

so very far wrong who suppose the region about the Pillars of Hercules and that about India to be contiguous, and that there is but one sea (in the part opposite to the inhabited world), and they point by way of proof to the elephants, these animals being found in both regions, though at the extremes of the earth, this fact showing that the extremes are really near each other."<sup>1</sup>

Many quotations might be given to show what correct ideas Aristotle held concerning the general configuration of the world, and the horizontal extension of continents and seas. The habitable world is divided into islands and continents; our world itself is but an island surrounded by a sea called the Atlantic. In a more restricted sense the Atlantic is only a part of the external sea which bathes the western confines of habitable land, the other parts of the environing sea having then special appellations; to the north the Boreal or Cronian, to the east and south the Southern or Erythræan. The surrounding ocean sends arms into the land, forming special and peculiar seas. At the south, the Indian Gulf, the Persian Gulf, the Arabian Gulf, are formed by the Erythræan. At the west the Internal Sea (Mediterranean) penetrates from the Atlantic into the bosom of the land by the narrow passage of the Columns of Hercules. The Mediterranean itself ramifies into several seas, shut in by the diverse peninsulas which project from Europe and Asia. Of these seas the most advanced into the land is the *Pontus*, or the sea *par excellence*; it has parts called whirlpools (*βαθέα*) so deep that the lead has never reached the bottom. With the exception of these points the depth of the Internal Sea goes on increasing towards the west. The *Pontus* is deeper than the Lake Mæotis, the *Ægean* deeper than the *Pontus*, the *Tyrrhenian* and *Sardinian Seas* deeper than all the others.<sup>2</sup> These bathymetrical data, being the first found in the writings of antiquity, have much interest notwithstanding their want of exactness. Before Aristotle, navigators must necessarily have possessed a knowledge of depths, at least at certain determinate points, but Aristotle was the first, apparently, to generalise these bathymetrical notions of the internal seas of Europe.

As illustrating the slow movements and changes which continents and seas undergo, Aristotle remarks in his *Meteorology* that the Sea of Azov (*Palus Mæotis*) was being filled up, and that it would ultimately become land.<sup>3</sup> He mentions the currents which flow from the Sea of Azov into the Black Sea, and from the Black Sea into the *Ægean*, and attributes the cause of these movements to the inequalities of depth in these seas. It was especially to the seas in the neighbourhood of Greece that he directed his attention; he had no new views in regard to the great external ocean, which he stated, in accordance with the ideas generally admitted in his time, to be muddy and little agitated by winds (*ἄπνοα*).<sup>4</sup>

<sup>1</sup> Aristotle, *De Cæl.*, ii. 15; Berger, *op. cit.*, p. 142.

<sup>2</sup> Aristotle, *Meteorologica*, ii. 12-14; Berger, *op. cit.*, p. iii.

<sup>3</sup> Aristotle, *Meteorologica*, i. 14, sec. 29.

<sup>4</sup> Bunbury (*op. cit.*, vol. i. p. 398) says it is remarkable that no other notice of the ocean or its tides is to be found in the *Meteorologica*; indeed, the very name of the ocean only occurs in one passage in this treatise in reference to the opinions of "the ancients" concerning it (*Meteor.*, i. 9, sec. 6).

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MARINE CURRENTS  
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