

of oceanic species, that we subsequently met with in the central parts of the ocean, though there was not more than a mere selection of the very commonest forms. It was here that we first became aware of the immense contrast between the scanty plant life and the teeming animal life. Sir John Murray and I examined the stomach contents of the salpæ abounding in the Strait of Gibraltar, and could see that they lived almost entirely on small forms like coccolithophoridæ and tiny peridineæ, which were too diminutive for our silk nets to capture. Radiolaria, however, both Acanthometridæ and colony-forming species, in symbiosis with brown flagellates, were present sometimes in such quantities that their assimilation of carbonic acid played no small part in proportion to that of the scanty plant plankton. Close in to the shore, on the other hand, there was abundance of plankton, and we got quantities of neritic diatoms off Lisbon, in the Strait of Gibraltar, and at several places on the coast of Morocco down to Cape Bojador. Different species predominated in the different samples, but *Lauderia annulata* was the commonest form everywhere.

No one accustomed to the plankton algæ of northern waters, with their numerous dark-brown chromatophores, could fail to be struck by the fact that the species never had more than a few small chromatophores, and thus had a pale appearance. In the diatoms the strong light frequently had the effect of making the chromatophores group themselves in the centre of the cell, or in *Lauderia annulata* at the terminal faces where the cells in the chain touch each other. This was invariably the case in plankton near the surface, though deeper down the position of the chromatophores might be normal.¹

On this cruise we made acquaintance with the tropical Atlantic plankton in all its abundance. For a northerner it was most fascinating to study the many strange forms, especially of peridineæ. Every fresh batch disclosed species that were new or rare, or else remarkable stages of development. The

The Central Atlantic from the Canaries to the Azores, and from the Azores to the Newfoundland Bank.

(Stations 44-69, 28th May-29th June.)

¹ The following list is from a sample pumped up from the surface, off the south coast of Portugal, on 24th April 1910:—

Diatoms: *Lauderia annulata* (the prevailing form, found with auxospores), *Thalassiosira subtilis*, *T. gravida*, *Stephanopyxis turris*, *Paralia sulcata*, *Coscinodiscus concinnus*, *Leptocylindrus danicus*, *Rhizosolenia alata*, *R. shrubsolei*, *R. styliformis*, *R. stollerfothii*, *R. delicatula*, *R. robusta*, *Chatoceras densum*, *C. schüttii*, *C. didymum*, *C. curvisetum*, *C. decipiens*, *C. lorenzianum*, *C. diversum*, *Eucampia zodiacus*, *Hemiaulus hauckii*, *Biddulphia mobiliensis*, *Bacteriastrum varians*, *Nitzschia seriata*.

Peridineæ: *Ceratium lineatum*, *C. macroceros*, *C. fusus*, *C. furca*, *C. candelabrum*, species of *Peridinium*, *Gonyaulax spinifera*, *Diplopsalis lenticula*, *Dinophysis acuminata*, *D. rotundata*, *D. acuta*; *Coccolithophora pelagica*.