



DESCRIPTIVE NOTES

The basin of Elbow Lake is underlain by the highly schistose 'greenstones' (1) of the Anisk group, which extends northward into Nokomis Lake map-area.¹ The rocks vary in mineralogical composition, and are almost everywhere sheared, especially within the boundaries of the lake itself. Distinct mylonites were observed along the west shore of the long point separating the inlet and outlet of Grassy River, and shear zones with chlorite schist are common.

In the vicinity of Claw Creek, grey weathering beds carry amphibole fibres (4) and magnetite schists (14). These are arkosidic-magnetite entities, with very fine-grained quartz, and are probably metamorphosed sediments.

Along the east side of Elbow Lake, south of the mouth of Claw Creek, are pillow lavas. In two places these were observed to be well enough preserved to show tops, and these indicate that the beds there are overturned. Pillows were also seen on Century Island.

Metamorphism has produced albite porphyroblasts in many of the beds, but in discontinuous areas rather than in mappable units. Medium-grained dioritic rocks, some probably intrusive and some possibly originating from metamorphosed volcanic rocks, are common. These have the same appearance and mode of occurrence as those in the Nokomis Lake² and Moody Lake³ areas.

Granites of various ages surround and intrude the Anisk greenstones concordantly. Grey to pink weathering biotite granite (2A) has a hornblende-rich border phase (2B). Contacts are sharp with minor *in-situ* injections. Occasional greenstone inclusions are the centres of local hornblende enrichment in the surrounding rock, suggesting a possible similar origin for the hornblende border phase. Distinctly porphyritic phases are not uncommon in the north part of the area.

Granites and 'diorites' characterized by blue quartz (3) form numerous bodies, but their relations to one another and to the other 'granites' are in large part obscure. Most boundaries appear to be gradational into rocks permeated with granitic material, although they are sharp just east of the south-central part of Elbow Lake. The bodies immediately off the north end of Claw Lake are definitely the result of the 'soaking' of the Anisk greenstones by granitic material. Granitic dykes with milky blue quartz have been observed cutting all the 'granites' except the hornblende-biotite granite (5), and this feature, plus the apparent permeation of some early 'granites' with blue quartz and the association of blue quartz with some of the mineral deposits, suggests that this quartz is of relatively late origin.

West of the north part of Elbow Lake, a highly variable body of 'granite' (4) bears some resemblances to both the biotite granite (2) and the bodies carrying blue quartz. It is distinctly zoned in places, the mineralogy of these phases indicating the possibility of both contamination and late alteration. One phase is a hornblende-biotite granite (4A) and another (4B) is hornblende-diorite, with subhedral grey plagioclase.

The largest granitic body in the vicinity of the map-area (5) extends north into the Nokomis Lake and Moody Lake map-areas, and east to Morton Lake. It carries both biotite and hornblende, is white to pink weathering, and commonly contains white to grey plagioclase phenocrysts. Elongate pink augen bodies parallel the foliation and may be relatively young intrusions, as suggested by their composition and their occurrence may be due to faulting.

The rocks with blue quartz (3, 4) commonly carry two varieties of feldspar, a pink potassic feldspar, which is commonly phenocryst size, and a greenish, saucer-shaped plagioclase. All the granitic rocks are more or less foliated.

A coarse-grained gabbro-like rock (6) of apparently metamorphic origin carries coarse green hornblende and dull white feldspar grains. It bears marked resemblance to the border phase of the hornblende (7), which in places grades into Anisk greenstones.

Structures are extremely difficult to determine. The attitude of the pillows suggests that the basin of the lake may be a syncline. The value of linear elements in mapping in this area is doubtful, due to their uncertain relation to shear zones or to (probably) minor but not detectable folds. Drag-folds near the borders of the 'granites' suggests that these bodies dragged the greenstones upward during their emplacement. The greenstones are probably preserved as roof pendants. Most of the shear zones trend slightly east of north, turning towards true north at the north end of the lake. Other shear zones trend northeasterly.

Mineral deposits in the area are apparently associated with north trending shear zones, and many of them occur in areas where the rocks are permeated with blue quartz, which is accompanied by quantities of pyrite. Prospects generally occur in sheared zones of chlorite schist, which carry stringers of white quartz and commonly a white to rusty carbonate. Pyrite occurs in both the quartz and the chlorite schist. Calena was observed in one locality and has been reported from others.

During the summer of 1949, diamond drilling was done on the Murray property (1), the Elbow Lake property (2), and in the Vanderberg area (3, 4, 5). These properties are all described in detail by Stockwell,³ but a few additional comments can be made at this time.

Little can now be seen around the Elbow Lake property, due to slumping and overgrowth. Shearing in this vicinity is as strong as anywhere in the map-area; here, too, the shear zones trend more nearly north than farther south at the lake, where they strike northeasterly.

The Vanderberg area includes claim previously referred to by Stockwell³ as Apex No. 1 (3), Apex No. 2 (4), and Apex No. 3 (5) respectively. Northerly trending shear zones cut the greenstones, which are in contact with a blue-quartz granite. Diamond drilling on Apex No. 1 claim for more than 200 feet along the strike of one shear zone revealed a continuous gold content, which, in one hole, reached a maximum of \$100 a ton for a core length of 3 feet. North of Apex No. 1 claim, along the same trend and on the former Apex No. 3 claim, pits were observed to show much pyrite, and all grab samples of this material panned gold.

The Century mine (6) has been previously referred to as the Webb and Gerbutt claims.³ Considerable work was done on them during the early 1940's, the pre-existing shaft being deepened and a small mill and assay office erected. Some gold was produced, but operations ceased about 1947, apparently due to the inability of the mill to recover sufficient of the finely disseminated gold. The latter occurs in vein quartz, in sheared greenstone, and in mineralized quartz porphyry,³ but at present the rock in the vicinity is covered by the dump and neither the veins nor the porphyry were observed. It appears that the shear zones, which trend northwest at the mine, take a more northerly or even northeasterly course farther south. The dump yielded white quartz, carbonate, pyrite, chalcopyrite, and one small piece of gold in chlorite schist.

Review of the literature of the area, discussion with prospectors in the field, and work about the prospects, suggest that the gold in the area occurs in high-grade pockets associated with quartz stringers in sheared greenstones. There seems to be some continuity to the shearing, and further prospecting might well investigate thoroughly the lengths of the major shear zones, especially where they are in contact with bodies of rock permeated with blue quartz carrying pyrite.

LEGEND

ARCHAEOLOGICAL OR PROTEROZOIC

- Hornblende
- Gabbro
- Hornblende-biotite granite
- 'Granite' and 'diorite', with some blue quartz; 4A, hornblende-biotite granite; 4B, hornblende diorite
- 'Granite' and 'diorite' with blue quartz; minor 'soaked' rocks
- 2A, biotite granite; 2B, hornblende-rich granite

AMISK GROUP

- 'Greenstones': highly metamorphosed, hornblende-chlorite rocks; pillow lavas, riebeckite-magnetite anenites, diorite, pseudo-diorite, chlorite schist

Bedding (vertical, overturned, dip unknown).....
Foliation (inclined, vertical).....
Lineation.....
Drag-fold (form and direction of plunge).....
Shear zone.....
Glacial striae.....
Mineral Prospect.....
Amphibole.....
Magnetite.....

MINERAL DEPOSITS

- Murray property
- Elbow Lake property
- 4, 5, Vanderberg area
- Century mine

Geology by D. S. Robertson, 1949
Base map by Topographical Survey
Cartography by the Geological Mapping Division 1950
Approximate magnetic declination: 15° S East

