

repose of some duration, and a forest-covered land, which must have subsided 300 feet, to admit of the subsequent superposition of the overlying deposits. It has been conjectured that, at the time when this area supported trees, the land extended much farther out into the Bay of Bengal than now, and that in later times the Ganges, while enlarging its delta, has been only recovering lost ground from the sea.

At the depth of about 400 feet below the surface, an abrupt change was observed in the character of the strata, which were composed in great part of sand, shingle, and boulders, the only fossils observed being the vertebræ of a crocodile, shell of a trionyx, and fragments of wood very little altered, and similar to that buried in beds far above. These gravelly beds constituted the bottom of the section at the depth of 481 feet, when the operations were discontinued in consequence of an accident which happened to the auger.*

CONCLUDING REMARKS ON DELTAS.

Age of existing deltas.—If we could take for granted, that the relative level of land and sea had remained stationary ever since all the existing deltas began to be formed—could we assume that their growth commenced at one and the same instant when the present continents acquired their actual shape—we might understand the language of geologists who speak of “the epoch of existing continents.” They endeavour to calculate the age of deltas from this imaginary fixed period; and they calculate the gain of new land upon the sea, at the mouths of rivers, as having begun everywhere simultaneously. But the more we study the history of deltas, the more we become convinced that upward and downward movements of the land and contiguous bed of the sea have exerted, and continue to exert, an influence on the physical geography of many hydrographical basins, on a scale comparable in magnitude or importance to the amount of fluviatile deposition, effected in an equal lapse of time. In the basin of the Mississippi, for example, proofs both of descending and ascending movements to a vertical amount of several hundred feet can be shown to have taken place since the existing species of land and freshwater shells lived in that region.†

The deltas also of the Po and Ganges have each, as we have seen (pp. 260. 268.), when probed by the Artesian auger, borne testimony to a gradual subsidence of land to the extent of several hundred feet,—old terrestrial surfaces, turf, peat, forest-land, and “dirt-beds,” having been pierced at various depths. The changes of level at the mouth of the Indus in Cutch (see below, chap. 28.), and those of New Madrid in the valley of the Mississippi (see p. 216.), are equally instructive, as demonstrating unceasing fluctuations in the levels of continents, while running water is transporting sediment from place to place. If then the exact age of all modern deltas could be known,

* Journ. of Asiatic Society, vol. ix. p. 677. 1840.

† Lyell's Second Visit to the United States, vol. ii. chap. 34.