

however, attaining to the approximative circular orbits of the other planets (Jupiter, Saturn, and Uranus). The diameter of the telescopic planets is immeasurably small; and according to observations made by Lamont in Munich, and Mädler with the Dorpat refractor, it is probable that the largest of the small planets is at the utmost only 145 geographical miles in diameter; that is, one fifth of that of Mercury, one twelfth of that of the Earth.

If the four planets nearest to the Sun, situated between the ring of the asteroids (the small planets) and the central body, are called *interior planets*, they will all agree in presenting a moderate size, a greater density, less flattened at the poles, and, at the same time, rotating slowly round their axes (in periods of rotation of nearly 24 hours), and, with the exception of one (the Earth), without moons. On the contrary, the four exterior planets, those which are more remote from the Sun, situated between the ring of asteroids, and the, to us, unknown limits of the solar system (Jupiter, Saturn, Uranus, and Neptune), are considerably larger, five times less dense, their axial rotation more than twice as rapid, and their number of moons greater in the proportion of 20 to 1. The *interior* planets are all smaller than the Earth (Mercury and Mars $\frac{2}{5}$ and $\frac{1}{2}$ smaller in diameter); the exterior planets, on the contrary, are from 4.2 to 11.2 larger than the Earth. The density of the Earth being taken as =1, the densities of Venus and Mars are the same to within less than $\frac{1}{10}$; the density of Mercury is also but very little more, according to Encke's determination of his mass. On the contrary, none of the exterior planets exceed in density $\frac{1}{4}$; Saturn, indeed, is only $\frac{1}{7}$, almost only half the density of the other exterior planets and the Sun. The exterior planets present the solitary phenomenon of the whole solar system, the wonderful circumstance of one of its principal planets being surrounded by an unattached ring; also atmospheres which, in consequence of the peculiarity of their condensation, appear to us variable; in Saturn, indeed, sometimes as interrupted bands.

Although in the important classification of the planets into two groups of *interior* and *exterior* planets, the general characters of absolute magnitude, density, flattening at the poles, velocity of rotation, absence of moons, present themselves as dependent upon the distances, *i. e.*, from their semi-orbital axes, this dependence can not be affirmed of each one of these groups. Up to the present time we are ignorant, as I have already remarked, of any internal necessity, any mechanical