

and continuous character round the head of Burlington Bay as along its north and south flanks ; but there is the strongest reason to believe that they do. If then we conceive the rocks to have run continuously at the same elevation round the head of the valley, and at the same time imagine the sea to have covered them as explained before, we have here precisely the circumstances which would produce all the phenomena we now behold. A bay or basin would thus be formed entirely sheltered from currents, and into which large quantities of the floating ice-islands would be driven by the winds ; and thus would be produced that irregular, rolling and deeply indented surface which we find prevailing from the eastern limits of Hamilton to Copetown. A succession of ridges of sand and gravel, no less than seven in number, in some places more, and in others less distinctly marked, have been traced for great distances along the north shore of Lake Ontario, and as far east as the Montreal Mountain and the slopes of the White Mountains in Vermont ; each preserving, as far as the Lake Ontario region is concerned, a uniform level at their bases, and all nearly parallel to each other and to the present beach of the Lake ; but the lowest of these is one hundred and ten feet above the Lake at its base, and hence there is no reason to believe that the Heights form any portion of an ancient sea beach, as the others unquestionably are.* It is asserted by Lyell, on what seems to be uncontrovertible grounds, that these beaches indicate the succession of levels of the sea as the country underwent a gradual and intermittent upward movement after the deposition of the boulder or drift formation, which was the last great change previous to the present era in the earth's history.

I may remark here that the deep notch or indentation formed by the Niagara river at the whirlpool on the Canadian side, is bounded by a formation consisting exclusively of clay, cemented gravel and sand, with boulders both of granitic and limestone origin, precisely similar to the formation at Burlington Heights ; and that there is an obvious connection between this break in the older strata and the opening in the escarpment at St. David's, indicating that here a deep

* In the year 1852 in excavating through the Burlington Heights for the Great Western Railway, a gigantic tusk of a Mammoth or *Elephas Primigenius* was exhumed, having been buried in the solid conglomerate at the depth of forty feet below the surface ; and in the same cutting, the horn of a Wapiti or Canadian Stag was brought to light. This latter species is not yet quite, although rapidly becoming, extinct on this continent ; and the occurrence of its remains, associated with those of a species which has been extinct previous to the historic period, forms an interesting link between the past and present geological epochs.