

ASTRONOMICAL NOTES FOR DECEMBER.

If the night-skies be clear, which is not always the case in Canada, the month of December is one of the best in the year for astronomical work. Such constellations as those of Cassiopeia, Andromeda, Perseus, Taurus, Orion, Lyra, Aries, Gemini, Canis Major and Canis Minor, with their hundreds of objects worthy of attention, are well situated, during some portion of every night, for observation. Then, too, planets which come into opposition in the autumn and winter months are always, in these latitudes, seen to better advantage than when they are in opposition in the spring and summer months. For instance, Mars and Jupiter are almost perfectly placed just now for study. The nights being longer, there are more hours for work, and, if the air be free from moisture, the seeing is generally better than at other seasons of the year. For this reason, a clear and cold and even frosty night often presents advantages of a high order.

During the first half of the month, Mercury may be visible between six and seven o'clock in the morning. His position will be in the south-east; on the 10th he will rise near the bright star Beta-one (β 1) Scorpii. At this as at all other elongations, the planet, in the telescope, will appear as a half-moon.

Venus is an evening star, but too near the Sun for observation.

Mars is still in excellent position for examination, as he comes to the meridian early in the evening. Already some interesting reports respecting this planet are being received from the greater observatories. The south-polar ice-cap was invisible in fine telescopes so early as the 16th of October, said to be almost unprecedented so far as speedy melting away is concerned, the Martian summer being now at its height in the planet's southern hemisphere. The surface workings are being mapped at many observatories, and to judge by the drawings, appear very differently to different observers.

Jupiter is rapidly assuming the place of first importance, an importance that will increase as Mars begins to set earlier and earlier, and that will increase until Saturn comes into a good position, which will be about the time Jupiter, in turn, passes away

from our skies. This magnificent object will be in opposition to the Sun, that is, in a line with the Earth and Sun, on the 22nd. He will then be visible all night. The belts and spots on Jupiter are of interest to every observer, and may be seen in moderately powerful telescopes. The satellites are visible in almost any telescope and are easily followed, as they continuously change their places with reference to the planet and to each other. Their transits, eclipses, and occultations are predicted to the minute, and tables of these predictions may be obtained from the almanacs. The transits of Satellite III the largest of the moons, are usually worthy of observation, the moon, as well as its shadow, sometimes crossing the face of the planet as a very dark body. One of these transits, easily observed, will occur on the night of the 27th. The satellite will enter on the disc of Jupiter about 5.30 o'clock, and be followed by its shadow about 6. Both of these will be steadily visible on the face of Jupiter until about 6.30, in the case of the moon, and about 9, in the case of the shadow. Another object of interest is the great red spot which, or at least the position of which in the great southern belt, should be seen to be central in the planet about 1 o'clock on the morning of the 11th, and continuously thereafter at intervals of 9 hours and 55 minutes. For those who use small telescopes, it may be noted that the moons will be west of the planet at midnight on the 23rd and 30th instant, and 18th and 31st instant.

But of all celestial objects for the observer with telescopes of low power, none approaches our own moon, which is certain to be well-placed in December, especially after the first quarter. In addition to the usual lunar train of interesting events, there will be on night of the 10th and 11th instant, the unusual spectacle of an occultation of the Pleiades. The moon will reach the immediate vicinity of these stars shortly after midnight; the first occultation will occur about 1.30 a.m. The moon will be nearly full, but still, in a good telescope, there will be enough of the dark edge left to blot out the stars before the moon appears actually to touch them.—G. E. L.

