15 2. 54 3. 8 3. 36 4. 22 5. 5 5. 11 5. 25 5. 38 6. 0 6. 23 6. 38 6. 45 8. 0 12. 0 12. 40 13. 15 14. 5 14. 55 16. 45 17. 10 17. 30 21. 14 22. 0 23. 59	(f) 21. 4. 0 7. 10 7. 30 9. 25 6. 0 7. 0 4. 30 7. 0 3. 0 21. 5. 30 20. 59. 30 21. 4. 0 0. 0 1. 35 1. 0 0. 30 0. 0 21. 2. 0 20. 59. 0 21. 0. 10 21. 1. 30 20. 59. 0 21. 1. 0 0. 0 21. 2. 20	Nov. 26 1. 0 1. 6 2. 22 3. 5 3. 27 4. 13 4. 43 5. 5 5. 11 5. 18 5. 46 6. 4 6. 26 7. 34 11. 35 12. 26 14. 25 15. 22 16. 25 20. 3 23. 30 23. 59	(f) .1078* .1080 .1069 .1077 .1068 *** .1075 .1062 .1073 .1055 .1073 .1061 .1069 *** .1067 .1082 *** .1080 *** .1089 *** .1082 *** .1091 *** .1086 *** .1094 *** .1080 *** .1082	Nov. 26 0. 45 2. 0 5. 15 11. 0 13. 21 19. 50 23. 59	(f) .02680 .02713 .03052 .03410 .03400 .03634 .03860	Nov. 26 1. 0 3. 0 9. 0 21. 0 22. 0 23. 0	56. 8 58. 0 59. 0 53. 0 53. 0	56. 8 59. 5 60. 6 54. 8 54. 7 54. 7	Nov. 26 1. 33 2. 10 3. 25 4. 25 5. 44 6. 14 6. 50 8. 4 8. 30 9. 0 9. 35 10. 15 11. 24 12. 0 12. 35 13. 28 14. 0 15. 20 17. 15 21. 8 23. 59	21. 3. 0 4. 0 2. 25 21. 2. 0 20. 59. 30 21. 1. 25 0. 0 1. 10 *** 21. 1. 0 20. 59. 0 51. 0 58. 5 59. 10 58. 30 59. 0 56. 50 57. 5 56. 0 *** 59. 10 57. 0 20. 58. 10 *** 21. 3. 35	Nov. 28 0. 0 1. 18 2. 17 2. 54 4. 17 5. 7 5. 46 6. 35 6. 53 8. 47 9. 25 9. 43 10. 17 12. 12 13. 6 19. 50 23. 59	.1100 .1101 .1097 .1100 .1099 .1103 .1098 *** .1100 .1096 *** .1100 .1087 *** .1089 .1100 *** .1109 *** .1104 *** .1115 .1100	Nov. 28 2. 15 6. 30 9. 0 9. 35 11. 0 16. 20 22. 30 23. 59	.03652 .03560 .03170 .03108 .03120 .03115 .03240 .03450 .03385	Nov. 28 1. 0 2. 0 3. 0 9. 0 21. 0	49. 0 49. 8 50. 9 51. 0 51. 7 52. 5 52. 7 53. 0 51. 2 53. 0	o	o
Nov. 27 0. 0 2. 0 3. 0 4. 40 5. 41 6. 1 7. 14	21. 2. 20 3. 45 2. 0 4. 0 2. 0 3. 0 0. 0	Nov. 27 0. 0 2. 50 4. 46 5. 15 5. 47	.1082 *** .1082 *** .1088 .1084 *** .1091 ***	Nov. 27 0. 0 1. 47 7. 15 12. 0 19. 0 21. 0 21. 45	.03860 .03861 .03680 .03820 .04208 {.04120 {.04045 {.04044 .03930	Nov. 27 0. 0 1. 0 2. 0 3. 0 6. 0 9. 0 12. 0 21. 0 22. 0	53. 6 54. 0 54. 6 55. 1 55. 2 53. 5 51. 9 47. 0 47. 7	55. 0 55. 0 55. 2 55. 3 55. 2 54. 0 52. 7 49. 2 49. 5	Nov. 27 10. 30 11. 35 14. 16 15. 15 16. 0 18. 45 21. 0 22. 35	21. 3. 35 3. 0 4. 0 3. 30 0. 0 21. 0. 0 *** 20. 57. 25 58. 0 54. 0 55. 5 58. 0 20. 57. 15 21. 0. 0 20. 58. 20 59. 5 *** 57. 0 20. 57. 30 21. 1. 15	Nov. 29 0. 0 1. 22 2. 0 3. 0 4. 55 5. 53 8. 0 9. 0 9. 36 10. 0 10. 30 11. 35 14. 16 15. 15 16. 0 18. 45 21. 0 22. 35	.1100 .1095 .1085 .1096 *** .1091 .1091 .1097 .1087 .1092 *** .1093 *** .1103 .1099 .1084 .1087 .1084	Nov. 29 2. 0 5. 7 11. 0 14. 30 21. 45 23. 59	.03385 .03308 .03046 .03250 .03290 .03367 .03322	Nov. 29 1. 0 3. 0 9. 0 21. 0	55. 8 57. 8 60. 0 58. 8 56. 5 58. 5 59. 7	o	o

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.  
November 23. The Times of the Horizontal Force may be a little in error.





INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.																
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.															
Dec. 6 3. 17 3. 23 3. 35 3. 45 4. 6 4. 16 4. 42 4. 51 5. 0 5. 29 5. 40 5. 52 6. 0 6. 15 6. 29 6. 37 6. 50 7. 1 7. 30 7. 40 7. 45 8. 33 8. 43 8. 58 9. 15 9. 30 9. 44 9. 52 10. 8 10. 25 10. 45 11. 47 12. 10 12. 21 12. 50 13. 8 13. 30 13. 45 20. 50 23. 59	21. 4. 30 3. 0 4. 5 2. 0 2. 45 21. 6. 0 20. 57. 0 21. 4. 0 20. 59. 0 21. 4. 5 0. 0 21. 2. 30 20. 52. 0 21. 9. 30 21. 2. 15 20. 55. 5 21. 1. 35 0. 0 5. 0 3. 5 0. 5 21. 2. 0 20. 55. 5 58. 10 55. 0 50. 0 54. 45 46. 35 46. 30 51. 30 40. 0 50. 0 58. 25 45. 10 47. 35 44. 0 20. 45. 20 21. 0. 0 3. 30	Dec. 6 3. 34 3. 42 4. 15 4. 28 4. 46 4. 56 5. 13 5. 36 5. 47 6. 3 6. 7 6. 18 6. 29 6. 37 6. 43 6. 52 7. 7 7. 16 7. 26 7. 37 7. 46 7. 50 8. 12 8. 40 8. 47 9. 3 9. 17 9. 33 9. 40 9. 46 10. 5 10. 37 10. 45 11. 3 11. 18 11. 46 12. 17 21. 0	'1105 '1098 '1109 '1092 '1105 '1112 '1093 '1111 '1095 '1106 '1102 '1151 '1108 '1114 '1099 '1113 '1093 '1096 '1090 '1099 '1089 '1095 '1077 '1096 '1086 '1102 '1093 '1099 '1093 '1107 '1078 '1089 '1081 '1088 '1084 '1097 '1080 (†) '1102*	Dec. 6 6. 17 6. 45 9. 50 11. 51 12. 25 12. 53 13. 14 13. 45 20. 55 22. 0 23. 59	'04030 '03972 *** '03967 '03810 '03821 '03770 '03780 '03742 (†) '03925 '03950 '03800	Dec. 7 1. 0 3. 0 9. 6 22. 0	54. 6 56. 2 54. 0 50. 5	55. 2 57. 4 54. 0 51. 0	Dec. 7 0. 0 1. 45 2. 50 3. 8 3. 30 9. 0 9. 10	21. 3. 30 *** 3. 35 *** 2. 25 3. 5 21. 0. 0 (†) 20. 59. 0 21. 0. 0 ***	Dec. 7 1. 0 3. 0 4. 16 4. 27 4. 50 5. 18 5. 47 6. 45 7. 36	(†) '1094* '1086* '1092 '1098 '1083 '1097 '1091 '1099 '1087	Dec. 7 0. 0 0. 45 1. 6 2. 40 2. 51 3. 34 9. 16 15. 30 18. 15	'03800 '03741 '03744 '03586 '03620 '03642 (†) '03645 '04000 '04186	Dec. 7 1. 0 3. 0 9. 6 22. 0	54. 6 56. 2 54. 0 50. 5	55. 2 57. 4 54. 0 51. 0	Dec. 7 11. 0 11. 9 12. 40 13. 12 14. 50 16. 5 21. 8 23. 15 23. 59	20. 59. 10 21. 1. 45 (†) 21. 1. 10 20. 59. 0 21. 2. 0 21. 0. 30 *** 20. 57. 40 *** 21. 4. 0 4. 0	Dec. 7 7. 45 7. 50 9. 7 9. 18 10. 37 11. 5 11. 35 11. 46 11. 50 12. 13 13. 12 15. 46 19. 47 21. 6 23. 59	'1095 '1090 *** '1100 '1095 '1100 '1095 '1100 '1105 '1102 '1107 *** '1095 *** '1103 *** '1103 *** '1090 '1088	Dec. 7 22. 0 23. 59	'04305 '04348	Dec. 8 0. 0 1. 16 2. 0 4. 45 8. 44 9. 14 9. 23 9. 40 11. 6 12. 3 13. 0 13. 45 14. 5 14. 45 15. 16 16. 7 17. 50 18. 2 18. 30 18. 43 20. 30 20. 55 22. 0 22. 40 23. 15 23. 45	21. 4. 0 *** 4. 5 2. 30 *** 1. 0 *** 21. 2. 10 20. 52. 0 53. 0 49. 30 57. 5 39. 30 20. 59. 0 *** 21. 2. 0 20. 59. 0 21. 1. 50 20. 59. 0 *** 21. 2. 10 20. 59. 30 21. 0. 30 20. 59. 20 21. 1. 0 *** 20. 58. 0 20. 58. 0 *** 21. 2. 25 *** 6. 30 7. 30 *** 3. 0 ***	Dec. 8 0. 0 2. 27 4. 6 4. 9 4. 17 6. 16 7. 40 8. 37 9. 15 9. 56 10. 35 10. 47 10. 58 11. 17 11. 23 11. 34 11. 37 12. 3 12. 20 12. 46 13. 15 14. 7 14. 14 15. 6 15. 17 16. 6 18. 7	'1088 *** '1102 '1102 '1116 '1107 *** '1113 *** '1107 '1121 *** '1090 '1119 '1101 '1101 '1087 '1101 '1096 '1109 '1101 '1126 '1085 *** '1092 '1105 *** '1102 '1108 *** '1099 '1104 '1099 *** '1110 ***	Dec. 8 2. 50 6. 45 9. 7 9. 24 11. 30 12. 8 12. 40	(†) '04340 '04175 '04207 '04245 '04300 '04264 '04340 (†)	Dec. 8 8. 0 21. 10	51. 7 49. 0	52. 5 50. 0

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.





INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Dec. 10 22. 6 23. 30 23. 59	21. 1. 15 7. 0 7. 30	Dec. 10 21. 57 23. 6 23. 59	.1077 *** .1089 *** .1084														
Dec. 11 0. 0 1. 35 1. 45 2. 4 2. 31 2. 55 3. 15 3. 30 4. 9 4. 44 5. 15 6. 50 7. 30 8. 10 10. 30 10. 45 11. 10 11. 23 11. 45 12. 53 13. 15 20. 50 21. 15 22. 36 23. 38 23. 59	21. 7. 30 *** 9. 55 8. 0 7. 0 10. 30 5. 10 7. 0 3. 30 2. 0 2. 40 1. 0 1. 30 21. 1. 25 20. 59. 0 *** 59. 0 56. 30 58. 50 57. 40 20. 59. 0 21. 1. 0 0. 0 0. 0 2. 0 2. 5 3. 45 2. 30	Dec. 11 0. 0 1. 7 2. 17 2. 40 3. 0 3. 15 3. 36 4. 37 7. 16 7. 37 *** 9. 45 11. 7 11. 32 11. 49 12. 7 16. 40 19. 26 21. 45 23. 59	.1084 .1081 .1090 .1077 .1082 .1074 .1085 .1095 *** .1097 .1092 *** .1100 *** .1113 .1103 .1105 .1101 .1103 .1104 .1087 .1089	Dec. 11 0. 0 2. 0 6. 30 11. 30 16. 0 22. 45 23. 59	.02623 .02678 .02350 .02460 .02704 .02926 .02908	Dec. 11 0. 0 1. 0 2. 0 3. 0 6. 0 9. 0 12. 0 18. 0 21. 0 22. 0 23. 0	52.0 53.0 53.6 54.3 54.5 54.5 51.5 52.1 50.0 50.8 51.2 52.0 51.9 52.7		Dec. 13 0. 0 0. 8 0. 47 1. 57 4. 25 7. 15 7. 41 8. 8 8. 45 9. 11 9. 24 9. 53 10. 16 11. 0 13. 30 17. 15 21. 35 23. 11 23. 59	21. 6. 0 4. 30 3. 0 *** 6. 5 21. 0. 45 20. 59. 0 55. 30 58. 0 58. 50 54. 10 55. 0 53. 15 56. 35 20. 58. 15 21. 1. 5 21. 1. 30 20. 59. 0 *** 21. 3. 5 *** 2. 30	Dec. 13 0. 0 1. 43 2. 37 4. 58 6. 47 7. 4 7. 20 7. 42 8. 3 9. 46 9. 56 *** 14. 15 17. 47 20. 5 21. 28 23. 59	.1086 .1091 .1087 .1096 .1097 .1094 .1099 .1095 .1099 *** .1103 .1097 *** .1102 *** .1110 *** .1108 *** .1103 .1100	Dec. 13 0. 30 2. 0 8. 0 10. 15 15. 10 23. 0 23. 59	(†) .02773 .02760 .02521 .02520 (†) .02718 .02722	Dec. 13 1. 0 3. 0 9. 0 21. 0	53.2 53.7 54.7 53.6 49.3 50.2	
Dec. 12 0. 0 0. 46 1. 7 2. 39 5. 30 11. 8 11. 32 12. 24 15. 53 16. 45 18. 16 19. 5 21. 20 23. 45 23. 52 23. 59	21. 2. 30 *** 2. 30 4. 50 4. 0 21. 0. 0 20. 58. 10 59. 0 20. 57. 0 *** 21. 0. 0 20. 58. 0 59. 30 58. 30 20. 59. 0 21. 4. 40 7. 0 6. 0	Dec. 12 0. 0 1. 53 7. 0 12. 30 21. 0 23. 30	.1089 (†) .1091* .1089 *** .1098 *** .1100 *** .1096 *** .1106 .1095 .1098 .1103 .1100 .1106 .1095 .1098 .1103 .1100 .1106 *** .1091 .1089	Dec. 12 0. 0 1. 53 12. 30 23. 30	.02908 .02880 .02648 .02640 .02760 .02766 (†)	Dec. 12 0. 0 1. 0 2. 0 3. 0 9. 0 21. 0	52.4 53.2 52.6 53.2 53.5 53.8 54.2 53.5 52.3 52.6		Dec. 14 0. 0 0. 14 0. 30 1. 5 2. 55 4. 30 7. 7 11. 30 14. 54 19. 45 21. 0 23. 15	21. 2. 30 3. 15 2. 10 *** 4. 0 3. 0 0. 0 0. 15 0. 0 1. 10 21. 0. 5 20. 59. 0 *** 21. 1. 50 (†)	Dec. 14 0. 0 3. 35 6. 8 *** 13. 27 15. 16 18. 48 20. 45 21. 30 23. 9	.1100 .1098 .1106 *** .1114 *** .1112 *** .1115 .1113 .1103 *** .1102 (†)	Dec. 14 0. 0 2. 0 7. 15 9. 45 17. 0 23. 10 23. 59	.02722 .02720 .02362 .02347 .02440 .02576 .02605	Dec. 14 1. 0 3. 0 9. 0 22. 30	51.3 50.8 52.3 53.2 51.2 52.0 48.0 49.8	
Dec. 15 9. 25 21. 0	20. 59. 13* 58. 49*	Dec. 15 9. 25 21. 0	.1105* .1103*														
Dec. 16 0. 22 1. 30 5. 15 12. 15	21. 2. 30 3. 55 0. 0 0. 0	Dec. 16 1. 0 2. 55 5. 36 9. 15	.1099* .1103 .1109 .1109 ***														
Dec. 16 0. 0 1. 51 8. 50 13. 55 21. 45	.02350 .02287 .02448 .02410 .02645	Dec. 16 1. 0 3. 0 9. 0 21. 0	51.8 52.2 53.5 54.5 50.0 50.8														

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol ; attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.





Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Dec. 21 13. 7 21. 30 23. 59	20. 58. 40 21. 0. 0 1. 5																
Dec. 22 0. 0 2. 50 5. 50 7. 35 8. 15 8. 31 9. 30 10. 8 12. 6 12. 25 14. 0 18. 20 21. 24 23. 59	21. 1. 5 21. 3. 0 20. 59. 10 59. 30 55. 0 57. 0 57. 35 56. 30 59. 0 58. 0 59. 50 59. 0 20. 57. 30 21. 4. 0	Dec. 22 0. 0 2. 22 6. 12 7. 8 7. 48 8. 45 9. 36 10. 50 11. 13 11. 50 12. 53 13. 58 14. 14 18. 40 20. 13 22. 17	(†) '1101 '1113 '1117 '1114 '1100 '1107 '1102 '1105 '1103 '1110 '1108 '1111 '1107 '1115 '1113 '1100	Dec. 22 0. 0 2. 0 7. 35 13. 10 17. 30 23. 59	(†) '03040 '03042 '02800 '02668 '02700 '02613	Dec. 22 8. 30 21. 0	45. 7 47. 0	47. 0									
Dec. 23 0. 0 1. 30 5. 15 7. 15 13. 0 20. 10 21. 45 23. 8 23. 59	21. 4. 0 21. 5. 0 20. 59. 10 21. 0. 30 20. 59. 20 21. 1. 35 20. 59. 10 21. 2. 20 2. 0	Dec. 23 0. 0 2. 30 6. 0 10. 0 11. 35 12. 34 13. 25 17. 36 19. 30 20. 42 21. 0 21. 38 22. 27 23. 6	(†) '1100* '1103* '1114 '1117 '1114 '1117 '1115 '1119 '1120 '1118 '1113 '1105 '1103	Dec. 23 0. 0 3. 0 6. 0 10. 0 19. 54 23. 25	(†) '02613 '02486 '02743 '02490 '02368 '02520 '02648	Dec. 23 1. 0 3. 0 9. 0 21. 0	47. 8 49. 3 48. 3 50. 2 49. 0 50. 7 45. 0 47. 0	49. 3									
Dec. 24 0. 0 0. 50 3. 15 5. 0 7. 15 7. 35 7. 45 9. 15 10. 0 12. 0 13. 30 14. 30 21. 0	21. 2. 0 4. 0 21. 1. 35 20. 59. 20 21. 0. 0 1. 0 0. 0 21. 0. 5 20. 58. 35 20. 59. 0 21. 1. 0 0. 40 0. 35	Dec. 24 0. 7 1. 53 5. 0 5. 30 7. 30 17. 6 20. 30 23. 59	(†) '1110* '1107* '1110 '1115 '1111 '1111 '1116 '1115 '1121 '1130 '1129 '1108 '1109	Dec. 24 0. 7 1. 53 5. 0 5. 30 7. 30 17. 6 20. 30 23. 59	(†) '02685 '02650 '02340 '02340 '02715 '02625 '03040 '02962 '02880	Dec. 24 1. 0 3. 0 8. 52 21. 0	47. 3 48. 0 49. 2 50. 0 46. 5 48. 0 40. 0 42. 3	48. 0									
Dec. 24 22. 25 23. 59	21. 0. 10 *** 5. 0																
Dec. 25 0. 0 0. 34 1. 32 2. 10 4. 0 5. 36 10. 0 14. 23 15. 6 19. 8 20. 25 21. 7 23. 30	21. 5. 10 5. 55 3. 30 5. 0 21. 0. 0 20. 59. 0 21. 0. 0 1. 50 0. 10 21. 1. 0 20. 58. 20 20. 58. 10 21. 5. 0	Dec. 25 0. 0 2. 17 2. 42 5. 15 9. 5 12. 26 14. 45 15. 40 19. 18 21. 13 22. 32	'1107 '1108 '1114 *** '1123 *** '1117 '1123 *** '1119 '1125 '1129 '1115 '1116	Dec. 25 0. 0 2. 17 2. 42 5. 15 9. 5 12. 26 14. 45 15. 40 19. 18 21. 13 22. 32	'02880 '02803 '02380 '02420 '02916 '02948	Dec. 25 9. 0 21. 0	43. 7 46. 0 37. 0 40. 2	46. 0									
Dec. 26 0. 45 3. 50 6. 15 9. 15 17. 0 20. 0 21. 50 23. 59	21. 3. 20 21. 0. 30 20. 58. 30 20. 59. 45 21. 0. 50 21. 0. 30 20. 57. 30 21. 2. 0	Dec. 26 1. 0 2. 30 6. 0 10. 0 19. 17 23. 40	(†) '1113* '1111 '1119 '1123 '1120 '1122 '1121 '1128 '1127 '1115 '1115	Dec. 26 1. 0 2. 30 6. 0 10. 0 19. 17 23. 40	'02948 '02906 '02478 '02260 '02483 '02628 (†) '02676	Dec. 26 1. 0 3. 0 9. 0 21. 0	39. 3 41. 3 44. 0 45. 7 37. 8 41. 0	41. 7									
Dec. 27 0. 0 0. 45 4. 55 7. 5 8. 52 11. 45 15. 0 21. 15 23. 18 23. 59	21. 2. 0 21. 4. 10 20. 59. 0 *** 21. 0. 25 20. 57. 40 57. 0 59. 10 20. 58. 0 21. 3. 0 2. 0	Dec. 27 1. 0 1. 40 4. 0 6. 45 16. 0 22. 45 23. 59	(†) '1115* '1119 '1123 '1121 '1125 *** '1110 *** '1115 '1122 '1119 '1107 '1110	Dec. 27 1. 0 1. 40 4. 0 6. 45 16. 0 22. 45 23. 59	(†) '02719* '02740 '02700 '02542 '02260 '02340 '02318	Dec. 27 1. 0 3. 0 9. 0 21. 0	39. 6 42. 0 40. 6 42. 9 43. 0 44. 1 41. 5 44. 2	42. 0									
Dec. 28 0. 0 2. 0 3. 55 4. 40	21. 2. 0 3. 0 2. 5 1. 0	Dec. 28 0. 0 1. 20 3. 52 6. 45	(†) '1112* '1117 '1121	Dec. 28 0. 0 1. 20 3. 52 6. 45	'02318 '02280 '02121 '02150	Dec. 28 1. 0 3. 0 9. 0 22. 20	44. 0 47. 3 46. 0 47. 0 41. 0 44. 0	44. 5									

For the Horizontal and Vertical Forces, increasing readings denote increasing forces.

INDICATIONS OF THE MAGNETOMETERS

Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.		Greenwich Mean Solar Time.	Western Declination.	Greenwich Mean Solar Time.	Horizontal Force in parts of the whole H. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Vertical Force in parts of the whole V. F. uncorrected for Temperature.	Greenwich Mean Solar Time.	Readings of Thermometers.	
							Of H. F. Magnet.	Of V. F. Magnet.								Of H. F. Magnet.	Of V. F. Magnet.
Dec. 28 5. 45: 7. 0 9. 30 13. 15 15. 30 16. 15 19. 20 20. 50 23. 59	21. 2. 35 20. 59. 10 20. 58. 40 21. 1. 5 20. 59. 40 21. 0. 15 20. 59. 0 20. 57. 5 21. 1. 45	Dec. 28 4. 52 8. 47 12. 16 16. 37 18. 40 20. 45 23. 2 23. 59	.1116 (†) .1114 *** .1120 *** .1119 .1123 .1118 .1100 .1105	Dec. 28 7. 30 12. 0: 18. 0 23. 6 23. 59	.02460 .02397 .02450 .02597 .02623												
Dec. 29 0. 0 1. 20 3. 30 6. 0 6. 40 7. 6 8. 0 9. 0 9. 30 11. 30 13. 7 13. 50 19. 0 19. 25 19. 44 22. 0 22. 30	21. 1. 45 3. 50 21. 0. 0 20. 58. 30 59. 0 56. 30 58. 0 57. 0 58. 0 20. 59. 45 21. 1. 25 21. 0. 40 20. 59. 30 21. 1. 0 20. 59. 0 58. 20 59. 10 (†)	Dec. 29 0. 0 1. 50 3. 42 6. 42 7. 6 10. 17 14. 11 17. 15 18. 50 22. 6 22. 37 23. 10	.1105 .1111 .1121 .1116 .1109 *** .1119 *** .1125 .1129 .1127 .1115 .1116 .1109 (†)	Dec. 29 0. 0 2. 0: 7. 0 11. 0: 18. 24 19. 52 23. 59	.02623 .02648 .02600 .02604 .02865 {.02845 .02920 .02910	Dec. 29 8. 50 21. 0	41.5 37.0	44.2 39.0									
Dec. 30 2. 30 5. 0 8. 45 10. 9	(†) 21. 1. 25 20. 58. 50 59. 0 58. 0	Dec. 30 1. 0 2. 2 4. 27	(†) .1113* .1123 .1129 ***	Dec. 30 0. 0 2. 45: 6. 0 10. 0: 20. 15	.02910 .02786 .02540 .02382 .02300	Dec. 30 1. 0 3. 0 9. 0 21. 0	38.0 40.0 41.6 41.5	39.8 41.1 43.0 43.1									
Dec. 30 11. 40 16. 47 19. 15 20. 44 21. 30 22. 15	20. 59. 30 59. 0 57. 30 58. 10 57. 30 58. 0 (†)	Dec. 30 11. 16 12. 37 17. 12 20. 16 20. 47 22. 16	.1120 .1125 *** .1127 *** .1119 .1112 *** .1110 (†)	Dec. 30 11. 16 12. 37 17. 12 20. 16 20. 47 22. 16	.02303 .02280												
Dec. 31 0. 0 1. 20 3. 30 6. 0 6. 40 7. 6 8. 0 9. 0 9. 30 11. 30 13. 7 13. 50 19. 0 19. 25 19. 44 22. 0 22. 30	21. 1. 45 3. 50 21. 0. 0 20. 58. 30 59. 0 56. 30 58. 0 57. 0 58. 0 20. 59. 45 21. 1. 25 21. 0. 40 20. 59. 30 21. 1. 0 20. 59. 0 58. 20 59. 10 (†)	Dec. 31 0. 0 1. 10 3. 15 6. 51 7. 16 13. 25: 22. 15	(†) .1114 *** .1113 *** .1115 *** .1108 .1103 .1108 .1103 *** .1109 .1116 *** .1109 .1116 *** .1117 *** .1114 .1123 *** .1125 *** .1115 .1117 (†)	Dec. 31 0. 0 1. 10 3. 15 6. 51 7. 16 13. 25: 22. 15	.02280 .02256 .02136 .02180 .02242 .02180 (†) .02442	Dec. 31 1. 0 3. 0 9. 0 21. 0 22. 0 23. 0	44.0 46.0 45.8 41.0 41.1	45.2 46.5 46.7 43.1 43.0 43.0									

The indications are taken from the sheets of the Photographic Record, except where an asterisk is attached to the number, in which instances they are inferred from observations made with the telescope in the ancient manner. The Symbol \*\*\* denotes that the magnet has been generally in a state of agitation. The Symbol (†) denotes that the register has failed between the preceding and following readings. The Symbol : attached to a time denotes that the reading will apply equally well to a considerable range of time near that which is recorded. A brace denotes that at this time the curve of the Vertical Force was dislocated, and the difference of the numbers included by the brace shows the amount of the displacement.

December 31. The Declination Magnet was under adjustment.

TABLE showing the APPROXIMATE MEAN MONTHLY WESTERN DECLINATION at the ROYAL OBSERVATORY, GREENWICH, in the Years 1858, 1859, 1860, and 1861.

Months.	1858.	1859.	1860.	1861.
	° ' "	° ' "	° ' "	° ' "
January .....	21. 32. 47	21. 26. 27	21. 14. 38	21. 10. 47
February.....	32. 14	26. 48	13. 2	9. 48
March .....	32. 31	27. 22	14. 53	14. 5
April.....	32. 26	26. 16	15. 4	7. 52
May.....	29. 16	22. 15	17. 10	5. 0
June .....	27. 34	24. 1	16. 1	1. 33
July.....	28. 28	23. 38	15. 44	4. 54
August .....	27. 24	22. 34	15. 27	5. 4
September.....	26. 43	22. 18	12. 44	2. 50
October.....	25. 33	19. 57	13. 28	1. 19
November.....	29. 45	18. 33	12. 49	1. 3
December .....	28. 40	18. 23	11. 30	0. 37
Means .....	21. 29. 27	21. 23. 13	21. 14. 23	21. 5. 24



ROYAL OBSERVATORY, GREENWICH.

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RESULTS

OF

OBSERVATIONS

OF THE

MAGNETIC DIP.

---

1861.



From the beginning of the year 1861 to October 9, the observations of the Magnetic Dip were made with the instrument by Robinson used in preceding years, and described in the volume of *Greenwich Magnetical and Meteorological Observations* for 1847, and in preceding volumes. With this instrument are used four nine-inch needles, two of which, marked A and A 2, were made by Barrow, and two, marked A 1 and A 3, were made by Dent. In the tabular statement of the values of the Magnetic Dip these needles are called Barrow A and Barrow A 2, and Dent A 1 and Dent A 3.

From October 22 to the end of the year, the observations were made with a new Dip Instrument, constructed by Messrs. Troughton and Simms from plans furnished by the Astronomer Royal, and which, for distinction, is subsequently called Airy's Instrument. The following description will probably suffice to convey an idea of its peculiarities.

The form of the needles, the form of their axes, the form of the agate bearings, and the general arrangement of the relieving apparatus, are precisely the same as those in Robinson's and other needles. But the form of the observing apparatus is greatly modified, in order to secure the following objects:—

- I. To obtain a microscopic view of the points of the needles, as in the instruments introduced by Dr. Lloyd and Major-General Sabine.
- II. To possess at the same time the means of observing the needles while in a state of vibration.
- III. To have the means of observing needles of different lengths.
- IV. To give an illumination to the field of view of each microscope, directed from the side opposite to the observer's eye, so that the light may enter past the point of the needle into the object glass of the microscope, forming a black image of the needle-point in a bright field of view.
- V. To give facility for observing by day or night.

With these views, the following form is given to the apparatus:—

The needle, and the bodies of the microscopes, are inclosed in a square box. The base of the box, two vertical sides, and the top, are made of gun-metal (carefully selected to insure its freedom from iron); but the sides parallel to the plane of vibration of the needle are of glass. Of the two glass sides, that which is next the observer is firmly fixed; it is hereafter called "the graduated glass-plate." The other glass side can be withdrawn, to open the box, for inserting the needle, &c.

An axis, whose length is perpendicular to the plane of vibration of the needles, and is as nearly as possible in the line of the axis of the needle, supported on two bearings (of which one is cemented in a hole in the graduated glass-plate, the other being upon a horizontal bar near to the agate support of the needle-axis), carries a transverse arm, about 11 inches long, or rather two arms, projecting about  $5\frac{1}{2}$  inches on each side of the axis. Each of these projecting arms has a long opening, or slot, about 1 inch wide, extending from the neighbourhood of the center-work nearly to the end of the arm. Through this opening the tube of a microscope passes, in a direction parallel to the axis of the needle, and is firmly fixed by a shoulder-bearing on one side of the arm, and a circular nut, working in a thread cut upon the microscope-tube, on the other side of the arm. The microscope can thus be fixed at any distance from the central axis, within the limits of the length of the projecting arm.

The microscope-tube thus carried is not the entire microscope, but so much as contains the object-glass and the field-glass. Upon the plane side of the field-glass (which is turned towards the object-glass), a series of parallel lines is engraved by etching with fluoric acid. The object-glass is so adjusted that the image of the needle-point is formed upon the plane side of the field-glass; and thus the parallel lines can be used for observing the needle in a state of vibration; and, one of them being adopted as standard, the lines can be used for reference to the graduated circle (to be mentioned). All this requires that there be an eye-glass also for the microscope.

The axis of which we have spoken is continued through the graduated glass-plate, and there it carries another transverse arm parallel to the former and generally similar to it. In each part of this slides a short eye-piece, carrying the eye-glass. Thus, reckoning from the observer's eye, there are the following parts:—

- (1.) The eye-glass.
- (2.) The graduated glass-plate (its graduations, however, not intervening in this part of the glass, whatever be the adjustment of the microscope).
- (3.) The field-glass, on the further surface of which the parallel lines are engraved.
- (4.) The object-glass.
- (5.) The needle.
- (6.) The removeable glass side of the box.
- (7.) The illuminating reflector, to be described hereafter.

The optical part of the apparatus being thus described, we may proceed to speak of the graduated circle.

The graduations of the circle (whose diameter is about  $9\frac{3}{4}$  inches) are etched on the inner surface of the graduated glass-plate. These divisions (as well as the parallel lines on the field glasses of the microscopes) are beautifully neat and regular, and are, I think, superior to any that I have seen on metal. The same piece of metal, which carries the transverse arms supporting the microscope-bodies, carries also two arms with verniers for reading their graduations. These verniers (being adapted to transmitted light) are thin plates of metal, with notches instead of lines. The reading of the verniers is very easy. The portion of the axis which is external to the graduated glass plate (towards the observer), and which has there, as already stated, two arms for carrying the microscope eye-glasses, has also two arms for carrying the lenses by which the verniers and glass-plate graduations are viewed. These four arms are the radii of a circle, which can be fixed in position by a clamp, attached to the gun-metal casing of the graduated glass-plate, and furnished with the usual slow-motion screw.

The entire system of the two arms carrying the microscope-bodies, the two arms carrying the microscope eye-glasses, the two arms carrying the verniers, and the two arms carrying the reading-glasses for the verniers, is turned rapidly by means of a button on the external side of the graduated glass-plate : or is moved slowly by means of the slow-motion screw just mentioned.

It now remains only to describe the illuminating apparatus. On the outside of the removeable glass plate, there are supports for the axis of a metallic circle turning in a plane parallel to the plane of needle-vibration. This circle has four slotted radii, and in these slots or openings there slide small frames carrying prismatic glass reflectors, each of which can turn on an axis, in the plane of the circle, but transverse to the radius. Two of these reflectors are for the purpose of sending light through the verniers, and therefore are fixed in radial distance ; the other two are for sending light past the ends of the needle through the microscopes, and therefore require adjustment on change of needle and corresponding change of position of microscopes. The circle can be turned by a small winch near the observer's hand.

The light which illuminates the whole is a gas-burner, in the line of the axis of rotation. Its rays fall upon the glass prisms, and each of these is adjusted by turning on its axis to throw the reflected light in the required direction.

The whole of the apparatus, as thus described, is planted upon a horizontal plate admitting of rotation in azimuth : the plate is graduated in azimuth, and verniers are fixed to the gun-metal tripod stand. The gas-pipe is led down the central vertical axis, and there communicates by a rotatory joint with the fixed gas-pipes.

The needles which are used with this instrument are—

- |   |                       |
|---|-----------------------|
| B <sub>1</sub> , a plain needle.....                        | } each 9 inches long. |
| B <sub>2</sub> , a plain needle.....                        |                       |
| B <sub>3</sub> , a loaded needle with adjustable load . . . |                       |
| C <sub>1</sub> , a plain needle.....                        | } each 6 inches long. |
| C <sub>2</sub> , a plain needle.....                        |                       |
| C <sub>3</sub> , a loaded needle with adjustable load . . . |                       |
| D <sub>1</sub> , a plain needle.....                        | } each 3 inches long. |
| D <sub>2</sub> , a plain needle.....                        |                       |
| D <sub>3</sub> , a loaded needle with adjustable load . . . |                       |

To change adjustments from the use of needles of one length to those of another length, it is necessary to change the positions of the microscope bodies, the microscope-eye-glasses, the microscope-reflectors (in respect of radial distance), and the same reflectors (in respect of inclination). At each observation, it is necessary to turn the circle which carries the reflectors ; but this is the work of an instant.

MAGNETIC DIP, observed at the ROYAL OBSERVATORY, GREENWICH, with ROBINSON'S DIP APPARATUS, in the Year 1861.

Day and Approximate Hour, 1861.	Needle.	Magnetic Dip.	Observer.	Day and Approximate Hour, 1861.	Needle.	Magnetic Dip.	Observer.
January <sup>d</sup> 8. 22 <sup>h</sup>	Barrow A 2	68. 27 '00	T D	May <sup>d</sup> 20. 1 <sup>h</sup>	Dent A 1	68. 19 '50	T D
11. 23	Dent A 3	68. 26 '25	T D	24. 0	Barrow A 2	68. 31 '25	T D
15. 22	,, A 1	68. 18 '00	T D	28. 0	Dent A 3	68. 27 '75	T D
17. 0	Barrow A 2	68. 29 '00	T D	30. 0	,, A 1	68. 18 '75	T D
23. 1	Dent A 3	68. 28 '00	T D	June 4. 1	Barrow A 2	68. 31 '25	T D
29. 1	,, A 1	68. 19 '50	T D	6. 1	Dent A 3	68. 22 '50	T D
30. 21	Barrow A 2	68. 28 '50	T D	July 15. 1	Dent A 1	68. 14 '50	T D
February 4. 21	Dent A 3	68. 26 '75	T D	15. 2	,, A 3	68. 28 '25	T D
5. 22	,, A 1	68. 19 '50	T D	23. 0	,, A 1	68. 14 '00	T D
8. 21	Barrow A 2	68. 30 '25	T D	23. 1	Barrow A 2	68. 32 '25	T D
13. 21	Dent A 3	68. 26 '00	T D	29. 22	Dent A 3	68. 31 '50	T D
19. 0	,, A 1	68. 19 '50	T D	29. 23	,, A 1	68. 15 '75	T D
21. 0	Barrow A 2	68. 32 '50	T D	29. 23	Barrow A 2	68. 33 '00	T D
27. 22	Dent A 3	68. 29 '00	T D	August 5. 23	Dent A 3	68. 25 '25	T D
March 5. 0	Barrow A	67. 58 '00	H	September 6. 0	Dent A 1	68. 12 '00	T D
19. 22	Dent A 1	68. 18 '50	T D	10. 22	Barrow A 2	68. 31 '50	T D
26. 23	Barrow A 2	68. 32 '00	T D	12. 0	Dent A 3	68. 28 '00	T D
April 3. 22	Dent A 3	68. 27 '25	T D	14. 1	,, A 1	68. 14 '25	T D
10. 22	,, A 1	68. 19 '50	T D	16. 22	Barrow A 2	68. 30 '50	T D
17. 23	Barrow A 2	68. 32 '25	T D	25. 21	Dent A 3	68. 26 '50	T D
19. 1	Dent A 3	68. 27 '75	T D	30. 22	,, A 1	68. 7 '75	T D
23. 1	,, A 1	68. 20 '25	T D	October 1. 23	Barrow A 2	68. 29 '25	T D
25. 23	Barrow A 2	68. 33 '25	T D	9. 1	Dent A 3	68. 28 '75	T D
May 3. 1	Dent A 3	68. 26 '75	T D				

The initials T D and H are those of Mr. Downs and Mr. John Howe respectively.

MONTHLY MEANS of MAGNETIC DIPS, at the ROYAL OBSERVATORY, GREENWICH, with ROBINSON'S DIP APPARATUS, in the Year 1861.

Month, 1861.	Barrow, A.	Number of Observations.	Dent, A 1.	Number of Observations.	Barrow, A 2.	Number of Observations.	Dent, A 3.	Number of Observations.
January .....	.....	..	68. 18 '75	2	68. 28 '17	3	68. 27 '13	2
February .....	.....	..	68. 19 '50	2	68. 31 '38	2	68. 27 '25	3
March .....	67. 58 '00	1	68. 18 '50	1	68. 32 '00	1	.....	..
April .....	.....	..	68. 19 '88	2	68. 32 '75	2	68. 27 '50	2
May .....	.....	..	68. 19 '13	2	68. 31 '25	1	68. 27 '25	2
June .....	.....	..	.....	..	68. 31 '25	1	68. 22 '50	1
July .....	.....	..	68. 14 '75	3	68. 32 '50	2	68. 29 '88	2
August .....	.....	..	.....	..	.....	..	68. 25 '25	1
September .....	.....	..	68. 11 '33	3	68. 31 '00	2	68. 27 '25	2
October .....	.....	..	.....	..	68. 29 '25	1	68. 28 '75	1
Mean .....	.....	..	68. 17 '41	15	68. 31 '06	15	68. 26 '97	16

For this table the monthly means have been formed without reference to the hour at which the observation was made on each day, as in preceding years no certain difference was found between observations taken at 21<sup>h</sup> and at 3<sup>h</sup>.

MAGNETIC DIP, observed at the ROYAL OBSERVATORY, GREENWICH, with AIRY'S DIP APPARATUS, in the Year 1861.

Day and Approximate Hour, 1861.	Needle.	Length of Needle.	Magnetic Dip.	Observer.	Day and Approximate Hour, 1861.	Needle.	Length of Needle.	Magnetic Dip.	Observer.
October	d h		° ' "		November	d h		° ' "	
21. 22	B 2	9 inches	68. 18. 36	H C	19. 22	B 3	9 inches	68. 17. 2	H C
22. 22	B 2	9 "	68. 18. 59	H C	20. 22	B 3	9 "	68. 16. 40	H C
23. 0	B 1	9 "	68. 17. 55	H C	21. 22	B 3	9 "	68. 21. 47	H C
23. 22	B 2	9 "	68. 12. 39	H C	December	5. 0	C 1	6 "	68. 18. 56
24. 0	B 1	9 "	68. 14. 24	H C	6. 22	C 2	6 "	68. 26. 36	H C
24. 22	B 2	9 "	68. 22. 5	H C	10. 1	C 1	6 "	68. 17. 8	H C
25. 0	B 1	9 "	68. 26. 12	H C	10. 22	C 1	6 "	68. 10. 31	H C
25. 22	B 2	9 "	68. 11. 25	H C	11. 0	C 2	6 "	68. 15. 23	H C
26. 0	B 1	9 "	68. 17. 30	H C	13. 22	C 2	6 "	68. 11. 55	H
27. 22	B 1	9 "	68. 13. 39	H C	14. 2	C 1	6 "	68. 10. 41	N
28. 0	B 2	9 "	68. 20. 22	H C	17. 23	C 1	6 "	68. 15. 57	H C
28. 22	B 1	9 "	68. 10. 9	H C	18. 0	C 2	6 "	68. 9. 16	N
29. 0	B 2	9 "	68. 15. 0	H C	19. 0	C 1	6 "	68. 15. 5	N
29. 22	B 2	9 "	68. 20. 57	H C	21. 0	C 1	6 "	68. 11. 38	N
30. 0	B 1	9 "	68. 14. 30	H C	21. 1	C 2	6 "	68. 16. 29	N
30. 22	B 1	9 "	68. 16. 48	H C	23. 0	C 2	6 "	68. 13. 9	H C
31. 0	B 2	9 "	68. 10. 8	H C					

November 22. A damp day.

The initials H C, N, and H are those of Mr. Henry C. Criswick, Mr. W. C. Nash, and Mr. John Howe respectively.

MONTHLY MEANS OF MAGNETIC DIPS, at the ROYAL OBSERVATORY, GREENWICH, with AIRY'S DIP APPARATUS, in the Year 1861.

Month, 1861.	B 1, 9-inch Needle.	Number of Observations.	B 2, 9-inch Needle.	Number of Observations.	B 3, 9-inch Needle.	Number of Observations.	C 1, 6-inch Needle.	Number of Observations.	C 2, 6-inch Needle.	Number of Observations.
October .....	68. 16. 23	8	68. 16. 41	9	.....	..	.....	..	.....	..
November .....	.....	..	.....	..	68. 18. 29	3	.....	..	.....	..
December .....	.....	..	.....	..	.....	..	68. 14. 17	7	68. 15. 28	6



ROYAL OBSERVATORY, GREENWICH.

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OBSERVATIONS  
OF  
DEFLEXION OF A MAGNET  
FOR  
ABSOLUTE MEASURE  
OF  
HORIZONTAL FORCE.

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1861.

The Old Apparatus, which had been used many years for observation of the Deflexion of a Magnet, and which has been used through the year 1861 and to the month of February 1862, is described, and the method of computing the results is explained, in the *Greenwich Magnetical and Meteorological Observations*, 1847, Introduction, page xlv, and in the preceding Volume for 1846. The Magnet marked  $\frac{D}{XX}$  (the same which was used from September 1845), has been employed to produce the deflexion of another magnet, marked  $\frac{H}{23}$  (of nearly the same dimensions): and the vibrations then observed are those of  $\frac{D}{XX}$ .

The weight of  $\frac{D}{XX}$  is 507.302 grains, or 32.873 grammes.

The length of  $\frac{D}{XX}$  is 0.3025 foot, or 92.198 millimètres.

The diameter of  $\frac{D}{XX}$  is 0.025 foot, or 7.620 millimètres.

Its moment of inertia, therefore, (using the English grain and foot as the units of weight and measure,) is 3.88826.

The weight of the embracing frame and mirror is 108.242 grains, or 7.014 grammes; and, on examining the distribution of this weight, it was thought probable that its moment of inertia would be nearly the same as if it were uniformly distributed over the mirror, whose horizontal length is 0.0658 foot; its moment of inertia is therefore 0.03905.

The weight of the suspending stalk with a pulley is 39.377 grains, or 2.552 grammes, and its moment of inertia (estimated as probably the same as if it had been condensed on the pulley whose diameter is 0.0233 foot), is 0.00135.

The following is the explanation of the notation used:—

$m$  = the magnetic moment of the deflecting magnet  $\frac{D}{XX}$ .

$X$  = the absolute measure of horizontal magnetic force.

$K$  = the moment of inertia of  $\frac{D}{XX}$  with its stirrup and pulley as suspended for vibration = 3.92866, using the English foot and grain as the unit of length and weight.

$\pi$  = the circumference of circle to diameter 1.

$T$  = the time of vibration in seconds of mean solar time.

Then when the natural sine of the observed deflexion (the Deflecting Magnet being in the Lateral Position) is expressed by the formula

$$\frac{a}{(\text{distance})^3} + \frac{b}{(\text{distance})^5}$$

we have for the formulæ of computation

$$\frac{m}{X} = \frac{1}{2} a$$

$$mX = \frac{\pi^2 K}{T^2}$$

from which  $m$  and  $X$  are found.

The computation of the values of  $m$  and  $X$  has, to the year 1857, been made in reference to English measure only, using the foot and the grain as the units of length and weight; but, for comparison with foreign observations of the Absolute Intensity of Magnetism, it is desirable that  $X$  should be expressed also in reference to French measure, in terms of the millimètre and milligramme. If an English foot be supposed equal to  $a$  times the millimètre, and a grain be equal to  $\beta$  times the milligramme, then it is plain that, for the reduction of  $\frac{m}{X}$  and  $mX$  to French measure, these must be multiplied by  $a^3$  and  $a^2\beta$  respectively. Hence,  $X^2$  must be multiplied by  $\frac{\beta}{a}$ , and  $X$  by  $\sqrt{\frac{\beta}{a}}$ . Assuming that the mètre is equal to 39.37079 inches, and the gramme equal to 15.432349 grains,  $\log. \sqrt{\frac{\beta}{a}}$  will be found to be = 9.6637805, and the factor for reducing the English values of  $X$  to French values will be 0.46108, or  $\frac{1}{2.1689}$ . The values of  $X$  in French measure thus derived from those in English measure are given in the proper table.

The natural sine of the observed deflexion, when the Deflecting Magnet is in the Axial Position, is treated in the same manner as the former, for expressing it by the formula

$$\frac{a^1}{(\text{distance})^3} + \frac{b^1}{(\text{distance})^5}$$

but no further use is made of these deflexions.

For the determination of the Absolute Measure of Horizontal Force on those days on which vibrations, unaccompanied by Deflexions, were observed, it is assumed that the quantity  $m$  (which is peculiar to the magnet) changes at a uniform rate from one observation of deflexion to the next; and the comparison of its interpolated value with the value of  $mX$  given by the vibration determines the value of  $X$ .

ABSTRACT of the OBSERVATIONS of DEFLEXION of a MAGNET for ABSOLUTE MEASURE of HORIZONTAL FORCE, observed with the OLD APPARATUS.

Month and Day, 1861.	Position of Deflecting Magnet with regard to Suspended Magnet.	Distances of Centers of Magnets.	Temperature.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature.	Observer.
January 26	Lateral .....	ft. in. 1. 0	52° 0'	8. 35. 1' 46	5.966	100	46° 7'	N
	Axial .....	1. 6		4. 30. 53' 40				
	Lateral .....	1. 0		2. 31. 44' 77	5.972	100	52° 6'	
	Axial .....	1. 6		1. 17. 37' 40				
February 26	Lateral .....	1. 0	47° 2'	8. 26. 17' 51	5.953	100	40° 0'	N
	Axial .....	1. 6		4. 27. 57' 23				
	Lateral .....	1. 0		2. 35. 58' 24	5.880	100	50° 0'	
	Axial .....	1. 6		1. 21. 15' 46				
March 14	Lateral .....	1. 0	50° 6'	8. 30. 53' 49	5.939	100	41° 7'	N
	Axial .....	1. 6		4. 29. 30' 21				
	Lateral .....	1. 0		2. 34. 40' 58	5.932	100	50° 8'	
	Axial .....	1. 6		1. 16. 12' 99				
April 12	Lateral .....	1. 0	61° 4'	8. 29. 3' 65	5.960	100	58° 0'	N
	Axial .....	1. 6		4. 30. 33' 20				
	Lateral .....	1. 0		2. 29. 42' 33	5.955	100	61° 5'	
	Axial .....	1. 6		1. 16. 13' 49				
May 14	Lateral .....	1. 0	64° 2'	8. 29. 31' 68	5.944	100	60° 2'	N
	Axial .....	1. 6		4. 28. 15' 91				
	Lateral .....	1. 0		2. 30. 16' 32	5.959	100	65° 0'	
	Axial .....	1. 6		1. 16. 38' 07				
June 13	Lateral .....	1. 0	76° 6'	8. 25. 30' 66	5.990	100	74° 2'	N
	Lateral .....	1. 6		2. 28. 59' 43				
July 17	Lateral .....	1. 0	70° 3'	8. 22. 57' 52	5.913	100	67° 5'	N
	Lateral .....	1. 6		2. 29. 39' 90				
July 29	Lateral .....	1. 0	70° 7'	8. 21. 43' 20	5.966	100	70° 7'	N
	Lateral .....	1. 6		2. 29. 0' 28				
July 31	Lateral .....	1. 0	70° 9'	8. 23. 59' 93	5.951	94	69° 0'	N
	Lateral .....	1. 6		2. 31. 10' 38				
August 2	Lateral .....	1. 0	78° 3'	8. 23. 17' 81	5.978	100	75° 0'	N
	Lateral .....	1. 6		2. 31. 8' 85				
September 10	Lateral .....	1. 0	68° 4'	8. 11. 25' 62	5.970	100	64° 0'	N
	Lateral .....	1. 6		2. 27. 23' 20				
October 8	Lateral .....	1. 0	71° 7'	8. 15. 34' 52	5.981	100	66° 0'	N
	Lateral .....	1. 6		2. 26. 40' 58				

The lengths of 1 foot and 1 foot 6 inches answer to 304.8 and 457.2 millimètres respectively.

The initial N is that of Mr. W. C. Nash.



ABSTRACT of the OBSERVATIONS of DEFLEXION of a MAGNET for ABSOLUTE MEASURE of HORIZONTAL FORCE, observed with the OLD APPARATUS—concluded.

Month and Day, 1861.	Position of Deflecting Magnet with regard to Suspended Magnet.	Distances of Centers of Magnets.	Temperature.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature.	Observer.
October 17	Lateral .....	ft. in. 1. 0	59.3	8. 21. 50.69	5.988	100	58.0	N
	Lateral .....	1. 6		2. 27. 0.28	6.000	100	58.4	
November 7	Lateral .....	1. 0	50.2	8. 19. 40.05	5.965	100	46.5	N
	Lateral .....	1. 6		2. 28. 58.93	5.972	100	48.6	
December 3	Lateral .....	1. 0	44.9	8. 20. 57.55	5.984	100	43.8	N
	Lateral .....	1. 6		2. 30. 1.66	5.953	100	44.0	
December 24	Lateral .....	1. 0	42.8	8. 22. 38.29	5.945	100	41.0	N
	Lateral .....	1. 6		2. 30. 9.25	5.975	100	42.0	

The lengths of 1 foot and 1 foot 6 inches answer to 304.8 and 457.2 millimètres respectively.

The initial N is that of Mr. W. C. Nash.



In the spring of 1861, a Unifilar Instrument, similar in all respects (as is understood) to those used in and issued by the Kew Observatory, was procured by the courteous application of Major-General Sabine, from the makers, Messrs. J. T. Gibson and Son; and after having been subjected to the usual examinations, at the Kew Observatory, for determination of its constants (for which I am indebted to the kindness of Balfour Stewart, Esq.), was mounted at the Royal Observatory. Observations with this instrument commenced on June 11, and were continued through the year; and, after some slight modifications of its verniers, it is still maintained in use (1862).

The method of making observations with this instrument differs in no respect from that used with the Old Instrument. In the reduction of the observations, the precepts contained in the Skeleton Form prepared by the Kew Observatory Committee have received the strictest attention.

ABSTRACT of the OBSERVATIONS of DEFLEXION of a MAGNET for ABSOLUTE MEASURE of HORIZONTAL FORCE, made with the KEW UNIFILAR INSTRUMENT.

Month and Day, 1861.	Position of Deflecting Magnet with regard to Suspended Magnet.	Distances of Centers of Magnets.	Temperature.	Observed Deflexion.	Mean of the Times of Vibration of Deflecting Magnet.	Number of Vibrations.	Temperature.	Observer.
June 11	Lateral .....	1' 0	69·8	17. 5. 14	4·630	50	67·0	H C
	Lateral .....	1' 3		7. 40. 2				
June 14	Lateral .....	1' 0	78·2	16. 59. 11	4·625	150	75·0	H C
	Lateral .....	1' 3		7. 38. 39				
July 18	Lateral .....	1' 0	65·7	16. 50. 13	4·663	150	67·1	H C
	Lateral .....	1' 3		7. 34. 59				
July 20	Lateral .....	1' 0	67·1	16. 49. 34	4·660	150	66·5	H C
	Lateral .....	1' 3		7. 34. 33				
August 1	Lateral .....	1' 0	68·3	16. 45. 36	4·667	150	66·0	H C
	Lateral .....	1' 3		7. 33. 3				
August 3	Lateral .....	1' 0	61·9	16. 45. 1	4·673	150	62·1	H C
	Lateral .....	1' 3		7. 32. 35				
October 10	Lateral .....	1' 0	61·5	16. 19. 31	4·696	150	65·5	H C
	Lateral .....	1' 3		7. 20. 50				
October 15	Lateral .....	1' 0	65·5	16. 21. 25	4·725	150	64·2	H C
	Lateral .....	1' 3		7. 21. 58				
November 11	Lateral .....	1' 0	46·3	16. 14. 47	4·746	150	44·0	H C
	Lateral .....	1' 3		7. 19. 46				
December 2	Lateral .....	1' 0	34·2	16. 12. 22	4·747	150	32·0	H C
	Lateral .....	1' 3		7. 17. 51				

The lengths of 1 foot and 1·3 foot answer to 304·8 and 396·2 millimètres respectively.

The initials H C are those of Mr. Henry Criswick.

In the following calculations, every observation is reduced to the temperature 35°.

## COMPUTATION of the VALUES of ABSOLUTE MEASURE of HORIZONTAL FORCE, from OBSERVATIONS with the KEW UNIFILAR INSTRUMENT.

Month and Day, 1861.	In English Measure.									Value of X in French Measure.
	Apparent Value of A.	Apparent Value of A'.	Apparent Value of P.	Mean Value of P.	Log. $\frac{1}{2}$ A = Log. $\frac{m}{X}$	Adopted Time of Vibration of Deflecting Magnet.	Log. $m X$ .	Value of X.	Value of m.	
June 11	+0.14777	0.08722	+0.00617	-0.00049	9.16922	4.630	0.33030	3.807	0.5619	1.756
June 14	+0.14715	0.08709	-0.00050		9.16798	4.624	0.32980	3.810	0.5609	1.757
July 18	+0.14556	0.08620	-0.00219		9.16340	4.663	0.32414	3.805	0.5542	1.755
July 20	+0.14551	0.08614	-0.00135		9.16317	4.661	0.32466	3.809	0.5544	1.756
August 1	+0.14498	0.08588	-0.00271		9.16172	4.670	0.32275	3.806	0.5523	1.755
August 3	+0.14474	0.08570	-0.00153		9.16090	4.677	0.32119	3.803	0.5508	1.754
October 10	+0.14116	0.08348	+0.00139		9.14976	4.696	0.31791	3.838	0.5417	1.770
October 15	+0.14152	0.08375	-0.00035		9.15102	4.725	0.31248	3.808	0.5391	1.756
November 11	+0.14013	0.08306	-0.00421		9.14707	4.743	0.30800	3.806	0.5339	1.755
December 2	+0.13952	0.08254	+0.00035		9.14477	4.746	0.30674	3.811	0.5317	1.757

## VALUES of ABSOLUTE MEASURE of HORIZONTAL FORCE, from OBSERVATIONS of VIBRATIONS of the DEFLECTING MAGNET 3 W., unaccompanied by DEFLEXION.

Month and Day, 1861.	Adopted Time of Vibration.	Temperature.	Log. $m X$ in English Measure.	Value of $m$ interpolated from the Deflexion Observations. In English Measure.	Inferred Value of X in English Measure.	Value of X in French Measure.	Observer.
June 18	4.639	75.2	0.32920	0.5600	3.811	1.757	H C
June 20	4.639	74.1	0.32912	0.5598	3.812	1.757	H C
July 31	4.666	73.5	0.32404	0.5525	3.817	1.760	H C
September 11	4.700	62.8	0.31699	0.5456	3.803	1.754	H C

The number of vibrations employed in each determination was 150.

The initials H C are those of Mr. Henry Criswick.

Every observation is reduced to the temperature 35°.

As observations were carried on with both instruments from 1861, June 11, to 1862, February 3, it has been judged desirable to exhibit here a comparison of the results. Although the observations were not taken on the same days, yet it is conceived that the difference of the means of the results may with safety be adopted as representing the true difference depending on the peculiarities of each instrument and the peculiarities of each mode of reduction. And, as the observations made with the Old Instrument were conducted precisely in the same way as for many years past, and those with the Kew Unifilar in the way which will probably be continued in future, it is presumed that this comparison will give the means of forming one continuous series commencing with the year 1848.

Taking then the means from the following Table, we have—

Mean of determinations by Old Instrument ..... 3·844

Mean of determinations by Kew Unifilar ..... 3·811

The determinations with the Old Instrument ought therefore to be diminished by  $\frac{1}{117}$  part, to make them comparable with those of the Kew Unifilar.

COMPARISON OF RESULTS FROM THE TWO DEFLEXION INSTRUMENTS.

Month and Day, 1861-62.	Value of X in English Measure.		Value of X in French Measure.	
	From Old Instrument.	From Kew Unifilar.	From Old Instrument.	From Kew Unifilar.
1861				
June 11	...	3·807	...	1·756
13	3·849	...	1·775	...
14	...	3·810	...	1·757
July 17	3·859	...	1·779	...
18	...	3·805	...	1·755
20	...	3·809	...	1·756
29	3·842	...	1·772	...
31	3·833	...	1·767	...
August 1	...	3·806	...	1·755
2	3·824	...	1·763	...
3	...	3·803	...	1·754
September 10	3·868	...	1·784	...
October 8	3·854	...	1·777	...
10	...	3·838	...	1·770
15	...	3·808	...	1·756
17	3·826	...	1·764	...
November 7	3·843	...	1·772	...
11	...	3·806	...	1·755
December 2	...	3·811	...	1·757
3	3·836	...	1·769	...
24	3·836	...	1·769	...
1862.				
January 29	...	3·817	...	1·760
30	3·838	...	1·770	...
30	...	3·814	...	1·758
31	3·846	...	1·773	...
February 1	...	3·810	...	1·757
3	3·867	...	1·783	...

ROYAL OBSERVATORY, GREENWICH.

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R E S U L T S

OF

METEOROLOGICAL OBSERVATIONS.

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1861.

The day in the first column of the following tables is to be understood, generally, as defined in civil reckoning.

The barometer is described in the *Greenwich Magnetical and Meteorological Observations*, 1847, Introduction, page xlvi, and in the corresponding parts of several preceding volumes. The barometer has been read at 21<sup>h</sup>, 0<sup>h</sup>, 3<sup>h</sup>, 9<sup>h</sup> (Astronomical), on every day, excepting on Sundays, and on Good Friday and Christmas Day, on which days fewer observations have been taken. Every reading has been reduced to the reading which would have been obtained at the temperature 32° of the mercury and scale, by application of the correction given in table II. (pages 82 to 87) of the Report of the Committee of Physics of the Royal Society. The mean of the reduced readings has then been taken for each civil day, and finally converted into mean daily reading, by application of the correction inferred from Mr. Glaisher's paper in the *Philosophical Transactions*, 1848, part I.

The positions of all the thermometers are described in the Introduction, 1847, page lxix.

The thermometers, used for determining the highest temperature of the air, and the highest state of the wet-bulb thermometer, are mercurial thermometers invented by Messrs. Negretti and Zambra, and described in the *Results of Meteorological Observations*, 1851, Introduction page xcvi; and those for the lowest are of Rutherford's construction, described in the Introduction, 1847, page lxvii: they are self-registering. The readings given are corrected for index-errors.

The dry-bulb and wet-bulb thermometers are described in the Introduction, 1847, page xlix; their scales have been verified from time to time, in the manner there described.

A mean daily reading of the dry-bulb thermometer is inferred from the mean of observations taken at the same hours as the observations of the barometer, corrected by a quantity given in the *Phil. Trans.*, 1848, part I. Another mean daily reading is inferred from the mean of the maximum and minimum thermometers, also corrected by a small quantity given in the same paper. The mean daily value given in the tables is found by combining these two corrected means giving them weights proportional to the number of observations from which they are respectively derived.

The dew-point has been inferred exclusively from simultaneous observations of the dry-bulb and wet-bulb thermometers. In order to find the difference between the dry-bulb reading and the dew-point, the difference between the dry-bulb and the wet-bulb readings has been multiplied by a factor taken from the following table (deduced by Mr. Glaisher from the comparison of all the simultaneous readings of the dry-bulb, wet-bulb, and dew-point thermometers, from the year 1840 to the end of the year 1854).

TABLE OF FACTORS, BY WHICH THE DIFFERENCE OF READINGS OF THE DRY-BULB AND WET-BULB THERMOMETERS IS TO BE MULTIPLIED, IN ORDER TO PRODUCE THE DIFFERENCE BETWEEN THE READINGS OF THE DRY-BULB AND DEW-POINT THERMOMETERS.

Reading of the Dry-bulb Thermometer.	Factor.	Reading of the Dry-bulb Thermometer.	Factor.	Reading of the Dry-bulb Thermometer.	Factor.	Reading of the Dry-bulb Thermometer.	Factor.	Reading of the Dry-bulb Thermometer.	Factor.	Reading of the Dry-bulb Thermometer.	Factor.
20	8·1	32	3·3	44	2·2	56	2·0	68	1·8	80	1·7
21	7·9	33	3·0	45	2·2	57	1·9	69	1·8	81	1·7
22	7·6	34	2·8	46	2·1	58	1·9	70	1·8	82	1·7
23	7·3	35	2·6	47	2·1	59	1·9	71	1·8	83	1·7
24	6·9	36	2·5	48	2·1	60	1·9	72	1·8	84	1·7
25	6·5	37	2·4	49	2·1	61	1·9	73	1·8	85	1·7
26	6·1	38	2·4	50	2·1	62	1·9	74	1·7	86	1·7
27	5·6	39	2·3	51	2·0	63	1·9	75	1·7	87	1·6
28	5·1	40	2·3	52	2·0	64	1·9	76	1·7	88	1·6
29	4·6	41	2·3	53	2·0	65	1·8	77	1·7	89	1·6
30	4·2	42	2·2	54	2·0	66	1·8	78	1·7	90	1·6
31	3·7	43	2·2	55	2·0	67	1·8	79	1·7		

The dew-point being thus found for each individual observation, the mean is taken for each day (as defined from midnight to midnight), and this mean is corrected by application of the elements in the *Phil. Trans.*, 1848, part I.

The thermometers exhibiting the lowest temperature on the grass, and the highest and lowest temperatures of the water of the Thames, are described in the Introduction, 1847, pages lxix and lxxi. They are occasionally verified. They are read at 21<sup>h</sup> (9<sup>h</sup> A.M.) every day; their readings are placed opposite to the day preceding the civil day on which the scales are actually read. The thermometer for the highest temperature in the sunshine is a mercurial thermometer with blackened bulb, of Negretti and Zambra's construction: it is read at 9<sup>h</sup> P.M. every evening.

The thermometer for the minimum temperature on the grass was out of order on March 24; July 7; August 8, 11, 17; December 19.

The thermometer for the maximum temperature in the water of the Thames was out of order from February 10 to 16 ; on April 6 ; April 28 to May 11 ; September 15 to 23 ; December 13 to 31. That for the minimum temperature was out of order on the same days, and also on February 24.

The mean daily value of the difference between dew-point temperature and air-temperature is the difference between the two numbers in the sixth and seventh columns. The Greatest and Least are the greatest and least among the differences corresponding to the times of observation in the civil day, or they are found from the absolute maxima and minima, as determined by comparing the observations of the self-registering wet-bulb thermometers with those of the self-registering dry-bulb thermometers.

The difference between the mean temperature for the day and the mean for the same day of the year on an average of forty-three years, is found by comparison with a table of results deduced by Mr. Glaisher from forty-three years' observations, made at the Royal Observatory, ending 1856.

Osler's Anemometer is described in the Introduction, 1847, page lxxi. Little explanation of the results deduced from it appears to be necessary. It may be understood generally that the greatest pressure occurred in gusts of short duration.

Whewell's Anemometer is described in the Introduction, 1847, page lxxii. The amount of movement of air here exhibited is to be understood as from 22<sup>h</sup> to 22<sup>h</sup> (10<sup>h</sup> A.M. to 10<sup>h</sup> A.M.), the numbers being placed opposite to the day preceding the civil day on which the instrument is read.

Robinson's Anemometer is described in the Introduction 1859, page cxli. The instrument is read off every day at 22<sup>h</sup> (10<sup>h</sup> A.M.)

The register of rain is read at 9<sup>h</sup> P.M. from the Cylinder Rain-gauge partly sunk in the ground, described in page lxxv of the Introduction, 1847. If, however, there appears to be any doubt as to the correctness of the results, reference is made to a Rain-gauge of similar construction and placed near to it, and to a second of the same construction placed 10 feet above the ground.

For understanding the divisions of time under the heads of Electricity and Weather, the following remarks are necessary :—The day is divided by columns into two parts (from midnight to noon, and from noon to midnight), and each of these parts is roughly subdivided into two or three parts by colons (:). Thus, when there is a single colon in the first column, it denotes that the remarks before it apply (roughly) to the interval from midnight to 6 A.M., and those following it to the interval from 6 A.M. to noon. When there are two colons in the first column, it is to be understood that the twelve hours are divided into three nearly equal parts of four hours each. And similarly for the second column.

The Electrical Apparatus is described in page lxxvii of the Introduction, 1847. The following is the explanation of the notation employed, it being premised that the quality of the Electricity is always to be supposed positive when no indication of quality is given :—

g cur. denotes <i>galvanic currents</i>	N denotes <i>negative</i>	s denotes <i>strong</i>	v denotes <i>variable</i>
m .. <i>moderate</i>	P .. <i>positive</i>	sp .. <i>sparks</i>	w .. <i>weak</i>

The duplication of the letter denotes an intensity of the modification described : thus, s s is very strong ; v v, very variable.

The Clouds and Weather are described generally by Howard's Nomenclature ; the figure denotes the proportion of sky covered by clouds, the whole sky being represented by 10. The notation is as follows :—

a denotes <i>aurora borealis</i>	hl denotes <i>hail</i>	shs-r denotes <i>showers of rain</i>	h-sqs denotes <i>heavy squalls</i>
ci .. <i>cirrus</i>	so-ha .. <i>solar halo</i>	c-r .. <i>continued rain</i>	fr-h-sqs .. <i>frequent heavy squalls</i>
ci-cu .. <i>cirro-cumulus</i>	l .. <i>lightning</i>	c-h-r .. <i>continued heavy rain</i>	sc .. <i>scud</i>
ci-s .. <i>cirro-stratus</i>	li-cl .. <i>light clouds</i>	m-r .. <i>misty rain</i>	li-sc .. <i>light scud</i>
cu .. <i>cumulus</i>	lu-co .. <i>lunar corona</i>	fr-m-r .. <i>frequent misty rain</i>	sl .. <i>sleet</i>
cu-s .. <i>cumulo-stratus</i>	lu-ha .. <i>lunar halo</i>	sl-r .. <i>slight rain</i>	sn .. <i>snow</i>
d .. <i>dew</i>	m .. <i>meteor</i>	h-shs .. <i>heavy showers</i>	sl-sn .. <i>slight snow</i>
h-d .. <i>heavy dew</i>	ms .. <i>meteors</i>	fr-shs .. <i>frequent showers</i>	s .. <i>stratus</i>
f .. <i>fog</i>	n .. <i>nimbus</i>	fr-h-shs .. <i>frequent heavy showers</i>	t .. <i>thunder</i>
th-f .. <i>thick-fog</i>	r .. <i>rain</i>	li-shs .. <i>light showers</i>	t-s .. <i>thunder storm</i>
fr .. <i>frost</i>	th-r .. <i>thin rain</i>	oc-shs .. <i>occasional showers</i>	v .. <i>variable</i>
gt-glm .. <i>great gloom</i>	oc-r .. <i>occasional rain</i>	sq .. <i>squall</i>	w .. <i>wind</i>
h-fr .. <i>hoar frost</i>	fr-r .. <i>frozen rain</i>	sqs .. <i>squalls</i>	st-w .. <i>strong wind</i>
h .. <i>haze</i>	h-r .. <i>heavy rain</i>	fr-sqs .. <i>frequent squalls</i>	

The foot-notes show the means and extremes of readings, and their departure in each month from average values, as found from the preceding Twenty Years' Observations ; those relating to Humidity have been calculated from the Second Edition of Glaisher's Hygrometrical Tables.



RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Main meteorological data table with columns for Month and Day, Phases of the Moon, Readings of Thermometers (Dry, Dew Point, Water in the Thames), Difference between Dew Point and Air Temperature, Wind as deduced from Anemometers (OSLER's, General Direction, Pressure), and Rain in Inches read at 9 P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The absolute minimum in the month was 29.000 on the 1st. The first maximum in the month was 30.166 on the 3rd; the second minimum was 29.901 on the 5th. The second maximum was 30.224 on the 10th; the third minimum was 29.569 on the 13th. The absolute maximum was 30.343 on the 21st; the fourth minimum was 29.768 on the 25th. The fourth maximum was 30.217 on the 26th; the fifth minimum was 29.962 on the 29th. The range in the month was 1.343. The mean for the month was 30.011, being 0.254 higher than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 55.0 on the 27th and 29th; the lowest was 16.0 on the 8th; and the range in the month was 39.0. The mean of all the highest daily readings was 39.6, being 3.6 lower than the average of the preceding 20 years. The mean of all the lowest daily readings was 28.7, being 5.0 lower than the average of the preceding 20 years. The mean daily range was 10.9, being 1.3 greater than the average of the preceding 20 years. The mean for the month was 33.8, being 4.5 lower than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Jan. 1	s N	s : o	10, r	10, gt.-glm, m.-r
2	o	o	o	o
3	v	v	7, ci.-cu, ci.-s	7, ci.-cu, ci.-s : o
4	v	v	10, f : o, h	o, h : 7, ci.-cu, ci.-s, sn : 10, ci.-s
5	m	s	10, sl	10, sn : o
6	v	v : s, sps	o	7, cu, ci.-cu, ci : 5, s, f
7	w	w	10, ci.-s, f	10, ci.-s, h
8	o	w	o	o
9	m	m : s	o	o
10	s	s	8, cu, ci.-cu, ci, f	8, cu, ci.-cu, ci : 10, th.-f
11	s	s : ss, sps	10, s, ci.-s, f	10, s, ci.-s : 7, ci.-s : o
12	o	o	10, cu.-s, ci.-s	10, cu.-s, ci.-s : 10, th.-r
13	m	m	10, sl, r	10, sn : 10
14	o	w : o	10	7, ci.-s, ci : 10
15	o	v	o	10, cu.-s, ci.-s
16	m	m : s	10, ci.-cu, ci.-s	1, ci : 5, ci.-cu, ci : 10, sn
17	o	o	10	10
18	v	v	10, f	10
19	w	o	10	10 : 10, s, ci.-s
20	o	o	10	10 : 10, th.-f
21	w	o	10	10 : o
22	o	o : s	10, f	10 : f
23	v	v	10	10 : oc.-r
24	o	o	7, s, ci.-s, h-fr	7, ci.-s, ci : 10, oc.-r
25	o	m : o	10, ci.-s, s	10, oc.-r
26	s	s	10	o : 7
27	o	m	3, ci, li.-cl	3, ci
28	s	w	7, ci.-s, ci	7, ci.-cu, ci.-s : o, f
29	o	o : m	10, th.-f	o, f : o
30	s	w	10, f	10, f : 10, oc.-r
31	w	w	3, ci.-cu, ci.-s : o	o

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 49°·0 on the 25th; and the lowest was 3°·8 on the 9th.

The mean ,, was 30°·0, being 5°·4 lower than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0·167, being 0·038 less than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 1·179, being 0·175 less than the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 85 (that of Saturation being represented by 100), being 4 less than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 564 grains, being 11 grains greater than the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 7·0.

**WIND.**

The proportions were of N. 3, S. 9, W. 9, and E. 10. The greatest pressure in the month was 11<sup>lbs</sup>·0 on the square foot on the 26th.

**RAIN.**

Fell on 7 days in the month, amounting to 0<sup>in</sup>·6, as measured in the simple cylinder gauge partly sunk below the ground; being 1<sup>in</sup>·2 less than the average fall of the preceding 46 years.

RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861.; Phases of the Moon.; Mean Daily Reading of the Barometer; READINGS OF THERMOMETERS (Dry, Dew Point, Water of the Thames); Difference between the Dew Point Temperature and Air Temperature.; WIND AS DEDUCED FROM ANEMOMETERS (General Direction, Pressure); Amount of Horizontal Movement of the Air; Rain in Inches read at 9 P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The absolute maximum in the month was 30.1544 on the 2nd; the first minimum in the month was 29.1246 on the 6th. The second maximum ,, was 29.1466 on the 7th; the second minimum ,, was 29.1368 on the 8th. The third maximum ,, was 30.1132 on the 10th; the third minimum ,, was 29.1457 on the 13th. The fourth maximum ,, was 29.1962 on the 14th; the fourth minimum ,, was 29.1471 on the 15th. The fifth maximum ,, was 29.1670 on the 16th; the absolute minimum ,, was 29.1186 on the 21st. The sixth maximum ,, was 29.1541 on the 22nd; the sixth minimum ,, was 29.1395 on the 23rd. The seventh maximum ,, was 30.1073 on the 25th. The range in the month was 1.1358. The mean for the month was 29.1686, being 0.1101 lower than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 56.0 on the 17th; the lowest was 24.4 on the 12th. The range ,, was 31.6. The mean ,, of all the highest daily readings was 48.2, being 3.6 higher than the average of the preceding 20 years. The mean ,, of all the lowest daily readings was 36.9, being 3.7 higher than the average of the preceding 20 years. The mean daily range was 11.3, being 0.1 less than the average of the preceding 20 years. The mean for the month was 42.1, being 3.7 higher than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Feb. 1	o	w	10	10, cu.-s, ci.-s : 2, ci : 8, ci.-s
2	v	v	o	o : 6, ci.-cu, ci : o, h
3	s	s	10, s, ci.-s	10, s, ci.-s
4	w	w	10, ci.-s : o	o : 10
5	o	o	10	10
6	o	o	10, oc.-r	7, ci.-s, sc, r : o
7	o	o : w	10, s, ci.-s	5, ci.-s, sc : 5, ci.-cu, ci.-s
8	o	o	10, ci.-s	10, ci.-s
9	w	s N : o	10	10, oc.-r
10	o	o : w	10, cu.-s, ci.-s	3, ci, li.-cl : o
11	o	s N, s P, sps, g cur : s	10, sn	10, sn, hl : 1, ci
12	w	w	3, ci, h.-f	3, ci.-h : 10
13	o : s N	s N : w	10, sn : h.-r	2, ci, li.-cl : 10, gt.-glm, f : 10
14	v	v	o : 10, ci.-cu, ci.-s	10, s, ci.-s : r
15	o	o : w	10, r	10 : o
16	o	o : s	10, ci.-s, sc, oc.-r	10, cu.-s, ci.-s : 10, oc.-r
17	v	v	7, ci.-cu, ci.-s	7, ci.-cu, ci.-s : o
18	ss N, ss P	s	10, ci.-s, ci	6, ci.-cu, ci.-s : 2
19	o	o : s, sps	10, ci.-s, ci	10, ci.-cu, ci.-s : lu.-ha
20	s	s N, sps	10, s, ci.-s	10, oc.-r : 10, r
21	o	o	10, ci.-s, sc : 7, ci.-s, ci	10, h.-r : 10, ci.-s, sc
22			o : 5, ci.-s, sc	10, ci.-s, ci
23			10, r	10, oc.-r
24			10, r	10, ci.-s, n, sc, r
25	o	o	10	10, oc.-r
26	o	o	10, ci.-s, ci, f : o	o : 10, f
27	o	o	7, ci.-cu, ci	7, ci.-cu, ci.-s : o, h, a
28	o	o	10, h.-r	8, cu, ci.-cu, ci : 1, ci

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 50°·7 on the 21st; and the lowest was 18°·6 on the 12th.

The mean ,, was 39°·4, being 5°·0 higher than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·241, being 0<sup>in</sup>·040 greater than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 25·8, being 0<sup>gr</sup>·5 greater than the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 91 (that of Saturation being represented by 100), being 6 greater than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 548 grains, being 6 grains less than the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 7·4.

**WIND.**

The proportions were; N. 4, S. 11, W. 9, and E. 4. The greatest pressure in the month was 25<sup>lbs</sup>·0 on the square foot on the 21st.

**RAIN.**

Fell on 11 days in the month, amounting to 1<sup>in</sup>·8, as measured in the simple cylinder gauge partly sunk below the ground; being 0<sup>in</sup>·2 greater than the average fall of the preceding 46 years.

**ELECTRICITY.**—The insulating lamp was not burning from February 22 to February 24.

RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861.; Phases of the Moon.; Mean Daily Reading of the Barometer; READINGS OF THERMOMETERS (Dry, Dew Point, In the Sun, In the Grass, In the Water); Difference between the Dew Point Temperature and Air Temperature; WIND AS DEDUCED FROM ANEMOMETERS (OSLER'S, General Direction, Pressure); Amount of Horizontal Movement of the Air; Rain in Inches read at 9 P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 29.843 on the 2nd; the second minimum was 29.435 on the 1st. The second maximum was 30.118 on the 5th; the third minimum was 29.437 on the 3rd. The third maximum was 30.006 on the 7th; the fourth minimum was 29.535 on the 6th. The absolute maximum was 30.283 on the 9th; the fifth minimum was 29.179 on the 11th. The fifth maximum was 30.148 on the 14th; the absolute minimum was 28.818 on the 19th. The sixth maximum was 29.529 on the 20th; the seventh minimum was 29.160 on the 20th. The seventh maximum was 29.743 on the 23rd; the eighth minimum was 29.627 on the 24th. The eighth maximum was 29.806 on the 25th; the ninth minimum was 29.295 on the 27th. The ninth maximum was 29.615 on the 29th; the tenth minimum was 29.466 on the 31st. The range in the month was 1.465. The mean for the month was 29.614, being 0.179 lower than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 61.8 on the 24th; the lowest was 29.1 on the 14th. The range was 32.7. The mean of all the highest daily readings was 52.7, being 2.7 higher than the average of the preceding 20 years. The mean of all the lowest daily readings was 37.1, being 1.8 higher than the average of the preceding 20 years. The mean daily range was 15.6, being 0.9 greater than the average of the preceding 20 years. The mean for the month was 43.8, being 2.1 higher than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
March 1	o	ss N, sps, g cur : o	10, h.-r	5, cu, ci.-cu, ci : t
2	o	o	10, ci.-s, ci	10, s, ci.-s : h.-r
3	o	o	10, fr.-sqs	5, shs.-r
4	o	o	5, ci, sc	5, ci.-cu, ci : o
5	o	o	10	10, sl.-r
6	o	o	10	10 : sqs.-r : v
7	o	w : o	5, ci.-cu, ci : 10	10, cu.-s, ci.-s
8	o	o	10	10 : 7, ci.-cu, ci.-s : o
9	v	v	7, ci.-cu, ci.-s, h	3, ci.-cu, ci : o, a
10	o : w	o	3, ci	3, ci : h.-sh.-r : o, h
11	o	o	10, ci.-cu, ci.-s	10, cu, ci.-cu, ci : 10, h.-r : o
12	o	s N, s P, sps, g cur	10, h.-r	10, h.-r, t : 10, fr.-shs.-r
13	o	o	10	2, cu, ci.-cu, ci : o
14	o	o	o, h.-fr	10, cu, ci.-cu, ci : oc.-r
15	o	o : w	7, cu, ci.-cu, oc.-r	7, cu, ci.-cu, ci : o, h
16	o	s N : o	10, ci.-cu, ci.-s	10, r : hl : o
17	o	m N : o	10, s, ci.-s, h	10, r : o
18	o	o	o	7, ci.-cu, ci.-s
19	o	s N : o	10, th.-r	10, cu, cu.-s, ci.-s, hl, r : 7, lu.-ha
20	o	o	10	10, oc.-r : 10, fr.-h.-sqs : o
21	o	s N, s P, sps, g cur : o	o	7, ci.-cu, ci.-s : 10, shs.-hl.-sl.-r : o
22	o	o	o	7, cu, ci.-cu, ci : lu.-ha : h
23	o	o	10	3, ci.-cu, ci.-s : o
24	o	o	o, h	10, ci.-cu, ci.-s
25	o	o	10, r	10
26	o	o	10, ci.-s	10, ci.-cu, ci.-s
27	o	o	8, ci.-s, ci : 1, ci	5, ci.-cu, ci.-s : 10, ci.-s, oc.-r
28	o	o	10, h.-r	10, sl.-r : o, h
29	v	v	o, h	o
30	o	w	10, sl.-r	10, cu.-s, ci.-s : 7, ci.-s
31	o	o	10, r	8, ci.-s li. cl : o

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 53°·4 on the 24th ; and the lowest was 33°·4 on the 21st.

The mean " was 41°·2, being 4°·8 higher than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·259 being 0<sup>in</sup>·043 greater than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 28<sup>gr</sup>·9, being 0<sup>gr</sup>·4 greater than the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 90 (that of Saturation being represented by 100), being 8 greater than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 545 grains, being 5 grains less than the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 6·5.

**WIND.**

The proportions were ; N. 4, S. 5, W. 22, and E. 0. The greatest pressure in the month was 19<sup>lbs</sup>·0 on the square foot on the 3rd and 11th.

**RAIN.**

Fell on 21 days in the month, amounting to 2<sup>in</sup>·2, as measured in the simple cylinder gauge partly sunk below the ground ; being 0<sup>in</sup>·6 greater than the average fall of the preceding 46 years.

**ELECTRICITY.**—From March 22 to March 26 the insulating lamp was not burning.

RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861; Phases of the Moon; Mean Daily Reading of the Barometer; READINGS OF THERMOMETERS (Dry, Dew Point, In the Water of the Thames); Difference between the Dew Point Temperature and Air Temperature; WIND AS DEDUCED FROM ANEMOMETERS (General Direction, Pressure); Amount of Horizontal Movement of the Air; Rain in Inches read at 9 a.m.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 29.628 on the 1st; the absolute minimum in the month was 29.553 on the 2nd. The absolute maximum ,, was 30.412 on the 9th; the second minimum ,, was 30.122 on the 13th. The third maximum ,, was 30.247 on the 16th; the third minimum ,, was 29.691 on the 22nd. The fourth maximum ,, was 30.037 on the 26th; the fourth minimum ,, was 29.904 on the 28th. The fifth maximum ,, was 30.159 on the 30th. The range in the month was 0.859. The mean for the month was 29.999, being 0.264 higher than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 63.5 on the 12th; the lowest was 26.8 on the 21st; and the range in the month was 36.7. The mean ,, of all the highest daily readings was 55.0, being 1.8 lower than the average of the preceding 20 years. The mean ,, of all the lowest daily readings was 36.0, being 2.6 lower than the average of the preceding 20 years. The mean daily range was 19.0, being 0.8 greater than the average of the preceding 20 years. The mean for the month was 44.3, being 2.0 lower than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
April 1	o	s N : s	10, f	10, ci.-cu, ci.-s, oc.-r : o : 10
2	o	o	10, oc.-r	7, s, ci.-s, fr.-shs.-r
3	o	o	10, h.-r	7, s, ci.-s, li.-cl : 10, oc.-r
4	o	o	10	5, ci.-cu, ci.-s, ci
5	o	o	10, ci.-cu, ci.-s, h	10, h : 7, ci.-cu, ci.-s
6	w	o : s	10, th.-f	5, ci.-cu, ci.-s : 10
7	v	v	10	7, ci.-cu, ci.-s : 5, s, ci.-s
8	o	o : s	10, cu, ci.-cu, ci	10 : o
9	o : m	m : s	7, cu, ci.-cu, ci	7, cu, ci.-cu, ci
10	o	m : ss, sps	o	o
11	s	w	o, h	o : f
12	w	o : w	10, ci.-cu, ci.-s	7, cu, ci.-cu, ci.-s : 10, ci.-s
13	w	o : s	10, ci.-s	10, s, ci.-s : 10, oc.-r
14	v	v	10, oc.-r	10
15	o	w	10	10 : a
16			2, cu, ci.-cu, ci	o
17			10	o : 10 : oc.-r
18			10	o : 10
19			7	7, ci.-cu, cu.-s, ci.-s : 10
20			7, ci.-cu, ci.-s	7, ci.-s, ci : o
21			10, h	10, sl.-r : o
22			10, cu.-s, ci.-s	10
23	v	v	10	10, r : o
24	s	s : ss, sps	7, ci.-s, ci	7, ci.-s, h : o, h
25	m	o	10, ci.-cu, ci.-s	7, ci.-cu, ci.-s : o
26			7, ci.-cu, ci.-s	7, cu.-s, ci.-s : 10
27			10, h.-r	10, sn, h.-r : 6, ci.-s : o, h.-f
28			10, cu.-s, ci.-s, h.-f	10, s, ci.-s : hl, r
29			10, ci.-cu, ci.-s	10, cu.-s, ci.-s : o
30	o	o	7, ci.-cu, ci.-s	10, cu, cu.-s, ci.-s

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 54°·8 on the 12th; and the lowest was 30°·0 on the 20th.

The mean " was 40°·2, being 0°·3 higher than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·249 being 0<sup>in</sup>·002 greater than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 2<sup>gr</sup>·9, being the same as the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 85 (that of Saturation being represented by 100), being 6 greater than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 551 grains, being 9 grains greater than the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by o and a cloudy sky by 10, was 7·1.

**WIND.**

The proportions were; N. 9, S. 2, W. 5, and E. 14. The greatest pressure in the month was 3<sup>lbs</sup>·5 on the square foot on the 2nd.

**RAIN.**

Fell on 6 days in the month, amounting to 0<sup>in</sup>·8, as measured in the simple cylinder gauge partly sunk below the ground; being 1<sup>in</sup>·0 less than the average fall of the preceding 46 years.

**ELECTRICITY.**—April 16 to 22, and April 26 to 29. The insulating lamp was not burning.



RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861.; Phases of the Moon.; Mean Daily Reading of the Barometer; READINGS OF THERMOMETERS (Dry, Dew Point, etc.); Difference between the Dew Point Temperature and Air Temperature.; WIND AS DEDUCED FROM ANEMOMETERS (General Direction, Pressure, etc.); Rain in Inches read at 9 P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first minimum in the month was 29.826 on the 3rd. The first maximum in the month was 30.076 on the 5th; the absolute minimum ,, was 29.434 on the 11th. The absolute maximum ,, was 30.309 on the 14th; the third minimum ,, was 29.938 on the 17th. The third maximum ,, was 30.262 on the 21st; the fourth minimum ,, was 29.612 on the 25th. The fourth maximum ,, was 29.972 on the 27th. The range in the month was 0.6475. The mean for the month was 29.924, being 0.162 higher than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 80.2 on the 23rd; the lowest was 33.4 on the 9th; and the range in the month was 46.8. The mean ,, of all the highest daily readings was 63.5, being 0.9 lower than the average of the preceding 20 years. The mean ,, of all the lowest daily readings was 43.0, being 1.2 lower than the average of the preceding 20 years. The mean daily range was 20.5, being 0.3 greater than the average of the preceding 20 years. The mean for the month was 51.9, being 0.9 lower than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
May 1	o	w : m	10, ci.-cu, ci.-s, h	10, cu, cu.-s : 7, f
2	s	m	10, ci.-cu, ci.-s	8, ci.-cu, ci.-s : 10
3	o	o	10, oc.-r	10, ci.-cu, ci.-s : o
4	o	sN : o	10, oc.-r	7, shs.-hl.-r. : 8, s, ci.-s
5	o	o	9, ci.-cu, ci.-s	9, ci.-cu, ci.-s : 10, ci.-s
6	m	m	10, li.-cl	7, ci.-cu, ci.-s
7	o	o	10, sl.-r	10, sl.-r
8	w	w	10, sl.-r	10, sl.-r : 10, ci.-s
9	v	v	7, ci.-cu, ci.-s	7, ci.-cu, cu.-s, ci.-s : o
10			10, li.-cl	10, sl.-r
11			10, h.-r	10 : 10, l, t, h.-r : 10
12			10, s	10, ci, h : h.-r : 10
13			10	10 : o
14	o	o	o, h	7, li.-cl, h : o
15	o	o	o, h	3, cu, ci.-cu : o, h
16	w	o	2, ci, h	2, cu, ci.-cu : 10, r
17	o	o	10	10, cu.-s, ci.-s : o
18	o	v	7	7, cu, ci.-cu : o
19	v	v	7, cu.-s, ci.-s	7, ci.-cu, ci : o
20	o	o	2, h	2, cu, ci.-cu
21	o	o	7, ci, h	7, li.-cl
22	o	o	10	5, ci.-cu, ci.-s
23	w		7, cu, ci.-cu, ci	7, cu, ci.-cu, ci : 10, l, t, h.-r
24	o : s	s : w	7, ci.-cu, ci.-s	8, cu, ci.-cu, h : 3, ci
25	m	m	6, cu, ci.-cu, ci	9 : o
26	o	o : s	10, sl.-r	10, ci.-s
27	o	v	5, ci.-cu, ci.-s, h.	8, ci : 10
28			10, sl.-r	10
29			10, cu.-s, ci.-s	7, cu.-s, ci.-s : 10, ci.-s
30			o, h	10 : 5, ci.-cu, ci.-s
31			7, ci.-cu, ci.-s	7, cu, ci.-cu, h : 10, ci.-s

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 61°·5 on the 23rd; and the lowest was 34°·2 on the 7th.

The mean ,, was 43°·6, being 1°·9 lower than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·284, being 0<sup>in</sup>·016 less than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 3<sup>gr</sup>·2, being 0<sup>gr</sup>·2 less than the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 74 (that of Saturation being represented by 100), being 2 less than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 542 grains, being 4 grains greater than the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by o and a cloudy sky by 10, was 7·6.

**WIND.**

The proportions were of N. 15, S. 4, W. 4, and E. 8. The greatest pressure in the month was 9<sup>lb</sup>·0 on the square foot on the 4th.

**RAIN.**

Fell on 8 days in the month, amounting to 1<sup>in</sup>·8, as measured in the simple cylinder gauge partly sunk below the ground; being 0<sup>in</sup>·3 less than the average fall of the preceding 46 years.

**ELECTRICITY.**—May 10 to 13, and May 28 to 31. The insulating lamp was not burning.

RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861.; Phases of the Moon.; Mean Daily Reading of the Barometer; READINGS OF THERMOMETERS (Dry, Dew Point, Water of the Thames); Difference between the Dew Point and Air Temperature; WIND AS DEDUCED FROM ANEMOMETERS (General Direction, Pressure); Amount of Horizontal Movement of the Air; Rain in Inches.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first minimum in the month was 29.676 on the 1st. The first maximum in the month was 29.906 on the 4th; the second minimum was 29.540 on the 9th. The absolute maximum was 30.073 on the 13th; the third minimum was 29.838 on the 15th. The third maximum was 29.943 on the 18th; the fourth minimum was 29.595 on the 23rd. The fourth maximum was 29.724 on the 24th; the absolute minimum was 29.480 on the 26th. The fifth maximum was 29.696 on the 28th; the sixth minimum was 29.578 on the 29th. The range in the month was 0.593. The mean for the month was 29.782, being 0.011 lower than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 81.08 on the 19th; the lowest was 42.09 on the 9th. The range was 38.99. The mean of all the highest daily readings was 70.08, being 0.4 lower than the average of the preceding 20 years. The mean of all the lowest daily readings was 51.03, being 1.1 higher than the average of the preceding 20 years. The mean daily range was 19.05, being 1.5 less than the average of the preceding 20 years. The mean for the month was 59.01, being 0.1 lower than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
June 1	s N, s P, sps, g cur	s N, s P, sps, g cur	10, r	10, ci.-cu, cu.-s, ci.-s, oc.-r
2	o	o	10, ci.-cu, cu.-s, h	10, h.-r
3	o	o	10	10
4	o	o	10	10, cu.-s, ci.-s
5	s N, s P, sps, g cur	s N, s P, sps, g cur	10, t, h.-r	10, t, h.-r : o, h
6	o	o	10	10
7	o	o	10, oc.-r	7, fr.-shs.-r : 10, cu.-s, ci.-s
8	o	o	10, ci.-cu, ci, oc.-r	10, shs.-r
9	o	o	10, cu, ci.-cu, ci	10, cu, ci.-cu, r : 7 oc.-r
10	o : s N	s N : o	10, r : 8, cu, ci.-cu	8, cu, ci.-cu : ci.-s, oc.-r
11	: w	w : o	7, cu	10, cu, ci.-cu : 10, oc.-r
12	o	o	10	10 : o
13	o	w	o	o
14	o	o	o	o
15	o	o	2, cu, ci.-cu	2, cu, ci.-cu
16	m	m	6, ci.-cu, ci	6, ci.-cu, ci.-s : 10, ci.-s
17	v	v	2, ci.-s	o : lu.-co
18	o	s	o	o : 7, ci.-cu, ci.-s
19	w	w : s	3, li.-cl	7, cu, ci.-cu, ci : o : 5, ci.-cu, ci.-s
20	o	s N, s P, sps, g cur : o	10, ci.-s, h.-r	10, ci.-cu, ci.-s, shs.-r : t : 2, ci.-s
21	s	s	10	10, oc.-r : 10, h.-r : 7, ci.-cu
22	v	v	7, ci.-s	7, ci.-s
23	m	m	10, oc.-r	10, t, r : 5, ci.-s
24	v	v	7, ci.-cu, ci.-s	7, cu, ci.-cu, ci.-s : 10, shs.-r : o
25	o	o	10, r	10, r : o
26	o	o	10, h.-r	10, cu.-s, ci.-s : 7, cu, ci.-cu : o
27	w	s N : w	10, ci.-cu, ci.-s	10, li.-cl : t : o
28	w	w	9, li.-cl	10
29	m	o : w	10, cu.-s, ci.-s	10, ci.-cu, ci
30	w	o	7, ci.-cu, ci	7, cu.-s, ci.-s

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 65°·3 on the 20th; and the lowest was 45°·3 on the 8th.

The mean ,, was 53°·1, being 2°·3 higher than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·404, being 0<sup>in</sup>·031 greater than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 4<sup>gr</sup>·6, being 0<sup>gr</sup>·4 greater than the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 81 (that of Saturation being represented by 100), being 7 greater than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 531 grains, being the same as the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 7·4.

**WIND.**

The proportions were of N. 8, S. 7, W. 7, and E. 8. The greatest pressure in the month was 4<sup>lbs</sup>·0 on the square foot on the 14th.

**RAIN.**

Fell on 15 days in the month, amounting to 1<sup>in</sup>·9 as measured in the simple cylinder gauge partly sunk below the ground; being the same as the average fall of the preceding 46 years.

RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861; Phases of the Moon; READINGS OF THERMOMETERS (Dry, Dew Point, In the Water of the Thames); Difference between the Dew Point Temperature and Air Temperature; WIND AS DEDUCED FROM ANEMOMETERS (OSLER'S, General Direction, Pressure); Amount of Horizontal Movement of the Air; Rain in Inches read at 9 P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The absolute maximum in the month was 30.032 on the 1st; the absolute minimum in the month was 29.170 on the 5th. The second maximum ,, was 29.813 on the 10th; the second minimum ,, was 29.338 on the 13th. The third maximum ,, was 29.788 on the 17th; the third minimum ,, was 29.539 on the 20th. The fourth maximum ,, was 29.651 on the 22nd; the fourth minimum ,, was 29.446 on the 23rd. The fifth maximum ,, was 29.708 on the 24th; the fifth minimum ,, was 29.397 on the 26th. The sixth maximum ,, was 29.920 on the 29th; the sixth minimum ,, was 29.687 on the 30th. The range in the month was 0.862. The mean for the month was 29.606, being 0.198 lower than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 76.3 on the 1st and 8th; the lowest was 48.4 on the 11th; and the range in the month was 27.9. The mean ,, of all the highest daily readings was 72.3, being 1.5 lower than the average of the preceding 20 years. The mean ,, of all the lowest daily readings was 53.4, being 0.2 higher than the average of the preceding 20 years. The mean daily range was 18.9, being 1.7 less than the average of the preceding 20 years. The mean for the month was 60.9 being 1.0 lower than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
July 1	o	o : s	2, ci	2, ci
2	o : w	w : o	10, r : 9, li.-cl	7, cu, ci.-cu, ci
3	o	w	7, cu, ci.-cu, ci	10, cu, ci.-cu, ci
4	m	o	10, ci.-s	10, oc.-r : ci.-cu, ci.-s, r : ci.-s
5	s N	o	7, cu, cu.-s : shs.-r	7, li.-cl : o
6	o	o	7, li.-cl, oc.-r	7, li.-cl : oc.-r : 10
7	o	o	10, h.-r : v	10 : 1, t, h.-r : 7, ci.-s
8	o	o : s	7, cu, ci.-cu, ci	10 : t, shs.-r
9	o	o : m	10, ci.-cu, ci.-s	3, ci, h : 8, ci.-s
10	o	o : m	10, oc.-r	10, h.-shs.-r : 8, cu, ci.-cu, ci : 5, ci.-s : o
11	o	o : s	9, ci.-cu, ci.-s, li.-cl	5, li.-cl : o
12			10	10, li.-cl : 2, r
13			10	10, oc.-r : 7
14			10	10, r : 5
15			10, r : 10, oc.-r	7, cu, ci.-cu, ci
16			10, oc.-r : 5, cu, ci.-cu, ci	10, h.-sh.-r : t : 10
17	o	o : w	7, cu, ci.-cu, ci	7, cu, ci.-cu, ci : 10
18	w	m N : m	10, ci.-s	10, cu, ci.-s, sc
19	o	o	10, oc.-r	10, oc.-r
20	o	o : sN, sP, sps, g cur : o	10, ci.-s : oc.-shs.-r	9 : 10, t
21	s N	o : m	10, cu, cu.-s, ci.-s, shs.-r	10, cu.-s, ci.-s, shs.-r : o
22	w	w	7, li.-cl : h.-sh.-r	7, cu, ci.-cu, ci, sh.-r : 10, cu.-s, ci.-s
23	o	o : w	5, cu, ci.-cu, ci	10, ci.-cu, ci.-s : o
24	w	o	10 : oc.-r	7, li.-cl : 10, h.-r
25	o	o	10, oc.-r : 3, ci.-s, sc : 10, oc.-r	10, oc.-r
26	o	s N, s P, sps, g cur	10, h.-r : 9, cu.-s, ci.-s, h.-sh.-r	10, l, t, h.-r : 10, h.-sh.-r
27	s N, s P, sps, g cur	s N, s P, sps, g cur	5, li.-cl	5, cu, ci.-cu, t, r : o
28	m	o	10, r : 7, cu, ci.-cu, ci	7, cu, cu.-s, ci.-s : 3, ci.-cu, ci
29	o	v	7, ci.-cu, ci.-s	8, li.-cl
30	s	o : s	7, ci.-cu, ci.-s	7, li.-cl : 10 : 3, ci.-s, oc.-r
31	v	v	3, li.-cl	8, cu, ci.-cu, ci : o

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 63°·0 on the 25th; and the lowest was 47°·0 on the 2nd and 3rd.

The mean ,, was 53°·7, being 0°·2 lower than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·413, being 0<sup>in</sup>·004 less than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 48·6, being the same as the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 78 (that of Saturation being represented by 100), being 2 greater than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 526 grains, being 2 grains less than the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 7·4.

**WIND.**

The proportions were of N. 1, S. 12, W. 17, and E. 1. The greatest pressure in the month was 515°·0 on the square foot on the 18th, 25th, and 30th.

**RAIN.**

Fell on 20 days in the month, amounting to 2<sup>in</sup>·2, as measured in the simple cylinder gauge partly sunk below the ground; being 0<sup>in</sup>·5 less than the average fall of the preceding 46 years.

**ELECTRICITY.**—The insulating lamp was not burning from July 12 to July 16.

RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Main meteorological observation table with columns for Month and Day, Phases of the Moon, Readings of Thermometers (Dry, Dew Point, Water of the Thames), Difference between Dew Point and Air Temperature, Wind as deduced from Anemometers (General Direction, Pressure), and Rain in Inches read at 9 P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 29.936 on the 1st; the first minimum in the month was 29.544 on the 2nd. The second maximum was 29.897 on the 4th; the second minimum was 29.740 on the 5th. The third maximum was 29.953 on the 6th; the absolute minimum was 29.532 on the 8th. The fourth maximum was 29.945 on the 10th; the fourth minimum was 29.595 on the 12th. The fifth maximum was 29.917 on the 13th; the fifth minimum was 29.654 on the 15th. The sixth maximum was 29.969 on the 17th; the sixth minimum was 29.759 on the 18th. The seventh maximum was 30.139 on the 22nd; the seventh minimum was 29.921 on the 23rd. The eighth maximum was 30.137 on the 27th; the eighth minimum was 29.708 on the 28th. The absolute maximum was 30.165 on the 31st. The range in the month was 0.633. The mean for the month was 29.865, being 0.077 higher than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 89.3 on the 12th; the lowest was 46.2 on the 31st; and the range in the month was 43.1. The mean of all the highest daily readings was 75.6, being 2.8 higher than the average of the preceding 20 years. The mean of all the lowest daily readings was 53.8, being 0.4 higher than the average of the preceding 20 years. The mean daily range was 21.8, being 2.4 greater than the average of the preceding 20 years. The mean for the month was 63.2, being 1.9 higher than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Aug. 1	v	v	10, r	9, li.-cl : 7, cu, ci.-cu
2	s	w	9, li.-cl	5, ci.-cu, ci.-s, shs.-r : 1
3	o	o : w	10	10 : oc.-r
4	o	m	10	7, ci.-cu : o : 7, s, ci.-s
5	o	o : w	3, cu, ci.-cu, ci	o : 10
6	s	o : s	2, li.-cl	2, li.-cl : o
7	s	s	5, li.-cl	7, cu, ci.-cu, ci : o : 10, l, r
8	s N, sps, g cur	o	10, r	10, oc.-r : 7, cu.-s, ci.-s, oc.-r
9	o	o	10	10, th.-r : v : 10, m.-r
10	o	v	2, ci, li.-cl	2, ci.-cu, ci : 10 : 7
11	m	m	5, ci.-cu, ci.-s	2, ci.-cu, li.-cl : 10, ci.-s
12	s	w	o	o
13	w	w	10, sl.-r	7, cu, ci.-cu, ci
14	v	v	10, li.-cl	7, ci.-cu, ci.-s : o
15	m	o	10	10 : 10, r : o
16			10, r	10, r : o : 10, cu.-s, ci.-s
17			2, li.-cl	7, li.-cl : 10
18			o	o : 8, cu.-s, ci.-s : o
19			7, ci.-cu, ci.-s, ci	o
20			5, li.-cl	6, li.-cl : o
21	v	v	7, li.-cl	7, li.-cl : 10, r : o, h
22	s	s	3, li.-cl	10
23	v	v	10, sl.-r	3, cu, ci.-cu, ci
24	o	o	10, li.-cl	10, ci.-cu, ci.-s : o
25			10	7, li.-cl, h
26			10	7 : o
27			o	7, cu, ci.-cu, ci : o, h
28			5, ci.-cu, ci.-s	3, li.-cl : o : 7, li.-cl
29			10	7, ci.-cu, ci.-s : o
30			9, s, ci.-s	8, li.-cl : o
31	v	v	o	o

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 66°.4 on the 12th; and the lowest was 47°.9 on the 19th.

The mean , , was 55°.2, being 1°.1 higher than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>.436, being 0<sup>in</sup>.014 greater than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 4<sup>gr</sup>.9, being 0<sup>gr</sup>.2 greater than the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 76 (that of Saturation being represented by 100), being 1 less than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 528 grains, being the same as the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by o and a cloudy sky by 10, was 5.9.

**WIND.**

The proportions were of N. 3, S. 10, W. 18, and E. o. The greatest pressure in the month was 8<sup>lbs</sup>.0 on the square foot on the 3rd.

**RAIN.**

Fell on 9 days in the month, amounting to 0<sup>in</sup>.6, as measured in the simple cylinder gauge partly sunk below the ground; being 1<sup>in</sup>.8 less than the average fall of the preceding 46 years.

**ELECTRICITY.**—August 16 to 20 and August 25 to 30. The insulating lamp was not burning.



RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861.; Phases of the Moon.; READINGS OF THERMOMETERS. (Dry, Dew Point, Water of the Thames); Difference between the Dew Point Temperature and Air Temperature.; WIND AS DEDUCED FROM ANEMOMETERS. (OSLER'S, General Direction, Pressure); WHEWELL'S, ROBINSON'S; Amount of Horizontal Movement of the Air; Rain in Inches read at 9 P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 29.898 on the 5th; the first minimum in the month was 29.612 on the 3rd. The second maximum ,, was 29.929 on the 8th; the second minimum ,, was 29.612 on the 6th. The third maximum ,, was 30.038 on the 12th; the third minimum ,, was 29.780 on the 9th. The absolute maximum ,, was 30.079 on the 18th; the fourth minimum ,, was 29.544 on the 14th. The fifth maximum ,, was 29.841 on the 27th; the absolute minimum ,, was 29.149 on the 25th. The sixth maximum ,, was 29.841 on the 29th; the sixth minimum ,, was 29.667 on the 28th. The range in the month was 0.930. The mean for the month was 29.717, being 0.112 lower than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 81.0 on the 1st; the lowest was 37.7 on the 27th; and the range in the month was 43.4. The mean ,, of all the highest daily readings was 68.3, being 0.9 higher than the average of the preceding 20 years. The mean ,, of all the lowest daily readings was 48.2, being 0.7 lower than the average of the preceding 20 years. The mean daily range was 20.1, being 1.6 greater than the average of the preceding 20 years. The mean for the month was 57.1, being 0.2 higher than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Sept. 1			o	o
2			7, ci.-s, h	o : 7
3			10, th.-r	7, li.-cl : 5, ci.-s
4			10	10 : 5, ci.-s : o
5			5, li.-cl	5, ci.-cu, ci.-s : o
6			10	10, h.-r : o
7	v	v	10, li.-cl	10, ci.-cu, ci.-s, sc : 7, ci.-s, h
8	m	m	10, ci.-cu, ci.-s	10, ci.-cu, ci.-s, ci
9	o	o : s	10, h.-r : 9, cu, cu.-s, ci.-s	9, li.-cl : 7, s, ci.-s, h
10	v	v	o, h	7, cu, ci.-cu, ci : o
11	s	s	o, h	o : o, h
12	s	w : s	5, ci.-cu, ci.-s, f	2, li.-cl : 9, li.-cl : o
13	o	w N : o	10, h.-r	10, r : 7
14	o	w N : o	o	10, ci.-s, sc : o
15			10, cu.-s, ci.-s	10, oc.-r
16			5, ci.-cu, ci	10, cu.-s, ci.-s : 5, ci.-s : o
17			10, f	10, li.-cl
18	s	s : w	o, f : 3, li.-cl	2, ci, h : 10, li.-cl
19	m	m : s	o, h	7, cu, ci.-cu, h : o, h : 3, lu.-ha
20	o	o : s	10, th.-r	8, oc.-r : 9, ci.-s, h, lu.-ha, lu.-cor
21	o	s N, sps : o	7, ci.-cu, ci.-s	10, oc.-r : h.-r : cu.-s, ci.-s
22	s	s	10, h.-r	10, s, r : 10
23			10, h.-r : 5, ci.-cu, ci	5, ci.-cu, ci.-s
24			o : 6, ci.-cu, ci.-s, ci	4, ci.-cu, ci : 10, s, ci.-s, h.-r : 10
25			10, r	7, ci.-s, li.-cl, r : 10 : 5, ci.-s, f
26			10, f	10, cu.-s ci.-s : o
27	m	m : s	o, f	7, ci.-cu, ci : 1, f
28	m	m : o	10	10, ci.-s : 10, r
29	v	v	10, r : 3, cu, ci.-cu	5 : o
30	m	m	10, ci.-cu, ci, li.-cl	10 : 5 : 10

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 62°·8 on the 6th; and the lowest was 45°·4 on the 18th and 20th.

The mean ,, was 50°·6, being 0°·5 lower than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·369, being 0<sup>in</sup>·013 less than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 4<sup>gr</sup>·1, being 0<sup>gr</sup>·1 less than the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 79 (that of Saturation being represented by 100), being 2 less than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 532 grains, being 2 grains less than the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 6·3.

**WIND.**

The proportions were of N. 2, S. 10, W. 16, and E. 2. The greatest pressure in the month was 6<sup>lbs</sup>·0 on the square foot on the 14th and 23rd.

**RAIN.**

Fell on 15 days in the month, amounting to 1<sup>in</sup>·5, as measured in the simple cylinder gauge partly sunk below the ground; being 1<sup>in</sup>·0 less than the average fall of the preceding 20 years.

**ELECTRICITY.**—September 1 to 6, 15 to 17 and 23 to 26. The insulating lamp was not burning.

RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861.; Phases of the Moon.; READINGS OF THERMOMETERS. (Dry, Dew Point, Water of the Thames); Difference between the Dew Point Temperature and Air Temperature.; WIND AS DEDUCED FROM ANEMOMETERS. (OSLER'S, General Direction, Pressure); WHEELWELL'S and ROBINSON'S; Amount of Horizontal Movement of the Air on each Day.; Rain in Inches read at 9th P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 30.019 on the 3rd; the first minimum in the month was 29.568 on the 1st. The second maximum ,, was 30.044 on the 6th; the second minimum ,, was 29.868 on the 5th. The third maximum ,, was 29.863 on the 9th; the third minimum ,, was 29.664 on the 8th. The fourth maximum ,, was 29.903 on the 12th; the absolute minimum ,, was 29.293 on the 11th. The absolute maximum ,, was 30.171 on the 17th; the fifth minimum ,, was 29.771 on the 13th. The sixth maximum ,, was 30.030 on the 26th; the sixth minimum ,, was 29.586 on the 21st. The range in the month was 0.878. The mean for the month was 29.842, being 0.152 higher than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 75.0 on the 8th; the lowest was 39.6 on the 29th. The range ,, was 36.0. The mean ,, of all the highest daily readings was 64.1, being 5.8 higher than the average of the preceding 20 years. The mean ,, of all the lowest daily readings was 47.7, being 4.0 higher than the average of the preceding 20 years. The mean daily range was 16.4, being 1.8 greater than the average of the preceding 20 years. The mean for the month was 54.9, being 4.7 higher than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Oct. 1			9, ci.-cu, ci.-s, ci, r	9, cu.-s, ci.-s : l, t, r
2			7, ci, h	7, cu.-s, ci.-s : o : f
3		v : s, sps	10, th-f : 5, s, ci, li.-cl : o	o
4	w	w : s, g cur	5, ci.-cu, ci : 1, ci	o
5	s	s : w	10, li.-cl, f	10, h, f : 10, r
6	v	v	10, r	10, r : 10
7	s	s	10, th.-f	10, li.-cl, h : th.-f
8	o	o : s	o : 3, li.-cl	3, li.-cl : 5, l
9	s	s	10, r : 7	7, ci.-cu, ci.-s : o, f
10	s, sps, g cur	s, sps, g cur	10, f : o	o : 10 : o
11	o	s N, s P, sps, g cur : w	7, r	10, l, t, h.-r : o
12	m	m	10	10 : s
13	m	m	9, ci.-s, li.-cl	7, s, ci : 10, s, ci.-s, sc
14	v	v	3, ci, li.-cl	o
15	s	s : w	10, th.-f	2, ci, li.-cl : o, f
16	o	w : s	10	10
17	s	m : s, sps	o	7, ci.-cu, ci : 10, th.-r
18	s	m : s	5, ci.-cu, ci	7, cu, ci.-cu, ci : f
19	s	s	10, th.-f : o	o : o, h
20	s	s	10, f	10, f : 7, ci.-cu, cu.-s, ci.-s, f
21	v	v	o	10, cu.-s, ci.-s : oc.-r
22	s N, s P, sps, g cur	v	10, li.-cl : h.-r	10, oc.-r : o
23	w	s	10, li.-cl	10, li.-cl : 7, ci.-cu, ci.-s : 10, ci.-s
24	w	w : s	10 : 7, ci.-cu, ci.-s	10 : a
25	o	s	10, r	9, ci.-s : 10, ci.-s
26	s	s	10, li.-cl	7, ci.-cu, ci.-s
27	s	o	o, h	10, ci.-s, h : 7, ci, h
28	m	s	10	10 : 5
29	s	s	10 : 7, li.-cl	10, li.-cl
30	m	m : s	7, li.-cl	10, li.-cl : 10
31	s : o	o	10	o : 5, li.-cl

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 63°·1 on the 7th; and the lowest was 41°·1 on the 31st.

The mean " was 51°·3, being 5°·3 higher than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·378 being 0<sup>in</sup>·066 greater than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 4<sup>gr</sup>·2, being 0<sup>gr</sup>·6 greater than the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 87 (that of Saturation being represented by 100), being the same as the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 536 grains, being 3 grains less than the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by o and a cloudy sky by 10, was 6·5.

**WIND.**

The proportions were of N. 6, S. 11, W. 5, and E. 9. The greatest pressure in the month was 6<sup>lbs</sup>·0 on the square foot on the 11th.

**RAIN.**

Fell on 10 days in the month, amounting to 0<sup>in</sup>·9, as measured in the simple cylinder gauge partly sunk below the ground; being 1<sup>in</sup>·9 less than the average fall of the preceding 46 years.

**ELECTRICITY.**—From October 1 to 3. The insulating lamp was not burning.

RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861.; Phases of the Moon.; Mean Daily Reading of the Barometer; READINGS OF THERMOMETERS (Dry, Dew Point, etc.); Difference between the Dew Point and Air Temperature; WIND AS DEDUCED FROM ANEMOMETERS (General Direction, Pressure, etc.); Rain in Inches read at 9 P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first minimum in the month was 29.115 on the 2nd. The first maximum in the month was 29.860 on the 4th; the second minimum was 29.208 on the 8th. The second maximum was 29.487 on the 9th; the third minimum was 29.021 on the 10th. The third maximum was 29.637 on the 12th; the absolute minimum was 28.918 on the 13th. The absolute maximum was 30.426 on the 19th; the fifth minimum was 29.208 on the 22nd. The fifth maximum was 29.964 on the 24th; the sixth minimum was 29.355 on the 26th. The sixth maximum was 29.848 on the 28th; the seventh minimum was 29.641 on the 29th. The range in the month was 1.508. The mean for the month was 29.561, being 0.195 lower than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 57.8 on the 26th; the lowest was 23.2 on the 19th; and the range in the month was 34.6. The mean of all the highest daily readings was 47.3, being 2.0 lower than the average of the preceding 20 years. The mean of all the lowest daily readings was 34.1, being 3.6 lower than the average of the preceding 20 years. The mean daily range was 13.2, being 1.6 greater than the average of the preceding 20 years. The mean for the month was 40.8, being 2.6 lower than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Nov. 1	o	o : m	10, r	7, li.-cl : o : 10, l, r
2			10, sn	10 : o
3			5, li.-cl	7, ci.-cu, ci.-s : o, h
4			10, th.-r	10, th.-r
5			10, ci.-s, sc	10, r : o
6			10, h.-r : 10, li.-cl	10, oc.-r : l : 10
7	o	s	o, h.-f : 7, li.-cl	7, li.-cl : o : l
8	s	s	10, f : o, h	7, li.-cl, h : o, f, h.-f
9	s	s	10, f	1, ci : 1, h.-f
10	s N	s N : m	10, n, s, h.-sqs.-r	10, n, s, ci.-s, t, r : o : l
11			5, li.-cl	5, li.-cl : o
12			10, r	10, r : f
13			10, r	10, r
14			10, r : 7, li.-cl	7, li.-cl : 10, r
15			10, li.-cl	10 : 1, ci.-s, h, h.-f, lu.-ha
16			o, h, h.-f	7, li.-cl : 10, h
17			10, ci.-s, sn	10, ci.-s : o, h.-f
18			10, h, h.-f	10, h, h.-f : h, h.-f
19			2, ci.-s, h.-f	2, li.-cl
20			7, ci.-s : o	o
21			10	10 : oc.-r
22			10, h.-r	10, r
23			o	10 : 10, th.-f
24			o, h	o, h
25			10, li.-cl	10
26			10, r	10, oc.-r
27			10, li.-cl	10, ci.-s : o
28			10, li.-cl, h	7, ci.-cu, ci.-s
29			10, r	10
30			10, h.-r	10, oc.-r : o

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 53°·3 on the 26th; and the lowest was 21°·3 on the 24th.

The mean " was 37°·1, being 3°·0 lower than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·221 being 0<sup>in</sup>·034 less than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 25<sup>gr</sup>·6, being 0<sup>gr</sup>·3 less than the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 87 (that of Saturation being represented by 100), being 2 less than the average of the preceding 20 years

*Weight of a Cubic Foot of Air.*—The mean for the month was 547 grains, being the same as the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by o and a cloudy sky by 10, was 6·9.

**WIND.**

The proportions were of N. 4, S. 9, W. 16, and E. 1. The greatest pressure in the month was 12<sup>lbs</sup>·0 on the square foot on the 5th.

**RAIN.**

Fell on 15 days in the month, amounting to 5<sup>in</sup>·1, as measured in the simple cylinder gauge partly sunk below the ground; being 2<sup>in</sup>·7 greater than the average fall of the preceding 46 years.

**ELECTRICITY.**—The insulating lamp was not burning from November 2 to 6; and the Electrometer was not in action from November 11 to December 31.

(cl)

RESULTS OF ORDINARY METEOROLOGICAL OBSERVATIONS

Table with columns: MONTH and DAY, 1861; Phases of the Moon; Mean Daily Reading of the Barometer; READINGS OF THERMOMETERS (Dry, Dew Point, In the Water, In the Grass); Difference between the Dew Point Temperature and Air Temperature; WIND AS DEDUCED FROM ANEMOMETERS (OSLER'S, General Direction, Pressure); WHEWELL'S, ROBINSON'S; Amount of Horizontal Movement of the Air; Rain in inches read at 9 P.M.

BAROMETER READINGS FROM EYE-OBSERVATIONS.

The first maximum in the month was 30.318 on the 2nd; the absolute minimum in the month was 29.101 on the 7th. The second maximum ,, was 29.792 on the 9th; the second minimum ,, was 29.643 on the 10th. The third maximum ,, was 29.956 on the 11th; the third minimum ,, was 29.283 on the 13th. The fourth maximum ,, was 30.116 on the 15th; the fourth minimum ,, was 29.807 on the 18th. The fifth maximum ,, was 30.295 on the 20th; the fifth minimum ,, was 30.043 on the 25th. The absolute maximum ,, was 30.416 on the 27th; the sixth minimum ,, was 30.242 on the 31st. The range in the month was 1.315. The mean for the month was 29.974, being 0.169 higher than the average of the preceding 20 years.

TEMPERATURE OF THE AIR.

The highest in the month was 54.0 on the 9th; the lowest was 23.5 on the 27th and 30th. The range ,, was 30.5. The mean ,, of all the highest daily readings was 45.9, being 0.9 higher than the average of the preceding 20 years. The mean ,, of all the lowest daily readings was 36.0, being 0.5 higher than the average of the preceding 20 years. The mean daily range was 9.9, being 0.4 greater than the average of the preceding 20 years. The mean for the month was 41.0, being 0.9 higher than the average of the preceding 20 years.

MONTH and DAY, 1861.	ELECTRICITY.		CLOUDS AND WEATHER.	
	A.M.	P.M.	A.M.	P.M.
Dec. 1			8, ci.-cu, ci.-s, sc	7, li.-cl
2			7, ci.-cu, ci.-s, f, h.-f	7, li.-cl : o
3			3, ci, h.-f	o : h.-f
4			o, f, h.-f : o	o : a
5			10, r : 7, li.-cl, h	o, h
6			10	10, r
7			10, r : o	7, li.-cl
8			10 : o	o : 7, ci
9			10, s, ci.-s : h.-sh.-r	2, ci
10			10 : 2, li.-cl	10 : oc.-r
11			10, h.-r : o	o : 5, ci.-cu, cu.-s, lu.-cor
12			10, r	10
13			10, r	10, fr.-r : cu.-s, ci.-s
14			10, sl.-r : o	o : 9, ci.-s
15			10	10, li.-cl
16			10, h.-r	10, h.-r : 10, f
17			10, f	10, th.-f : 10, ci.-s, sc, lu.-cor
18			10	10 : 10, fr.-r
19			o : 5, li.-cl	7, ci.-s, sc : 3, ci.-cu, ci.-s : 1, a
20			10, li.-cl	10
21			10	10
22			10	10
23			10	10
24			o	o
25			o, h.-f	o
26			o, f, h.-f	o : o, f
27			10, th.-f, h.-f	10
28			10	10, li.-cl
29			10	10 : 10, th.-f
30			10, h.-f	9, ci.-cu, ci.-s : 10, f
31			10, r : 10, ci.-cu, ci.-s	10, cu.-s, ci.-s : 10, ci.-s

**HUMIDITY OF THE AIR.**

*Temperature of the Dew Point.*

The highest in the month was 48°·4 on the 10th and 16th; and the lowest was 23°·9 on the 29th.

The mean " was 37°·3, being 0°·4 higher than the average of the preceding 20 years.

*Elastic Force of Vapour.*—The mean for the month was 0<sup>in</sup>·223, being 0<sup>in</sup>·002 greater than the average of the preceding 20 years.

*Weight of Vapour in a Cubic Foot of Air.*—The mean for the month was 2<sup>gr</sup>·6, being the same as the average of the preceding 20 years.

*Degree of Humidity.*—The mean for the month was 87 (that of Saturation being represented by 100), being 2 less than the average of the preceding 20 years.

*Weight of a Cubic Foot of Air.*—The mean for the month was 555 grains, being 3 grains greater than the average of the preceding 20 years.

**CLOUDS.**

The mean amount for the month, a clear sky being represented by 0 and a cloudy sky by 10, was 6·5.

**WIND.**

The proportions were of N. 5, S. 7, W. 9, and E. 10. The greatest pressure in the month was 9<sup>lbs</sup>·0 on the square foot on the 13th.

**RAIN.**

Fell on 10 days in the month, amounting to 1<sup>in</sup>·3, as measured in the simple cylinder gauge partly sunk below the ground; being 0<sup>in</sup>·7 less than the average fall of the preceding 46 years.

**ELECTRICITY.**—The Electrometer was not in action throughout the month.



MAXIMA AND MINIMA BAROMETER-READINGS,

MAXIMA AND MINIMA READINGS OF THE BAROMETER.

The following table contains the highest and lowest readings of the Barometer, reduced to 32° Fahrenheit, extracted from the photographic records. The readings are accurate ; but the times are liable to great uncertainty, as the barometer frequently remains at its highest or lowest point through several hours. The time is the middle of the stationary period. Where the symbol : follows the time, it denotes that the quick-silver has been sensibly stationary through a period of more than one hour.

Table with 8 columns: MAXIMA (Approximate Mean Solar Time, 1861, Reading), MINIMA (Approximate Mean Solar Time, 1861, Reading), MAXIMA (Approximate Mean Solar Time, 1861, Reading), MINIMA (Approximate Mean Solar Time, 1861, Reading). Rows list months from January to May with specific times and barometer readings.

MAXIMA AND MINIMA READINGS OF THE BAROMETER—*concluded.*

MAXIMA.		MINIMA.		MAXIMA.		MINIMA.	
Approximate Mean Solar Time, 1861.	Reading.	Approximate Mean Solar Time, 1861.	Reading.	Approximate Mean Solar Time, 1861.	Reading.	Approximate Mean Solar Time, 1861.	Reading.
d h m	in.	d h m	in.	d h m	in.	d h m	in.
October 2. 22. 10:	30·020	October 1. 0. 0:	29·568	November 18. 23. 15	30·428	November 13. 9. 30	28·790
5. 22. 45	30·046	5. 2. 0:	29·868	24. 8. 30:	29·964	22. 10. 15:	29·208
9. 9. 15	29·870	8. 3. 0	29·664	28. 6. 45	29·860	26. 1. 0:	29·355
12. 12. 30:	29·903	11. 2. 20	29·275	December 1. 22. 15	29·318	28. 21. 0:	29·641
16. 21. 0:	30·171	13. 3. 0:	29·765	9. 9. 0:	29·792	December 6. 21. 0	29·101
25. 21. 0:	30·030	21. 4. 30:	29·586	11. 4. 0:	29·956	10. 3. 50:	29·643
November 3. 20. 45	29·865	November 1. 21. 0	29·115	15. 9. 0:	30·116	13. 4. 40:	29·283
9. 9. 45:	29·487	8. 1. 35:	29·195	20. 0. 30	30·295	17. 21. 0:	29·807
11. 21. 0:	29·637	10. 0. 0	29·005	26. 23. 0:	30·416	25. 6. 30:	30·043
						31. 9. 0:	30·242

MONTHLY MEANS OF RESULTS FOR METEOROLOGICAL ELEMENTS at the ROYAL OBSERVATORY, GREENWICH, in the Year 1861.

1861, MONTH.	Mean Reading of the Barometer.	TEMPERATURE OF THE AIR.							Mean Tempera- ture of Dew Point.	Mean Elastic Force of Vapour.	Mean Weight of Vapour in a Cubic Foot of Air.	Mean additional Weight required to saturate a Cubic Foot of Air.
		Highest.	Lowest.	Range in the Month.	Mean of all the Highest.	Mean of all the Lowest.	Mean Daily Range.	Mean Tempera- ture.				
January ..	30·011	55·0	16·0	39·0	39·6	28·7	10·9	33·8	30·0	0·167	1·9	0·3
February ..	29·686	56·0	24·4	31·6	48·2	36·9	11·3	42·1	39·4	0·241	2·8	0·3
March ....	29·614	61·8	29·1	32·7	52·7	37·1	15·6	43·8	41·2	0·259	2·9	0·3
April .....	29·999	63·5	26·8	36·7	55·0	36·0	19·0	44·3	40·2	0·249	2·9	0·5
May .....	29·924	80·2	33·4	46·8	63·5	43·0	20·5	51·9	43·6	0·284	3·2	1·2
June .....	29·782	81·8	42·9	38·9	70·8	51·3	19·5	59·1	53·1	0·404	4·6	1·0
July .....	29·606	76·3	48·4	27·9	72·3	53·4	18·9	60·9	53·7	0·413	4·6	1·3
August ...	29·865	89·3	46·2	43·1	75·6	53·8	21·8	63·2	55·2	0·436	4·9	1·6
September.	29·717	81·1	37·7	43·4	68·3	48·2	20·1	57·1	50·6	0·369	4·1	1·2
October ...	29·842	75·6	39·6	36·0	64·1	47·7	16·4	54·9	51·3	0·378	4·2	0·6
November .	29·561	57·8	23·2	34·6	47·3	34·1	13·2	40·8	37·1	0·221	2·6	0·4
December .	29·974	54·0	23·5	30·5	45·9	36·0	9·9	41·0	37·3	0·223	2·6	0·4
Means ....	29·798	69·4	32·6	36·8	58·6	42·2	16·4	49·4	44·4	0·304	3·4	0·8

1861, MONTH.	Mean Degree of Humidity. (Sat. = 100.)	Mean Weight of a Cubic Foot of Air.	Mean Amount of Cloud. 0-10	RAIN.			WIND.													
				Number of Rainy Days.	Amount collected on the Ground, read daily.	Amount collected on the Ground, read Monthly.	From Osler's Anemometer.												From Whe- well's Anemo- meter.	From Robin- son's Anemo- meter.
							Number of Days for Mean Direction of the Wind referred to different Points of Azimuth.								Number of Calm Days and Days on which the Pressure of the Wind was less than $\frac{1}{4}$ lb. on the Sq. Foot.	Mean Daily Pressure in lbs. on Square Foot.	Mean Daily Horizontal Movement of Wind in Miles.			
							N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.						
January ...	85	564	7·0	7	..	0·6	0	3	1	1	2	11	1	1	11	0·44	54	177		
February ..	91	548	7·4	11	..	1·8	1	4	1	2	3	11	2	2	2	0·96	116	248		
March ....	90	545	6·5	21	..	2·2	2	0	1	0	0	10	11	5	2	1·27	175	346		
April .....	85	551	7·1	6	0·8	0·8	4	6	9	0	0	1	2	3	5	0·08	83	189		
May .....	74	542	7·6	8	1·8	1·6	8	7	3	1	1	3	3	2	3	0·19	88	201		
June .....	81	531	7·4	15	1·9	1·8	4	6	5	2	1	8	3	1	0	0·08	86	196		
July .....	78	526	7·4	20	2·2	2·1	0	0	1	1	2	18	7	2	0	0·30	140	277		
August ...	76	528	5·9	9	0·6	0·6	0	0	0	0	2	15	11	3	0	0·26	120	270		
September.	79	532	6·3	15	1·5	1·5	3	1	0	1	3	13	8	1	0	0·27	108	255		
October ...	87	536	6·5	10	0·9	0·9	1	7	4	6	4	8	1	0	0	0·11	82	180		
November .	87	547	6·9	15	5·1	5·2	2	2	0	0	1	15	7	3	0	0·78	148	320		
December .	87	555	6·5	10	1·2	1·3	1	7	4	3	3	6	3	2	2	0·38	106	220		
Means ....	83	542	6·9	Sum 147	..	Sum 20·4	Sum 26	Sum 43	Sum 29	Sum 17	Sum 22	Sum 119	Sum 59	Sum 25	Sum 25	..	..	..		

Whewell's Anemometer was not at work during 3 days of January and 5 days of February. The mean horizontal movement for these months has been formed from the remaining days.







(clviii)

READINGS OF THERMOMETERS SUNK IN THE GROUND

(V.)—Reading of a Thermometer whose bulb is sunk to the depth of 1 inch below the surface of the soil, within the case which covers the tops of the deep-sunk Thermometers, at the same times.

Table with 13 columns (Day of the Month, 1861., January, February, March, April, May, June, July, August, September, October, November, December) and 32 rows (1-31). It contains temperature readings in degrees Fahrenheit, with 'S' indicating snow or frost. Includes 'Good Friday' on March 29 and 'Christmas Day' on December 25. A 'Means.' row is at the bottom.

(VI.)—Reading of a Thermometer within the case covering the deep-sunk Thermometers, whose bulb is placed on a level with their scales at the same times.

Table with 13 columns (Day of the Month, 1861., January, February, March, April, May, June, July, August, September, October, November, December) and 16 rows (1-15). It contains temperature readings in degrees Fahrenheit, with 'S' indicating snow or frost.

(VI.)—Reading of a Thermometer within the case covering the deep-sunk Thermometers—*concluded.*

Day of the Month, 1861.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
d	o	o	o	o	o	o	o	o	o	o	o	o
16	28·3	48·8	48·6	60·5	72·3	S	69·8	63·7	61·5	56·8	35·7	48·4
17	35·9	S	S	56·0	56·0	73·5	71·7	70·8	57·2	60·0	S	45·0
18	35·7	50·9	44·8	56·7	55·6	73·7	67·3	S	65·0	59·6	30·7	46·5
19	34·6	50·5	46·8	53·0	S	76·5	63·7	73·5	69·7	60·8	38·5	45·0
20	S	45·2	45·1	52·6	69·0	72·5	68·0	69·8	60·3	S	47·7	40·9
21	42·0	52·0	44·0	S	75·0	75·2	S	65·3	61·2	60·2	50·3	40·0
22	39·0	50·8	49·3	51·4	65·2	72·8	68·3	68·8	S	60·7	46·0	S
23	37·2	48·2	54·3	55·2	76·0	S	69·8	70·2	58·0	57·2	42·5	44·2
24	42·0	S	S	56·3	63·2	71·3	60·8	66·8	64·4	61·2	S	42·7
25	50·9	42·2	45·0	53·6	65·2	61·0	67·8	S	55·2	62·3	45·5	ChristmasDay.
26	50·0	47·3	51·2	58·8	S	64·6	66·3	65·0	57·0	56·9	55·0	35·8
27	S	46·8	57·2	38·7	69·2	71·6	68·5	76·2	64·2	S	44·8	32·7
28	45·8	46·5	51·7	S	56·2	70·2	S	78·7	58·0	52·6	45·1	38·8
29	42·0		GoodFriday.	51·7	66·8	70·0	71·7	70·5	S	55·0	55·0	S
30	38·7		46·8	57·6	75·5	S	69·8	70·7	71·2	54·0	54·6	30·7
31	49·5		S		69·0		71·7	72·2		53·2		38·0
Means.	36·5	45·7	48·2	53·2	60·9	68·3	68·4	71·7	65·0	62·1	45·8	43·6



(clx) WEEKLY MEANS OF READINGS OF DEEP-SUNK THERMOMETERS, AND CHANGES OF THE DIRECTION OF THE WIND,

WEEKLY MEANS OF READINGS OF THERMOMETERS.						
Thermometers sunk in the ground.						Thermometer inclosed in the box which covers the scales of the deep-sunk Thermometers, and placed on a level with their scales.
1861. Period.	Bulb 24 French Feet deep.	Bulb 12 French Feet deep.	Bulb 6 French Feet deep.	Bulb 3 French Feet deep.	Bulb 1 Inch deep.	
January						
1 to	50°90	48°57	43°97	...	34°7	33°0
8 to	50°75	47°80	...	...	31°4	30°9
15 to	50°62	47°14	...	...	33°8	34°2
22 to	50°49	46°46	...	...	39°9	44°1
29 to February	50°30	45°79	...	...	41°2	44°8
February						
5 to	50°07	45°43	...	40°77	42°6	44°4
12 to	49°84	45°30	...	40°35	40°0	43°6
19 to	49°62	45°32	...	42°18	45°2	48°2
26 to March	49°39	45°18	44°17	42°82	43°6	46°9
March						
5 to	49°14	45°18	44°48	43°19	45°1	48°1
12 to	48°90	45°26	44°91	43°28	42°8	47°2
19 to	48°72	45°32	44°79	42°62	43°9	47°4
26 to April	48°52	45°27	44°94	44°28	47°2	50°7
April						
2 to	48°39	45°40	45°75	45°25	46°6	50°2
9 to	48°26	45°56	46°23	45°54	47°0	55°4
16 to	48°11	45°67	46°71	47°14	49°3	55°0
23 to	48°04	45°98	47°49	47°26	48°5	52°4
30 to May	47°96	46°27	47°62	47°12	49°2	55°8
May						
7 to	47°89	46°45	47°95	47°77	48°1	50°4
14 to	47°88	46°67	48°46	49°66	55°6	64°1
21 to	47°87	46°96	49°93	53°25	61°2	69°0
28 to June	47°86	47°40	51°62	55°43	61°0	65°5
June						
4 to	47°86	48°07	52°80	55°42	57°8	59°6
11 to	47°90	48°77	53°25	56°55	65°0	74°1
18 to	47°98	49°34	55°02	61°00	67°2	73°7
25 to July	48°06	50°08	56°46	60°76	63°6	68°2
July						
2 to	48°18	50°86	56°96	60°73	64°1	68°0
9 to	48°32	51°52	57°41	61°32	64°9	68°8
16 to	48°48	52°08	58°05	61°89	65°0	68°1
23 to	48°68	52°61	58°38	61°77	64°4	67°5
30 to August	48°89	53°11	58°68	62°14	65°8	71°4
August						
6 to	49°09	53°56	59°22	63°29	68°3	74°4
13 to	49°31	53°99	60°06	64°79	67°7	71°3
20 to	49°53	54°45	60°27	63°16	63°1	67°6
27 to September	49°76	54°92	60°06	62°47	65°8	73°7
September						
3 to	49°98	55°16	60°07	62°69	64°7	69°3
10 to	50°19	55°33	59°85	61°14	60°8	65°7
17 to	50°39	55°47	59°04	59°09	58°1	61°9
24 to	50°58	55°41	58°18	57°65	56°7	61°7
October						
1 to	50°79	55°32	57°58	57°99	60°7	66°4
8 to	51°00	55°19	57°68	58°56	60°9	66°7
15 to	51°13	55°07	57°43	57°36	55°7	60°6
22 to	51°28	55°02	56°67	55°70	55°9	58°5
29 to November	51°37	54°77	55°85	53°63	48°1	49°2
November						
5 to	51°48	54°49	54°19	49°90	45°6	48°6
12 to	51°55	53°96	52°20	47°16	40°6	40°1
19 to	51°63	53°29	50°26	44°40	42°0	45°1
26 to December	51°68	52°47	49°06	44°92	46°4	49°1
December						
3 to	51°68	51°68	48°68	44°36	42°7	45°2
10 to	51°69	51°05	48°10	45°32	47°4	50°0
17 to	51°60	50°50	48°32	45°43	43°3	43°6
24 to	51°47	50°02	47°56	42°80	37°4	36°4

ABSTRACT OF THE CHANGES OF THE DIRECTION OF THE WIND, AS DERIVED FROM OSLER'S ANEMOMETER.

By *direct* motion, in the following statements, is meant that the change of the direction of the wind was in the order N., E., S., W., N., &c.,  
by *retrograde* is meant in the order N., W., S., E., N., &c.

1860. Dec. 31. 12. <sup>h</sup> The direction of the wind was S.

1861. Jan. 31. 12. ,, ,, S., which implies a retrograde motion of  $360^{\circ}$ .

On Jan. 0. 22, 4<sup>d</sup>. 22<sup>h</sup>, 8<sup>d</sup>. 3<sup>h</sup>, the trace was shifted to the next set of lines downwards; on Jan. 5<sup>d</sup>. 22<sup>h</sup>, 14<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines upwards, implying direct motion of  $1080^{\circ}$ , and retrograde motion of  $720^{\circ}$ .

Therefore there was no change in the month of January.

1861. Jan. 31. 12. <sup>d h</sup> The direction of the wind was S.

Feb. 28. 12. ,, ,, S.W., which implies a direct motion of  $45^{\circ}$ .

On Feb. 11. 22, 26<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines upwards; on Feb. 14<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines downwards, implying retrograde motion of  $720^{\circ}$ , and direct motion of  $360^{\circ}$ .

Therefore the whole excess of retrograde motion in the month of February was  $315^{\circ}$ .

1861. Feb. 28. 12. <sup>d h</sup> The direction of the wind was S.W.

March 31. 12. ,, ,, S.W., which implies no change.

On March 25. 22, the trace was shifted to the next set of lines downwards, implying direct motion of  $360^{\circ}$ .

Therefore the whole excess of direct motion in the month of March was  $360^{\circ}$ .

1861. March 31. 12. <sup>d h</sup> The direction of the wind was S.W.

April 30. 12. ,, ,, W.S.W., which implies a direct motion of  $22\frac{1}{2}^{\circ}$ .

On April 20. 22, the trace was shifted to the next set of lines downwards, implying direct motion of  $360^{\circ}$ .

Therefore the whole excess of direct motion in the month of April was  $382\frac{1}{2}^{\circ}$ .

1861. April 30. 12. <sup>d h</sup> The direction of the wind was W.S.W.

May 31. 12. ,, ,, S.W.; which implies a retrograde motion of  $22\frac{1}{2}^{\circ}$ .

On May 15. 22, 16<sup>d</sup>. 22<sup>h</sup>, 19<sup>d</sup>. 22<sup>h</sup>, 24<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines downwards, implying direct motion of  $1440^{\circ}$ .

Therefore the whole excess of direct motion in the month of May was  $1417\frac{1}{2}^{\circ}$ .

1861. May 31. 12. <sup>d h</sup> The direction of the wind was S.W.

June 30. 12. ,, ,, N.N.W., which implies a direct motion of  $112\frac{1}{2}^{\circ}$ .

On June 2. 22, 4<sup>d</sup>. 22<sup>h</sup>, 5<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines downwards; on June 6<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines upwards, implying direct motion of  $1080^{\circ}$ , and retrograde motion of  $360^{\circ}$ .

Therefore the whole excess of direct motion in the month of June was  $832\frac{1}{2}^{\circ}$ .

1861. June 30. 12. <sup>d h</sup> The direction of the wind was N.N.W.

July 31. 12. ,, ,, S.W., which implies a retrograde motion of  $112\frac{1}{2}^{\circ}$ .

On July 2. 22, the trace was shifted to the next set of lines downwards, implying direct motion of  $360^{\circ}$ .

Therefore the whole excess of direct motion in the month of July was  $247\frac{1}{2}^{\circ}$ .

1861. July 31. 12. <sup>d h</sup> The direction of the wind was S.W.

Aug. 31. 12. ,, ,, W.S.W., which implies a direct motion of  $22\frac{1}{2}^{\circ}$ .

On Aug. 13. 22, 26<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines downwards; on Aug. 20<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines upwards, implying direct motion of  $720^{\circ}$ , and retrograde motion of  $360^{\circ}$ .

Therefore the whole excess of direct motion in the month of August was  $382\frac{1}{2}^{\circ}$ .

(clxii) CHANGES OF THE DIRECTION OF THE WIND, AND AMOUNT OF RAIN COLLECTED IN EACH MONTH,

1861. Aug. 31.<sup>d</sup> 12.<sup>h</sup> The direction of the wind was W.S.W.

Sept. 30. 12. ,, ,, S.S.W., which implies a retrograde motion of 45°.

On Sept. 11. 22, the trace was shifted to the second set of lines downwards; on Sept. 22<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines upwards, implying direct motion of 720°, and retrograde motion of 360°.

Therefore the whole excess of direct motion in the month of September was 315°.

1861. Sept. 30.<sup>d</sup> 12.<sup>h</sup> The direction of the wind was S.S.W.

Oct. 31. 12. ,, ,, S.S.W., which implies no change.

On Oct. 3. 22, 4<sup>d</sup>. 3<sup>h</sup>, 7<sup>d</sup>. 22<sup>h</sup>, 21<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines downwards, implying direct motion of 1440°.

Therefore the whole excess of direct motion in the month of October was 1440°.

1861. Oct. 31.<sup>d</sup> 12.<sup>h</sup> The direction of the wind was S.S.W.

Nov. 30. 12. ,, ,, W.S.W., which implies a direct motion of 45°.

On Nov. 13. 19<sup>h</sup>, the trace was shifted to the next set of lines upwards; on Nov. 24<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines downwards, implying retrograde motion of 360°, and direct motion of 360°.

Therefore the whole excess of direct motion in the month of November was 45°.

1861. Nov. 30.<sup>d</sup> 12.<sup>h</sup> The direction of the wind was W.S.W.

Dec. 31. 12. ,, ,, N.N.E., which implies a direct motion of 135°.

On Dec. 2. 22, the trace was shifted to the next set of lines downwards; and on Dec. 23<sup>d</sup>. 22<sup>h</sup>, to the second set downwards; on Dec. 26<sup>d</sup>. 22<sup>h</sup>, the trace was shifted to the next set of lines upwards, implying direct motion of 1080°, and retrograde motion of 360°.

Therefore the whole excess of direct motion in the month of December was 855°.

The whole excess of direct motion to the end of the year was 5962 $\frac{1}{2}$ °.

The revolution-counter which is attached to the vertical spindle of the vane, whose readings increase with change of direction of the wind in the order N., E., S., W., &c., or in direct motion, and decrease with change of direction in the order N., W., S., E., &c. or in retrograde motion, gave the following readings:—

On 1860, December 31 <sup>d</sup> . 12 <sup>h</sup> .	..	..	..	..	..	..	..	..	..	..	reva.	37·50
1861, December 31. 12.	..	..	..	..	..	..	..	..	..	..		54·00

Implying an excess of direct motion, during the year, of 16·5 revolutions, or 5940°.

AMOUNT OF RAIN COLLECTED IN EACH MONTH OF THE YEAR 1861.

1861, MONTH.	Monthly Amount of Rain collected in each Gauge.						
	Osler's Anemometer Gauge.	On the Roof of the Octagon Room.	On the Roof of the Library.	On the Roof of the Photographic Thermometer Shed.	Crosley's.	Cylinder partly sunk in the Ground read Daily.	Cylinder partly sunk in the Ground read Monthly.
	in.	in.	in.	in.	in.	in.	in.
January - -	0·2	..	0·3	..	0·5	..	0·6
February - -	1·0	..	1·4	..	1·7	..	1·8
March - -	1·1	..	1·6	..	2·2	..	2·2
April - -	0·8	..	0·8	..	0·9	0·8	0·8
May - -	1·1	1·4	1·5	1·7	1·5	1·8	1·6
June - -	1·3	1·7	1·7	1·8	1·7	1·9	1·8
July - -	1·7	2·0	1·9	2·2	1·9	2·2	2·1
August - -	0·3	0·4	0·4	0·5	0·5	0·6	0·6
September - -	0·9	1·2	1·1	1·4	1·2	1·5	1·5
October - -	0·6	0·7	0·7	0·9	0·8	0·9	0·9
November - -	3·0	3·9	3·8	5·0	3·6	5·1	5·2
December - -	0·9	1·0	0·9	1·2	1·1	1·2	1·3
Sums - -	12·9	..	16·1	..	17·6	..	20·4

The heights of the receiving surfaces are as follows:

	Above the Mean Level of the Sea.		.....	Above the Ground.	
	Ft.	In.		Ft.	In.
Osler's Anemometer Gauge .....	205	6	.....	50	8
Gauge on the Roof of the Octagon Room .....	193	2½	.....	38	4½
Gauge on the Roof of the Library .....	177	2	.....	22	4
Gauge on the Roof of the Photographic Thermometer Shed .....	164	10	.....	10	0
Crosley's Gauge .....	156	6	.....	1	8
The Two Cylinder Gauges partly sunk in Ground.....	155	3	.....	0	5



ROYAL OBSERVATORY, GREENWICH.

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**A P P E N D I X**

TO

**RESULTS OF THE MAGNETICAL AND METEOROLOGICAL  
OBSERVATIONS**

**1861 :**

CONTAINING

**O B S E R V A T I O N S**

OF THE

**M A G N E T I C D I P**

**1856.**

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In the "Results of the Magnetical and Meteorological Observations 1856," page cxxxiv, it was stated that, in consequence of an injudicious use of the Dipping Needle there described, it was feared that the Observations of Dip in 1856 were useless, and their publication was therefore suppressed.

On comparing the results of the year 1856 with those of subsequent years, in which the Needle was used in an unobjectionable manner, it appears that they fall into series so well with the others that there is no sufficient reason for suppressing them; and they are therefore now exhibited in the usual form.

There is much greater discordance among the annual results than I could wish; but I am unable to assign its cause.

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MAGNETIC DIP, observed at the ROYAL OBSERVATORY, GREENWICH, in the Year 1856.

Day and Approximate Hour, 1856.	Magnetic Dip.	Needle.	Day and Approximate Hour, 1856.	Magnetic Dip.	Needle.	
<b>January</b>	d h	° ' "	<b>June</b>	d h	° ' "	
7. 21	68. 44 .00	A 1	29. 21	68. 42 .25	A 1	
8. 3	68. 45 .00	A 1	30. 3	68. 41 .75	A 1	
13. 21	68. 41 .25	A 1	<b>July</b>	7. 21	68. 42 .50	A 1
14. 3	68. 45 .50	A 1	8. 2	68. 43 .75	A 1	
28. 21	68. 46 .00	A 1	20. 21	68. 43 .25	A 1	
29. 3	68. 46 .25	A 1	21. 2	68. 44 .50	A 1	
<b>February</b>	3. 21	68. 44 .50	27. 21	68. 45 .00	A 1	
4. 3	68. 46 .75	A 1	28. 3	68. 44 .50	A 1	
10. 21	68. 45 .00	A 1	<b>August</b>	3. 21	68. 41 .25	A 1
11. 3	68. 45 .25	A 1	4. 2	68. 44 .50	A 1	
17. 21	68. 46 .75	A 1	10. 21	68. 43 .75	A 1	
18. 3	68. 49 .25	A 1	11. 3	68. 44 .50	A 1	
24. 21	68. 52 .50	A 1	17. 21	68. 43 .75	A 1	
25. 3	68. 36 .00	A 1	18. 3	68. 47 .50	A 1	
<b>March</b>	2. 21	68. 43 .50	24. 21	68. 36 .50	A 1	
3. 3	68. 43 .50	A 1	25. 3	68. 27 .25	A 1	
9. 21	68. 40 .00	A 1	<b>September</b>	0. 21	67. 52 .75	A 1
10. 3	68. 41 .50	A 1	1. 3	68. 39 .00	A 1	
17. 21	68. 45 .25	A 1	7. 21	68. 37 .75	A 1	
18. 3	68. 44 .00	A 1	8. 3	68. 40 .00	A 1	
23. 21	68. 47 .25	A 1	14. 21	68. 1 .75	A 1	
24. 3	68. 44 .25	A 1	14. 23	68. 42 .50	A 2	
30. 21	68. 44 .25	A 1	15. 3	68. 49 .00	A 2	
31. 3	68. 45 .50	A 1	21. 21	68. 47 .75	A 2	
<b>April</b>	6. 21	68. 47 .25	<b>October</b>	14. 21	68. 33 .50	A 2
7. 2	68. 43 .75	A 1	14. 22	68. 37 .75	A 1	
13. 21	68. 44 .25	A 1	19. 21	68. 35 .00	A 2	
14. 3	68. 45 .00	A 1	20. 3	68. 36 .25	A 2	
20. 21	68. 44 .25	A 1	26. 23	68. 35 .50	A 1	
21. 3	68. 46 .75	A 1	27. 2	68. 36 .00	A 1	
27. 21	68. 46 .50	A 1	<b>November</b>	2. 21	68. 37 .50	A 1
28. 2	68. 46 .50	A 1	3. 3	68. 39 .25	A 1	
<b>May</b>	4. 21	68. 45 .00	9. 21	68. 39 .00	A 1	
5. 2	68. 42 .75	A 1	10. 3	68. 39 .75	A 1	
11. 21	68. 44 .75	A 1	24. 22	68. 54 .75	A 1	
12. 2	68. 45 .25	A 1	24. 23	69. 1 .00	A 2	
18. 21	68. 46 .50	A 1	<b>December</b>	0. 21	68. 45 .50	A 1
19. 3	68. 45 .25	A 1	1. 3	68. 49 .75	A 1	
25. 21	68. 44 .75	A 1	7. 21	68. 42 .25	A 1	
26. 3	68. 44 .00	A 1	8. 3	68. 47 .25	A 1	
<b>June</b>	1. 21	68. 45 .50	14. 21	68. 47 .50	A 1	
2. 3	68. 45 .00	A 1	15. 3	68. 46 .00	A 1	
8. 21	68. 44 .00	A 1	21. 21	68. 48 .25	A 1	
9. 3	68. 43 .75	A 1	22. 3	68. 46 .25	A 1	
15. 21	68. 46 .25	A 1	28. 21	68. 45 .00	A 1	
16. 3	68. 45 .25	A 1	29. 3	68. 45 .00	A 1	
22. 21	68. 44 .75	A 1				
23. 2	68. 44 .00	A 1				

The observations on September 1<sup>d</sup>, 3<sup>d</sup>, and 14<sup>d</sup>, 23<sup>d</sup>, were taken in consequence of the anomalous results of the observations immediately preceding them : and, on September 14, A<sub>2</sub> was introduced.

September 22 to October 14. The needles were in the hands of the maker for repair.

The observations of September are omitted in the following mean.



## MONTHLY MEANS OF MAGNETIC DIPS.

MONTHLY MEANS OF MAGNETIC DIPS, at the ROYAL OBSERVATORY, GREENWICH, in the Year 1856.

1856, MONTH.	Barrow, A 1.	Number of Observations.	Barrow, A 2.	Number of Observations.
January.....	68. 44 '66	6	.....	...
February.....	68. 45 '75	8	.....	...
March.....	68. 43 '90	10	.....	...
April.....	68. 45 '53	8	.....	...
May.....	68. 44 '78	8	.....	...
June.....	68. 44 '25	10	.....	...
July.....	68. 43 '92	6	.....	...
August.....	68. 41 '12	8	.....	...
September.....	.....	...	.....	...
October.....	68. 36 '42	3	68. 34 '92	3
November.....	68. 42 '05	5	69. 1 '00	1
December.....	68. 46 '28	10	.....	...
Mean.....	68. 43 '51	...	.....	...

As there appeared to be no marked difference between Observations taken at 21<sup>h</sup> and 3<sup>h</sup>, the Monthly Means have been taken irrespectively of the hours of Observation.

ROYAL OBSERVATORY, GREENWICH.

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C O R R E C T I O N

OF

N U M B E R S

IN THE

“RESULTS OF MAGNETICAL AND METEOROLOGICAL  
OBSERVATIONS,”

1856, 1857, 1859, 1860.

In the "Results of Magnetical and Meteorological Observations;" 1856, page (cxxxviii); 1857, page (cxxxviii); 1859, page (cxxxviii) and 1860, page (cxxxvi) values were inadvertently printed as *Adopted Values of a*, which were not in fact computed with the aid of the Mean Value of *b*. The subsequent numbers were free from error, all calculations having been made with the true *Adopted Values of a*.

The following are the correct numbers :—

ADOPTED Values of *a*, after application of Mean Value of *b*.

1856.		1857.		1859.		1860.					
January	23	+ 0.16380	January	22	+ 0.15564	January	13	+ 0.14967	January	16	+ 0.14576
February	15	+ 0.16156	February	4	+ 0.15605	February	14	+ 0.14930	February	7	+ 0.14560
March	31	+ 0.16462	March	18	+ 0.15688	March	2	+ 0.15027	March	19	+ 0.14391
May	20	+ 0.15963	April	28	+ 0.15956	April	4	+ 0.14930	April	4	+ 0.14529
June	9	+ 0.15912	May	13	+ 0.15855	May	6	+ 0.15007	June	11	+ 0.14352
July	1	+ 0.15968	June	3	+ 0.15751	June	8	+ 0.14874	July	26	+ 0.14449
August	16	+ 0.15883	August	27	+ 0.15493	July	6	+ 0.14862	August	21	+ 0.14364
September	12	+ 0.16127	September	25	+ 0.15543	August	12	+ 0.14913	September	3	+ 0.14317
October	14	+ 0.16047	October	27	+ 0.15454	September	12	+ 0.14802	October	22	+ 0.14506
November	7	+ 0.15983	December	9	+ 0.15581	October	5	+ 0.14813	November	19	+ 0.14520
December	11	+ 0.15445				November	3	+ 0.15415	December	18	+ 0.14563
						December	9	+ 0.15550			

In the "Reduction of the Magnetic Observations made at the Royal Observatory, Greenwich, from 1848 to 1857," attached to the Volume of "Results of Magnetical and Meteorological Observations, 1859," are two tables, namely, Table XI, page (ccviii), and Table XVI, page (ccxix), which are affected with very slight inaccuracies. It is requested that the following Tables may be substituted for those in the Volume for 1859.

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.

Hour. Göttingen Mean Solar Time.	January to December.										Mean 1848 to 1857.
	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	
0	-0'00164	-0'00137	-0'00134	-0'00114	-0'00133	-0'00097	-0'00082	-0'00086	-0'00086	-0'00102	-0'00113
1	— 128	— 101	— 87	— 87	— 107	— 78	— 59	— 57	— 67	— 91	— 86
2	— 76	— 45	— 38	— 53	— 84	— 58	— 45	— 45	— 53	— 70	— 57
3	— 20	— 4	— 3	— 27	— 36	— 31	— 27	— 23	— 44	— 55	— 27
4	+ 3	+ 18	+ 17	— 18	— 25	— 14	— 23	— 17	— 39	— 42	— 14
5	+ 32	+ 42	+ 33	— 8	+ 1	+ 3	— 17	— 14	— 33	— 33	+ 1
6	+ 59	+ 65	+ 53	+ 13	+ 24	+ 21	— 4	— 10	— 21	— 20	+ 18
7	+ 68	+ 66	+ 52	+ 24	+ 30	+ 34	+ 12	+ 3	— 7	— 2	+ 28
8	+ 71	+ 60	+ 54	+ 23	+ 35	+ 29	+ 10	+ 10	— 1	+ 2	+ 29
9	+ 57	+ 41	+ 34	+ 24	+ 31	+ 23	+ 4	+ 3	+ 5	+ 6	+ 23
10	+ 48	+ 40	+ 33	+ 27	+ 27	+ 27	+ 9	+ 8	+ 2	+ 10	+ 23
11	+ 37	+ 35	+ 27	+ 28	+ 33	+ 23	+ 13	+ 15	+ 14	+ 21	+ 25
12	+ 41	+ 28	+ 21	+ 30	+ 40	+ 23	+ 18	+ 17	+ 24	+ 31	+ 27
13	+ 30	+ 22	+ 23	+ 23	+ 37	+ 18	+ 18	+ 23	+ 30	+ 33	+ 26
14	+ 32	+ 25	+ 25	+ 28	+ 43	+ 24	+ 27	+ 29	+ 32	+ 36	+ 30
15	+ 30	+ 28	+ 26	+ 33	+ 36	+ 31	+ 34	+ 29	+ 38	+ 46	+ 33
16	+ 37	+ 32	+ 34	+ 46	+ 47	+ 40	+ 38	+ 37	+ 52	+ 51	+ 41
17	+ 43	+ 36	+ 36	+ 58	+ 53	+ 44	+ 51	+ 45	+ 62	+ 60	+ 49
18	+ 44	+ 37	+ 42	+ 56	+ 66	+ 51	+ 51	+ 53	+ 64	+ 68	+ 53
19	+ 28	+ 23	+ 45	+ 51	+ 52	+ 46	+ 57	+ 49	+ 66	+ 66	+ 48
20	— 9	— 20	+ 14	+ 23	+ 78	+ 21	+ 35	+ 29	+ 43	+ 44	+ 20
21	— 68	— 75	— 43	— 17	— 31	— 17	— 2	+ 3	+ 2	+ 15	— 23
22	— 117	— 114	— 103	— 61	— 87	— 61	— 45	— 38	— 46	— 33	— 71
23	— 148	— 134	— 138	— 102	— 128	— 94	— 74	— 64	— 77	— 76	— 104

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

Hour. Göttingen Mean Solar Time.	January to December.									Mean 1849 to 1857.	Mean in Terms of Horizontal Force.
	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.		
0	+0'00016	+0'00102	+0'00077	+0'00090	+0'00145	+0'00155	+0'00154	+0'00160	+0'00120	+0'00113	+0'00291
1	+ 30	+ 107	+ 66	+ 98	+ 143	+ 151	+ 142	+ 142	+ 102	+ 109	+ 281
2	+ 49	+ 99	+ 46	+ 78	+ 108	+ 120	+ 112	+ 113	+ 60	+ 87	+ 224
3	+ 68	+ 76	+ 18	+ 43	+ 65	+ 77	+ 36	+ 58	+ 3	+ 49	+ 126
4	+ 47	+ 32	— 12	+ 9	+ 2	+ 9	— 27	+ 5	— 39	+ 3	+ 8
5	+ 38	— 13	— 40	— 22	— 45	— 50	— 78	— 57	— 80	— 39	— 101
6	+ 24	— 41	— 50	— 44	— 74	— 86	— 110	— 99	— 111	— 66	— 170
7	— 4	— 76	— 69	— 63	— 105	— 122	— 145	— 133	— 134	— 95	— 245
8	— 31	— 97	— 90	— 85	— 126	— 125	— 162	— 157	— 156	— 114	— 294
9	— 55	— 127	— 110	— 106	— 147	— 157	— 181	— 171	— 168	— 136	— 351
10	— 61	— 152	— 117	— 118	— 163	— 172	— 187	— 173	— 171	— 146	— 377
11	— 62	— 158	— 109	— 113	— 156	— 175	— 173	— 169	— 155	— 141	— 364
12	— 42	— 136	— 77	— 97	— 146	— 156	— 149	— 143	— 123	— 119	— 307
13	— 40	— 101	— 43	— 73	— 114	— 127	— 99	— 107	— 75	— 87	— 224
14	— 28	— 63	— 15	— 41	— 72	— 88	— 57	— 74	— 21	— 51	— 132
15	— 8	— 17	+ 25	— 3	— 40	— 38	— 4	— 32	+ 18	— 11	— 28
16	+ 4	+ 19	+ 45	+ 33	+ 7	+ 14	+ 42	+ 13	+ 61	+ 26	+ 67
17	+ 20	+ 52	+ 58	+ 48	+ 40	+ 48	+ 75	+ 51	+ 89	+ 53	+ 137
18	+ 18	+ 66	+ 59	+ 53	+ 70	+ 89	+ 98	+ 83	+ 109	+ 72	+ 186
19	+ 12	+ 69	+ 61	+ 60	+ 89	+ 97	+ 116	+ 105	+ 123	+ 81	+ 209
20	+ 6	+ 73	+ 60	+ 53	+ 106	+ 110	+ 126	+ 123	+ 130	+ 87	+ 224
21	+ 7	+ 78	+ 57	+ 52	+ 118	+ 123	+ 141	+ 142	+ 135	+ 95	+ 245
22	+ 7	+ 91	+ 65	+ 71	+ 129	+ 138	+ 152	+ 156	+ 128	+ 104	+ 268
23	+ 8	+ 106	+ 78	+ 78	+ 145	+ 148	+ 162	+ 165	+ 135	+ 114	+ 294



