GEOLOGICAL SURVEY OF CANADA

DEPARTMENT OF ENERGY,
MINES AND RESOURCES

PAPER 67-6

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Price, 75 cents

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Price subject to change without notice

ROGER DUHAMEL, F.R.S.C.
Queen's Printer and Controller of Stationery
Ottawa, Canada
1967

ABSTRACT

This brief report presents three new formational names which are applied to Early Huronian rocks north of Lake Huron. Two of the names are applied to long-established but unnamed units and the third is given to a recently redefined formation.

THREE NEW HURONIAN FORMATIONAL NAMES

A re-examination of the Huronian belt north of Lake Huron by the Geological Survey and others over the past decade has resulted in important revisions in the geology of the region. For example, Roscoe (Pienaar, 1963) has reorganized the stratigraphy of the Lower Huronian succession of the Elliot Lake district, and farther west the writer has made stratigraphic and structural revisions between Blind River and Sault Ste. Marie (Frarey, 1959, 1962). More recent work has shown that significant changes will also be required in the southern Huronian belt extending eastward from near Spanish, Ontario, to the Grenville Front. The purpose of this paper is to introduce three new stratigraphic names necessary to fill existing gaps in the nomenclature, and to facilitate future investigations and revisions. Two of the new names apply to long-established, continuously recognized, but previously unnamed stratigraphic units, and the third is given to a recently redefined formation.

The name Livingstone Creek Formation, derived from Livingstone Creek in the Thessalon area is proposed for the lowermost exposed Huronian formation between Blind River and Sault Ste. Marie. It consists mainly of gently to moderately dipping, grey to flesh-coloured, fine-to coarse-grained feldspathic quartzite and subarkose, with grit, siltstone, and conglomerate as subordinate lithologies. Three miles east of Thessalon the Livingstone Creek Formation can be seen to overlie with great unconformity the metamorphic and igneous rocks of the pre-Huronian complex. An interesting gradational basal contact at one locality in the Thessalon area has been described in some detail by Collins (1925, pp. 31-32, Pl. IIIB). There the strike of the formation follows the course of Livingstone Creek for about 3 miles. The contact with the overlying Thessalon Formation is interbedded and locally there appears to be a slight erosional discontinuity. The Livingstone Creek Formation also outcrops in a belt a few miles long in Aberdeen and McMahon townships about 15 miles north of Bruce Mines, where the lower boundary is a fault, as may be the case at a third locality in Duncan township northeast of Sault Ste. Marie (Hay, 1964). The thickness of the formation varies from perhaps a few tens of feet near Thessalon to possibly 1,500 feet north of Bruce Mines. This unit was originally recognized and differentiated by A. Murray (1859), but was included in the Mississagi Formation of Collins (1925). The Livingstone Creek may be the stratigraphic equivalent of the Matinenda Formation (Roscoe, 1957).

The other two formations to be named, also recognized by Murray as well as by Collins, have been known heretofore descriptively as the "banded cherty quartzite" and "upper white quartzite". In that order they succeed the Lorrain Formation in the Upper Huronian sequence. The names proposed

Manuscript received November 29, 1966.

are, respectively, the Gordon Lake Formation and the Bar River Formation and are derived from nearby geographic features in the original area. These formations have been observed by the writer northwest of Bruce Mines, in the Boland River Huronian basin 12 miles north of Elliot Lake, and in Lake Panache map-area north of Georgian Bay, and appear to have been originally coextensive with the other Huronian formations of the Cobalt Group.

The Gordon Lake consists dominantly of thin-bedded, variegated quartzose to argillitic siltstone, commonly ripple-marked. A few sandstone beds and rare calcareous layers occur, and very fine grained siliceous beds, some apparently consisting of true chert, are fairly common. The maximum thickness in the original area is estimated at greater than 1,000 feet, and in Lake Panache area, this increases to 3,500 feet or more. The Gordon Lake succeeds the Lorrain Formation conformably through a thin interbedded zone.

The overlying Bar River Formation consists chiefly of white to cream-coloured, or buff, medium to very fine grained orthoquartzite, also commonly ripple-marked, as well as crossbedded. In the original area it is restricted to a relatively small wedge, in part fault-bounded, where it appears to be at least 1,000 feet thick. In Lake Panache area, it contains, in the upper part, laminated intercalated sequences up to several hundred feet thick, made up of quartzite similar to that of the original area, grey to black argillite, and vari-coloured siltstone, including a few blue-grey beds up to about ten feet thick, containing hematite. The top of the Bar River Formation is not exposed in that area but the unit appears to exceed 4,000 feet in thickness. The lower contact with the Gordon Lake Formation is gradational through an interbedded transition perhaps 50 feet thick.

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