

interested, across the Atlantic Ocean. Ingenious contrivances were suggested and applied, not merely for determining the exact depth, but for bringing up samples of the bottom sufficient to test the composition and character of the deposits in process of formation on the sea-bed.

In the mean time another class of students, working for the increase of knowledge, though perhaps with less immediate bearing upon the progress of the human race or the advance of their own interests, had been investigating the forms and natures of living things, the external conditions upon which their frail lives depend, and the laws under which they are localized or distributed upon the surface of the earth; and, judging from the scanty data laboriously accumulated with the imperfect appliances at that time at their disposal, had come to the conclusion that life at the bottom of the sea was confined to a narrow border round the land; that at a depth of 100 fathoms plants almost entirely disappeared and animals were scarce, and represented those animal groups only which are among the most simple in their organization; while at 300 fathoms the sea-bottom became a desolate waste, the physical conditions being such as to preclude the possibility of the existence of living beings.

Samples of the sea-bottom, procured with great difficulty and in small quantities from the first deep soundings of the Atlantic, chiefly by the use of Brooke's sounding-machine, an instrument which by a neat contrivance disengaged its weights when it reached the bottom, and thus allowed a tube, so arranged as to get filled with a sample of the bottom, to be recovered by the sounding-line, were eagerly examined by microscopists; and the singular fact was at length established that these samples consisted, over a large part of the bed of the Atlantic, of the entire or broken shells of certain foraminifera, and the bulk of the evidence seemed to be in favor of the animals which inhabited these shells having lived in the situation in which they were found, and not, as was at first supposed, having lived in