

CHAPTER II.

GEOGRAPHY.

I. THE FORM OF THE EARTH.

AMONG various rude tribes we find survivals of a primitive idea that the earth is a flat table or disk, ceiled, domed, or canopied by the sky, and that the sky rests upon the mountains as pillars. Such a belief is entirely natural; it conforms to the appearance of things, and hence at a very early period entered into various theologies.

In the civilizations of Chaldea and Egypt it was very fully developed. The Assyrian inscriptions deciphered in these latter years represent the god Marduk as in the beginning creating the heavens and the earth: the earth rests upon the waters; within it is the realm of the dead; above it is spread "the firmament"—a solid dome coming down to the horizon on all sides and resting upon foundations laid in the "great waters" which extend around the earth.

On the east and west sides of this domed firmament are doors, through which the sun enters in the morning and departs at night; above it extends another ocean, which goes down to the ocean surrounding the earth at the horizon on all sides, and which is supported and kept away from the earth by the firmament. Above the firmament and the upper ocean which it supports is the interior of heaven.

The Egyptians considered the earth as a table, flat and oblong, the sky being its ceiling—a huge "firmament" of metal. At the four corners of the earth were the pillars supporting this firmament, and on this solid sky were the "waters above the heavens." They believed that, when chaos was taking form, one of the gods by main force raised the waters on high and spread them out over the firmament;

that on the under side of this solid vault, or ceiling, or firmament, the stars were suspended to light the earth, and that the rains were caused by the letting down of the waters through its windows. This idea and others connected with it seem to have taken strong hold of the Egyptian priestly caste, entering into their theology and sacred science: ceilings of great temples, with stars, constellations, planets, and signs of the zodiac figured upon them, remain to-day as striking evidences of this.

In Persia we have theories of geography based upon similar conceptions and embalmed in sacred texts.

From these and doubtless from earlier sources common to them all came geographical legacies to the Hebrews. Various passages in their sacred books, many of them noble in conception and beautiful in form, regarding "the foundation of the earth upon the waters," "the fountains of the great deep," "the compass upon the face of the depth," the "firmament," the "corners of the earth," the "pillars of heaven," the "waters above the firmament," the "windows of heaven," and "doors of heaven," point us back to both these ancient springs of thought.*

* For survivals of the early idea, among the Eskimos, of the sky as supported by mountains, and, among sundry Pacific islanders, of the sky as a firmament or vault of stone, see Tylor, *Early History of Mankind*, second edition, London, 1870, chap. xi; Spencer, *Sociology*, vol. i, chap. viii; also Andrew Lang, *La Mythologie*, Paris, 1886, pp. 68-73. For the Babylonian theories, see George Smith's *Chaldean Genesis*, and especially the German translation by Delitzsch, Leipsic, 1876; also, Jensen, *Die Kosmogonie der Babylonier*, Strasburg, 1890; see especially in the appendices, pp. 9 and 10, a drawing representing the whole Babylonian scheme so closely followed in the Hebrew book Genesis. See also Lukas, *Die Grundbegriffe in den Kosmogonien der alten Völker*, Leipsic, 1893, for a most thorough summing up of the whole subject, with texts showing the development of Hebrew out of Chaldean and Egyptian conceptions, pp. 44, etc.; also pp. 127 *et seq.* For the early view in India and Persia, see citations from the Vedas and the Zend-Avesta in Lethaby, *Architecture, Mysticism, and Myth*, chap. i. For the Egyptian view, see Champollion; also, Lenormant, *Histoire Ancienne*, Maspero, and others. As to the figures of the heavens upon the ceilings of Egyptian temples, see Maspero, *Archéologie Egyptienne*, Paris, 1890; and for engravings of them, see Lepsius, *Denkmäler*, vol. i, Bl. 41, and vol. ix, Abth. iv, Bl. 35; also the *Description de l'Égypte*, published by order of Napoleon, tome ii, Pl. 14; also Prisse d'Avennes, *Art Égyptien*, Atlas, tome i, Pl. 35; and especially for a survival at the Temple of Denderah, see Denon, *Voyage en Égypte*, Planches 129, 130. For the Egyptian idea of "pillars of heaven," as alluded to on the stele of victory of Thotmes III.

But, as civilization was developed, there were evolved, especially among the Greeks, ideas of the earth's sphericity. The Pythagoreans, Plato, and Aristotle especially cherished them. These ideas were vague, they were mixed with absurdities, but they were germ ideas, and even amid the luxuriant growth of theology in the early Christian Church these germs began struggling into life in the minds of a few thinking men, and these men renewed the suggestion that the earth is a globe.*

A few of the larger-minded fathers of the Church, influenced possibly by Pythagorean traditions, but certainly by Aristotle and Plato, were willing to accept this view, but the majority of them took fright at once. To them it seemed fraught with dangers to Scripture, by which, of course, they meant *their interpretation* of Scripture. Among the first who took up arms against it was Eusebius. In view of the New Testament texts indicating the immediately approaching end of the world, he endeavoured to turn off this idea by bringing scientific studies into contempt. Speaking of investigators, he said, "It is not through ignorance of the things admired by them, but through contempt of their use-

in the Cairo Museum, see Ebers, *Uarda*, vol. ii, p. 175, note, Leipsic, 1877. For a similar Babylonian belief, see Sayce's *Herodotus*, Appendix, p. 403. For the belief of Hebrew scriptural writers in a solid "firmament," see especially Job, xxxviii, 18; also Smith's *Bible Dictionary*. For engravings showing the earth and heaven above it as conceived by Egyptians and Chaldeans, with "pillars of heaven" and "firmament," see Maspero and Sayce, *Dawn of Civilization*, London, 1894, pp. 17 and 543.

* The agency of the Pythagoreans in first spreading the doctrine of the earth's sphericity is generally acknowledged, but the first clear and full utterance of it to the world was by Aristotle. Very fruitful, too, was the statement of the new theory given by Plato in the *Timæus*; see Jowett's translation, 62, c. Also the *Phædo*, pp. 449 *et seq.* See also Grote on Plato's doctrine of the sphericity of the earth; also Sir G. C. Lewis's *Astronomy of the Ancients*, London, 1862, chap. iii, section i, and note. Cicero's mention of the antipodes, and his reference to the passage in the *Timæus*, are even more remarkable than the latter, in that they much more clearly foreshadow the modern doctrine. See his *Academic Questions*, ii; also *Tusc. Quest.*, i and v, 24. For a very full summary of the views of the ancients on the sphericity of the earth, see Kretschmer, *Die physische Erdkunde im christlichen Mittelalter*, Wien, 1889, pp. 35 *et seq.*; also, Eicken, *Geschichte der mittelalterlichen Weltanschauung*, Stuttgart, 1887, Dritter Theil, chap. vi. For citations and summaries, see Whewell, *Hist. Induct. Sciences*, vol. i, p. 189, and St. Martin, *Hist. de la Géog.*, Paris, 1873, p. 96; also, Leopardi, *Saggio sopra gli errori popolari degli antichi*, Firenze, 1851, chap. xii, pp. 184 *et seq.*

