

though some of the features are exaggerated, and some too feebly marked. His spirit of invention was undoubtedly very fertile and ready, and this and his perseverance served to remedy his deficiency in mathematical artifice and method. But the peculiar physiognomy is given to his intellectual aspect by his dwelling in a most prominent manner on those erroneous trains of thought which other persons conceal from the world, and often themselves forget, because they find means of stopping them at the outset. In the beginning of his book (*Argumenta Caputum*) he says, "if Christopher Columbus, if Magellan, if the Portuguese, when they narrate their wanderings, are not only excused, but if we do not wish these passages omitted, and should lose much pleasure if they were, let no one blame me for doing the same." Kepler's talents were a kindly and fertile soil, which he cultivated with abundant toil and vigor; but with great scantiness of agricultural skill and implements. Weeds and the grain throve and flourished side by side almost undistinguished; and he gave a peculiar appearance to his harvest, by gathering and preserving the one class of plants with as much care and diligence as the other.

*Sect. 2.—Kepler's Discovery of his Third Law.*

I SHALL NOW give some account of Kepler's speculations and discoveries. The first discovery which he attempted, the relation among the successive distances of the planets from the sun, was a failure; his doctrine being without any solid foundation, although propounded by him with great triumph, in a work which he called *Mysterium Cosmographicum*, and which was published in 1596. The account which he gives of the train of his thoughts on this subject, namely, the various suppositions assumed, examined, and rejected, is curious and instructive, for the reasons just stated; but we shall not dwell upon these essays, since they led only to an opinion now entirely abandoned. The doctrine which professed to give the true relation of the orbits of the different planets, was thus delivered:<sup>3</sup> "The orbit of the earth is a circle: round the sphere to which this circle belongs, describe a dodecahedron; the sphere including this will give the orbit of Mars. Round Mars describe a tetrahedron; the circle including this will be the orbit of Jupiter. Describe a cube round Jupiter's orbit; the circle including this will be the orbit of Saturn. Now inscribe in the Earth's orbit an icosahedron; the circle inscribed in it will be the orbit of Venus. In-

---

<sup>3</sup> L. U. K. Kepler, 6.