

Small Planets.

Flora	2.202	Egeria.....	2.579
Victoria	2.335	Juno	2.669
Vesta	2.362	Ceres.....	2.768
Iris	2.385	Pallas	1.773
Metis	2.386	Hygeia	3.151
Hebe	2.425	Jupiter	5.20277
Parthenope.....	2.448	Saturn	9.53885
Irene	2.553	Uranus	19.18239
Astrea	2.577	Neptune	30.03628

The simple observation of rapidly diminishing periods of revolution, from those of Saturn and Jupiter to Mars and Venus, led, at a very early time, under the assumption that the planets were attached to movable spheres, to conjectures as to the distances of these spheres from each other. As there are no traces of methodically-instituted observations and measurements to be found among the Greeks before the time of Aristarchus of Samos, and the establishment of the Alexandrian Museum, a great difference arose in the hypothesis as to the arrangement of the planets and their relative distances; whether according to the most prevailing system, with reference to their distances from the Earth as the fixed center, or, as among the Pythagoreans, with reference to the distances from the focus of the universe. The principal subject on which there was a discrepancy of opinion was the position of the Sun, that is, its relative situation in reference to the inferior planets and the Moon.* The Pythagoreans, who considered *number* to be the source of all knowledge, the real essence of all existing things, applied their theory of numbers, the all-blending doctrine of numerical relations, to the geometrical consideration of the five regular bodies, to the musical intervals of tone which determine, accord, and form different kinds of sound, and even to the system of the universe itself, supposing that the moving, and, as it were, vibrating planets, exciting sound-waves, must produce a spherical music, according to the harmonic relations of their intervals of space. "This music," they add, "would be perceived

* Böckh, *De Platonico Syst.*, p. xxiv., and in *Philolaos*, p. 100. The succession of the planets, which, as we have just seen (page 94, note), gave rise to the naming of the week-days after the planetary deities, that of Geminus is distinctly called the oldest by Ptolemaeus. (*Almag.* xi., cap. i.) He blames the motives from which "the moderns have placed Venus and Mercury beyond the Sun."