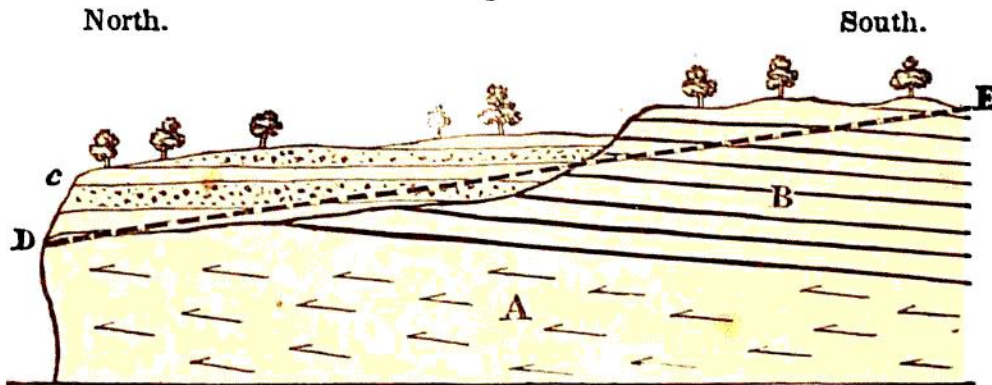


if the river once extended farther northwards, at a level sufficiently high to cover the greater part of Goat Island. At that period the ravine could not have existed, and there must have been a barrier, several miles lower down, at or near the whirlpool.

Fig. 2.



*Section of Goat Island from North to South, 2500 feet in length.*

- A. Massive compact portion of the Niagara limestone.
- B. Upper thin-bedded portion of the Niagara limestone, strata slightly inclined to the South.
- c. Horizontal freshwater beds of gravel, sand, and loam, with shells.
- D, E. Present surface of the river Niagara at the Rapids.

The supposed original channel, through which the waters flowed from Lake Erie to Queenston or Lewiston, was excavated chiefly, but not entirely, in the superficial drift, and the old river-banks cut in this drift are still to be seen facing each other, on both sides of the ravine, for many miles below the Falls. A section of Goat Island from south to north, or parallel to the course of the Niagara (see fig. 2.), shows that the limestone (B) had been greatly denuded before the fluviatile beds (c) were accumulated, and consequently when the Falls were still several miles below their present site. From this fact I infer that the slope of the river at the rapids was principally due to the original shape of the old channel, and not, as some have conjectured, to modern erosions on the approach of the Falls to the spot.