

multitude of shells belonging to very small marine animals, then considered as nautili and ammonites—an error which lasted till 1835. As he assigned no particular names to the diverse forms, which he described and figured with care, and even grouped according to certain analogies, Soldani did not advance the knowledge of them as much as he might have done had he applied the then well-known nomenclature of Linnæus. In 1789–1797 he produced another very considerable work¹ on the microscopic shells found on the shores of the islands of Giglio, Elba, Massa, &c. He observes in this work that these small bodies are not young specimens which grow with age, but are perfect adults. The various species occupy various depths, and this explains, he adds, why those in a fossil state are not found mixed indifferently in all the strata.

In 1836 Professor C. G. Ehrenberg produced his first works. His name will ever remain inseparably connected with the discoveries relating to the microscopic organisms of the sea. It would be impossible to enumerate here the numerous memoirs and important publications of this micrographer, who devoted his whole life, with extraordinary activity, to microscopic organisms, to atmospheric dust, to the examination of material brought up from deep soundings, and to all questions appertaining to the sea. We must touch on one salient point, viz., the connection he established between certain classes of living microscopic organisms, and the part they played in geological times. As early as 1836 he showed that the siliceous strata, known as “Tripoli,” found in various parts of the globe, especially at Bilin in Bohemia, were but an accumulation of the skeletons of Diatoms, Sponges, and Radiolaria; he pointed out that similar strata were formed now-a-days by Diatoms in the subsoil of Berlin. In 1839 his observations at Cuxhaven revealed the presence of living Diatoms and Radiolarians on the surface of the Baltic, of the same species as those found fossil in the Tertiary deposits of Sicily and Oran. He showed, moreover, that in the Diatom layers of Bilin the siliceous deposit had, under the influence of infiltrated water, been transformed into compact opaline masses. Starting from these facts, he concluded that rocks similar to those which play so important a part in the terrestrial crust are still being formed on the bottom of the sea.

Humboldt addressed a letter to Lord Minto, First Lord of the Admiralty, with reference to Sir J. C. Ross’s Antarctic Expedition, calling attention to the importance of studying the microscopic organisms, which Ehrenberg had shown played so important a role in the constitution of terrestrial strata. Dr. Joseph Hooker, who was attached as naturalist to the expedition, observed² that the waters and ice of the Antarctic regions swarm with Diatoms to such an extent that they give the water a brown tint. Between lat. 50° and 70° S. prodigious quantities of them were found, and in 80° S. lat. all the surface ice, the sides of the icebergs, and the base of the great Victoria Barrier within the limit of the waves, were coloured brown by these organisms. He remarks that the siliceous

¹ Testaceographia et zoophytographia parva et microscopica, with 179 plates.

² *Brit. Ass. Report* for 1847.