

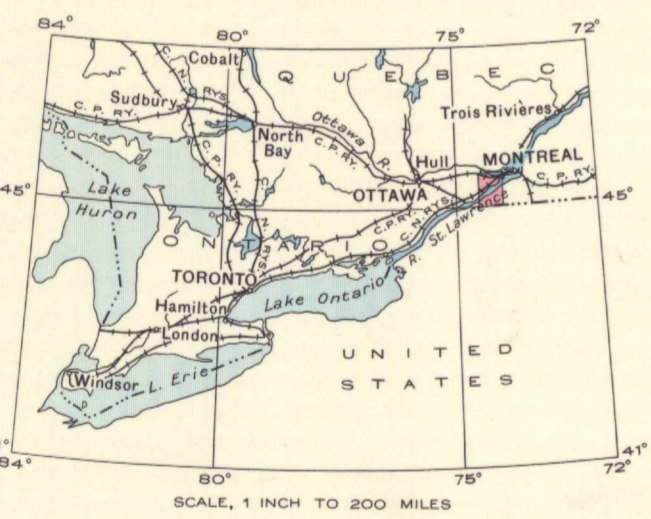
LEGEND

- ORDOVICIAN**
- 7** BLACK RIVER
OTTAWA FORMATION: chiefly limestone and dolomite; 7a, Pamela zone: limestone, thin-bedded sandstone, shale, dolomite; 7b, Lowville zone: chiefly shaly limestone
- 6** CHAZY
ST. MARTIN FORMATION: limestone
- 5** ROCKCLIFFE FORMATION: grey-green shale, grey sandstone
- 4** BEEKMANTOWN
OXFORD (BEAUHARNOIS) FORMATION: grey limestone, magnesian limestone, blue-grey dolomite
- 3** MARCH FORMATION: calcareous sandstone; sandy, blue-grey dolomite
- CAMBRIAN OR ORDOVICIAN**
- 2** NEPEAN FORMATION: sandstone
- 1** Crystalline limestone, quartzite and gneiss of the Grenville series intruded by granite, syenite and allied rocks

- Heavily drift-covered area
Rock outcrop and area of outcrop
Bedding (inclined)
Fault (inclined)
- Provincial highway (with number) NO. 2
Road well travelled
Road not well travelled
Power transmission line
Power transmission line along road
Post Office
Canal Lock
Lighthouse
Wharf
Dam
Triangulation station
International boundary
Interprovincial boundary
County boundary
Township boundary
Marsh
Contours (interval 50 feet)
Height in feet above Mean sea-level 292

Geology by A. E. Wilson, 1938, and 1939.

Base-map compiled by the Topographical Survey, 1940, from Federal Government maps published in 1923, and 1935. Cartography by the Drafting and Reproducing Division, 1941.



DESCRIPTIVE NOTES

The undifferentiated PRECAMBRIAN rocks (1) have an unevenly eroded surface, upon which the Palaeozoic strata lie almost horizontally. Exposed areas are, in part, knobs projecting through a thin Palaeozoic covering, but, in part, have reached their present positions as a result of faulting.

The NEPEAN formation (2) consists of both thin and thick beds of coarse-grained cream-coloured sandstone, weathering grey with irregular brown stains. It has become a dense quartzite in several localities. The formation varies greatly in thickness since it was deposited on an irregular surface and because it has been bellevied by erosion across the eastern part of the area. It has been correlated with the Potsdam of New York which is considered to be of late Cambrian age. But since, to the west, there is no discernible break between the Nepean and the succeeding March formation the Nepean may be of Ordovician age.

The MARCH formation (3) lies conformably upon the Nepean, its contact being placed at the base of the lowest dolomite layer. The formation is composed of rusty-weathering thick beds of grey sandstone with a calcareous cement, alternating with thick and thin beds of sandy, blue-grey dolomite. Its thickness is not known. In many places outcrops are of the sandstone layers that closely resemble Nepean sandstone. In areas to the west the formation is a known water-bearing horizon. It grades into the overlying Oxford and for this reason is considered to be of Beekmantown age.

The OXFORD formation (4) contains a few thin dark, somewhat argillaceous layers near the top but, for the most part, is made up of thick rusty-weathering beds of dove-grey limestone, magnesian limestone, and blue-grey dense dolomite. In the dolomite, irregular cavities 1/2 to 2 inches in diameter have been commonly filled with large pink or white calcite crystals. No wells penetrate the Oxford and its thickness is not known. The formation contains fossils of Beekmantown age.

The ROCKCLIFFE formation (5) rests disconformably upon the Oxford. It consists of beds of grey-green shales enclosing lenses of fine-grained grey sandstone. Its thickness is not known. Fossils have not been found in the map-area but farther west the formation contains a fauna of late Chazy age. 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 (6) conformably overlies the Rockcliffe. It nowhere outcrops in the map-area but is exposed just to the west. Its thickness is unknown. Boulders from the formation consist of thick-bedded, comparatively pure limestone, containing fossils of late Chazy age.

The OTTAWA formation (7) rests disconformably upon the St. Martin, but the actual contact is not exposed in the map-area. The interval represented by the disconformity is probably short. Only the lowermost 30 to 40 feet of beds are present. They consist of impure grey limestones, with many shaly partings, interbedded with thick and thin, rusty-weathering, grey dolomitic beds.

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

MAP 660A
VALLEYFIELD
QUEBEC AND ONTARIO

Scale, 1/25000 or 1 Inch to 2 Miles

Approximate magnetic declination, 15° West.

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