XI. *Notice respecting a volcanic appearance in the Moon, in a Letter addressed to the President. By Captain* HENRY KATER *F. R. S.*

Read February 8, 1821.

DEAR SIR,

London, February 8th, 1821.

IT may perhaps be interesting to the Royal Society to be informed, that on Sunday evening, the 4th instant, I observed a luminous spot in the dark part of the moon, which I was inclined to ascribe to the eruption of a volcano.

The telescope used was an excellent Newtonian of $6\frac{1}{4}$ inches aperture, with a power of 74. The moon was exactly two days old, and the evening so clear, that I was able to discern the general outlines in the dark part of her disk. Her western azimuth was about 70°, and her altitude about 10 degrees.

In this position at 6 hours 30 minutes, the volcano was situated (estimating by the eye) as in the accompanying sketch. [See Plate X.] Its appearance was that of a small nebula subtending an angle of about 3 or 4 seconds.

Its brightness was very variable; a luminous point, like a small star of the 6th or 7th magnitude, would suddenly appear in its centre, and as suddenly disappear, and these changes would sometimes take place in the course of a few seconds.

On the evening of the 5th, having an engagement which prevented my observing it myself, I arranged the telescope

for two friends, who remarked the same phenomena as the night before, but in an inferior degree, partly perhaps in consequence of the evening not being so favourable.

On the 6th I again observed it; it had certainly become more faint, and the star-like appearance less frequent. I could see it very distinctly with a power of 40. As the moon approached the horizon, it was visible only at intervals when the star-like appearance took place. On the same evening I had the pleasure of showing it to Mr. HENRY BROWNE, F. R. S.

I regret that I had no micrometer adapted to my telescope; but I have reason to believe the distance of the volcano from the edge of the moon was about one tenth of her diameter, and the angle it formed this evening with a line joining the cusps was about 50°.

I remarked near the edge of the moon, a well known dark spot, from which the volcano was distant, as nearly as I could estimate, three times its distance from the edge of the moon.

In a map of the moon published by Dr. KITCHENER (and which is the best small map with which I am acquainted), there is a mountain sufficiently near the situation of the volcano, to authorize the supposition that they may be identical.

On the 7th I could still see the volcano, and the occasional star-like appearance; but I do not think it was sufficiently perceptible to have been discovered by a person ignorant of its precise situation. I am inclined however to think, that the difficulty of seeing it is rather to be attributed to the

increased light of the moon, than to the diminished action of the volcano.

I have the honour to be,

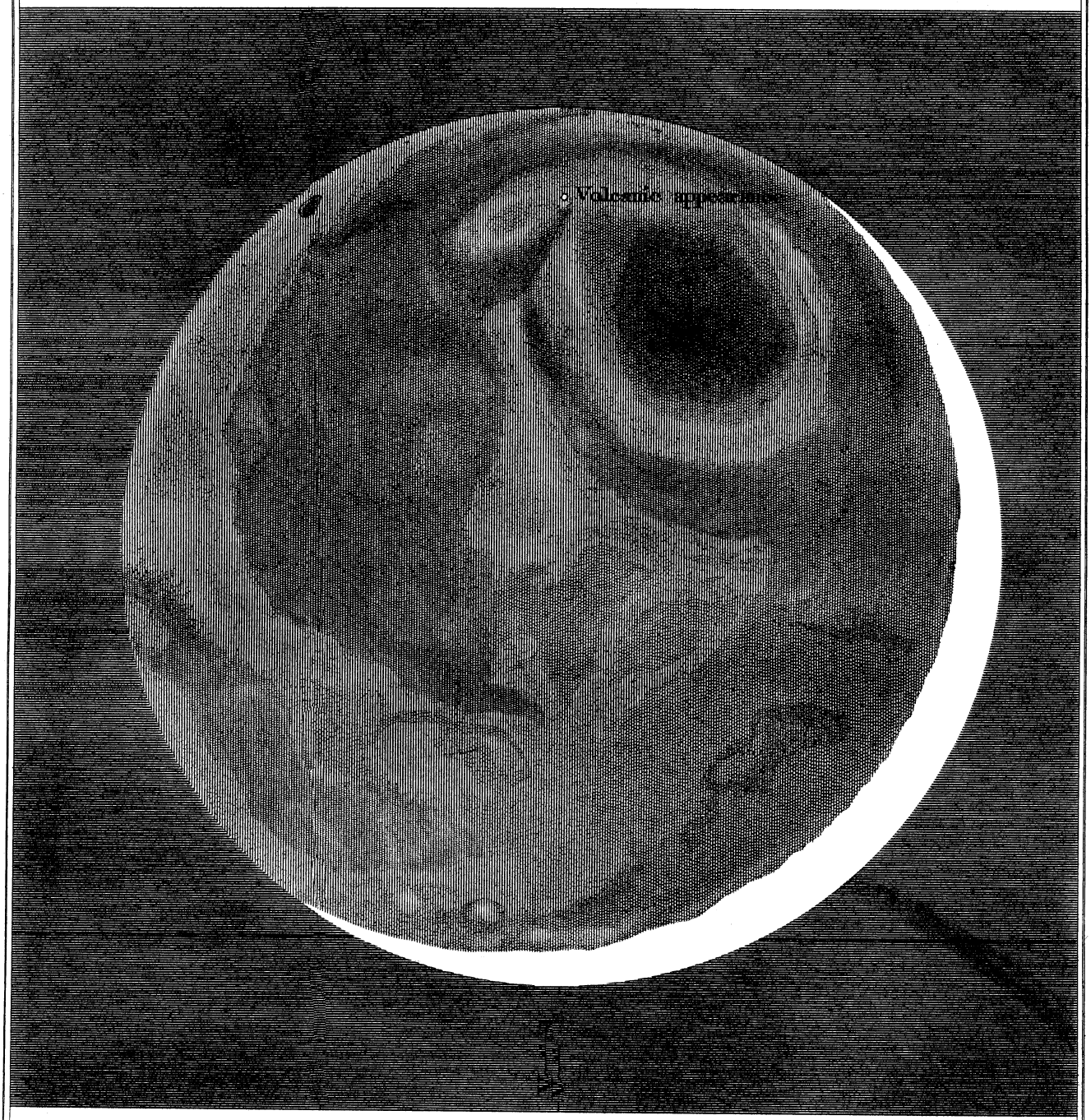
Dear Sir, &c. &c.

HENRY KATER

To Sir Humphry Davy, Bart.
P. R. S. &c.

P. S. Since the preceding letter was written, I have ascertained that the spot in which I observed the volcanic appearance is that named ARISTARCHUS. This spot was particularly examined by HEVELIUS, who calls it Mons Porphyrites, and who considers it to be volcanic. If his drawings are to be relied upon, it has undergone a considerable change in its appearance since his time.

Sir WILLIAM HERSCHEL has recorded in the Philosophical Transactions an observation of three volcanoes, which he perceived in the moon, April 19th, 1787, at $10^h.36^m$, sidereal time. One of these, which he says showed "an actual eruption of fire or luminous matter," was distant from the northern limb of the moon $3'.57'',3$, the diameter of the burning part being not less than $3''$. I find that this observation was made about 9 o'clock in the evening, when the moon was not quite two days old; and from the situation of the spot described by Sir WILLIAM HERSCHEL, I have no doubt of its being the same that I have noticed.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