

PHYSICAL CHARACTER

The area lies just north of the height of land between the Great Lakes and Hudson Bay and is 1400 to 1500 feet above sea. Two prominent ridges, one of iron formation in southeastern Heenan, the other in the Schist Complex just west of Hardiman township, rise about 275 feet above the general level, but the relief is usually under 150 feet. Most of the area is thickly wooded, but marketable timber other than pulpwood is not abundant. Sand, boulder drift, muskeg or thick moss cover much of it. Most of the streams shown in solid line can be travelled in canoes, but those shown in broken line are untraversable. Portages on the main routes are good, but Heenan creek, Newton creek, Alike river and other smaller streams are sinuous, muddy bottomed and shallow in dry seasons.

GEOLOGY

The SCHIST COMPLEX consists of acid to basic lavas, iron formation, pyroclastic and clastic sediments, greenstone intrusives and quartz porphyries. They are mostly quite schistose, but restricted areas of rather massive andesite occur. The intermediate to basic lavas are greenish grey to dark green, of variable texture, with local developments of pillow structure. Interlain with these are lesser amounts of chloritic tuffs and impure quartzites and occasional bands of rhyolite. The more massive andesites are fresh-looking, pale greenish to grey rocks, only locally sheared in places scoriaceous, and many irregularly well preserved pillow structure.

The IRON FORMATION (symbol 1B) varies from interbedded quartz and magnetite with amphiboles, to cherty iron carbonate, to brilliantly coloured jaspilite. Occasionally the siliceous bands are inter-layered with argillaceous material, and in the eastern section of the range pyrite and pyrrhotite are also present in considerable amounts. The various bands recognized in Marion and Genoa townships are separated by chloritic tuffs and fine grained clastic sediments that grade into each other, or are separated by rhyolite pyroclastics with occasional thin lava flows. In the Marion section the volcanics which locally alternate with the iron formation bands are mainly acidic but towards the eastern end of the range particularly in Genoa, they are dominantly of intermediate composition. Parts of the iron range in Marion are almost non-magnetic, but usually the compass is strongly affected. The broad band of grey to buff coloured rocks on the southeast side of the iron range are mostly rhyolite tuffs and flow breccias, but intimately intermixed with them are intrusive rhyolite porphyry and patches of quartzite and conglomerate. The conglomerate patches are more abundant towards the western end of this section, and in many places are dark greenish from abundance of chert, and, sometimes, magnetite in the matrix.

The BATHOLITHIC INTRUSIVES (symbol 2) tend to be moderately porphyritic and obscurely gneissic except near their boundaries, around inclusions and in shear zones where the gneissic structure is more pronounced. The small stock in Dale township and part of the occurrence in Rush lake contain more dark minerals, mainly hornblende. The Dale stock grades from an almost black diorite gneiss marginally, to a pale pink quartzite and conglomerate near the centre. The Rush lake complex varies rather erratically from quartz diorite, to syenite, to hornblende granite.

ALTERED GABBRO, DIORITE AND DIABASE (symbol 3); sills, dykes and bosses of intermediate to basic rocks intrude the schist complex in profusion. Commonest is a dark grey to greyish-green, medium grained hornblende diorite, but it varies through diorite and gabbro to coarse grained feldspar porphyry. The larger bodies are prone to vary greatly in texture and composition within themselves, even within a single outcrop. These rocks are fresher and more nearly granular than similar types belonging to the schist complex, but they have undergone considerable alteration and localized shearing, so that it is difficult in places to distinguish them from the more massive facies of the older lavas. Near the outlet of Rush lake a gneissic facies of granite, containing inclusions of the schists, is intricately intruded by diorite and diabase belonging to this series. Here, too, dykes of quartz and feldspar porphyry cut the diorite-dyabase bodies and the granite.

QUARTZ AND FELDSPAR PORPHYRIES (symbol 4): The younger acid porphyries are present mainly as narrow dykes, and as small bosses. A profusion of small dykes of this nature occur just west of Rush lake, in Genoa and Marion, in northwestern Newton and the area immediately northwest of Swayze river, and on the peninsula between the northern arms of Horwood lake. Several varieties of these rocks occur, but dominantly they are either composed of a compact, creamy to greyish matrix in which are well developed phenocrysts of quartz and feldspar, with some muscovite, or are composed of a dark grey to salmon coloured groundmass carrying tiny eyes of quartz and many well-formed phenocrysts of feldspar and black mica. Tiny veinlets of galena, calcite and chlorite permeate a dyke of the grey biotite-bearing porphyry on claim S 591, Genoa township, and quartz veins carrying small quantities of galena and pyrite are present in the muscovite-bearing facies on North-east Arm, Horwood lake. Thus it seems, that some of the solutions responsible for the metalliferous vein deposits in the area were later than the younger porphyries and probably came from the underlying magma that gave rise to the porphyries.

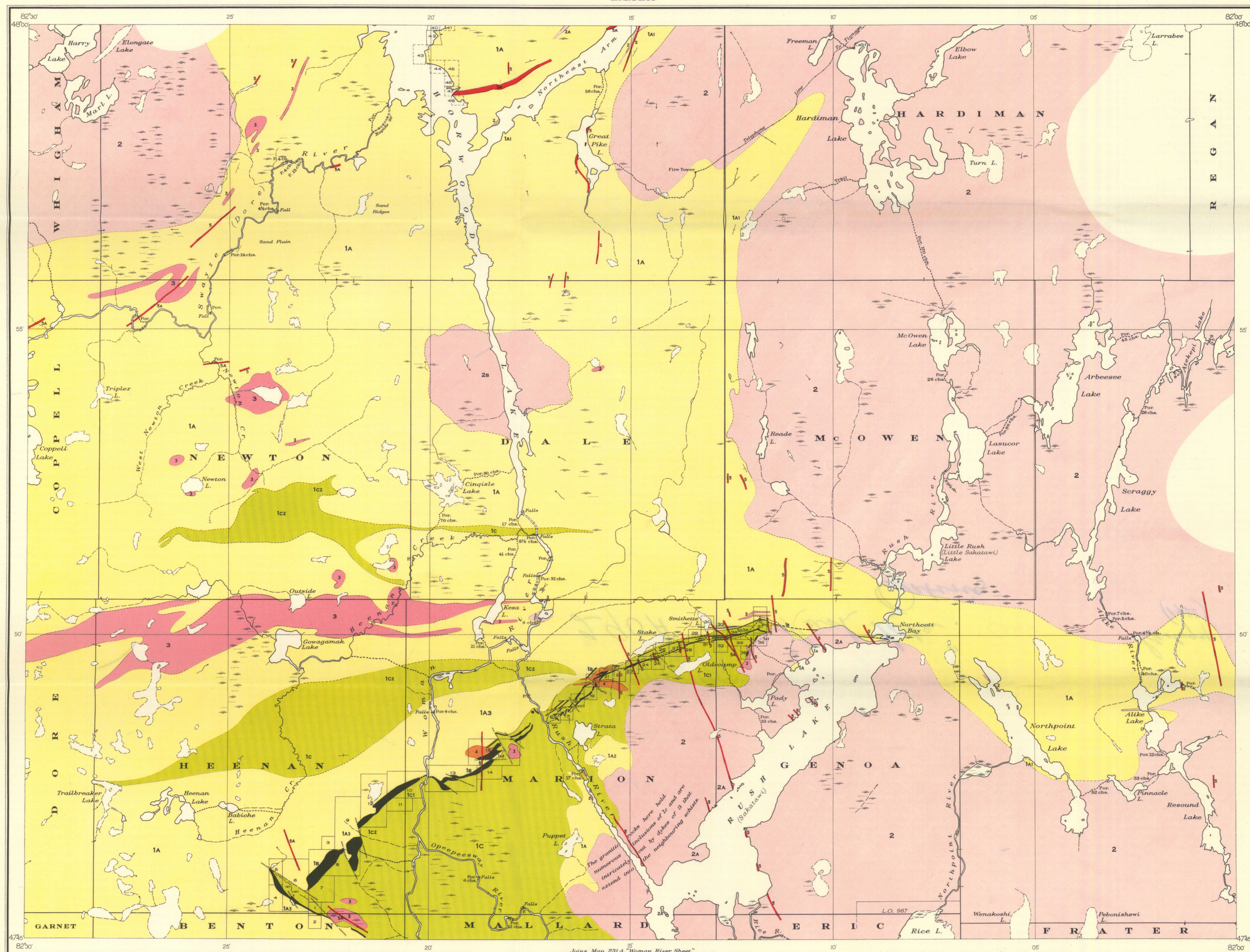
DIABASE DYKES (symbol 5): The youngest rocks are fresh-looking diabase dykes of two kinds; one a dark rock which often carries huge phenocrysts of altered plagioclase; the other (5A) a grey to brownish grey, olivine-bearing type. They vary from less than an inch to 600 feet or more in width, but usually they are not over 40 feet wide. They cut across the structures of the other rock groups and have chilled borders. They are more numerous than noted on the map.

MINERAL POSSIBILITIES

Mineral deposits of commercial grade have not yet been developed but various types of mineralization have been found. Considerable attention has been given to the iron range, and deposits containing 40% to 43% iron have been proven by diamond drilling and other methods. The main deposits are east of Rush river, and are associated with the most southerly band of siliceous iron formation. The ore minerals are carbonates and oxides of iron, with which are intimately mixed considerable quantities of pyrite and, in the eastern part, pyrrhotite. The western portion of the range is relatively free from sulphides, but is lean. Small quantities of molybdenite occur in a quartz rich pegmatite and disseminated through a small dyke of gneissic granite on the west shore of Alike lake. Some chalcocite and pyrrhotite occur as replacements in carbonated schists on the peninsula between the arms of Horwood lake. Gold has been reported from localities, now under water, on the west side of this peninsula, just north of the map-area. Veins containing lead, zinc and copper minerals, with varying amounts of quartz, calcite and pyrite occur at various localities, e.g. on claim W.D. 717, Genoa township, where the veins are in a sulphide phase of the iron formation. Mineralization of the same type occurs rather sparingly in siliceous iron formation on the south shore of Northcott bay, Rush lake; in highly sheared graphitic schists on claim S 591, Genoa; and in a shear zone in the gabbro-diorite south of Outside lake, Heenan township.

RELATED PUBLICATIONS

- 18th ANNUAL REPORT, ONTARIO BUREAU OF MINES, PART 1, 1909: Iron formation of the Woman river area; by R. C. Allan.
- G. S. C. SUMMARY REPORT, 1916: Reconnaissance along the Can. Nor. Railway between Gogama and Oba, Sudbury and Algoma districts, Ontario; by T. L. Tanton.
- G. S. C. MAP NO. 1697: Explored routes between Gogama and Missisquoi, Sudbury district, Ontario (Sheet 1) 1916; scale, 1 inch to 4 miles; by T. L. Tanton.
- 35th ANNUAL REPORT, ONTARIO DEPARTMENT OF MINES, PART 2, 1926: Sakatawich (Rush) lake section, Woman River Iron Range; by E. S. Moore.
- G. S. C. SUMMARY REPORT, PART C, 1928: Mineral deposits of the Eastern part of Rush river map-area; by H. M. Bannerman.
- G. S. C. SUMMARY REPORT, PART C, 1929: Mineral occurrences in Woman river district, Ontario; by H. M. Bannerman.
- G. S. C. MAP 230A: Ridout sheet, Sudbury district, Ontario; scale, 1 inch to 1 mile (provisional edition), 1929.
- G. S. C. MAP 231A: Woman river sheet, Sudbury district, Ontario; scale, 1 inch to 1 mile (provisional edition), 1929.
- G. S. C. MAP 155A: Lake Huron sheet, Ontario; scale, 1 inch to 8 miles. (3rd edition, 1933).



LEGEND

- 5 Diabase dykes; (5A) olivine diabase. Much younger than 4.
- 4 Quartz and feldspar porphyry; some of these may be much younger than others.
- 3 Altered gabbro, diorite and diabase.

BATHOLITHIC INTRUSIVES

- 2 Biotite granite and granodiorite; (2A) hornblende granite; (2B) syenodiorite.

SCHIST COMPLEX

- 1C Rhyolite pyroclastics locally grading into (1C1) clastic sediments; (1C2) rhyolite porphyry in part intrusive.
- 1B Iron formation.
- 1A Intermediate to basic lavas; (1A1) chloritic tuff and impure quartzite; (1A2) intrusive greenstone; (1A3) massive andesite.

- Geological boundary (defined)
- Geological boundary (approximate)
- Geological boundary (assumed)
- Fault
- Strike and dip
- Glacial striae
- Trail or portage

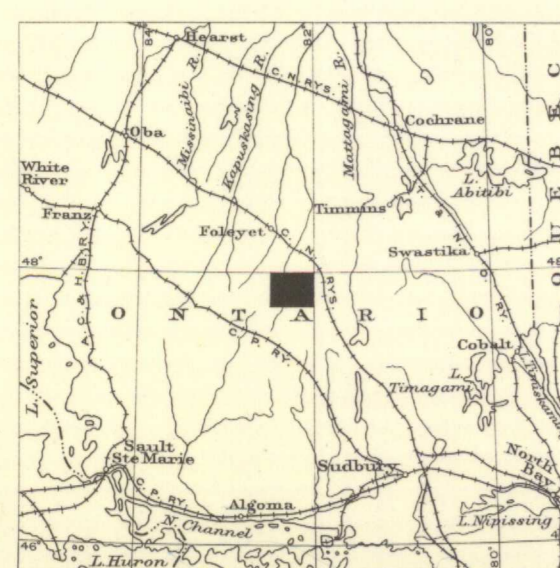
Approximate magnetic declination, 7° 30' West.

SOURCES OF INFORMATION

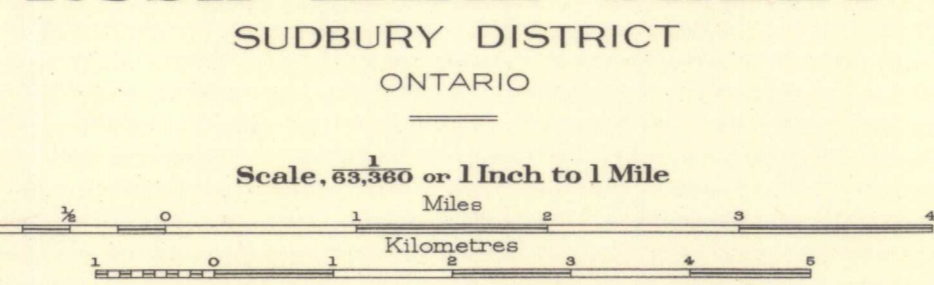
Geology by H.M. Bannerman, 1926, 1929, 1930. Surveys by H.M. Bannerman, 1926, 1929, 1930; the Ontario Department of Surveys; and the Spruce Falls Power and Paper Co., Ltd.

INDEX TO MINERAL CLAIMS	
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21.....W.D. 1731	46.....S. 12000
22.....W.D. 1730	47.....S. 11999
23.....W.D. 1729	48.....S. 11998
24.....W.D. 728	49.....S. 11997

(Claim No. S 591 is situated north of, and adjacent to claim No. W.D. 715.)



MAP 290A
RUSH LAKE SHEET
SUDBURY DISTRICT
ONTARIO



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