

Sect. 2.—Estimate of the Value of the Theory of Eccentrics and Epicycles.

It may be useful here to explain the value of the theoretical step which Hipparchus thus made; and the more so, as there are, perhaps, opinions in popular circulation, which might lead men to think lightly of the merit of introducing or establishing the Doctrine of Epicycles. For, in the first place, this doctrine is now acknowledged to be false; and some of the greatest men in the more modern history of astronomy owe the brightest part of their fame to their having been instrumental in overturning this hypothesis. And, moreover, in the next place, the theory is not only false, but extremely perplexed and entangled, so that it is usually looked upon as a mass of arbitrary and absurd complication. Most persons are familiar with passages in which it is thus spoken of.¹⁰

. He his fabric of the heavens
Hath left to their disputes, perhaps to move
His laughter at their quaint opinions wide;
Hereafter, when they come to model heaven
And calculate the stars, how will they wield
The mighty frame! how build, unbuild, contrive,
To save appearances! how gird the sphere
With centric and eccentric scribbled o'er,
Cycle in epicycle, orb in orb!

And every one will recollect the celebrated saying of Alphonso X., king of Castile,¹¹ when this complex system was explained to him; that "if God had consulted him at the creation, the universe should have been on a better and simpler plan." In addition to this, the system is represented as involving an extravagant conception of the nature of the orbs which it introduces; that they are crystalline spheres, and that the vast spaces which intervene between the celestial luminaries are a solid mass, formed by the fitting together of many masses perpetually in motion; an imagination which is presumed to be incredible and monstrous.

We must endeavor to correct or remove these prejudices, not only in order that we may do justice to the Hipparchian, or, as it is usually called, Ptolemaic system of astronomy, and to its founder; but for another reason, much more important to the purpose of this work;

¹⁰ *Paradise Lost*, viii.

¹¹ A. D. 1252.