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A Geological Report on the Property
of
Primary Gold Mir
Catharine Townshi



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INTRODUCTION

During the period October 3 to October 28, 1963, a program consisting of line cutting, mapping, sampling and prospecting was undertaken in Catharine Township, Ontario.

This work was carried out on the property of Primary Gold Mines Ltd., Suite 502 - 101 Bay Street, Toronto, Ontario. The Company is submitting this survey for assessment work.

The mapping was carried out by working from an old grid system that was recut and rechaind.

LOCATION AND ACCESS

This property consisting of twenty-seven contiguous claims is situated in the centre of Catharine Township in the Timiskaming Mining Division of Ontario.

The claims situated in lots 5, 6, 7, 8, of concession 111 and 1V are numbered T51746; T51914-T51921; T53511-53517; T53522; T53372-T53381.

More concisely they cover the:

N $\frac{1}{2}$ of lot 5 - concession 111

S $\frac{1}{2}$ of lot 5 - concession 1V

NE, NW and SW $\frac{1}{4}$'s of the N $\frac{1}{2}$ of lot 6 - concession 111

S $\frac{1}{2}$ of lot 6 - concession 1V

N $\frac{1}{2}$ of lot 7 - concession 111

NE and SW $\frac{1}{4}$'s of the S $\frac{1}{2}$ of lot 7 - concession 111

S $\frac{1}{2}$ of lot 7 - concession 1V

NE and NW $\frac{1}{4}$'s of the N $\frac{1}{2}$ of lot 8 - concession 111.

The property was formerly reached by a road running south from the village of Boston Creek which lies about nine miles to the north. However this road is in disuse as the bridge over the Misema river is out.

The property was reached during the present survey, by taking highway 624 north from Englehart a distance of fourteen miles. From here a narrow gravel road running northwest can be followed for one mile by car.

From this point an old lumber road running westerly leads to the shaft area in the south central portion of the property, a distance of about one and three-quarter miles from the gravel road.

The east boundary of the property lies one mile west of highway 624 at the closest point. A road from the highway is said to approach within a quarter of a mile of the boundary. On any future program undertaken on the property this means of access should be checked.

TOPOGRAPHY AND RESOURCES:

The topographic relief is low and consists of drift covered to swampy areas separated by outcrop areas. The greatest difference in elevation was estimated to be less than fifty feet.

The vegetation is second growth and consists mainly of poplar and birch with scattered stands of spruce and pine. Alders are prevalent in the swampy areas.

On the property there is a cabin suitable for habitation and the old staff house which is fairly large, could be made livable with a minimum of expense.

The Ontario Northland railway and Hydro pass within two and a half miles of the western extremity of the group. The Misema river flows a quarter of a mile west of the property.

HISTORY:

The property has been held by several owners but the only Company to do extensive work was Ostrum Gold Mines Ltd.

This work was done from 1926-1928 and consisted of prospecting, trenching, diamond drilling and shaft sinking.

During the course of prospecting and trenching thirty-two separate quartz veins were uncovered.

Diamond drilling was undertaken on some of these veins. At least eight holes were drilled but the results are not known to this writer.

On a vein known as number 12 vein an inclined shaft was sunk to 500ft. From this depth over 1200 feet of drifting and crosscutting was reported.

In 1956 a two week program of geological mapping and sampling was carried out by Hopkins Exploration Consultants for a client on eight claims in the area of the old workings.

GENERAL GEOLOGY:

The consolidated rocks in the area are Precambrian and consist mostly of Keewatin pillowed and massive lavas, diabase sills, and banded tuffs. These are cut by intrusives of the Post Keewatin, Algoman and Keewenawan periods.

TABLE OF FORMATIONS:

Cenozoic

Recent and pleistocene - clay, sand, gravel, boulders.

Precambrian

Keewenawan - diabase

Algoman - acid to intermediate dykes and stocks, feldspar porphyry, aplite, quartz porphyry.

Post Keewatin - intrusives, diorite, gabbro, peridotite.

Keewatin - basic and intermediate volcanics; andesite, dacite, including pillow lavas, diabase, diorite, gabbro, fragmental lavas, tuff.

- intermediate to acid volcanics; porphyritic dacite and andesite, banded tuff agglomerate and rhyolite.

The Keweenawan diabase is fine grained and fresher in appearance than the Keewatin diabase.

The Algonian feldspar porphyry is a light weathering rock with a grey green matrix and white albite feldspar phenocrysts.

The aplite dykes are pink fine-grained and contain quartz orthoclase, feldspar and minor amounts of muscovite.

The quartz porphyrys consist of glassy quartz phenocrysts in a white to pinkish feldspar matrix.

The lost Keewatin - intrusives are dark green, chloritic, conform to the enclosing structures and it is sometimes difficult to differentiate these from the extrusives.

The Keewatin basic and intermediate volcanics are dark green chloritic. Primary structures such as pillows and vesicules are common.

GEOLOGY OF THE PROPERTY:

The geology of the claim group is shown on map P. 142 of the Ontario Department of Mines. The property is underlain by basic to intermediate volcanics in contact with intermediate to acid volcanics on the northeast.

These strike in a northwest-southeast direction. A northeast-southwest trending diabase dyke outcrops in the northwest part of the property.

During the present survey parts of five claims were mapped on the scale of one inch = one hundred feet. They are T51746; T51914; T51921; T53372; T53373.

These were found to be underlain by massive and pillowed Keewatin basic to intermediate lavas in contact with a northwest trending gabbro sill. The lavas were mapped as andesites.

In places it was difficult to distinguish the sill from the volcanics. However two characteristics of the sill are that it is generally quite magnetic and coarse cubic pyrite crystals were frequently noted.

Four east west trending Algonian feldspar porphyry dykes from four to twelve feet wide were mapped. Another outcrop of this type just north of the baseline at 37 OOE appeared to have a north-south strike.

Two narrow bands of rock running about 320°E were mapped as tuff. These were light green, aphanitic, from one to two feet wide.

Two red weathering aplite dykes were noted as shown on the map.

In the extreme eastern part of the mapped area an outcrop of quartz albite porphyry is shown. This outcrops in a gully which appears to be a fault zone.

The quartz veins that were mapped and had been found by the original owners appeared to be simple fissure type veins and vary in width from a few inches to more than twenty feet. These veins cut both the Keewatin lavas and sills and are presumed to be of Algonian age.

The wall rock adjacent to these veins is generally little altered and the mineralization which is in the quartz and wall rock consists mostly of fine to coarse grained pyrite. A mineralized zone up to twenty feet wide containing pyrite magnetite and some chalcopyrite parallels but appears to be distinct from No. 12 vein.

This structure appears to be similar to the ore bearing structures of the Patterson Copper Mines Limited and the Amity Copper and Gold Mines Limited properties which are in Parcaud Township lying immediately to the west of Catherine.

STRUCTURAL GEOLOGY:

Three linear structures characterized by gullies were mapped as faults. The two westerly faults appear to offset the gabbro sill and

the later feldspar porphyry dykes.

The most interesting of the three indicated faults is represented by a gully running N 20°W. This gully which in places has vertical walls 15 feet high forks about two hundred feet north of the baseline, and the two limbs cross the baseline at 44:00E and 45:00E.

At the juncture of the two limbs an outcropping of quartz albite porphyry capped by gabbro at its south end was mapped. Four hundred feet north of the base line and running for about one hundred and fifty feet on both sides of the gully the rock is highly sheared and carbonated. This sheared zone dips steeply to the northeast. A sample assayed from here indicated the presence of gold. There is no outcrop on the floor of the gully which is up to sixty feet wide.

CONCLUSIONS AND RECOMMENDATIONS:

Previous work on the property was considerable. However from the number of veins found, the low but consistent presence of gold and the strong shearing encountered particularly to the northeast of the shaft area, the property retains considerable interest as a gold prospect.

If the quartz veins that have been found are projected easterly they appear to apex in an area east and north of the shaft area. The contact of the basic and acid volcanics lie in this general area although there is a paucity of outcrops here.

It is recommended that a mapping program to be followed up by a geophysical program be undertaken on the claims lying to the east and northeast of the shaft area.

The geophysical program should aid in locating important structures now covered by overburden. Diamond drilling should then be employed to test these structures.

The above program should cost approximately as follows:

Line cutting and geological mapping.....	\$1500.00
Geophysical Survey.....	<u>\$2500.00</u>
Total	\$4000.00

Respectfully submitted,



John R. Lill.

