

of Strabo that Eratosthenes made it one of his special objects to reform the map of the world,<sup>1</sup> and to construct it on more scientific principles; his methods were strictly scientific, and he may be regarded as the father of systematic geography. Eratosthenes adopted the views held by Aristotle and Euclid<sup>2</sup> regarding the figure and position of the earth, looking upon it as a sphere placed in the centre of the universe, around which the other celestial bodies revolved every twenty-four hours, the sun and moon having independent motions of their own. For all practical purposes, then, his views did not differ greatly from those of the modern geographer, except in the difference between the geocentric and heliocentric standpoints. He estimated the distance between Syene and Alexandria at 5000 stadia, and regarding this as one-fiftieth of a great circle of the sphere, calculated the circumference of the earth to be 250,000 stadia (equivalent to 25,000 geographical miles), a surprising approximation to the truth. From this he estimated that on the parallel of Rhodes and the Pillars of Hercules, the circumference was about 200,000 stadia. The habitable world he regarded as a little more than a third of the circumference in that latitude; the interval of two-thirds he conceived to be filled up by the sea, and observes:—"If it were not that the vast extent of the Atlantic Sea rendered it impossible, one might even sail from the coast of Spain to that of India along the same parallel."<sup>3</sup> This is the first record of theoretical views on the possibility of circumnavigating the globe. He divided the space occupied by the habitable world by lines at intervals parallel to the equator, and he drew a meridian line at right angles to these, passing through Alexandria, thus introducing what we now call parallels of latitude and meridians of longitude. His map was most defective, arising chiefly from the erroneous calculation of distances, for the measurement of ordinary distances was of the rudest description, more especially with regard to journeys by sea. Ancient navigators had no means of reckoning analogous to the modern log; distances by sea were really nothing more than the conversion of the number of days or nights occupied by the voyages into stadia. (See Plate III.).

PARALLELS OF  
LATITUDE AND  
MERIDIANS OF  
LONGITUDE  
INTRODUCED.

Eratosthenes believed that Africa was surrounded to the south by the sea, as is evident from the frequent employment of the word Atlantic in reference to the Indian Ocean, and Strabo tells us that he considered the Erythræan Sea and the Western Ocean as one and the same body of water.<sup>4</sup>

Eratosthenes had the courage to assert that Homer was ignorant of regions not immediately adjacent to Greece, and he gave much offence by saying that people would never discover the real localities described in the Odyssey—the islands of Æolus, Circe, Calypso—until they had found out the cobbler who had sewn up the bag of Æolus.

Eratosthenes is said to have made most extensive use of a treatise "Concerning Ports," drawn up by Timosthenes, a native of Rhodes, who was admiral of the Egyptian

<sup>1</sup> Strabo, ii. 1, 2.

<sup>2</sup> Lewis, *Historical Survey of the Astronomy of the Ancients*, pp. 187, 188, London, 1862.

<sup>3</sup> Strabo, i. 4, 6; Bunbury, *op. cit.*, vol. i. p. 627 (compare passage from Aristotle, page 15 *ante*). <sup>4</sup> Strabo, i. 3, 13.