

dried up.¹ Aristotle's opinions regarding ocean physics must be viewed as mere speculations, but his researches on marine animals were of distinct scientific value. He named and described more or less minutely one hundred and sixteen species of fishes, about twenty-four species of Crustaceans and Annelids, and some forty Molluscs and Radiates,² making a total of one hundred and eighty species inhabiting the Ægean Sea; and the student is still reminded of his study of the anatomy of *Echinus* by the significant name "Aristotle's Lantern" applied to its masticatory apparatus.

After Aristotle no original inquirer into these matters appeared for many centuries.

Pliny the elder (23-79 A.D.), in his gossipy "Natural History," presents Aristotle's discoveries modified by much subsequent superstition and tradition. He concisely catalogues marine animals into one hundred and seventy-six species, being four less than the number recorded by Aristotle in the Ægean Sea alone. Pleased with this enumeration, he then exclaims:—"Surely then everyone must allow that it is quite impossible to comprise every species of terrestrial animal in one general view for the information of mankind. And yet, by Hercules! in the sea and in the Ocean, vast as it is, there exists nothing that is unknown to us, and, a truly marvellous fact, it is with those things which Nature has concealed in the deep that we are the best acquainted!"

Pliny had to confess himself unable to give a detailed account of the depth of the ocean, some parts he stated to be 15 stadia (over 1500 fathoms) deep, others "immensely deep, no bottom having been found;"³ but he makes up for this in a way by explaining very clearly "why the sea is salt." He says:—"Hence it is that the widely diffused sea is impregnated with the flavour of salt, in consequence of what is sweet and mild being evaporated from it, which the force of fire easily accomplishes; while all the more acrid and thick matter is left behind, on which account the water of the sea is less salt at some depth than at the surface."⁴

In this explanation Pliny followed Aristotle, and helped to open up a magnificent arena for the hair-splitting scholastics of the Middle Ages to dispute in. Bishop Watson⁵ says:—"There are few questions respecting the natural history of the globe which have been discussed with more attention, or decided with less satisfaction, than that concerning the primary cause of the saltiness of the sea. The solution of it had perplexed the philosophers before the time of Aristotle; it surpassed his own great genius, and those of his followers who have attempted to support his arguments have been betrayed into very ill grounded conclusions concerning it. Father Kircher,⁶ after having consulted three and thirty authors upon the subject, could not help remarking, that the fluctuations of the ocean itself were scarcely more various than the opinions of

¹ Meteorolog., lib. ii. cap. iii.

² De Animal. Hist., lib. iv. cap. i.-vii.; Eng. transl. by Ogle, pp. 97-115, London, 1882.

³ Hist. Nat., lib. ii. cap. cii.

⁴ *Ibid.*, lib. ii. cap. c.

⁵ Chemical Essays, vol. ii. pp. 93, 94, 2nd ed., 1782.

⁶ Mundus Subterraneus, Liber iii. chap. iii.