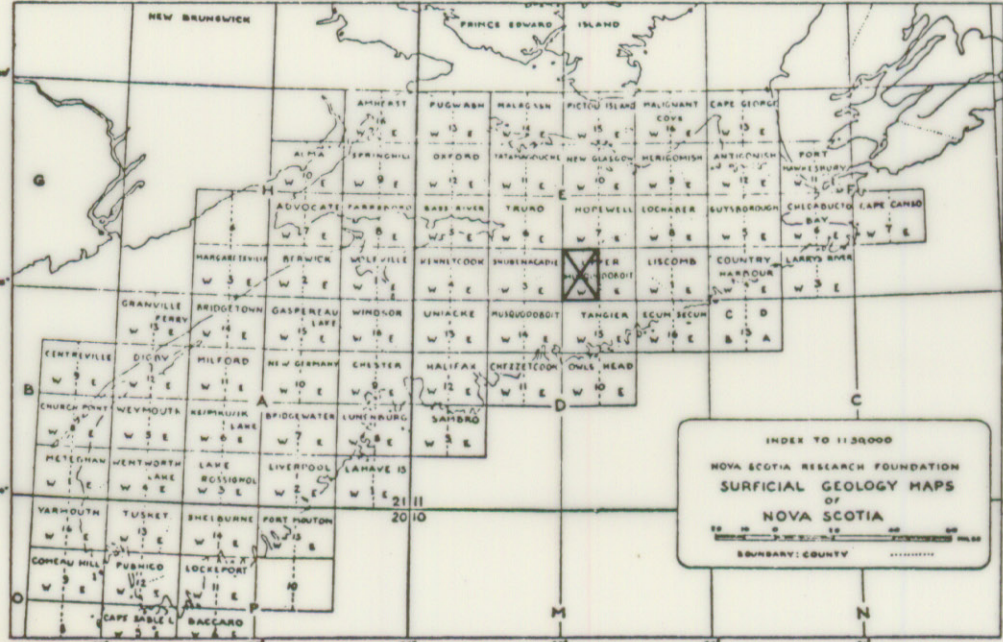


Geology by R.H. Mac Neill, 1956

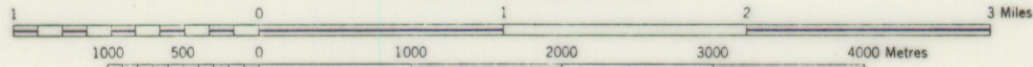


UPPER MUSQUODOBOIT II E/2W

SURFICIAL GEOLOGY

SCALE 1:50,000

1.25 inches to 1 mile approximately



NOVA SCOTIA RESEARCH FOUNDATION
CORPORATION

LEGEND

- DRUMLIN & MORaine
- KAME
- ESKER
- DELTA
- TILL AREAS (undiff.)
- SWAMP
- ROADS & TRAILS
- STREAMS
- GLACIAL STRIAE

GENERAL

The map area lies largely within the Southern Upland, with a small part north-west of the Steviacke River being in the Hants-Colchester Lowland. The topography ranges from gently undulating to rolling. Elevations in the uplands are high, generally over 500 ft, which in the lowlands seldom exceed 250 ft.

The area is drained in an essentially rectangular pattern. The northern area is drained by the Steviacke and Musquodoboit Rivers. These rivers flow in valleys parallel to the regional structure and drain to the west. Tributary streams generally cross the regional structure.

The southern section is drained in part by the West River Sheet Harbour, which is entrenched in a deeply eroded fault. The southwestern part is drained

to the south by a complex drainage system, due partly to the thin till cover which has prevented any appreciable down cutting and partly to the joint pattern which has developed at right angles to the regional structure.

BEDROCK GEOLOGY

The map area is underlain by rocks which are Cambro-Ordovician, Devonian and Mississippian in age. The Southern Upland is developed on the hard Goldenville quartzites and the Halifax slates of the Cambro-Ordovician Meguma Group. These rocks of the Meguma have been steeply folded and faulted. This east-striking folded belt of the Meguma has been intruded by the Devonian granite in the northeast and southeast corners of the map area.

An embayment of Mississippian Windsor rocks, including sandstone, shale, limestone and gypsum, occurs in the Musquodoboit Valley and in the Hants-Colchester Lowland.

QUATERNARY GEOLOGY

Drumlins and Till

The till varies greatly within the area due to the diversity of types of underlying bedrock. The area is covered by a thin discontinuous mantle of till except for an area of approximately six square miles north of Cope Lake. The greatest thickness of till occurs along the sides of the Musquodoboit and Steviacke River valleys, where 10 ft road cuts are not uncommon. The till, however, thins to an average 3 ft on the higher elevations.

The Southern Upland area is characterized by a stoney, dark-to-light-brown, silty-to-sandy till derived from

the slates and quartzites. Considerable weathering by iron hydroxide has occurred in the tills underlain by the somewhat pyriticiferous slate.

In the granite areas, the till is grey to grey-brown in color, with a sandy granular texture. These areas are characteristic of granite country, being covered by angular to sub-rounded boulders of muscovite and biotite granite.

Drumlins are largely confined to the slate and quartzite areas of the Meguma Group of the Southern Upland. These drumlins have been deposited directly upon the bedrock, as evidenced by the outcrops of bedrock, and are only capped with the dark brown silty clay till.

A few of these drumlins in the area south of Cariboo Gold Mines are rock cored and are only capped with the dark brown silty clay till.

Glacial Striae

Glacial striae are well preserved on the hard and resistant slates and quartzites of the Meguma Group, particularly in the Cariboo Gold Mines district. Striae range between 140° and 195°, however, most locations indicate an ice movement from the northwest at 145° to 170°. The Windsor rocks being soft and friable have disintegrated rather than polish under glacial action.

Glaciofluvials

Glaciofluvial deposits are generally absent from the southern half of the map area, but are liberally distributed along the Musquodoboit and Steviacke River valleys and their tributary streams.

As ice tongues retreated up the valleys, deltas and pitted outwash plains were formed in ponded depressions on the irregular surface of the valley floor. Kames and kame deltas formed along the side of the valleys as melt-water spilled over the side as the ice sheet gradually ceased to move and eventually melted.

The glaciofluvial gravel in the Musquodoboit Valley is generally cleanly washed and stratified with lenses of fine to coarse sand. The gravel tends to be well-sorted and jaggedly consists of 2-4" fragments. The predominant rock fragment is determined by the

direction of meltwater flow, indicating the very local nature of the material.

The glaciofluvials at Cruickshank Lake consist of a winding discontinuous esker, which is a direct continuation of an esker to the east of the map area. A kame is located on the west side of this lake. The material of the esker ranges from coarse bouldery gravel to poorly sorted sand and silt. Rock fragments consist of grey quartzite, muscovite and biotite granite and sandstone.

The kame consists of brown gravel and sand with rock fragments under 4 inches.

The esker runs for a distance of 2 miles at right angles to the direction of the regional ice movement, suggesting that the esker was formed during the melting of late ice lobe extending into the area from the eastward.