

ASTRONOMICAL NOTES—FEBRUARY—MARCH.

THOMAS LINDSAY, TORONTO.

OBSERVERS of Saturn will have noticed the gradual closing in of the ring, which will continue till about the middle of May when it will begin to again open out. This phenomenon will be readily understood if we regard the ring as a great circle of the star sphere; it crosses the celestial equator, ascending, in right ascension $126^{\circ} 45' 4''$, at an inclination of $6^{\circ} 59' 48''$; the declination of any given point in it is therefore readily computed, and the arc of declination between the planet and the point of the ring (on the star-sphere) which culminates with it, is the angle made with the ring-plane by a line from the earth to Saturn's centre. For example, on February 10th the R. A. of Saturn is $180^{\circ} 17' 15''$, and its declension $2^{\circ} 30' 49''$ N. The declination of the point in the ring having the same R. A. as the planet will be found to be $5^{\circ} 38' 20''$, and the difference $3^{\circ} 7'$ is the "elevation of the earth above the plane of the ring." This is tabulated in the Ephemeris for very few days throughout the year. Saturn rises at 8h. 45m. on February 10th and at 7h. 15m. on March 1st. His nearest neighbour among first magnitude stars is the brilliant Spica in the "Wheat-Ear" of Virgo. Venus passes into north declination on February 15th, and sets on that day at 8h. 45m., nearly due west. About three quarters of the disc is now illuminated, and the planet may be observed in the telescope to much advantage. We have been reminded by Prof. Coakley of the result of the observations of M. Niesten of Brussels, who has determined the time of Venus' rotation to be 23h. 20m.

Mercury is too near the sun for observation this month. Mars is far south in declination, but as he approaches the earth becomes more noticeable. He is now placed between the feet of Ophiuchus the "Serpent Bearer," to the north and east of the Scorpion, rising at 3h. A.M. on the 10th February. Near to his own tiny red disc is the red star of the first magnitude, Antares, the "Scorpion's Heart," and brightest in that constellation. There is a minute companion to this star, difficult with a $3\frac{1}{2}$ inch telescope. One of our correspondents, and a most careful observer, Dr. Donaldson of Fergus, Ont., writing on the subject of double stars, states that he has best success with Antares just at twilight. He mentions as good tests for $2\frac{1}{4}$ inch, to be observed now in the evening sky, the companion to Rigel (Beta Orionis) in the left foot of the giant, and also the star γ Monoceros about two-fifths of the distance from Sirius to Alpha Orionis (the right shoulder of the figure) and a little east of the line. Moderate power shows this star an easy double, but $2\frac{1}{4}$ inch at its best should show the star a beautiful triple. Dr. Donaldson considers this a much more difficult object than the fourth star of the "Trapezium." Uranus lies in the moon's path this month and will be occulted on the 18th, the phenomenon, however, not being visible on this side of the globe. The planet may be "picked up" with little difficulty on the morning of the 19th. The moon transits the meridian at 5h. 04m. being then 1° north of Uranus, and about $7\frac{1}{2}^{\circ}$ east. In the same field of the telescope with the