

dermine them, and, aided by the river and tides, sweep much of them away, and perhaps shape out a bay. But the swamp-mud, with innumerable interlaced roots of cypress and other trees, might offer considerable resistance; and, after a time, the river charged with sediment would throw down bars, and form a breakwater, to protect the newly upraised deposits from annihilation.

In regard to the time consumed in accomplishing the great oscillation of level which first depressed so large an area to the depth of 200 feet or more, and then restored it to its former position, it is impossible, in the present state of science, to form more than a conjecture as to the probable mean rate of movement. To suppose an average sinking and upheaval of two and a half feet in a century, might be sufficient, or would, perhaps, be too great, judging from the mean rate of change in Scandinavia, Greenland, the north of the Adriatic, and other regions. Even such an oscillation, if simultaneously continuous over the whole area, first in one direction, and then in another, and without any interruptions or minor oscillations, would require sixteen thousand years for its accomplishment. But the section at Cincinnati seems to imply two oscillations, and there would probably be pauses, and a stationary period, when the downward movement ceased, and was not yet changed into an upward one. Nor ought we to imagine that the whole space was always in motion at once.

When we have at length done our best to trace back the history of the more modern and more ancient alluvial formations of the Mississippi, the question still remains, what may be their age relatively to the great body of the drift containing erratic blocks in the northern latitudes of this same continent. The terraces of gravel and loam bordering the Ohio, and those on a larger scale, but of the same age, which constitute many of the eastern bluffs of the Mississippi, are evidently features of subordinate importance in the physical configuration of the continent. But to explain the origin of the northern drift of the Canadian lake district, and of the St. Lawrence, as I have endeavored to show in my former "Travels," requires a reference to such changes as would imply the submergence of a great part of the continent