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ONTARIO DEPARTMENT OF MINES

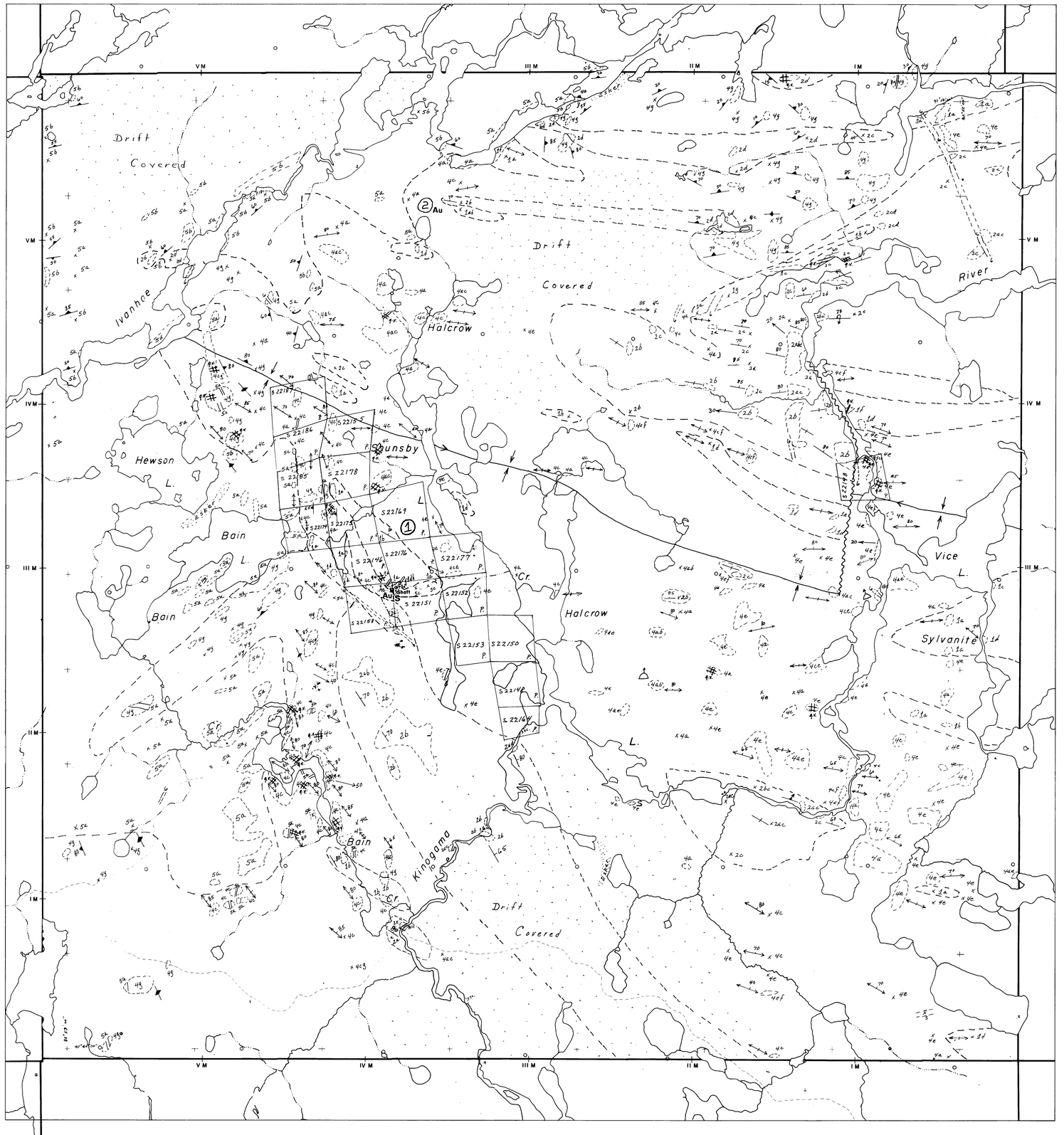
PRELIMINARY GEOLOGICAL MAP NO. P. 258

HALCROW TOWNSHIP

DISTRICT OF SUDBURY

Scale: 1 inch to ¼ mile

N.T.S. Reference 41 O/15
O.D.M. - G.S.C. Aeromagnetic Map 2246G



HALCROW TOWNSHIP

MARGINAL NOTES

Location: Halcrow township, in the District of Sudbury, is approximately 130 miles northwest of the city of Sudbury. The area lies between Chapleau on the Canadian Pacific Railway and Gogama on the Canadian National Railway, and may be readily reached by aircraft from either place.

Mineral Exploration: In 1931, a gold discovery in Sweyze township to the east lead to prospecting and staking in Halcrow township. Thirty-five claims were staked in the central part of the township in 1932, and shortly after a great deal of surface trenching and 2,000 feet of diamond drilling was done. Following this a shaft was sunk to a depth of 200 feet and 1,200 feet of lateral work was completed. In the northwestern part of the township, south of the Ivanhoe River, 15 claims were staked and over 200 feet of trenching was carried out. Selected grab samples are reported to have given high gold values. However, two chip samples taken by Rickaby (1935, p. 33) across 18 inches and 24 inches in the north pit gave 0.03 oz. gold per ton. A radiometric survey was conducted in 1955 on a uranium prospect along the Ivanhoe River. Results showed a few isolated occurrences of high radioactivity in the granites.

General Geology: All the bedrock of the area is Precambrian in age.

1. Acid volcanic rocks: These rocks are scattered through the township, usually occurring as isolated, lens-like bands intercalated with intermediate to basic volcanic rocks. The rocks are similar to those to the east in Denyes township; fine-grained, whitish to buff coloured, and rhyolitic in composition. There is a porphyritic and a fragmental phase as well as a metamorphic equivalent (sericite-quartz-feldspar schist) of the acid volcanic rocks.

The porphyritic rocks are greyish in colour, generally with small whitish to pinkish feldspar phenocrysts. Generally these rocks grade into more massive volcanic rocks.

A fragmental phase, consisting of volcanic breccia and tuff was observed in a few outcrops. The tuff is well bedded, generally parallel to the strike of the sedimentary rocks. The breccia consists of rhyolite, and trachyte fragments in a dense felsite matrix.

2. Sedimentary rocks: The most dominant sedimentary rocks in the township are conglomerates, which form two partly converging bands in the western part of the township. These rocks have a fine-grained, green coloured matrix, with rounded granite pebbles, and fragments of acid volcanic rocks, chert, etc. Greywacke, arkose, and quartzite are closely associated, and occur in isolated bands. These rocks are fine-grained, whitish to greyish in colour, and often show well-developed banding on weathered outcrop surfaces. Their composition is distinguished by the presence or absence of small quartz and feldspar grains. Rarely was it possible to use grain gradation to determine stratigraphic tops; no cross-bedding was found. Paragneiss, a metamorphic equivalent of the fine-grained sedimentary rocks, was found near the granite contact. The paragneiss is usually well-banded, showing the original sedimentary bedding. Often this rock is coarser-grained than the unaltered sedimentary rocks, and the appearance of a new mineral phase such as garnet was recognized. Shale, argillite, and slate were seen just west of the Kinogama River, but rarely observed elsewhere, except as interbands in the more siliceous sedimentary rocks. These pelitic rocks are fine-grained, dark coloured, and fissile.

3. Iron Formation: One small probable outcrop of iron formation was seen in the southeast corner of the township. The rock is well-banded with bands of grey chert, hematite, and magnetite, ranging from ¼ inch to 1 inch in width. Numerous laminations are recognized within the individual bands.

4. Intermediate to basic volcanic rocks: Intermediate to basic volcanic rocks are the dominant rocks of the map-area. Many are massive, fine-grained, light to dark green in colour. Brecciated volcanic rocks are found with felsic and mafic fragments set in a dense andesitic matrix. The intermediate to basic volcanic rocks are altered near the granite contact, where most are now amphibolites or hornblende-mica schists. A distinct banding and coarsening of the grain size is observed in the contact aureole zone. Development of garnet in this zone is common. The volcanic rocks near the granite are often intruded by narrow sills and dikes of granitic material.

5. Granite: Massive, pink, fine- to medium-grained granite is common in the western part of the township, south of the Ivanhoe River. In places the granite is syenitic, with very little recognizable quartz. The granite seems to have intruded the intermediate to basic volcanic rocks and occasionally xenoliths of volcanic rocks are found in the granite. North of the Ivanhoe River most of the granite is gneissic, with a poor to well-developed banding.

6. Diabase: Some northwest-trending diabase dikes are found in the township. The largest of these is in the northeast corner of the area. The dikes are dark coloured, fine- to medium-grained, massive, and less than 100 feet wide. They display a poorly developed ophitic texture.

Structural Geology:

Folds: A main synclinal axis trends in a sinuous east-west direction across the township to the Ivanhoe River where it appears cut off by an intrusive granite. The syncline is traced through from Denyes township to the east. The rocks appear to be tightly folded about the synclinal axis and dip in a near vertical position. The few observed mineral lineations suggest it is a doubling-plunging syncline; plunging to the west in the eastern part and to the east in the western part. The fold was traced by poorly-developed pillow structures in the intermediate to basic volcanic rocks and by grain gradations in the sedimentary rocks.

Faults: A major fault zone is suggested in the eastern part of the township. Part of the zone follows the Kinogama River in a northwest direction. Left-handed strike-slip displacement of approximately 3/4 mile is indicated. Sedimentary rocks as well as volcanic rocks are offset. The fault zone consists of highly sheared and crumpled rocks, and is occupied in part by a diabase dike, and quartz veins. No other fault zones were recognized.

Economic Geology: The main prospecting in the map-area has been concentrated in areas of volcanic rocks which have been sheared and fractured and veined with quartz veins. This is the association to the east where gold is found in quartz veins.

Pyrite is disseminated through many of the volcanic rocks. Whereas it appears to be dominant in the intermediate to basic volcanic rocks, pyrite is often seen in the acid volcanic rocks.

Considering that previous prospecting in the township was concerned with possible gold-bearing quartz veins, and in view of the recent interest in areas of intercalated acid and basic volcanic rocks, in exploration for base metals, the volcanic sequence in Halcrow township deserves future attention.

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Rickaby, H. C.

1935: Geology of the Swayze Gold Area; Ontario Dept. Mines, Vol. XLIII, 1934, pt. 3, pp. 1-36 (Map 43b).

LEGEND FOR HALCROW AND DENYES TOWNSHIPS

CENOZOIC

PLEISTOCENE — Sand, gravel, drift deposits.

Great Unconformity

PRECAMBRIAN

INTRUSIVE ROCKS

LATE BASIC INTRUSIVE ROCKS

6 — 6 Diabase

Intrusive Contact

GRANITIC ROCKS

5 — 5a Massive granite; 5b Gneissic granite; 5c Granodiorite, quartz diorite

INTERMEDIATE TO BASIC VOLCANIC ROCKS

4 — 4a Massive andesite, basalt; 4b Pillowed andesite, basalt; 4c Chlorite-hornblende-feldspar schist; 4d Basic tuff; 4e Grey massive andesite; 4f Volcanic breccia; 4g Amphibolite, hornblende-mica-feldspar schist

3 — 3 Banded Iron Formation

SEDIMENTARY ROCKS

2 — 2a Shale, argillite, slate; 2b Conglomerate; 2c Greywacke, arkose, quartzite; 2d Paragneiss, quartz-plagioclase-hornblende-mica schist

ACID VOLCANIC ROCKS

1 — 1a Massive rhyolite; 1b Acid tuff; 1c Volcanic breccia; 1d Sericite-quartz-feldspar schist; 1e Banded rhyolite; 1f Silicified rhyolite; 1g Rhyolite porphyry; 1h Feldspar porphyry

SYMBOLS

- Trail, portage, winter road.
- Drift features.
- Small rock outcrop.
- Boundary of rock outcrop.
- Geological boundary, defined.
- Geological boundary, approximate.
- Geological boundary, assumed.
- Strike and dip; direction of top unknown.
- Strike and vertical dip; direction of top unknown.
- Direction (arrow) in which inclined beds face as indicated by gradation in grain size.
- Direction (arrow) in which overturned beds face as indicated by gradation in grain size.
- Direction in which lava flows face as indicated by shape of pillows.
- Synclinal axis.
- Strike and dip of schistosity.
- Strike of vertical schistosity.
- Strike and dip of gneissosity.
- Strike of vertical gneissosity.
- Lineation (plunge known, plunge unknown).
- Fault defined.
- Location of mining property.
- Building.
- Trench.
- Veins.
- Network of quartz veins.
- S — Sulphide mineralization.

LIST OF PROPERTIES, HALCROW TOWNSHIP

1. Belcher Mining Corporation Ltd., (formerly Halcrow-Swayze Mines, Ltd.).....Au

2. Former Lyall-Beidelman.....Au

SOURCES OF INFORMATION

Geology by J. F. Donovan and assistants, 1964.
Map No. 43b, Swayze Gold Area, Ontario Dept. Mines, by H. C. Rickaby, 1934.
Aeromagnetic map No. 2246G, Rollo Lake, District of Sudbury; Ontario Dept. Mines and Geological Survey of Canada, 1963.
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Issued 1964.