

Hooker, I was informed by the late Sir Wyville Thomson that everything would be done to aid this investigation. The announcement which I received somewhat later from Mr John Murray that Sir Wyville Thomson proposed that I should undertake a systematic examination both of the littoral and pelagic Diatoms brought home by the Expedition caused me no little delight or surprise. The proposal, however, I gladly accepted, and although conscious of the arduous nature of the work, I resolved to spare no pains in making it as complete as the time at my disposal would permit.

The materials as intrusted to me consisted of about a hundred small bottles containing muds or oozes from different regions, together with several surface collections obtained by the use of the tow-net. The whole was in excellent condition, and the depth and position of the gathering, as well as the date when it was procured, were carefully recorded on every sample.

The time necessary for the preparation of illustrative slides from so many gatherings and for the determination of new genera and species has necessarily been somewhat long, but I am indebted to Mr Murray for an extension, more than once, of the period at first granted to me, and this has enabled me to make the present Report somewhat more complete than it otherwise could have been. It cannot be doubted, however, that among the great amount of material at my command many new or rare forms have escaped observation, and these may be published at a subsequent time as a supplement to the present work.

In several cases criticisms have been offered or emendations given of the definitions of previously known genera and species. As was to be expected from the examination of gatherings made in so many hitherto unexplored regions, the list of new species that have been established—some provisionally—is considerable, but care has been taken to limit these as far as possible. A few new genera have been founded, but on the other hand several old ones have been abolished, our recent advances in the knowledge of the Diatomaceæ being such as to reveal the inadequacy of the characters that have been hitherto regarded as of generic value. In all cases where the differences between any form and the already known typical species have been of a subordinate kind and quite insufficient to justify the introduction of new specific names, varieties have been constituted, but these instances are not very numerous.

Although in the earlier stages of my work it was my endeavour to record the various species that occurred in each gathering with a view of perfecting somewhat more fully our knowledge of the environments and geographical distribution of the various species, I soon abandoned this method, and have been satisfied by merely recording in most cases the locality from which the various species described have been obtained.

The plates have been prepared under my direct supervision by Signor Cesare Cerri, and to him my best thanks are due for the faithful manner in which he has executed the work. It is perhaps somewhat unfortunate that a natural classification has not been