

the Hipparchian or Ptolemaic theories by a long series of great astronomers of all civilized countries.

But, though the astronomers who, before Copernicus, held the heliocentric opinion, cannot, on any good grounds, be considered as much more enlightened than their opponents, it is curious to trace the early and repeated manifestations of this view of the universe. The distinct assertion of the heliocentric theory among the Greeks is an evidence of the clearness of their thoughts, and the vigor of their minds; and it is a proof of the feebleness and servility of intellect in the stationary period, that, till the period of Copernicus, no one was found to try the fortune of this hypothesis, modified according to the improved astronomical knowledge of the time.

The most ancient of the Greek philosophers to whom the ancients ascribe the heliocentric doctrine, is Pythagoras; but Diogenes Laertius makes Philolaus, one of the followers of Pythagoras, the first author of this doctrine. We learn from Archimedes, that it was held by his contemporary, Aristarchus. "Aristarchus of Samos," says he,¹ "makes this supposition,—that the fixed stars and the sun remain at rest, and that the earth revolves round the sun in a circle." Plutarch² asserts that this, which was only a hypothesis in the hands of Aristarchus, was *proved* by Seleucus; but we may venture to say that, at that time, no such proof was possible. Aristotle had recognized the existence of this doctrine by arguing against it. "All things," says he,³ "tend to the centre of the earth and rest there, and therefore the whole mass of the earth cannot rest except there." Ptolemy had in like manner argued against the diurnal motion of the earth: such a revolution would, he urged, disperse into surrounding space all the loose parts of the earth. Yet he allowed that such a supposition would facilitate the explanation of some phenomena. Cicero appears to make Mercury and Venus revolve about the sun, as does Martianus Capella at a later period; and Seneca says,⁴ it is a worthy subject of contemplation, whether the earth be at rest or in motion: but at this period, as we may see from Seneca himself, that habit of intellect which was requisite for the solution of such a question, had been succeeded by indistinct views, and rhetorical forms of speech. If there were any good mathematicians and good observers at this period, they were employed in cultivating and verifying the Hipparchian theory.

Next to the Greeks, the Indians appear to have possessed that

¹ Archim. *Arenarius*.

² *Quest. Plat.* Delamb. A. A. vi.

³ Quoted by Copernic. i. 7.

⁴ *Quest. Nat.* vii. 2.