

not only a greater downward bend, but also the waters of the Lake were greatly reduced in depth; consequently, we find vastly greater deposits of the excavated materials upon the northern shore of this elevation. Those heights in Scarborough which project forward to the Lake, the hill upon which Captain Baldwin's house stands, and the ridge upon which Dundas road runs along the head of the Lake, all belong to this era; but there is one very remarkable circumstance, viz: that the waters of the Lake must have remained stationary for a long series of years at the elevation of the base of this ridge, 208 feet above their present level; and the rapid in the Niagara river at Queenston must have disappeared for the greater portion of that time, and the course of the river from the falls (which were then at or near the whirlpool,) to Queenston, must have been nearly level; but so great a body of water as a river equal to the Mississippi and the Niagara rivers united, flowing through, and confined into a course not more than 800 feet wide, must have acquired an awful velocity as it entered into the Lake, and it would be surprising indeed if we could not trace its action upon the northern shore,—traces of its action however, are well defined there, as we shall now proceed to shew.

Scarborough heights just east of Mr. Small's farm, are well known to you all to consist of masses of gravel and sand such as are above described; as we proceed westward we find these masses retaining the same elevation, but at a greater distance from the Lake; they cross the course of the Don river to the northward of Messrs. Helliwell's brewery; they then form the hill to the northward of this city, upon which Captain Baldwin's and Colonel Wells' houses are situated, then trend more to the southward, cross the river Humber to the north of the Dundas road, and assume a southward bearing, encircling the head of the Lake at varying distances of from 3 to 5, or 6 miles from its present shore. That valley in which this city is situated, forms a sort of amphitheatre, surrounded upon the north side by these heights, the central part of the curve is near to Captain Baldwin's house, where the height of the hill is about 70 feet above its base. It is almost perpendicular, and is evidently an indentation cut out of the masses of sand which had been previously deposited. Now, if when

we examine the chasm of the Niagara river just above Queenston, we find that the centre of this amphitheatre upon the north side of the Lake is situated in the direct line of the current, as it must then have flowed out from it, we cannot find any difficulty in discovering the power which produced this indentation; and as we trace the evidences of the action of this current upon the northern side of the Lake, the conviction becomes certain. In the first place, if so large a quantity of sand (for I believe the sand ridge once extended south to near the College grounds) was washed away by a direct current acting upon it, the materials excavated must have been deposited by the eddying waters at a short distance, and at a somewhat lower level than the then surface of the Lake.—This position we find exactly realized in the vast masses of sand which form the sandy plains near the Humber upon the west, and in those other masses which form the sandy plains and ridges on both sides of the river Don upon the east. In the second place, if a direct current acted with such effect upon this height, besides the eddying waters produced by it, at a short distance from the shore where the water was sufficiently deep, an under-current would be formed, in order to preserve the equilibrium, and to discharge the accumulation produced by the direct surface current. This under current would act upon the bottom of the Lake, and produce a deep excavation, nearly in the line of the direct current, or where the advancing current was pressing the receding current downward. We find just such an excavation in Toronto bay or harbour, which we have already shewn is an excavation in the tertiary blue clay, and to the action and reaction of these currents we ascribe the formation of Toronto harbour. But still, let us further examine the progress of this denudation upon that space between the harbour and the hill, or where the city is now built. We have already shewn that the tertiary formations consist of blue clay 80 to 100 feet thick, white clay 3 or 4 feet thick, and the surface clays, sands, and boulders of varying thickness. Now, at the ravine of the blue hill's north of the city, we find the white clay resting conformably upon the blue clay; therefore these formations have never been disturbed at this place since their first deposition; but the surface clays appear to have suffered much from conflicting currents. Now the water of