

elevated beds of coral, which, occurring in other places, indicate a recent rising of the land; and on such grounds as these he divides the surface of those parts of the ocean into regions of elevation and of depression.

The labors of coralline zoophytes, as thus observed, form masses of coral, such as are found fossilized in the strata of the earth. But our knowledge of the laws of life which have probably affected the distribution of marine remains in strata, has received other very striking accessions by the labors of Prof. Edward Forbes in observing the marine animals of the *Ægean Sea*. He found that, even in their living state, the mollusks and zoophytes are already distributed into strata. Dividing the depth into eight regions, from 2 to 230 fathoms, he found that each region had its peculiar inhabitants, which disappeared speedily either in ascending or in descending. The zero of animal life appeared to occur at about 300 fathoms. This curious result bears in various ways upon geology. Mr. Forbes himself has given an example of the mode in which it may be applied, by determining the depth at which the submarine eruption took place which produced the volcanic isle of Neokaimeni in 1707. By an examination of the fossils embedded in the pumice, he showed that it came from the fourth region.<sup>5</sup>

To the modes in which organized beings operate in producing the materials of the earth, we must add those pointed out by the extraordinary microscopic discoveries of Professor Ehrenberg. It appears that whole beds of earthy matter consist of the cases of certain infusoria, the remains of these creatures being accumulated in numbers which it confounds our thoughts to contemplate.]

Speculations concerning the *causes* of volcanoes and earthquakes, and of the rising and sinking of land, are a highly important portion of this science, at least as far as the calculation of the possible results of definite causes is concerned. But the various hypotheses which have been propounded on this subject can hardly be considered as sufficiently matured for such calculation. A mass of matter in a state of igneous fusion, extending to the centre of the earth, even if we make such an hypothesis, requires some additional cause to produce eruption. The supposition that this fire may be produced by intense chemical action between combining elements, requires further, not only some agency to bring together such elements, but some reason why

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<sup>5</sup> *British Assoc. Reports*, 1843, p. 177.