63A·336 (1)

GEOLOGICAL REPORT ON

CLAIM S-43948 SHUNSBY MINES LTD.

CUNNINGHAM TOWNSHIP PROPERTY

LOCATION AND ACCESS

Claim S-43948 is located in the Northwest corner of the Shunsby Mines property, more or less in the centre of Cunningham Township, District of Sudbury, Ontario.

The road leading out of the property passes approximately 1200 feet Southwest of the #3 post.

TOPOGRAPHY

The Southeast corner of the claim is low, swampy ground. A high ridge extends Northeasterly across the West side and Northwest corner. The Northeast corner is occupied by a small lake which has been called Conchita Lake.

GEOLOGY

1. Rock Types:

Greenstone: The underlying country rock is Keewatin greenstone. For the most part the greenstone is derived from andesite and basalt lava flows.

Chert: The chert occupies a small area in the Southeast corner of the claim. This is the North tip of a larger mass lying to the South. The chert is generally hard, siliceous and finely banded. Frequently a little finely disseminated pyrite is present, sufficient to give the weathered outcrops a rusty appearance.

Diorite: The best exposure of diorite is along the East side of Conchita Lake, where it is part of a large, irregular dyke coming in from the Southwest. The diorite is generally dark green in colour and coarse to medium grained.

Feldspar porphyry: Outcrops mapped as feldspar porphyry occur across Conchita Lake and in the Southwest corner of the claim. It is generally gray in colour becoming bleached white on weathered outcrops. Good phenocrysts are seldom present but the larger masses show vague irregular feldspar phenocrysts.

Hornblende Syenite: One small outcrop of fresh hornblende syenite was observed in the Northwest corner of the claim. This is no doubt part of a late dyke.

2. Structure:

The general trend of the area is Northeasterly being about 20^{o} East of North on claim S-43948.

The chert lies above the Keewatin greenstone. The diorite and feldspar porphyry have intruded the greenstone and chert. The feldspar porphyry appears to be later than the diorite. It frequently occurs in the contact of the diorite and replaces the wall rock on both sides.

Submitted by

Ry K. Medford

Toronto, Ontario.
September 13, 1957.

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REPORT ON

SHUNSBY MINES, CUNNINGHAM TWP. PROPERTY

Sultan, Ontario
July 9, 1956

Roy K. Mudford.

Cunningham Twp.

REPORT ON

SHUNSBY MINES, CUNNINGHAM TWP. PROPERTY

ROCK TYPES

(1) Greenstone:

The underlying country rock of the area is Keewatin greenstone. For the most part this greenstone is derived from andesite and basalt lava flows.

(2) Banded Sediments and Chert:

Lying above the greenstone is a sedimentary formation made up of hard siliceous chert interbedded with bands and lenses of argillite and graphite. Much of the graphite and probably part of the argillite is no doubt of volcanic origin having been tuff deposited in water.

The sedimentary beds have frequently been referred to as "Iron Formation". The term Iron Formation however is applicable to these beds only by virture of their characteristic banding since iron in the form of magnetite is only very rarely present.

The bottom of the sedimentary formation is predominently thin bedded argillite and graphite with only occasional bands and lenses of chert. This grades upward into almost pure chert with only rare lenses of argillite and graphite. The chert beds are frequently brecciated with little of the original bedding left.

(3) Variolitic Greenstone:

Lying within the sedimentary formation is a well defined band of variolitic greenstone. This rock is characterized by irregular contorted banding and numerous oval to rounded spots or variolites up to 1/2" in diameter. This material is thought to represent the top of a lava flow the variolites having been originally gas bubbles.

The variolitic greenstone outcrops near the east side of the chert formation and dips southwest under it. It appears to pinch out toward the southwest giving way to banded sediments.

(4) Diorite:

The diorite is generally dark green in colour and coarse to medium grained. It covers most of the southwest corner of the property and extends northeast as large irregular dykes.

The distinction between greenstone and diorite was based mainly on texture. The coarse rock which could be seen to be definitely crystalline with the unaided eye was mapped as diorite. The finer rock was ;mapped as greenstone. This leaves open the possibility that some of the coarse rock may not be intrusive diorite but the centre of thick lava flows. Likewise some of the fine rock mapped as greenstone may be the outer edge of intrusive diorite. This possibility is especially apparent on the east side of the property. The diorite on the southwest and extending northeast through the area of the drilling is almost certainly intrusive.

The diorite may have come in as successive large dykes or masses until little or none of the country rock was left. This would account for the frequent occurrence of alternating coarse and fine rock as in hole #51.

(5) Feldspar Porphyry:

The rock mapped as Feldspar Porphyry is later than the diorite but closely associated with it. It is gray in colour and on weathered surface is a bleached white. Good phenocrysts are seldom present but the larger masses show vague irregular feldspar phenocrysts. The contact and narrower dykes are a fine grained uniform light gray and have frequently been logged in the drill holes as "gray lava".

The feldspar porphyry occurs most frequently in the contacts of the diorite and appears to replace the wall rock on both sides of the contact. In some cases it grades into normal diorite.

(6) Late Dykes:

A variety of dykes followed the intrusion of the diorite. The most common is quartz feldspar porhyry. There are also hornblend syenite, dark basic trap dykes and a few light coloured acid dykes.

(7) Sulphide Mineralization:

Sulphides observed in order of abundance are pyrite, pyrrhotite, sphalerite, chalcopyrite and galena.

Pyrite occurs in variable amounts in almost any rock type or formation, but pyrite and pyrrhotite are most abundant in the banded sediments and chert. Frequently they occur as bands replacing the original sedimentary bedding.

The chalcopyrite is later than the pyrite and pyrrhotite since it frequently corrodes the pyrite and pyrrhotite crystals and appears to have replaced them. Chalcopyrite is sometimes associated with quartz and calcite stringers, but the most frequent occurrence is in the chert breccia where it replaces the matrix. It seems to prefer the brecciated chert close to the argillite where the matrix is green chloritic material or graphite rather than silicon.

Sphalerite in minor amounts was probably deposited with the pyrite and pyrrhotite but the greater part of it is associated with chalcopyrite and was probably deposited at about the same time.

Galena in insignificant amounts has been noted with the sphalerite.

STRUCTURE

The geological history of the area will be approximately as follows:

(1) Lava Flows:

Andesite and basalt resulting in the greenstone basement.

(2) Deposition of Sediments:

Argėtlite, graphitic tuff, minor chert.

(3) Thin lava flows accompanied by tuff. These were likely local flows of small extent.

(4) Further deposition of sediments, predominantly siliceous material which resulted in fairly pure chert.

(5) Earth movements eventually resulting in intense folding of the sediments and greenstone.

The banded sediments would yield to stress by bending, shearing and slipping along the bedding plains, especially where it was well lubricated by graphite. The more massive chert beds being hard and brittle would shatter and break resulting in a breccia. The brecciated pieces were later recemented, mostly by silicon but in some places by graphite or argillaceous material which altered to chlorite.

(6) Igneous Intrusion assimilating, replacing or otherwise removing much of the greenstone and part of the sediments. This probably occurred about the same time as the earth movement which resulted in folding. The diorite came first followed by feldspar porphyry.

(7) Deposition of Sulphides:

First pyrite and pyrrhotite followed by chalcopyrite and sphalerite, mainly by replacement wherever temperature, pressure and the chemistry of the host rock was favourable.

(8) Intrusion of various dykes - quartz feldspar, porphyry, hornblend syenite, etc.

The foregoing events followed by some hundreds of millions of years of errosion has resulted in conditions as we have them today. The two cross sections are diagrams intended to illustrate the general structure. They are not expected to be near correct in detail.

Briefly, we have an overturned synclinal fold -- the nose toward the west. It is surrounded and presumably underlain by diorite which has removed part of it and has cut through it in places as diorite dykes.

The fold plunges rather flatly to the south. In the section through hole 51 only a shallow remnant of the nose is left. In the section through hole 32 further south, it has increased somewhat in depth and extent. The variolitic greenstone at the collar of hole 51 is the same band as that further east but is cut off from it by the intrusive.

The chert in which the main showing and copper knob occur together with that further west are probably another similar fold underlain by variolitic greenstone and banded sediments where it has not been removed by the diorite. Hole 46 in the east side of the west chert band finished in gray irregularly banded rock showing a few distorted variolites.

CONCLUSIONS AND RECOMMENDATIONS

All significant copper mineralization on this property is confined to the chert and cherty sediments. A number of good drill intersections have been had in the tag ends of chert to the north of the main mass, but it is evident by now both from the mapping and the drilling that these can have but little vertical or lateral extension.

There remains the main mass of chert plunging south. It is probable that this also is relatively shallow and will not extend to a depth of more than four or five hundred feet. However, there is the possibility of a rather extensive flat lying copper body at shallow depth.

Therefore, I recommend two more holes, one to be drilled about 150 feet west of 200 North, a second to be drilled three or four hundred feet southeast of this. Both holes will be vertical and pass completely through the chert and banded sediments into the underlying diorite or basement greenstone, as the case may be.

If neither of these holes give reason for further drilling, I would consider the possibilities of the property exhausted and bring the drilling programme to a close.

Submitted by

Roy K. Mudford

Roy K. Mudford.

Sultan, Ontario
July 9, 1956.

File 63A-336

SHUNSBY MINES LTD. CUNNINHAM TOWNSHIP

GEOLOGICAL PLAN

SCALE: 1" = 200'

400 200 0 200 400 600

LEGEND

Sediments
- C — Chert
- Ca — Cherty and Graphitic Argillite

Volcanics
- Variolitic greenstone (flow top)
- Tuff (associated with Variolites)
- Greenstone (andesite and basalt)

Intrusives
- Diorite
- Feldspar Porphyry Gray Dykes
- Quartz Porphyry
- Peridotite
- Hornblend Syenite

SYMBOLS
- Outcrop
- assumed Contact
- 60° Strike and dip of beds
- x Copper bearing float
- Drill Hole
- Claim Line
- Picket Line
- Swamp
- Trail

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Date - July 1st, 1956 Geology by - R. Mulford

S-57542
S-57543
S-57585
EDWARDS LAKE
CONCHITA LAKE
S-43948
S-43947
S-57544
61828
34944
S-61829
HIRAM LAKE
S-57541
S-57536
S-34947
S-34946
S-57539
S-61830
S-57540
S-57537
S-57538
CMS-A
Trace N.
Mag. N.

200