

ASTRONOMICAL NOTES.

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The observer has now little more than a month during which to observe the satellites of Jupiter; the angular distance between the giant planet and the sun is rapidly diminishing so that the moons will soon be lost in the solar rays. The observations of Jupiter, during the past year, have resulted in the determining accurately of the elements of the 5th satellite; a series of measures of the planet's diameter have also been reduced with the result that it is found to subtend an angle of 36.11 seconds of arc at the mean distance of 5.2 astronomical units.

Saturn, coming to the meridian now at convenient hours for observation, is slowly passing westward and the retrograde motion may be very readily detected. On May 5th the planet is in conjunction in R. A. with Kappa Virginis, a star of the 4th magnitude, and about 13 minutes of arc south of it. Then the planet passes to the west of the star, northwards, and on the evening of May 14 will be seen in almost the same declination as the star but a full moon's breadth west. The northern surface of the ring is broadly and beautifully in view.

Venus, now so brilliant in the western evening sky, attains in May about one-half its greatest brightness. The disc being still more than half illuminated, the planet is not yet a very interesting object in the telescope. Any one who has ever observed Venus, even under the most favorable circumstances, must marvel at the long and persistent study of the planet which was necessary before even an opinion could be expressed regarding its rotation period. The amateur with a 3-inch

telescope will find it quite impossible to fix any markings upon the disc that will assist in framing any hypothesis on this question.

Mercury is evening star at the end of May, reaching greatest elongation on June 4. On the 8th of June the tiny planet will be picked up in the telescope more readily than usual as it will then be about 47 mins. north of Jupiter, in the same field of view with low power.

For some time past the sun has been an object of particular interest to the theorists, and they are many. The old question about sun spots, whether they are depressions or elevations, has been revived. Considerable space is given in the *Monthly Notices* of the Royal Astronomical Society to a discussion of the cavernous theory. Rev. Father Sidgreaves, of Stonyhurst, sums up the evidence of a long series of drawings and decides against depressions. The notched appearance of the limb of the sun when a spot is just upon it seems to be a proof of a mountainous rather than a cavernous form. The question, however, is an open one, as is also the real physical character of the spots and their cause. The sun, however, is gradually giving up its secrets; there are strong grounds for believing that the unknown element, helium, (named so for convenience) and known to exist in the sun by a line in the spectrum hitherto unidentified, exists in terrestrial water and is the same gas which has been found in connection with argon, the new constituent of the atmosphere. The mysterious line, the spectrum of the aurora, is also probably, in some way, connected with the latter.