

*Geographical extent and origin of the White Chalk.*—The area over which the white chalk preserves a nearly homogeneous aspect is so vast, that the earlier geologists despaired of discovering any analogous deposits of recent date. Pure chalk, of nearly uniform aspect and composition, is met with in a northwest and southeast direction, from the north of Ireland to the Crimea, a distance of about 1140 geographical miles, and in an opposite direction it extends from the south of Sweden to the south of Bourdeaux, a distance of about 840 geographical miles. In Southern Russia, according to Sir R. Murchison, it is sometimes 600 feet thick, and retains the same mineral character as in France and England, with the same fossils, including *Inoceramus Cuvieri*, *Belemnites mucronatus*, and *Ostrea vesicularis*.

But it would be an error to imagine that the chalk was ever spread out continuously over the whole of the space comprised within these limits, although it prevailed in greater or less thickness over large portions of that area. On turning to those regions of the Pacific where coral reefs abound, we find some archipelagoes of lagoon islands, such as that of the Dangerous Archipelago, for instance, and that of Radack, with several adjoining groups, which are from 1100 to 1200 miles in length, and 300 or 400 miles broad; and the space to which Flinders proposed to give the name of the Coralline Sea is still larger; for it is bounded on the east by the Australian barrier—all formed of coral rock,—on the west by New Caledonia, and on the north by the reefs of Louisiade. Although the islands in these areas may be thinly sown, the mud of the decomposing zoophytes may be scattered far and wide by oceanic currents. That this mud would resemble chalk I have already hinted when speaking of the Faxoe limestone, p. 238, and it was also remarked in an early part of this volume, that even some of that chalk, which appears to an ordinary observer quite destitute of organic remains, is nevertheless, when seen under the microscope, full of fragments of corals, bryozoa, and sponges; together with the valves of entomostraca, the shells of foraminifera, and still more minute infusoria. (See p. 26.)

Now it had been often suspected, before these discoveries, that white chalk might be of animal origin, even where every trace of organic structure has vanished. This bold idea was partly founded on the fact, that the chalk consisted of carbonate of lime, such as would result from the decomposition of testacea, echini, and corals; and partly on the passage observable between these fossils when half decomposed and chalk. But this conjecture seemed to many naturalists quite vague and visionary, until its probability was strengthened by new evidence brought to light by modern geologists.

We learn from Capt. Nelson, that, in the Bermuda Islands, and in the Bahamas, there are many basins or lagoons almost surrounded and inclosed by reefs of coral. At the bottom of these lagoons a soft white calcareous mud is formed, not merely from the comminution of corallines (or calcareous plants) and corals, together with the exuviae of foraminifera,