

## CHAPTER III.

### ASTRONOMY.

#### I. THE OLD SACRED THEORY OF THE UNIVERSE.

THE next great series of battles was fought over the relations of the visible heavens to the earth.

In the early Church, in view of the doctrine so prominent in the New Testament, that the earth was soon to be destroyed, and that there were to be "new heavens and a new earth," astronomy, like other branches of science, was generally looked upon as futile. Why study the old heavens and the old earth, when they were so soon to be replaced with something infinitely better? This feeling appears in St. Augustine's famous utterance, "What concern is it to me whether the heavens as a sphere inclose the earth in the middle of the world or overhang it on either side?"

As to the heavenly bodies, theologians looked on them as at best only objects of pious speculation. Regarding their nature the fathers of the Church were divided. Origen, and others with him, thought them living beings possessed of souls, and this belief was mainly based upon the scriptural vision of the morning stars singing together, and upon the beautiful appeal to the "stars and light" in the song of the three children—the *Benedicite*—which the Anglican communion has so wisely retained in its Liturgy.

Other fathers thought the stars abiding-places of the angels, and that stars were moved by angels. The Gnostics thought the stars spiritual beings governed by angels, and appointed not to cause earthly events but to indicate them.

As to the heavens in general, the prevailing view in the Church was based upon the scriptural declarations that a solid vault—a "firmament"—was extended above the earth,

and that the heavenly bodies were simply lights hung within it. This was for a time held very tenaciously. St. Philastrius, in his famous treatise on heresies, pronounced it a heresy to deny that the stars are brought out by God from his treasure-house and hung in the sky every evening; any other view he declared "false to the Catholic faith." This view also survived in the sacred theory established so firmly by Cosmas in the sixth century. Having established his plan of the universe upon various texts in the Old and New Testaments, and having made it a vast oblong box, covered by the solid "firmament," he brought in additional texts from Scripture to account for the planetary movements, and developed at length the theory that the sun and planets are moved and the "windows of heaven" opened and shut by angels appointed for that purpose.

How intensely real this way of looking at the universe was, we find in the writings of St. Isidore, the greatest leader of orthodox thought in the seventh century. He affirms that since the fall of man, and on account of it, the sun and moon shine with a feebler light; but he proves from a text in Isaiah that when the world shall be fully redeemed these "great lights" will shine again in all their early splendour. But, despite these authorities and their theological finalities, the evolution of scientific thought continued, its main germ being the geocentric doctrine—the doctrine that the earth is the centre, and that the sun and planets revolve about it.\*

This doctrine was of the highest respectability: it had been developed at a very early period, and had been elabo-

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\* For passage cited from Clement of Alexandria, see English translation, Edinburgh, 1869, vol. ii, p. 368; also the *Miscellanies*, Book V, cap. vi. For typical statements by St. Augustine, see *De Genesi*, ii, cap. ix, in Migne, *Patr. Lat.*, tome xxxiv, pp. 270, 271. For Origen's view, see the *De Principiis*, lib. i, cap. vii; see also Leopardi's *Errori Popolari*, cap. xi; also Wilson's *Selections from the Prophetic Scriptures* in *Ante-Nicene Library*, p. 132. For Philo Judæus, see *On the Creation of the World*, chaps. xviii and xix, and *On Monarchy*, chap. i. For St. Isidore, see the *De Ordine Creaturarum*, cap. v, in Migne, *Patr. Lat.*, lxxxiii, pp. 923-925; also, 1000, 1001. For Philastrius, see the *De Hæresibus*, chap. cxxxiii, in Migne, tome xii, p. 1264. For Cosmas's view, see his *Topographia Christiana*, in Montfauçon, *Col. Nov. Patrum*, ii, p. 150, and elsewhere as cited in my chapter on Geography.

rated until it accounted well for the apparent movements of the heavenly bodies; its final name, "Ptolemaic theory," carried weight; and, having thus come from antiquity into the Christian world, St. Clement of Alexandria demonstrated that the altar in the Jewish tabernacle was "a symbol of the earth placed in the middle of the universe": nothing more was needed; the geocentric theory was fully adopted by the Church and universally held to agree with the letter and spirit of Scripture.\*

Wrought into this foundation, and based upon it, there was developed in the Middle Ages, mainly out of fragments of Chaldean and other early theories preserved in the Hebrew Scriptures, a new sacred system of astronomy, which became one of the great treasures of the universal Church—the last word of revelation.

Three great men mainly reared this structure. First was the unknown who gave to the world the treatises ascribed to Dionysius the Areopagite. It was unhesitatingly believed that these were the work of St. Paul's Athenian convert, and therefore virtually of St. Paul himself. Though now known to be spurious, they were then considered a treasure of inspiration, and an emperor of the East sent them to an emperor of the West as the most worthy of gifts. In the ninth century they were widely circulated in western Europe, and became a fruitful source of thought, especially on the whole celestial hierarchy. Thus the old ideas of astronomy were vastly developed, and the heavenly hosts were classed and named in accordance with indications scattered through the sacred Scriptures.

The next of these three great theologians was Peter Lombard, professor at the University of Paris. About the middle of the twelfth century he gave forth his collection of

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\* As to the respectability of the geocentric theory, etc., see Grote's *Plato*, vol. iii, p. 257; also Sir G. C. Lewis's *Astronomy of the Ancients*, chap. iii, sec. 1, for a very thoughtful statement of Plato's view, and differing from ancient statements. For plausible elaboration of it, and for supposed agreement of Scripture with it, see Fromundus, *Anti-Aristarchus*, Antwerp, 1631; also Melanchthon's *Initia Doctrinae Physicae*. For an admirable statement of the theological view of the geocentric theory, antipodes, etc., see Eicken, *Geschichte und System der mittelalterlichen Weltanschauung*, pp. 618 et seq.

