Сн. L.]

the sea-coast, in the delta of the Ganges, there are eight great openings, each of which has evidently, at some ancient periods, served in its turn as the principal channel of discharge.\* As the base of the delta is 200 miles in length, it must happen that, as often as the great volume of river-water is thrown into the sea by a new mouth, the sea will at one point be converted from salt to fresh, and at another from fresh to salt; for, with the exception of those parts where the principal discharge takes place, the salt water not only washes the base of the delta, but enters far into every creek and lagoon. It is evident, then, that repeated alternations of beds containing freshwater shells, with others filled with marine exuviæ, may here be formed. It has also been shown by artesian borings at Calcutta (see above, p. 267.), that the delta once extended much farther than now into the gulf, and that the river is only recovering from the sea the ground which had been lost by subsidence at some former period. Analogous phenomena must sometimes be occasioned by such alternate elevation and depression as has occurred in modern times in the delta of the Indus.<sup>†</sup> But the subterranean movements affect but a small number of the deltas formed at one period on the globe; whereas the silting up of some of the arms of great rivers and the opening of others, and the consequent variation of the points where the chief volume of their waters is discharged into the sea, are phenomena common to almost every delta.

The variety of species of Testacea contained in the recent calcareous marl of Scotland, before mentioned, is very small, but the abundance of individuals extremely great, a circumstance very characteristic of freshwater formations in general, as compared to marine; for in the latter, as is seen on sea-beaches, coral-reefs, or in the bottom of seas examined by dredging, wherever the individual shells are exceedingly numerous, there rarely fails to be a vast variety of species.

## Imbedding of the Remains of Marine Plants and Animals.

Marine Plants.—The large banks of drift sea-weed which occur on each side of the equator in the Atlantic, Pacific, and Indian oceans, were before alluded to.<sup>‡</sup> These, when they subside, may often produce considerable beds of vegetable matter. In Holland, submarine peat is derived from Fuci, and on parts of our own coast from Zostera marina. In places where Algæ do not generate peat, they may nevertheless leave traces of their form imprinted on argillaceous and calcareous mud, as they are usually very tough in their texture.

Cetacea. — It is not uncommon for the larger Cetacea, which can float only in a considerable depth of water, to be carried during storms or high tides into estuaries, or upon low shores, where, upon the retiring of high water they are stranded. Thus a narwal (Monodon monoceros) was found on the beach near Boston in Lincolnshire, in the year 1800, the whole of its body buried in the mud. A fisherman going to his boat saw the horn, and tried to pull

\* Page 264.

‡ Page 599.