

GEOLOGY AND SCENERY

**PETERBOROUGH, BANCROFT
AND MADOC AREA**



in particular of the Bruce Limestone by the Nipissing Diabase, has produced the rocks known as skarns (page 162). Regional metamorphism, particularly in the Massey – Whitefish Falls area, has produced rocks containing scapolite, amphibole, and epidote. Deformation has resulted in complex fold and fracture patterns (photos 15, 122).

Serpent Formation

The Serpent Formation rests on the Espanola Formation and is a white feldspathic quartzite best exposed at Quirke and Ten Mile Lakes but also found near Lake Panache, the North Channel of Lake Huron, Bruce Mines, and Aweres Township near Sault Ste. Marie.

It shows crossbedding and ripple marks and related shallow water structures. Mud cracks are fairly common, particularly in siltstone interbeds (photo 16). The feldspar in the formation in the Elliot Lake area is plagioclase and this is relatively fresh, suggesting deposition in cold water. Further south and east, the feldspars plagioclase and microcline are both present. The cross-bedding directions indicate a northwesterly source (see page 14) in the Elliot Lake area and a northerly to northeasterly source in the Espanola – Lake Panache area. There is considerable variation in the thickness of the Serpent Formation. This is apparently due to folding after deposition, followed by erosion before the deposition of the Gowganda Formation of the Cobalt Group.

Photo 15. *Thinly bedded Espanola Formation. The carbonate beds are etched, the sandstone beds stand in relief. Note the complex fold pattern.*

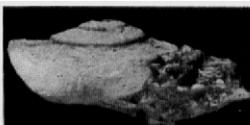




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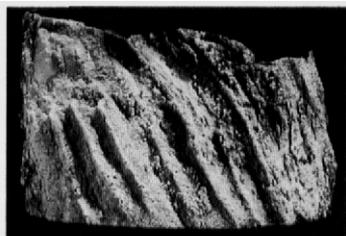
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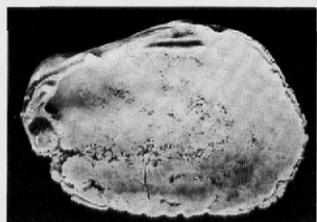
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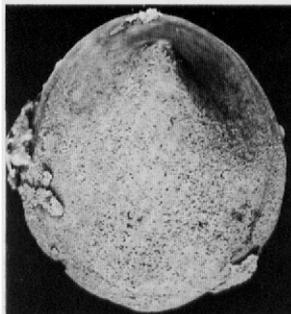
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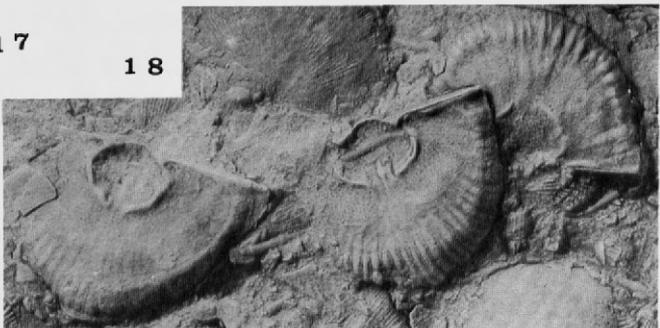
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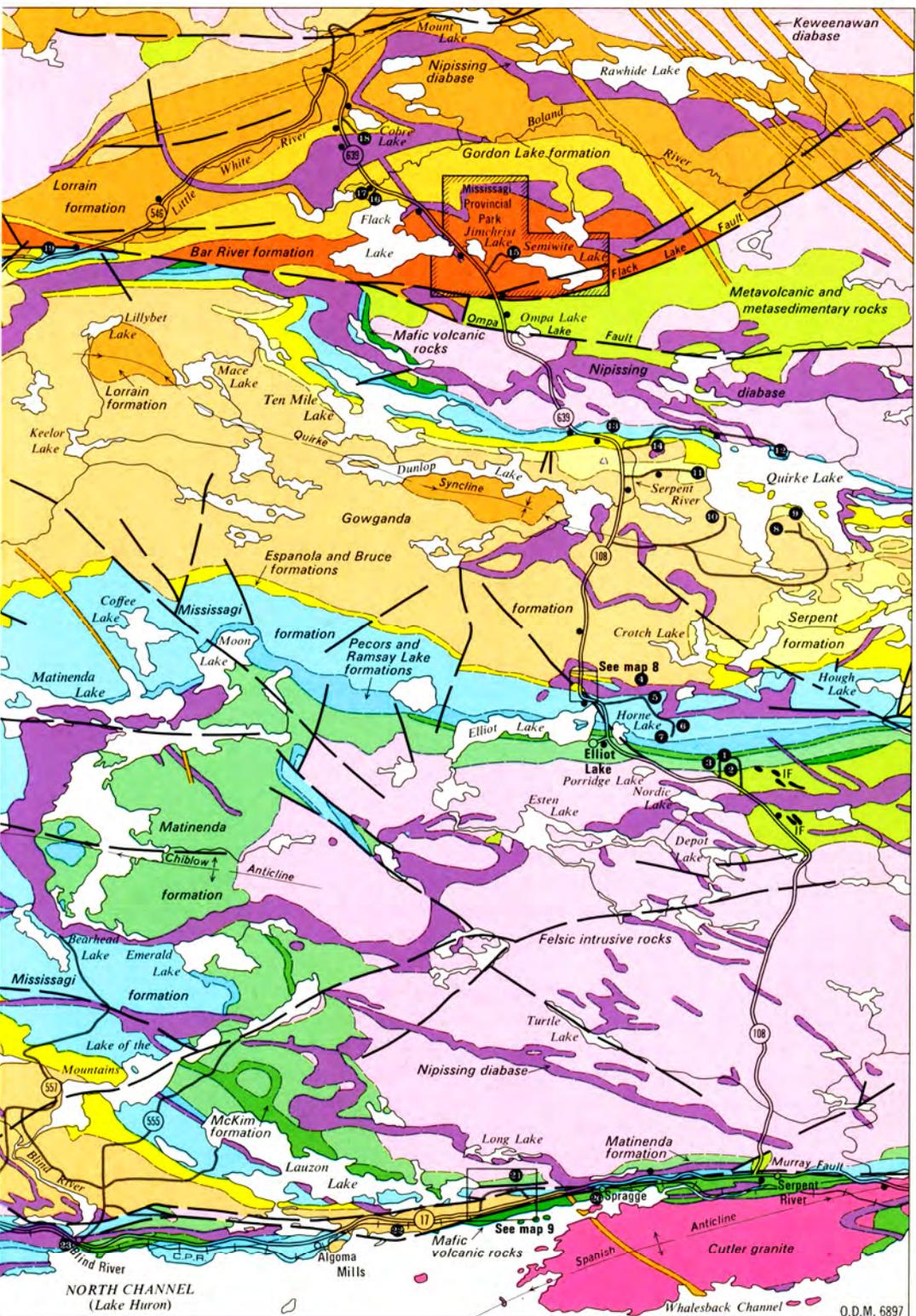




Photo 118. Flack Creek from Highway 639. Old Baldy, a prominent quartzite ridge is seen on the horizon.

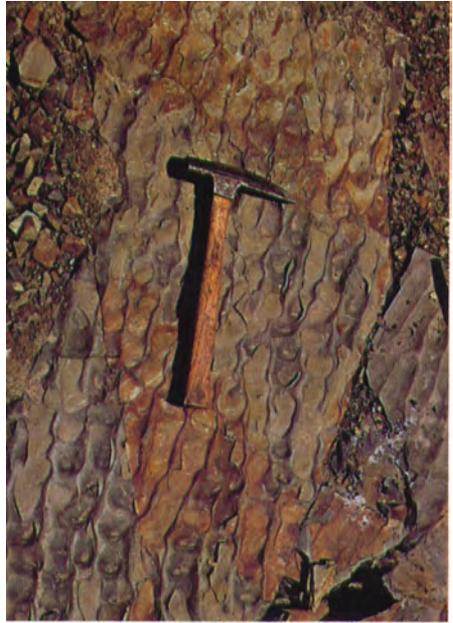


Photo 119. Ripple marks in the Gordon Lake Formation. Highway 639 at the entrance to Laurentian Lodge.

Photo 120. The east trench wall, Bi-Ore Mine, Cobre Lake. The vein comprises massive chalcopyrite (brassy) in quartz (grey) and carbonate (white). Weathering has developed malachite (green) and limonite (brown).



Photo 121. Flack Falls at Laurentian Lodge. Flack Creek cascades over hard bands in the Gordon Lake Formation.

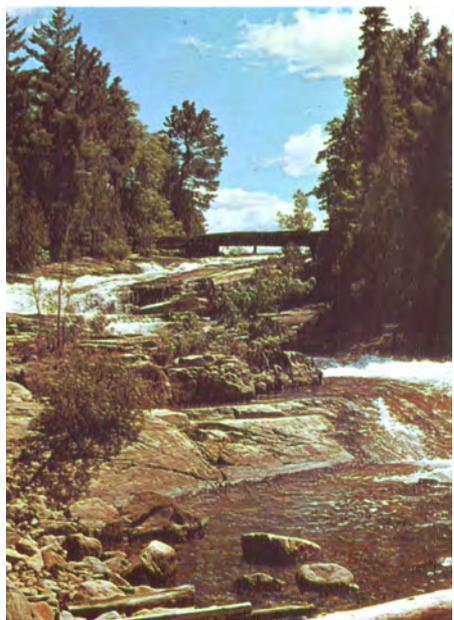




Photo136. Locks on the St. Marys River, Sault Ste. Marie, looking towards Lake Superior.

gical feature in the vicinity of Sault Ste. Marie. A rugged highland, with elevations of 400 to 600 feet above Lake Superior, the batholith separates the St. Marys River and Goulais River lowlands. Its southern boundary is a prominent and somewhat irregular escarpment that stretches from Gros Cap, on the shore of Lake Superior, eastward to the Garden River Indian Reserve, a distance of about 20 miles. The highland is several miles wide, and is crossed by Highway 17, from 8 to about 15 miles north of downtown Sault Ste. Marie. It is the topographic expression of a large mass of Algoman granite.

As pointed out previously, a batholith is formed deep within the earth and is exposed to view only after a prolonged period of erosion. In this regard, it is of considerable interest that most batholiths are associated with intensely folded volcanic and sedimentary rocks in mountain ranges; thus, it is tempting to speculate that in Precambrian time the Gros Cap batholith was one of many such masses formed in a mountainous region, perhaps not unlike that found today along the western margin of the North American continent.

At Gros Cap itself, there are outcrops of Keweenaw lava flows (see page 199, Chippewa Falls Park, for the geology of such flows).