

will be found more correctly if the multipliers (which according to the foregoing rule would be 4 and 5) be replaced respectively by $4\frac{1}{2}$ and $5\frac{1}{2}$.

If the Latitude of the station be less than 45° the signs of the corrections must be changed.

In strictness, two corrections for longitude are required: one due to the motion of the moon in Right ascension during the interval that elapses between her rising (or setting) at different stations; and the other due to the change in the moon's declination during the same interval.

The average value of the first correction is about 2m., to be added for each hour or for each fifteen degrees of Longitude west of the central meridian (Long. 4h 46m.); the correction being subtracted when the place is east of the central meridian.

The correction due to the change in the declination of the moon may be disregarded for ordinary purposes.

The last column in each month shows the time to which a watch should be set when the shadow falls on the noon mark of a sun dial.

THE PLANETS.

VENUS.—Venus is an evening star from January 1 till she reaches her inferior conjunction with the Sun on September 25, after which she passes to the west of the sun and becomes a morning star.

The following are the dates at which Venus reaches certain important points in her course:—

January 10, aphelion; Jan. 13, in conjunction with Mercury, Mercury being $3^\circ 28'$ N. of Venus; May 2, perihelion; May 11, conjunction with Jupiter, Venus $1^\circ 58'$ N.; June 3, conjunction with Uranus, Venus $1^\circ 46'$ N.; July 13, greatest elongation $45^\circ 35'$ E. of Sun; Aug. 20, greatest brilliancy Aug. 23, in aphelion; Sept. 2, stationary; Sept. 25, inferior conjunction with the Sun; Oct. 14, stationary; Nov. 1, greatest brilliancy; Dec. 6, greatest elongation $46^\circ 48'$ W. of Sun; Dec. 13, perihelion.

MARS.—Jan. 20, in aphelion; Feb 9, stationary; May 1, stationary; Nov. 16, conjunction with Saturn, Mars $1^\circ 47'$ S. of Saturn.

JUPITER.—Feb. 9, stationary; May 11, conjunction with Venus, Venus $1^\circ 58'$ N.; Nov. 16, stationary.

SATURN.—Jan. 20, aphelion; April 18, stationary; Sept. 7, stationary; Nov. 16, conjunction with Mars, Mars $1^\circ 47'$ S.

URANUS.—March 30, stationary; June 3, conjunction with Venus, Venus $1^\circ 46'$ N.; Nov. 6, stationary.

The following table gives the civil time at which the five principal planets culminate or pass the meridian of 4h. 46m. W. on the 1st day of each month, together with the days in which their conjunctions with the Moon occur. For brevity A.M. is denoted by (a) and P.M. by p.:—

MONTHS.	VENUS.		MARS.		JUPITER.		SATURN.		URANUS.	
	<i>Culminates.</i>		<i>Culminates.</i>		<i>Culminates.</i>		<i>Culminates.</i>		<i>Culminates.</i>	
	H. M.	Conj. (H. M.	Conj. (H. M.	Conj. (H. M.	Conj. (H. M.	Conj. (
January	0 30 p.	21	5 24 a.	12	10 26 p.	4,31	11 26 a.	18	1 7 a.	7
February	1 8 p.	20	3 49 a.	8	8 14 p.	27	9 39 a.	15	10 56 p.	3
March	1 28 p.	22	1 51 a.	7	6 26 p.	27	7 59 a.	14	9 2 p.	2,29
April	1 47 p.	22	11 3 p.	3,30	4 38 p.	23	6 4 a.	10	6 58 p.	26
May	2 17 p.	22	8 45 p.	28	3 3 p.	21	4 9 a.	8	5 2 p.	23
June	2 54 p.	21	7 2 p.	25	1 29 p.	18	2 0 a.	4	3 5 p.	19
July	3 10 p.	20	5 47 p.	23	Noon.	16	11 48 p.	1,29	1 14 p.	17
August	2 55 p.	18	4 46 p.	21	10 28 a.	12	9 38 p.	25	11 20 a.	13
September	1 47 p.	15	3 58 p.	18	8 53 a.	9	7 31 p.	21	9 26 a.	10
October	11 7 a.	11	3 23 p.	17	7 16 a.	7	5 35 p.	18	7 33 a.	7
November	9 12 a.	8	2 59 p.	15	5 26 a.	3	3 42 p.	15	5 33 a.	4
December	8 46 a.	8	2 40 p.	14	3 28 a.	1,28	1 56 p.	12	3 34 a.	1,28

ECLIPSES.

In the year 1871 there will be two Eclipses of the SUN, and two of the MOON.

I. A partial Eclipse of the Moon, January 6, 1871, partly visible in Canada.

The following table contains the local mean astronomical times at which such phases as are visible occur:—

PHASE.	Hali fax.	Frederic ton.	Quebec.	Montreal.	Kingston.	Toronto.	Lon don.	Ft Garry.
The first contacts with the	penumb	ra and sha	dow take	place be	fore the	Moon ri	ses.	
Middle of Eclipse.	H. M.	H. M.	H. M.	Moon ris	ing. Oc	fore the	Moon	rises.
Last contact with shadow.	5 2	4 52	4 32	H. M.	H. M.	H. M.	H. M.	H. M.
Do. with Penumbra.	6 32	6 22	6 2	5 52	5 40	5 29	5 21	4 19
	7 51	7 41	7 21	7 11	6 59	6 48	6 40	5 37

The first contact with the shadow occurs at a point distant 130° from the northernmost point of the Moon's limb towards the east; and the last contact at 127° towards the west; in each case for direct image. Magnitude of the Eclipse (Moon's diameter = 1) 0.688.

II. An annular Eclipse of the SUN, June 17, 1871, invisible in Canada.

This Eclipse is visible in the Indian Ocean, in the South Pacific, and in a point of the North Pacific. The line of central Eclipse begins at a point west of Australia in about lat. 31° S. and long. 93° E.; it thence extends to the north of Australia across the island of New Guinea, and terminates at a point north-east of New Zealand in lat. 18° S. and long. 163° W.

III. A partial Eclipse of the MOON, July 2, 1871, invisible in Canada.

IV. A total Eclipse of the SUN, December 11, 1871, invisible in Canada.

This Eclipse is visible over a region extending from the entrance of the Red Sea eastward as far as the meridian of long. 160° W., and including Australia, the Indian Archipelago, and a large portion of Asia. The line of central Eclipse begins near the entrance of the Persian Gulf at a point in about lat. 16° N. and long. 61° E.; it thence extends eastwards through the southern part of Hindostan and the north of Australia, and terminates at a point near the equator, in about long. 178° W.