

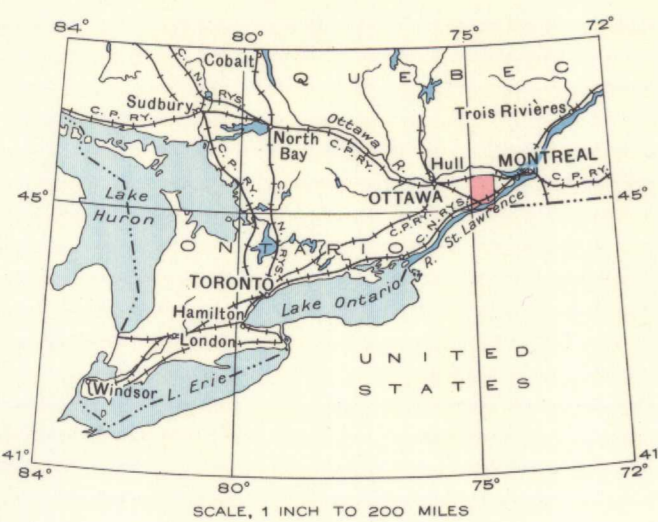
LEGEND

- ORDOVICIAN**
- 7 EASTVIEW AND BILLINGS FORMATION: black shale and dark grey limestone
 - 6 BLACK RIVER AND TRENTON
OTTAWA FORMATION: chiefly grey limestone; 6a, Pamela zone: limestone, thin-bedded sandstone, shale, dolomite; 6b, Lowville zone: chiefly shaly limestone; 6c, Leray zone: limestone; 6d, Rockland zone: limestone; 6e, Hull zone: limestone; 6f, Sherman Fall zone: thin-bedded limestone with shaly partings; 6g, Cobourg zone: limestone
 - 5 CHAZY
ST. MARTIN FORMATION: limestone
 - 4 ROCKCLIFFE FORMATION: grey-green shale, grey sandstone
 - 3 BEEKMANTOWN
OXFORD (BEAUHARNOIS) FORMATION: grey limestone, magnesian limestone, blue-grey dolomite
 - 2 MARCH FORMATION: grey calcareous sandstone, sandy, blue-grey dolomite
- CAMBRIAN OR ORDOVICIAN**
- 1 NEPEAN FORMATION: sandstone

- Heavily drift-covered area.....
- Rock outcrop and area of outcrop.....
- Bedding (inclined).....
- Fault.....
- Provincial highway (with number)..... NO. 2
- Road well travelled.....
- Road not well travelled.....
- Road along county boundary.....
- Road along township boundary.....
- Power transmission line.....
- Power transmission line along road.....
- Post Office.....
- Canal Lock.....
- Lighthouse.....
- Wharf.....
- Triangulation station.....
- International boundary.....
- Interprovincial boundary.....
- County boundary.....
- Township boundary.....
- Indian Reserve boundary.....
- Marsh.....
- Contours (interval 50 feet).....
- Height in feet above Mean sea-level..... 208

Geology by A. E. Wilson, 1929, and 1937.

Base-map compiled by the Topographical Survey, 1940, from Federal Government maps published in 1937. Cartography by the Drafting and Reproducing Division, 1941.



SCALE, 1 INCH TO 200 MILES

MAP 661A
MAXVILLE
ONTARIO AND QUEBEC

Scale, 1/250,000 or 1 inch to 2 Miles

Approximate magnetic declination, 14°30' West.

DESCRIPTIVE NOTES

The NEPEAN formation (1) is exposed in only two places but, as far as known, everywhere forms the basal member of the Palaeozoic succession. The outcrops indicate that the Nepean, as in other areas, consists of both thin and thick beds of coarse-grained cream-coloured sandstone, weathering grey with irregular brown stains. Where quartz forms the cementing material, the rock is hard and includes thin bands of pure quartzite. Near the top of the formation the cement is calcareous or of iron oxide and the rock disintegrates after long exposure. Since the formation was deposited on an irregular surface it varies in thickness. None of the few wells in the area penetrates to it, and its thickness here is not known. The Nepean has been correlated with the Potsdam of New York which is considered to be of late Cambrian age. But, to the west, there is no break between it and the overlying March formation and it is possible that the Nepean is of Ordovician age.

The MARCH formation (2) does not outcrop in the map-area but is exposed both to the east and west, where it lies conformably upon the Nepean, the contact being placed at the base of the lowest dolomitic layer. In adjacent areas it is composed of rusty-weathering thick beds of grey sandstone with a calcareous cement, alternating with thick beds of sandy blue-grey dolomite. No wells penetrate to it and its thickness is unknown.

The OXFORD formation (3) contains a few, thin, dark, somewhat argillaceous beds near the top but for the most part it is made up of thick, rusty-weathering strata of dove-grey limestone, magnesian limestone, and blue-grey dense dolomite. In the dolomitic layers irregular cavities 1/2 to 2 inches in diameter have commonly been filled with large pink or white calcite crystals. Outcrops are widely separated. No well penetrates the formation and its thickness is not known. The Oxford contains fossils that indicate its Beekmantown age.

The ROCKCLIFFE formation (4) rests disconformably upon the Oxford. It consists of beds of grey-green shales enclosing lenses of fine-grained grey sandstone. In places where it rests upon the Oxford the sandstone is coarse, almost conglomeratic. The lenses range from a few inches to 20 or 30 feet in thickness, and, in their lateral dimensions, from a few feet to over half a mile. The maximum thickness of the Rockcliffe is probably about 155 feet. Fossils have not been found in it within the map-area but are present farther west and indicate that deposition was in late Chazy time. The Lower and Middle Chazy beds of the Lake Champlain area were probably laid down during the erosional interval represented by the disconformity at the base of the Rockcliffe.

The ST. MARTIN formation (5) conformably overlies the Rockcliffe. It is composed of grey shale containing limestone bands, comparatively thick beds of limestone, and occasional siliceous and dolomitic beds. It increases in thickness to the east but within the map-area is probably not more than 150 feet thick. Some beds contain abundant *Camarotoechia plena*, indicating a late Chazy age.

The OTTAWA formation (6) rests disconformably upon the St. Martin, but the contact is not exposed in this map-area. The interval represented by the disconformity is probably short. Lithologically three indistinctly separated divisions can be recognized. Interbedded shales, thin sandstones and limestone bands at the base gradually give place to impure, thin limestones; thin and thick rusty-weathering dolomites; and fine-grained lithographic limestones with thick shaly partings. This group of interbedded strata is succeeded by heavy-bedded, pure crystalline limestone. The thick limestone strata are overlain by thin beds of impure limestone with thick, shaly partings and these grade upward into thicker, purer limestones, interstratified with occasional impure beds and shaly partings. West of the map-area the Ottawa formation is known to be 700 feet thick, and since this thickness is also recorded at Montreal, it is probably maintained across the map-area. There is no evidence of a break in the deposition of the formation, but, in the past, it has been divided by the fauna into three Black River subdivisions (6a, 6b, 6c) and four Trenton subdivisions (6d, 6e, 6f, 6g). The end of the Black River and beginning of Trenton time came during the deposition of the pure crystalline limestone. The shallowing of the sea, represented by the overlying thin limestone beds, occurred well within Trenton time.

The EASTVIEW and BILLINGS formations (7) have been mapped as a unit. No authentic outcrops were observed but, at St. Isidore de Prescott, loose fragments of black shale and very dark limestone were seen, only slightly weathered and evidently near their source; and one old well-boring southeast of Fournier records black shale above the Ottawa limestone. The thicknesses of the formations are not known.

A mantle of drift consisting of till, marine clay and sand, and alluvium, conceals much of the Palaeozoic rocks. It is mapped only where bedrock outcrops are scarce and the drift is known to be deep.

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