

action of the solvent than the thicker though smaller, *Globigerina* shells, this apparent anomaly will be explained. The agent concerned in the removal of these calcareous shells is believed to be sea water itself, and the carbonic acid dissolved in it. This question is discussed in Chapter XXII. (see p. 981).

“The action which suffices to dissolve the calcareous matter has little or no effect upon the silica, and so the siliceous shells accumulate and form a Radiolarian ooze in the central portions of the Pacific. A Diatom ooze has been found only in the Southern Ocean south of lat. 45° S.

“Red clay may be found anywhere within lats. 45° N. and S., and at depths greater than 2200 fathoms. It passes at its margins into the organic calcareous or siliceous oozes, found in the lesser depths of the abysmal regions, or into the terrigenous deposits. In its typical form the red clay occupies a larger area than any of the other true deep-sea deposits, covering the bottom in vast regions of the North and South Pacific, Atlantic, and Indian Oceans. As above remarked, this clay may be said to be universally distributed over the floor of the oceanic basins; but it only appears as a characteristic deposit at points where the siliceous and calcareous organisms do not conceal its proper characters.

“The abysmal region in which occur the organic oozes and red clay consists of vast undulating plains from two to five miles beneath the surface of the sea, the average being about three miles, here and there interrupted by huge volcanic cones (the oceanic islands). No sunlight ever reaches these deep cold tracts; the range of temperature over them is not more than 7°, viz., from 31° to 38°, and is apparently constant throughout the whole year in each locality. Plant life is absent, and although animals belonging to all the great invertebrate types are present, there is no great variety of form nor abundance of individuals. Change of any kind is exceedingly slow.

“The abysmal region occupied by the organic oozes and red clay is estimated to occupy about three-eighths of the earth's surface, or an area equal to that of the continents, while the region between the abysmal areas and the continents,—that covered by the terrigenous deposits, is estimated to occupy the remaining two-eighths of the surface of the globe.

“The terrigenous deposits of lakes, shallow seas, enclosed seas, and the shores of the continents, reveal the equivalents of chalks, green sands, sandstones, conglomerates, shales, marls, and other sedimentary formations. Such formations as certain Tertiary deposits of Italy, Radiolarian earth from Barbados, and portions of the Chalk where pelagic conditions are indicated, must be regarded as having been laid down rather along the border of a continent than in a true oceanic area. The argillaceous and calcareous rocks, recently discovered by Dr. Guppy, in the upraised coral islands in the Solomon group, are nearly identical with the volcanic muds, the Pteropod and *Globigerina* oozes of the Pacific are, however, also represented.