

tainty. It was stated by William Herschel to be $\frac{1}{8}$; according to Arago's more accurate measurement,* with one of Rochon's prismatic telescopes, in the first instance (before 1824), only in the proportion of 189 : 194, *i. e.*, $\frac{1}{3 \cdot 8}$; by a subsequent measurement (1847), $\frac{1}{3 \cdot 2}$; still, Arago is inclined to consider the flattening somewhat greater.

If the study of the Moon's surface calls to mind many *geognostic* relations of the surface of the Earth, so, on the contrary, the analogies which Mars presents with the Earth are entirely of a *meteorological* nature. Besides the dark spots—some of which are blackish; others, though in very small numbers, yellowish-red,† and surrounded by the greenish contrast colors, so-called seas‡—there are seen upon the disk of Mars two white, brilliant, snow-like spots,§ either at the poles which are determined by the axis of rotation, or at the poles of cold alternately. They were recognized as early as 1716 by Philip Maraldi, though their connection with climatic changes upon the planet was first described by the elder Herschel, in the seventy-fourth volume of the *Philosophical Transactions* for 1784. The white spots become alternately larger or smaller, according as the poles approach their winter or summer. Arago has measured, by means of his polariscope, the intensity of the light of these *snow zones*, and found it twice as great as that of the remaining part of the disk. The *Physikalisch-astronomischen Beiträgen* of Mädler and Beer contain some excellent graphic representations|| of the north and south hemispheres of Mars; and this remarkable phenomenon, unparalleled throughout the whole planetary system, is there investigated with reference to all the changes of seasons, and the powerful action of the polar summer upon the melting snow. Careful observations, during a period of ten years, have also taught us that the dark spots upon Mars preserve a constant form and relative position. The periodical formation of *snow-spots*, as meteoric depositions dependent upon change of temperature, and some optical phenomena which the dark spots present as soon as they have, by the rotation of the planet, reached the edge of the disk, make the existence of an atmosphere upon Mars more than probable.

* Laplace, *Expos. du Syst. du Monde*, p. 36. Schröter's very imperfect measurement of the diameter of the planet gave Mars a flattening of only $\frac{1}{80}$.

† Beer and Mädler, *Beiträge*, p. 111.

‡ Sir John Herschel, *Outlines*, § 510.

§ Beer and Mädler, *Beiträge*, p. 117–125.

|| Mädler, in Schumacher's *Astr. Nachr.*, No. 192.