

time, when the expression of a small *Jovial world* (*Mundus Jovialis*) was frequently made use of, these analogies between the subordinate systems and the solar system contributed much to the more rapid and general diffusion of the Copernican system of the world. They suggest the repetitions of form and position which is so frequently presented by organic nature in subordinate spheres.

The distribution of the satellites in the solar regions is so unequal, that while the proportion of the moonless principal planets to those which are accompanied by Moons is as 3 to 5, the latter belong, with the single exception of one, the Earth, to the *exterior planetary groups*, situated beyond the ring of the asteroids with interlacing orbits. The only satellite which has been formed in the group of interior planets between the Sun and the asteroids, the *Earth's Moon*, has a remarkably large diameter in proportion to that of its primary. This proportion is $\frac{1}{3 \cdot 8}$; while the largest of Saturn's satellites (the sixth, Titan) is perhaps only $\frac{1}{1 \frac{1}{5} \cdot 5}$, and the largest of Jupiter's satellites, the third, $\frac{1}{2 \frac{1}{5} \cdot 8}$ of the diameter of their primaries. A wide distinction must be drawn between this consideration of a relative magnitude and that of an absolute magnitude. The Earth's Moon, relatively so large (1816 miles in diameter), is absolutely smaller than all four of Jupiter's satellites (3104, 2654, 2116, and 1900 miles in diameter). The sixth satellite of Saturn differs very little in magnitude from Mars (3568 miles).* If the problem of telescopic visibility depended only upon the diameter, and was not, at the same time, determined by the proximity of the disks of the primaries, the great distance and the nature of the reflecting surfaces, it would be necessary to consider as the smallest of the secondary planets the first and second of Saturn's satellites (Mimas and Enceladus), and the two satellites of Uranus; but it is safer to represent them merely as the smallest luminous points. It has hitherto appeared more certain that, upon the whole, the smallest of all planetary bodies (primaries and satellites) are to be found among the small planets.†

The density of the satellites is by no means always *less* than that of their primaries, as is the case with the Earth's Moon (whose density is only 0.619 of that of our Earth) and

* *Outlines*, § 548.

† See Mädler's attempt to estimate the diameter of Vesta (264 geographical miles) with a thousand-fold magnifying power in his *Astronomie*, p. 218.