Sir C. Wyville Thomson, The Voyage of the Challenger: The Atlantic. A Preliminary Account. Vol. II. (1878)

more stable combinations, through the decomposition of the multitudes of organized beings which swarm in the successive layers of the sea; and I am still inclined to refer to this source a great part of the molecular matter which always forms a considerable part of a red-clay microscopic preparation.

There is great difficulty in pointing out rocks belonging to any of the past geological periods which correspond entirely, whether in chemical composition or in structure, with the beds now in process of formation at the bottom of the ocean. There seems every reason to believe that the rocks of the Mesozoic and Cenozoic series, at all events, were formed in comparatively shallow water, and after the prominent features at present existing had been stamped upon the contour of the earth's crust; and, consequently, that none of these have the essential characters of deep-sea deposits. I imagine, however, that the limestone which would be the result of the elevation and slight metamorphosis of a mass of globigerina ooze would resemble very closely a bed of gray chalk; and that an enormous accumulation of red clay might in time, under similar circumstances, come to be very like one of the Paleozoic schists, such, for example, as the Cambrian schist with Oldhamia and worm-tracks at Bray Head. It is a very difficult question, however, and one on which I shall offer no opinion until we have very much more complete data from comparative microscopical examination and chemical analysis.

The Distribution of Ocean Temperature.—Throughout the whole of the Atlantic the water is warmest at the surface. From the surface it cools rapidly for the first hundred fathoms or so; it then cools more slowly down to five or six hundred fathoms, and then extremely slowly, either to the bottom or to a certain point, from which it maintains a uniform or nearly uniform temperature to the bottom.

A glance at a series of temperature sections such as those represented in Plates V., IX., XVI., XX., XXII., and XXVIII.,

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