

exact depth, in taking bottom and intermediate temperatures, and in determining the distribution of the deep-sea fauna by means of the dredge; and I have stated the general conclusions on various questions to which we were at that time led by the study and generalization of our results. Although the additional experience which we have now gained has caused me to alter my views on one or two important points, I adhere in the main to the opinions and statements contained in that book, and, to save unnecessary repetition, I shall regard "The Depths of the Sea" as a general introduction to the series of volumes giving an outline of the *Challenger* Circumnavigating Expedition.

This last undertaking was on a very different scale from the trial cruises of the gun-boats, and the first chapter is occupied with the description of the much more complete arrangements for scientific work on board the *Challenger*.

After the termination of the cruise of the *Porcupine*, I had a very strong conviction that the foraminifera of the genera *Globigerina*, *Orbulina*, and *Pulvinulina*, which are chiefly concerned in forming the modern chalk, lived on the bottom. Our later observations have, however, satisfied me that they *never* live on the bottom, but that they inhabit the surface, and the water to a limited depth beneath it.

My general views with regard to ocean circulation remain unaltered. I think, however, that we have now good reason to believe that the indraught of water at a low temperature into the Atlantic and Pacific—gulfs, as we may almost call them—from the Southern Sea, is to a great extent due to an excess of precipitation over evaporation in the "water-hemisphere" and a corresponding excess of evaporation over precipitation in the "land-hemisphere;" that, in fact, a part of the circuit of general ocean circulation passes through the atmosphere.