

of the satellite upon atmospheric pressure, aqueous depositions, and the dispersion of clouds, will be treated of in the last and purely telluric part of the *Cosmos*.

MARS.

The diameter of this planet, notwithstanding its considerably greater distance from the Sun, is only 0·519 of the Earth's, or 3568 geographical miles. The *eccentricity* of his orbit is 0·0932168, next to Mercury the greatest of all the planetary orbits; and also on this account, as well as from its proximity to the Earth, the most suitable for Kepler's great discovery of the elliptical form of the planetary orbits. *His period of rotation** is, according to Mädler and Wilhelm Beer, 24h. 37m. 23s. *His sidereal revolution* round the Sun occupies 1 year 321d. 17h. 30m. 41s. The *inclination of Mars's orbit* toward the Earth's equator is $24^{\circ} 44' 24''$; his mass, $\frac{1}{2680337}$; his *density*, in comparison to that of the Earth, 0·958. The mass of Mars will be hereafter corrected by means of the disturbances which he may experience from his influence with the Comet of De Vico, in the same way that the close approach of Encke's Comet was taken advantage of to ascertain the mass of Mercury.

The flattening of Mars, which (singularly enough) the great Königsberg astronomer permanently doubted, was first recognized by William Herschel (1784). With regard to the amount of the flattening, however, there was long considerable uncer-

absorbed in the upper strata of our atmosphere, where it converts visible clouds into transparent vapor." The phenomenon of the rapid dispersion of clouds by the full Moon, when they are not extremely dense, is considered by Sir John Herschel "as a meteorological fact, which," he adds, "is confirmed by Humboldt's own experience and the universal belief of the Spanish sailors in the tropical seas of America."—See *Report of the Fifteenth Meeting of the British Association for the Advancement of Science*, 1846, *Notices*, p. 5; and *Outlines*, p. 201.

* Beer and Mädler, *Beiträge zur Phys. Kenntniss des Sonnensystems*, 1841, p. 113, from observations in 1830 and 1832; Mädler, *Astronomie*, 1849, p. 206. The first considerable improvement in the data for the period of rotation, which Dominique Cassini found 24h. 40m., was the result of laborious observations by William Herschel (between 1777 and 1781), which gave 24h. 39m. 21·7s. Kunowsky found, in 1821, 24h. 36m. 40s., very near to Mädler's result. Cassini's oldest observation of the rotation of a spot upon Mars (Delambre, *Hist. de l'Astron. Mod.*, tom. ii., p. 694) appears to have been soon after the year 1670; but in the very rare Treatise, Kern, *Diss. de Scintillatione Stellarum*, Wittenb., 1686, § 8, I find that the actual *discoverers of the rotations of Mars and Jupiter* are stated to have been "Salvator Serra and Father Ægidius Franciscus de Cottignez, astronomers of the Collegio Romano."