

and first satellite, the latter having then caught my attention as a very brilliant spot near the preceding limb. The observation of this contrast prepares one for the belief that the darkest solar spots might, if removed from the insupportable splendour of the sun's disk, appear as very bright and shining objects.

*Bradstones, Sandfield Park, Liverpool, Dec. 8, 1859.*

---

*Physical Observations of Jupiter.* By Sir W. Keith Murray.

“I enclose a few diagrams of *Jupiter*,\* selected out of twenty-one taken since Sept. 26th between 15<sup>h</sup> and 19<sup>h</sup> G.M.T. The atmosphere has seldom been very favourable until this morning, when several conspicuous white spots were seen on the second belt, two of them being nearly vertical.

“The principal belt had quite a flocculent cloudy appearance; indeed, it presents a very mottled muddled aspect this season; more so than I have noticed before. I hope other observers who possess sufficient means may have been favoured with more propitious weather than I have, as the thermometer has generally ranged from 25° to 33° Fahr. at the hours of observation.

“I have reason to think a small star has been occulted by *Saturn*, as I saw it near the planet on several successive mornings to the apparent east, but cloudy weather prevailed; it being seen till this evening, where I observe it now to the apparent west, and in such a position that I think the planet must have occulted it. It was less bright than *Dione* or *Tethys*.

“*Ochertyre, Crieff, Nov. 14, 1859.*”

---

*Extract of a Letter dated Dec. 9th, from W. S. Jacob, Esq., to one of the Secretaries.*

“Adverting to p. 15 of the *Monthly Notice* for November, I beg to refer you . . . to my drawings of *Jupiter*, as seen at Madras in Dec. 1857 and Jan. 1858, copies of which were sent to the Society at the time. . . You will there see, I fancy, the same thing as M. Schwabe describes,—the shading of the belts in fine dark nearly parallel streaks, very different from anything I have seen described or delineated by any one else, whether by Dawes, Lassell, or Smyth (?); indeed it takes first-

\* These diagrams were exhibited at the meeting.—ED.

rate definition to bring out such fine markings, such definition as is rather rare in this climate, I believe. Dawes's round beads I have also never seen, but only occasional irregular blotches, more or less elongated (like cirrus clouds), here also agreeing with M. Schwabe."

---

*On the Position of Venus during the Total Eclipse of July 18, 1860.* By Prof. Chevallier.

"I have not observed any notice that *Venus* will be within a very few hours of her inferior conjunction with the sun during the total eclipse on the 18th of July, 1860. This will afford an excellent opportunity, within the track of the moon's shadow, of making observations on the character of the cusps of *Venus*, as affected by her atmosphere, and possibly of her diameter too.

"And, as the eclipse of the sun will be large over the whole of western Europe and in part of North America, the partial darkness may facilitate observations of *Venus* at the time, even in fixed observatories.

"I do not know whether it is worth while to notice that  $\beta$  *Leonis* will have very nearly the same N.P.D. as *Venus*, and nearly four hours greater Right Ascension.

"*Durham, Dec. 8, 1859.*"

---

*On the Physical Constitution of Comets.* By O. G. Downes, Esq.

The author proposes to inquire how far the appearances and motions of comets may be due to the operation of known laws on a body similar in constitution to the earth. It is argued that if our earth were to move in a long elliptical orbit, the degree of cold to which it would be exposed in aphelion would be sufficient to solidify not only the aqueous matter on the surface, but the atmosphere itself; and the author proceeds to consider how the redissolution of the atmosphere, as the body again approaches the sun, would give rise to phenomena such as are presented by a comet. The author remarks that his hypothesis indicates that comets belong to the same family as planets, and that with continuously contracting orbits they will, in the fulness of time, take their place with the other planets in the solar system.

---