CANADA

DEPARTMENT OF MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

PAPER 53-18

PRELIMINARY MAP

OSHAWA

ONTARIO AND DURHAM COUNTIES
ONTARIO

(Descriptive Notes)

By
B. A. Liberty

OTTAWA
1953

Price, 25 cents

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DESCRIPTIVE NOTES FOR OSHAWA MAP, ONTARIO

STRATIGRAPHY

Ordovician

No outcrops of the Cobourg formation have been found within the map-area. Logan[1] reported one outcrop south of Oshawa and a contact between the Cobourg and the overlying Collingwood in the abandoned quarry south of Bowmanville. Sproule[2] and Parks[3] report finding debris from this quarry, but the quarry itself is flooded, and the rock no longer exposed. However, both the house due north of the quarry and the Bowmanville Canadian National Railways station have been built with rock removed from the quarry, which is essentially a grey weathering, grey, fine-grained, argillaceous, fossiliferous limestone, with some grey, sublithographic limestone, and with numerous shale partings throughout. The thickness of the Cobourg in the map-area is not known, but is probably at least 180 feet.

The Collingwood and Gloucester strata can be separated where they outcrop, but not in well samples. Accordingly, they have been mapped together, and have a combined thickness of about 120 feet. In well samples, they appear as dense, black, dark brown, dark brownish grey, and dark and medium grey, bituminous, calcareous shale, with some interbedded, dense, dark brown limestone. Their brown streak, calcareous nature, bituminous content, and colour are characteristic features.

Collingwood strata outcrop at only one locality, in Oshawa Creek, north of Mill Street, in the city of Oshawa. The exposed section there comprises some 5 feet of black, fissile, bituminous, calcareous shale. Characteristic fossils are the trilobites Ogygites canadensis and Triarthrus eatoni, the graptolite Glossograptus quadrimucronatus, and the nautiloid Geisonoceras tenuistriatum. Collingwood shale could be seen formerly in the now abandoned quarry south of Bowmanville[2]. It has an aggregate thickness of about 30 feet.

Gloucester strata outcrop only on the west branch of Lynde Creek, 1.4 miles northwest of the town of Whitby, where about 7 feet of soft brown and blue shale with some black shale, all slightly bituminous and calcareous, is exposed. Characteristic fossils are the trilobite Triarthrus canadensis, the nautiloid Geisonoceras tenuistriatum, and the graptolite Climacograptus rougensis. The aggregate thickness of the Gloucester in this map-area is about 90 feet.

Glacial Geology

The entire map-area has been glaciated, and most of the bedrock is concealed beneath a mantle of glacial drift. The few outcrops occur along creeks draining into Lake Ontario that cut through this mantle. Drift thicknesses increase to a maximum of about 330 feet in the northern part, in the interlobate moraine area[4].

Structural Geology

Little information is available on the relief of the Precambrian surface. Well records are old, and most of them are not too reliable. Logan[1] reported north dips from both the Bowmanville quarry strata and the Oshawa limestone outcrop, thereby inferring a synclinal structure to the north of these localities. Unfortunately, neither of these localities can now be checked, but from well records the regional dip appears to be southwesterly at about 20 feet a mile.

Economic Geology

Within the map-area, the only quarry, at Bowmanville, has been abandoned for some years. Gravel pits, from which road material has been obtained, are numerous due to the mantle of glacial drift; the largest is in lots 14 and 15, con. I, Clarke tp., Durham county.

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[1]Logan, Sir Wm.: Geology of Canada, 1863; Geol. Surv., Canada.

[2]Sproule, J. C.: A Study of the Cobourg Formation; Geol. Surv., Canada, Mem. 202, pt. 3, 1936.

[3]Parks, W. A.: Faunas and Stratigraphy of the Ordovician Black Shales and Related Rocks in Southern Ontario; Roy. Soc., Canada, 3rd ser., vol. XXII, sec. 4, 1928.

[4]Chapman, L. J., and Putnam, D. F.: The Physiography of Southern Ontario; University of Toronto Press, 1951.