

tempted to do this by the interest which the mathematical spirit of the Greeks gave to the earliest astronomical discoveries, when these were the subjects of their reasonings; but we must now proceed to contemplate them engaged in a worthier employment, namely, in adding to these discoveries.

CHAPTER II.

PRELUDE TO THE INDUCTIVE EPOCH OF HIPPARCHUS.

WITHOUT pretending that we have exhausted the consequences of the elementary discoveries which we have enumerated, we now proceed to consider the nature and circumstances of the next great discovery which makes an Epoch in the history of Astronomy; and this we shall find to be the Theory of Epicycles and Eccentrics. Before, however, we relate the establishment of this theory, we must, according to the general plan we have marked out, notice some of the conjectures and attempts by which it was preceded, and the growing acquaintance with facts, which made the want of such an explanation felt.

In the steps previously made in astronomical knowledge, no ingenuity had been required to devise the view which was adopted. The motions of the stars and sun were most naturally and almost irresistibly conceived as the results of motion in a revolving sphere; the indications of position which we obtain from different places on the earth's surface, when clearly combined, obviously imply a globular shape. In these cases, the first conjectures, the supposition of the simplest form, of the most uniform motion, required no after-correction. But this manifest simplicity, this easy and obvious explanation, did not apply to the movement of all the heavenly bodies. The Planets, the "wandering stars," could not be so easily understood; the motion of each, as Cicero says, "undergoing very remarkable changes in its course, going before and behind, quicker and slower, appearing in the evening, but gradually lost there, and emerging again in the morning."¹ A continued attention to these stars would, however,

¹ Cic. *de Nat. D.* lib. ii. p. 450. "Ea quæ Saturni stella dicitur, *παιρων*que a Græcis nominatur, quæ a terra abest plurimum, xxx fere annis cursum suum con-