

THE IROQUOIS BEACH.

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THE effect of wave action in cutting cliffs, spreading materials as terraces, and heaping up beach sands and gravels is so easily recognised that old shore lines, where well marked like those of the Iroquois beach, quickly attract attention. Mr. Thos. Roy, a land surveyor in the early days of "Upper Canada," was the first to refer to the Iroquois beach, in a paper on the "Ancient State of the North American Continent," read by Lyell before the Geological Society of London in 1837. In this paper* Roy describes a series of "terraces or level ridges" to the north of Lake Ontario, the first at 108 feet above the lake, the second at 208 feet, and a series of higher ones, the last rising 762 feet above Ontario, or 996 feet above the sea. It is probable that the beach described as two and a half miles north of the lake and 208 feet above it must be looked on as the Iroquois beach, though later measurements make its height only 170 feet. Roy's other beaches have not been found with certainty by later observers, and it is doubtful if he was correct in his inferences, the densely wooded character of much of the country making it more difficult in those days to recognise an old beach.

In 1842 Lyell visited Toronto, largely to examine these terraces, and rode in company with Roy about twenty miles north, *i.e.*, to the old moraine of the Oak Ridges, and reports having seen in all eleven of these apparent beaches, the highest 680 feet above Lake Ontario; but he is not certain that all of them were due to wave action. He says, however, that "with the exception of the parallel roads or shelves in Glen Roy and some neighboring glens of the western highlands of Scotland, I never saw so remarkable an example of banks, terraces and accumulations of stratified gravel, sand and clay maintaining over wide areas so perfect a horizontality as in the district north of Toronto." He mentions that the second beach, the one at 208 feet, has a shore cliff rising fifty to seventy feet, and is covered with boulders; characters which we find on the Iroquois beach near Yonge street, in the northern part of Toronto.†

Roy accounted for this series of supposed beaches by the former presence of an immense lake 1,000 feet deep, dammed to the east and

* Proceedings Geol. Soc., London, Vol. II., No. 51, pp. 537 and 538.

† Lyell, Travels in North America, Vol. II., pp. 103-106.