

have obtained in a period when men scarcely dared trust themselves to think; and at length Copernicus, promulgating his own, or reviving the Pythagorean doctrine, which places the sun in the centre of our system, gave to astronomy a simplicity which, contrasted with the complication of the preceding views, at once commanded assent.

(295.) An elegant writer,* whom we have before had occasion to quote, has briefly and neatly accounted for the confused notions which so long prevailed respecting the constitution of our system, and the difficulty experienced in acquiring a true notion of the disposition of its parts. "We see it," he observes, "not in *plan*, but in *section*." The reason of this is, that our point of observation lies in its general plane, but the notion we aim at forming of it is not that of its section, but of its plan. This is as if we should attempt to read a book, or make out the countries on a map, with the eye on a level with the paper. We can only judge directly of the distances of objects by their sizes, or rather of their change of distance by their change of size; neither have we any means of ascertaining, otherwise than indirectly, even their positions, one among the other, from their apparent places as seen by us. Now, the variations in apparent size of the sun and moon are too small to admit of exact measure without the use of the telescope, and the bodies of the planets cannot even be distinguished as having any distinct size with the naked eye.

(296.) The Copernican system once admitted, however, this difficulty of conception, at least, is effectually got over, and it becomes a mere problem of geometry and calculation to determine, from the observed places of a planet, its real orbit about the sun, and the other circumstances of its motion. This Kepler accomplished for the orbit of Mars, which he ascertained to be an ellipse, having the sun in one of its foci; and the same law, being extended by inductive analogy to all the planets, was found to be verified in the case of each. This

* Jackson, Letters on Various Subjects, &c.