

DURHAM COUNTY: GEOLOGICAL FEATURES.*

Except for a few low outcrops of ancient shale and limestone belonging to Cambrosilurian times in the southern part, Durham County is covered with drift deposits belonging to the very latest period of the world's history, the Pleistocene. At the close of the Ice Age, the edge of the great glacial sheet, which had covered all eastern Canada, halted in the front townships of Durham and piled up a great range of morainic hills, partly of boulder clay, often very stony, and partly kame-like with sand and gravel. These rough irregular hills crossing the county from east to west, and sending a projection as far south as Newtonville, form its most striking geographic feature.

When the ice had withdrawn farther but still filled the valley of the St. Lawrence at the Thousand Islands, the basin now occupied by Lake Ontario was, of course, filled with water from Niagara River, and a larger and deeper lake than the present one, Lake Iroquois, as it has been named, covered the southern edge of the county, cutting its shore in the boulder clay hills of the old moraine and piling up beaches and gravel bars across the mouths of bays. The old beach is easily followed by its shore cliffs and gravel ridges to the north of Bowmanville and Newcastle, Orono resting on a gravel bar; but a great promontory extends some miles to the southward near Newtonville, which is at the foot of the old cliff. In this part of the county, the Kingston Road runs on Iroquois gravel deposits. North of Port Hope, the shore recedes in a deep bay with a prominent island a mile or two off shore. Where the Midland Railway climbs the hill at Quay's gravel pit, the shore deposits and cliff are very well displayed.

Perhaps the most interesting feature of this old beach is the fact that it is no longer horizontal but tilts* up toward the north-east at the rate of about three feet to a mile. At Quay's gravel pit its elevation above Lake Ontario is 312 feet; near Whitby, in the next county to the west, it is only 261 feet above it.

When the ice dam which blocked the north-west end of Lake Iroquois thawed away, the lake was drained, and for a time the basin may have been at the level of the Gulf of St. Lawrence, though the water remained fresh. Finally, the continued elevation toward the north-east raised the outlet and enclosed the present Lake Ontario, bringing us down to recent conditions. This may have taken place from 2,500 to 17,000 years ago, and the commencement of Lake Iroquois must probably be placed twice as far back, the two beaches of old Lake Iroquois and of the present Lake Ontario requiring for their formation most of the time since Niagara Falls began to cut its canyon back from Queenston Heights.

A. P. COLEMAN.

* See sketch map on opposite page.

IROQUOIS BEACH

IN

DURHAM COUNTY

