

sand strewed over the buried trees and layers of vegetable matter, than they usually are in the grits associated with the coal of ancient date. The phenomena, also, of the New Madrid earthquake, may help us to explain the vast geographical area over which, in the course of ages, dense fluvial and lacustrine strata, with intercalated beds of vegetable origin, may be made to extend without any inroads of the sea. For the inland parts of any hydrographical basin may be augmented indefinitely in length and breadth, while the seaward portions continue unaltered, as the delta around New Orleans, and the low lands bordering the Gulf of Mexico, preserved their level unchanged, while parts of Missouri and Tennessee were lowered.

By duly appreciating the permanent geographical revolutions which would result from a succession of such earthquakes as that of 1811-12, in the territory of New Madrid, we shall be prevented from embracing the theory implied in the language of those who talk of "the epoch of existing continents." In treating of deltas, they are in the habit of assuming that the present mass of alluvial matter which has been thrown into the sea at the mouths of great rivers, began to be deposited in all the great hydrographical basins of the world at one and the same fixed period—namely, when the formation of the existing continents was completed; as if the relative levels of land and sea had, during that time, remained stationary, or had been affected to so inconsiderable an amount, as to be unimportant in their influence on the physical geography of each region, in comparison with the changes wrought by the rivers, in converting sea into land. But what we already know of the deltas of the Po, Indus, Ganges, and other rivers, leads to a very different conclusion. The boring of an artesian well at Calcutta, was carried to the depth of 481 feet, the greater part of the section being below the level of the sea, and yet all the beds pierced through were of fresh-water origin, without any intermixture of marine remains. At different depths, even as far down as 380 feet, lacustrine shells, and a stratum of decayed wood, with vegetable soil, which appears to have supported trees, was met with.\* These appearances may

\* See "Principles of Geology," Seventh Edition, 1847, p. 266.