

GEOLOGICAL SURVEY

THORAH
ISLAND

L A K E

718

S I M C O E

25'

PLEISTOCENE DEPOSITS OF SUTTON MAP-AREA

Most of Sutton map-area is floored by glacial and lacustrine deposits of Pleistocene age. In addition, there are small outcrops of Palaeozoic limestone and isolated patches of Recent muck and peat. The deposits vary from 2 to 3 feet in thickness at Duclos Point, on the east, to 250 feet at Roches Point, on the west. The area is generally flat, broken by a few irregular to elongated drumlin-like hills in the southern part. During glacial Lake Algonquin time Georgina and Gwillimbury North townships would have contained a few of these drumlin-like hills protruding as islands in a lake of which Simcoe is a much diminished descendant.

Relief in the area is low, and there are no glacial valleys. The only stream of consequence is Black River, and as it is confined to the lowlands it is not deeply incised. The elevated parts are well drained, but in the low areas the water-table is high, resulting in swamps where the drainage is impeded.

Deposits of glacial origin are ground moraine and drumlins. Ground moraine composed of sandy to boulder-clay till covers the northwestern corner of the map-area. Much of the southern part of the area is also occupied by ground moraine, but drumlins are common; both are composed mainly of boulder-clay till with some sandy phases. As the base of the drumlins lay below the level of Lake Algonquin the Algonquin terraces are mainly wave cut and are now seen as boulder strewn till.

Deposits of sand and gravel above the level of Lake Algonquin are few, and may be glacio-fluvial in origin, although it is possible that some of these deposits are lacustrine, and owe their origin to an earlier and higher stage of Lake Algonquin. East of Orchard Beach is an irregular deposit of sand and gravel that has many of the features of a kame.

Stratified and well-sorted glacio-lacustrine beach sands and gravels are numerous, and are best developed as spits on the tails of the drumlins or as bars across a gap between two drumlins. Some deposits also occur as ridges parallel with the shorelines. Except on wave-cut terraces sand, silt, and clay deposits are widespread, the clay and silt being more prevalent at low elevations in the eastern part of the map-area. These clays are dense and massive without noticeable varving. Varved clay was seen only on Snake Island, and it is possible that this deposit is of pre-Lake Algonquin age.

The abandoned shorelines of Lake Algonquin are most conspicuous on the north-facing slopes of the drumlins, as the south side of these islands were sheltered from the full force of the waves. In general the shallow, off-shore water and the narrow reaches between the islands prevented the development of strong beaches such as those seen across Lake Simcoe in the northwest corner of the map-area. Lower Algonquin beaches are generally lacking due to the shallowness of the water at these stages.

Limestone of Palaeozoic age, with gentle dips to the southwest, outcrops on the north and east sides of Georgina Island.

LEGEND

QUATERNARY RECENT

Mainly muck

PLEISTOCENE

GLACIO-LACUSTRINE DEPOSITS

Sand

Silt

Clay

Beach sand and gravel

GLACIO-FLUVIAL DEPOSITS

Sand and gravel; a, kame

GLACIAL DEPOSITS

Calcareous till; a, ground moraine; b, drumlin

BEDROCK OUTCROPS

Palaeozoic: mainly limestone

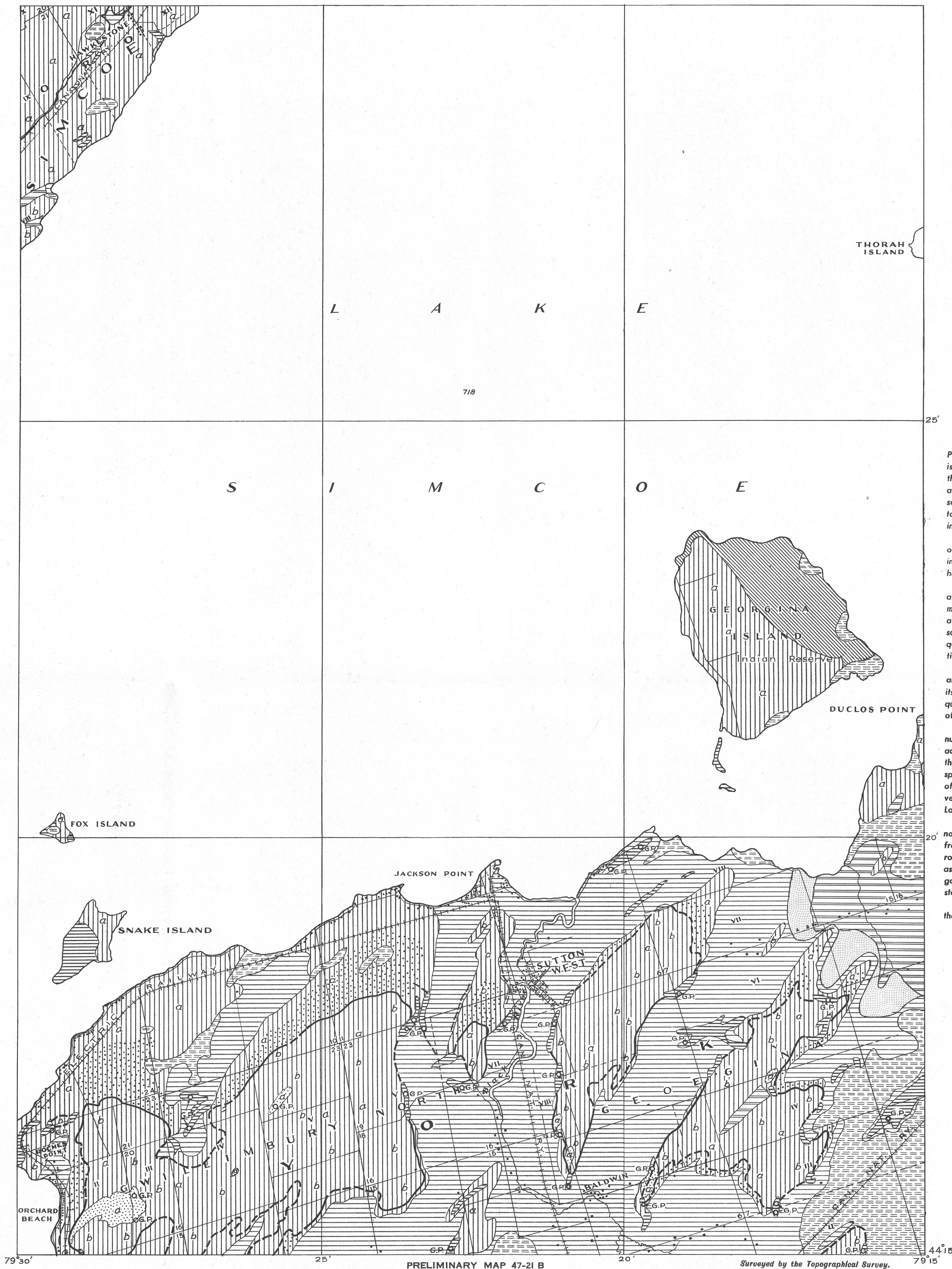
Abandoned shoreline (main Algonquin beach)

Abandoned shoreline (lower Algonquin beaches)

Wave-washed terraces

Gravel pit

Geology by W. A. Johnston, 1914; R. E. Deane, 1946.



SUTTON YORK AND SIMCOE COUNTIES ONTARIO

Scale: — 1: 62, 500

