

tribution of masses) maintain the planets in their eternal orbits.* The stars here reveal the image of the divinity in the visible world. We do not here refer, as its title might lead to suppose, to the little pseudo-Aristotelian work entitled the "Cosmos," undoubtedly a Stoic production. Although it describes the heavens and the earth, and oceanic and aerial currents, with much truthfulness, and frequently with rhetorical animation and picturesque coloring, it shows no tendency to refer cosmical phenomena to general physical principles based on the properties of matter.

I have purposely dwelt at length on the most brilliant period of the Cosmical views of antiquity, in order to contrast the earliest efforts made toward the generalization of ideas with the efforts of modern times. In the intellectual movement of centuries, whose influence on the extension of cosmical contemplation has been defined in another portion of the present work,† the close of the thirteenth and the beginning of the fourteenth century were specially distinguished; but the *Opus Majus* of Roger Bacon, the *Mirror of Nature* of Vincenzo de Beauvais, the *Physical Geography* (*Liber Cosmographicus*) of Albertus Magnus, the *Picture of the World* (*Imago Mundi*) of Cardinal Petrus d'Alliaco (Pierre d'Ailly), are works which, however powerfully they may have influenced the age in which they were written, do not fulfill by their contents the promise of their titles. Among the Italian opponents of Aristotle's physics, Bernardino Telesio of Cosenza is designated the founder of a rational science of nature. All the phenomena of inert matter are considered by him as the effects of two incorporeal principles (agencies or forces) — heat and cold. All forms of organic life — "animated"

* See the passage in Aristot., *Meteor.*, xii., 8, p. 1074, of which there is a remarkable elucidation in the Commentary of Alexander Aphrodisiensis. The stars are not inanimate bodies, but must be regarded as active and living beings. (Aristot., *De Cælo*, lib. ii., cap. 12, p. 292.) They are the most divine of created things; τὰ θεϊότερα τῶν φανερῶν. (Aristot., *De Cælo*, lib. i., cap. 9, p. 278, and lib. ii., cap. 1, p. 284.) In the small pseudo-Aristotelian work *De Mundo*, which frequently breathes a religious spirit in relation to the preserving almightiness of God (cap. 6, p. 400), the high æther is also called divine (cap. 2, p. 392). That which the imaginative Kepler calls moving spirits (*animæ motrices*) in his work, *Mysterium Cosmographicum* (cap. 20, p. 71), is the distorted idea of a force (*virtus*) whose main seat is in the sun (*anima mundi*), and which is decreased by distance in accordance with the laws of light, and impels the planets in elliptic orbits. (Compare Apelt, *Epoch en der Gesch. der Menschheit*, bd. i., s. 274.)

† *Cosmos*, vol. ii., p. 241-250.