

with pelagic mollusca; and in moderate depths, the shells of these are constantly mixed with the globigerina ooze, sometimes in number sufficient to make up a considerable portion of its bulk. It is clear that these shells must fall in equal numbers upon the red clay; but scarcely a trace of one of them is ever brought up by the dredge on the red-clay area. It might be possible to explain the absence of shell-secreting animals *living on the bottom* by the supposition that the nature of the deposit was injurious to them; but the idea of a current sufficiently strong to sweep them away, if falling from the surface, is negatived by the extreme fineness of the sediment which is being laid down. The absence of surface shells appears to be intelligible only on the supposition that they are in some way removed by chemical action.

We conclude, therefore, that the red clay is not an additional substance introduced from without, and occupying certain depressed regions on account of some law regulating its deposition; but that it is produced by the removal, by some means or other, over these areas, of the carbonate of lime, which forms probably about 98 per cent. of the material of the globigerina ooze. We can trace, indeed, every successive stage in the removal of the carbonate of lime, in descending the slope of the ridge or plateau where the globigerina ooze is forming, to the region of the clay. We find, first, that the shells of pteropods and other surface mollusca, which are constantly falling on the bottom, are absent; or, if a few remain, they are brittle and yellow, and evidently decaying rapidly. These shells of mollusca decompose more easily, and disappear sooner, than the smaller and apparently more delicate shells of rhizopods. The smaller foraminifera now give way, and are found in lessening proportion to the larger; the coccoliths first lose their thin outer border and then disappear; and the clubs of the rhabdoliths get worn out of shape, and are last seen, under a high power, as minute cylinders scattered over the field.