

The *Solar year* is the time which the sun takes in passing over the twelve signs of the Zodiac, which is 365 days, 5h. 48m. 48s. The *Civil year* is 365 days 6 hours, or rather 365 days for three years in succession, and every fourth year 366 days. The *Sidereal year* is 365 days, 6h. 6m., 18' 5s. The *Anomalistic year* is 365 days, 6h. 14m. The *lunar astronomical year* is 354 days, 8h., 48' 6m., or 12 lunations. The *Anomalistic year* is an advance of the orbit as part of the solar system in space, and its excess over the *Sidereal* or *Tropical year*, is the stellar measure of the annual advance of the whole system.

ECLIPSES.

During the year 1869 there will be two Eclipses of the Sun, and two of the Moon.

- I. A partial eclipse of the Moon January 27th, visible in Canada. The following table contains the mean time of the principal phases of the eclipse at each of the places named. Magnitude of the eclipse, (Moon's diameter = 1' 00) 0.450.

Phase.	Kingston.	Osbong.	Toronto	London.
	h. m.	h. m.	h. m.	h. m.
First contact with shadow.	7 24 p.m.	7 17 p.m.	7 12 p.m.	7 04 p.m.
Middle of eclipse.....	8 33 p.m.	8 26 p.m.	8 21 p.m.	8 13 p.m.
Last contact with shadow.	9 42 p.m.	9 35 p.m.	9 30 p.m.	9 22 p.m.

- II. An annular eclipse of the Sun, February 10-11 invisible in Canada, confined to the S. of Africa and portions of S. America. The central line of eclipse passing close to Cape Horn and the Cape of Good Hope.
- III. A partial eclipse of the Moon July 23rd, not visible in Canada, as the Moon sets previous to its contact with the penumbra.
- IV. A total eclipse of the Sun, Aug. 7th, visible in Canada. For Toronto first contact with the shadow at 46 minutes past 4 p.m. Middle of the eclipse about 44 minutes past 5; last contact with the shadow 38 minutes past 6.
- Begins on the earth generally, Aug. 7th, 7h. 37m. 9s. Meantime of Greenwich in longitude 144° 20s. E., and 36° 54s. N. Central eclipse begins generally 8h. 46m. in longitude 117° 31s. E. and 52° 42s. N., ends 11h. 15m. 7s. in longitude 67° 25s. W. and 31° 21s. N. Ends on the earth generally 12h. 23m. 8s., in longitude 90° 11s. W., and latitude 14° 53s. N.

Appearances of the Planets 1869.

Jupiter will be an evening star until the 16th of April, a morning star until the 11th of August, afterwards an evening star. Mars will be an evening star until the 19th of May, afterwards a morning star. Saturn will be a morning star until the 6th of March, and an evening star to the 2nd of September. Venus will be a morning star until the 2nd of May, afterwards an evening star. Mars will be in opposition to the sun February 13th. Mercury never moves above 28° from the sun, and therefore never rises or sets above 1h. 50m. before or after the Sun, and is seldom seen.