

a subject of discussion between Arago and Plateau whether the phenomenon here mentioned depends upon deceptive perception and physiological causes,* or upon the aberration of sphericity and refrangibility of the eye.† Those cases in which it has been asserted that a disappearance and reappearance, and then a repeated disappearance, have been observed during an occultation, may probably indicate the ingress to have taken place at a part of the Moon's edge which happened to be deformed by mountain declivities and deep chasms.

The great differences in the reflected light from particular regions of the illuminated disk of the Moon, and especially the absence of any sharp boundary between the inner edge of the illuminated and ash-colored parts in the Moon's phases, led to the formation of several very rational theories as to the inequalities of the surface of our satellite, even at a very remote period. Plutarch says distinctly, in the small but very remarkable work *On the Face in the Moon*, that we may suppose the spots to be partly deep chasms and valleys, partly mountain peaks, "which cast long shadows, like Mount Athos, whose shadow reaches Lemnos."‡ The spots cover about two fifths of the whole disk. In a clear atmosphere, and under favorable circumstances in the position of the

* Plateau, *Sur l'Irradiation*, in the *Mém. de l'Acad. Royale des Sciences et Belles-Lettres de Bruxelles*, tom. xi., p. 142, and the supplementary volume of Poggendorff's *Annalen*, 1842, p. 79-128, 193-232, and 405 and 443. "The probable cause of the irradiation is an irritation produced by the light upon the retina, and spreads a little beyond the outline of the image."

† Arago, in the *Comptes Rendus*, tom. viii., 1839, p. 713 and 883. "Les phénomènes d'irradiation signalés par M. Plateau sont regardés par M. Arago comme les effets des aberrations de réfrangibilité et de sphéricité de l'œil, combinés avec l'indistinction de la vision, conséquence des circonstances dans lesquelles les observateurs se sont placés. Des mesures exactes prises sur des disques noirs à fond blanc et des disques blancs à fond noir, qui étaient placés au Palais du Luxembourg, visibles à l'observatoire, n'ont pas indiqué les effets de l'irradiation." "The phenomena of irradiation pointed out by M. Plateau are regarded by M. Arago as the effects of the aberration of sphericity and refrangibility of the eye, combined with the indistinctness of vision consequent upon the circumstances in which the observers are placed. The exact measurement taken of the black disks upon a white ground, and the white disks upon a black ground, which were placed upon the palace of Luxembourg, and visible at the Observatory, did not present any phenomena of irradiation."

‡ Plutarch, *Moral.*, ed. Wytten., tom. iv., p. 786-789. The shadow of Athos, which was seen by the traveler Pierre Belon (*Observations de Singularités trouvées en Grèce, Asie, etc.*, 1554, liv. i., chap. 25), reached the brazen cow in the market-town Myrine in Lemnos.