

DEPARTMENT OF MINES
GEOLOGICAL SURVEY BRANCH

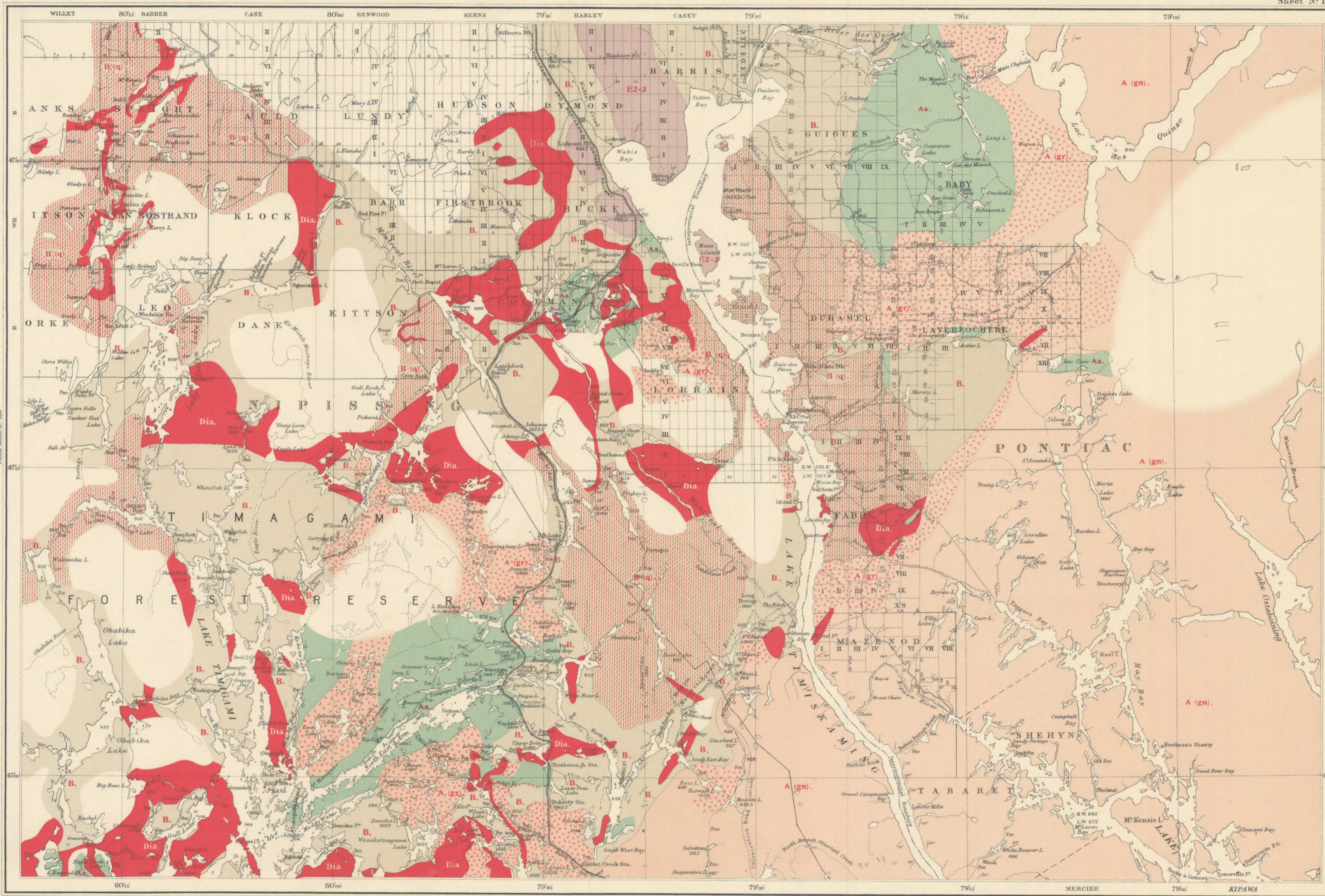
HON. W. TEMPLEMAN, MINISTER; A. PLOW, DEPUTY MINISTER;
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1908

Sheet No 138

Explanation of Colours and signs

- SILURIAN**
Clinton and Niagara
E2-3 Limestone, shale, conglomerate
- PRE-CAMBRIAN**
Lower Huronian
B(q) Quartzite, conglomerate
B. Slate, conglomerate
- Keewatin**
Aa. Sericite, hornblende and chlorite-schists; massive gneisses, Diabase, etc.; Jasperite (iron formation)
- IGNEOUS**
Post-Huronian
Dia. Diabase
- Post-Keewatin (Laurentian)**
A(gn) Gneiss
A(g) Granite
- Geological boundaries**
do do undefined
Glacial striae
Strike
Dip and strike
Vertical dip
Horizontal strata
120' Heights in feet above sea-level
Por. or P. Portages
Rap. or R. Rapids
Interprovincial Boundary

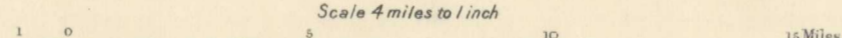


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SOURCES OF INFORMATION
Surveys by A.E. Barlow, 1892-94, 1903-05; O.E. Leary, 1903;
G.A. Young, 1905; Mosley, E. Wilson and C.F. King, 1905-06-07.
Plans of surveys by Crown Lands Depts. Ontario and Quebec
Geology by A.E. Barlow, O.E. Leary, G.A. Young and M.E. Wilson.
Cadastral district by W.G. Miller and C.W. Knight, Ontario Bureau of Mines.
Marginal notes by G.A. Young

PROVINCES OF ONTARIO AND QUEBEC
Nipissing District Ont. and Pontiac County Que.
(Lake Timiskaming Sheet)

Natural Scale 1:100,000
Scale 4 miles to 1 inch



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DESCRIPTIVE NOTES

Pleistocene
Extensive areas within the townships bordering the head of Lake Timiskaming are covered by a heavy mantle of clay, or of clay passing upwards into sand.

Silurian
The Silurian consists largely of light-colored limestones, sandstones, and shales. The beds lie in nearly horizontal attitudes, and form a large, shallow, synclinal basin, extending northward from the head of Lake Timiskaming. They also occur in a number of large and small outcrops west of the lake, and, as an interrupted fringe along its eastern shore.

Pre-Cambrian
Lower Huronian Quartzite
The uppermost member of the Huronian consists chiefly of a quartzite, or arkose, usually of a pale greenish, or grey color, and is commonly coarse-grained. The rock is composed largely of fragments of quartz and feldspar, and in places passes downwards into conglomerate. The beds are usually massive, and generally lie with comparatively low angles of dip. The formation, at times, rests with a strong unconformity directly on the Keewatin or Laurentian, but much more commonly the lower member passes conformably, locally, into the slate and conglomerate of the underlying member of the Lower Huronian. The quartzite in the area about Cobalt has been reported to rest unconformably on the lower members of the Huronian.

Lower Huronian Slate and Conglomerate
The conglomerate forms the base of the Huronian in this district. The rock, as a rule, consists of fragments of various rock types, which range in size from the smallest pebbles to boulders several feet in diameter. Most of the pebbles are of various types of Laurentian granites, but greenstone pebbles from the Keewatin are often locally abundant, and occasionally there are fragments of quartzite derived from the iron formation of the Keewatin. The fine-grained matrix of the conglomerate is usually dark greenish in color, and, wherever any considerable section is exposed, the conglomerate passes up into a slate of greenish color in the number, and size of the pebbles. Over large areas, however, the typical beds cannot be seen in the face of the strata, since pebbles are of very common occurrence. Some of the slates are evenly bedded, the faces of bedding being marked by a conspicuous banding. The formation, as a whole, occurs in an approximately horizontal position, but the strike and dip are constantly varying, and occasionally the beds are sharply folded; but more generally they form a series of low anticlines, resting unconformably on the granite, or on the uppermost edges of the Keewatin schists. It is in these slates and conglomerates that most of the cobalt-nickel-arsenic-silver veins of the Cobalt District occur. At Wright's mine on the eastern shore of Lake Timiskaming, galena, and calcite occur, forming the matrix of a breccia within this formation.

Keewatin
This series embraces the oldest rocks of the region, and consists largely of dark, or light green, hornblende, chlorite, and sericite schists, or "greenstones." Most of the rocks are characterized by a well-marked, or a distinct, cleavage, the mineral constituents, but the different varieties shade into massive forms, or occur with unaltered massive types. At times, these are with difficulty distinguishable from the Post-Huronian diabases. Associated with the greenstones are Laurentian granites, Laurentian gneisses bordering the northern side of the Northwest Arm of Lake Timiskaming, also in the neighborhood of Austin Bay, at the foot of the south arm of the same lake. In the area between Eagle Lake and Emerald Lake, are widely extended outcrops of the "iron formation," while more local developments of the same rocks occur in the Cobalt region, and in the district adjoining the east side of Lake Timiskaming. This consists largely of siliceous magnetite, interbedded with variously colored gneisses and chert, with, in some instances, a massive form of hematite. With the more typical greenstones, sometimes occur, greenish, or greyish slaty rocks, and a much fractured quartzite is found on the southern shores of Rabbit Lake, and at several points on the shores of Eagle Lake. The various rocks of the Keewatin occur at high angles, and are often distinctly cut and penetrated by bodies of Laurentian granites. Besides the iron ore already referred to, the Keewatin contains, at times, certain characteristic minerals of economic importance. A mineralized belt extends from Red Lake to Vermilion Lake, the most prominent mineral being copper, which occurs as malachite (malachite). The mineral is usually associated with varying quantities of chalcocite, pyrite, and pyrrhotite. Native gold has been found on Emerald Lake, in the west of Lake Timiskaming, in quartz veins associated with Keewatin rocks.

Igneous
Post-Huronian Diabase
Large areas of these dark, massive, at times very coarse-grained rocks, occur throughout the region, and are frequently cutting the Lower Huronian slate and conglomerate. They are also found in contact with most of the rock types of the region, and generally may be seen to have the form of widely extended, sheet-like bodies, often in apparently horizontal positions. In many instances they were probably formed as sills intruding into the older rocks, from which the overlying strata has since been removed by erosion. In the Cobalt region it is believed that the fissures now occupied by the cobalt-silver ores in the Lower Huronian slate and conglomerate, were probably formed by the diabases which accompanied the intrusion of the diabase, and that the area may have been deposited from mineral-bearing waters associated with the intrusion. In James township on the Montreal river, and in the township on the eastern shore of Lake Timiskaming, the diabase is cut by pink feldspathic veins usually rich in calcite and quartz, and carrying silver-bearing minerals, galena, pyrite, specular iron ore, etc.

Laurentian Granites and Gneisses
The granitic types of the Laurentian are commonly biotite-bearing varieties, and are often coarse-grained with large crystals of feldspar. The rocks frequently have a pink, or red color, and distinctly cut the members of the Keewatin series, but are much older than the Lower Huronian conglomerate, to which they furnish most of the rounded pebbles and boulders. The granites on both sides of Lake Timiskaming appear to grade gradually into gneissic forms. The latter show many variations, and often pass abruptly from dioritic-gneisses into granitic-gneisses, the latter being by far the most prevalent type. In certain areas to the east of Lake Kipawa the occurrence of areas of original limestone, and argillite-gneisses of the Grenville series, has been reported. The Laurentian is cut by numerous pegmatite dikes, which, in places, may yield mica of economic value.

Timiskaming, Lake.

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A, Geol.