



41P15NE8267 63A.362 POWELL

010

GEOLOGICAL REPORT  
ON  
PALANGIO-NASSO PROPERTY  
MATACHEWAN AREA  
POWELL TOWNSHIP ONTARIO

SUMMARY:

The Palangio-Nasso property in Powell township is composed of 18 claims and originally formed the greater part of a group belonging to the Welsh-Sauve Copper Gold Mines Limited. It adjoins the Min-Ore - Ranwick property on the west and extends from here westerly to Mistinikon lake, a distance of  $1\frac{3}{4}$  miles.

The claims straddle the northern edge of a belt of Timiskaming sediments against Keewatin volcanics, so that in general the northern portion of the group is underlain by acid to basic flows and tuffs while the southern section is composed of Timiskaming type greywackes and conglomerates. Both the volcanics and the sediments are intruded by porphyry masses of various types which, because of overburden cover, are of unknown extent and orientation.

A serpentinized basic flow which lies immediately north of the sedimentary contact has formed the host for copper-molybdenite ores on the Min-Ore property. This flow can be traced on to the Palangio-Nasso ground at its extreme north-east corner and thence across the northern tier of claims to near the north end of Pine lake. Numerous shears occur within this formation and although they have been investigated by rock trenching and prospecting, no mineralization of any consequence has been encountered. The north contact against intermediate lava and the south contact against sediments have both been investigated by at least one drill hole section. The results of this work are not known, although from the lack of follow-up exploration it can be assumed they were of no great interest.

Due to the soft nature of this rock, it normally forms the low-lying portions of the topography and is consequently only infrequently exposed. If a thorough investigation of this belt is to be achieved, it will be necessary to use geophysical means. Near the north end of Pine lake a self-potential survey carried out by Mining Geophysics encountered anomalous conditions on

ground underlain by serpentized lava but there were no outcrops available to check its source. This same condition was encountered 100 feet to each side of the line. A test pit sunk at this point failed to reach the underlying rock. For reasons known only to themselves Mining Geophysics did not investigate this any further.

On the basis of magnetic data presented on Map 287 G of the Department of Mines and Technical Surveys, Dr. J. P. Nowlan in his preliminary report, dated May 14, 1958, suggested a north-south fault to explain the termination of the serpentized basic lava belt at Long lake. Using this assumption, the magnetic high on MR 26847 and 48 would represent its continuation through these claims. This magnetic high has been established, from surface mapping, to be serpentized lava; but from the rock sequences found, it must belong to a different horizon within the formation series. The true width and character of this flow is largely unknown, as for the most part it underlies a swamp valley depression with a consequent scarcity of outcrop. Any further investigation of this would necessarily have to be by geophysical means or diamond drilling.

At location 5 (see map) a strong carbonate zone with quartz stringers and carrying sphalerite, weak molybdenite and low gold values has been explored by trenching and one short drill hole. The rock in the trenches is now largely obscured by caving ground but from the amount visible, it would seem that this zone deserves further investigation by diamond drilling.

West from Pine lake for a distance of 2000 feet, the ground is largely occupied by a north-south striking diabase dyke swarm associated with strong fault structures. Within this zone, and west of it, strong sulphide occurrences consisting of pyrite-pyrrhotite interbeds in acid tuffs have been explored by trenching and drilling at locations 7, 8 and 9. None of these would appear to have any importance.

Except for the carbonate shear zone following along or near the sediment-volcanic contact near the south boundaries of MR 26843, 26851 and 52, only one mineral occurrence (location 10, see map) has been found in the claim area underlain by sediments. Experience in this area has shown that there is little chance of finding economic mineral deposits in this formation type unless proper geological and structural conditions exist. As these are not evident in this group, the claims underlain by sediments and not required for dip protection could be allowed to lapse.

#### RECOMMENDATIONS:

These claims have been subjected to intensive prospecting together with a small amount of diamond drilling, and up to the present no discoveries of economic mineralized deposits have been made. Ordinarily, this would discourage any further attempt at exploration, except for certain extenuating circumstances which are present.

A serpentinized basic flow which on the Min-Ore property, adjoining to the east, contains deposits of chalcopyrite-molybdenite ore can be traced to the Palangio-Nasso group and for a distance westerly of some 3500 feet. Although no mineralized zones have been found in this section of the formation, this could be adduced to the relative scarcity of outcrops. A flow similar in appearance occurs on claims 26847 and 48, but as it underlies an extensive linear swamp little information can be gained as to its nature.

It is recommended that electromagnetic coverage be made of claims MR 26843, 26851, 26847 and the eastern half of 26852, using a standard two cycle transmitter or the new intermediate range battery transmitter. This would require about three miles of EM survey and would involve the cleaning out and chaining of about one mile of old picket lines on claim 26847. If favourable results are obtained on 26847, the survey should be extended westward

across 26848 and part of 26849 to the shore of Mistinikon lake.

If conductive zones are encountered it would be advisable to check these occurrences by means of the Induced Polarization method. By this means it would be possible to confirm that the conductor is caused by sulphides.

INTRODUCTION:

In March 1958, a group of eighteen claims were staked in Powell township, Matachewan area, on behalf of Carl Palangio of North Bay and Frank D. Nasso of Toronto. These claims originally formed part of a group belonging to the Welsh-Sauve Copper Gold Mines Limited. They had been recently surveyed by Welsh-Sauve and the well cut out claim boundaries formed the grid for the new staking.

On May 8, 1958, a brief examination of the claim group was made by Dr. J. P. Nowlan and recommendations were made for further exploration.

During the latter part of July, a contract was let to W. Rainboth of Matachewan to clean out the old base line and certain of the north-south picket lines to facilitate geological mapping of the group. Rainboth found this old work too overgrown to follow and cut a new base line along the south boundary of claim 26843 and extended it, on a bearing of N 80° W, to the shore of Mistinikon lake. Picket lines were run from this base line at 400-foot intervals to cover the northern tier of claims from near the east boundary to a lake near the west boundary of MR 26852.

Using the grid as a base, supplemented by pacing along old picket lines and claim lines, the writer assisted by D. Duffy of Kirkland Lake carried out geological mapping of the group, at intervals, over the period July 24 to August 15, 1958.

LOCATION AND ACCESS:

The Palangio-Nasso group is composed of eighteen claims, MR 26843 to 26860 inclusive, situated in the central portion of Powell township in the Matachewan area. It adjoins the Min-Ore property on the west and is serviced by a gravel highway leading from Matachewan and passing half a mile east of its east boundary. An unimproved jeep road leads from this across the

Min-Ore property to an old campsite near their mutual boundary. A serviceable winter road begins here and crosses the property in a general westerly direction to the shore of Mistinikon lake.

HISTORY:

Over the last twenty-five years the property has been subjected, at intervals, to various types of exploration procedure, such as prospecting, geological mapping, trenching and test pitting, geophysical surveys and diamond drilling. During the last ten years while it was owned by Welsh-Sauve, it was thoroughly prospected and the more interesting occurrences diamond drilled. Within this period it was optioned to Kirkland Lake interests who arranged for additional geological mapping and extensive sampling of the surface showings. At a somewhat later date, about five years ago, the property was placed under option to Mining Geophysics Corporation who carried out self-potential surveys over portions of the group using the original picket line grid as a base. A limited amount of diamond drilling was completed at this time, in three separate locations.

At the present time, some of the old rock trenches are available for examination; but in those instances where interesting quantities of mineralization had been found, the formations are now obscured by caving, filling and rust accumulations. The core from diamond drilling has not, over the years, been cared for in a systematic way and is now scattered in a confused manner at the various drill locations throughout the claims. Some of these core logs are available at the office of the Resident Geologist in Kirkland Lake. If it should become necessary at any time to correlate the drilling information, these logs, together with data on file with Mining Geophysics should give a fairly complete picture of the information so far acquired.

GENERAL GEOLOGY:

The geology of Powell township is described in a report of the Ontario Department of Mines entitled "Geology of the Matachewan-Kenogami Area," Volume XLIV, part 2, 1935, by W. S. Dyer. The township is underlain by rock formations widely diverse in age, the oldest being the Keewatin, consisting of volcanic flow and volcanic fragmentals. Included within the Keewatin are two closely folded synclinal structures composed of Timiskaming sediments. Both the Keewatin and the Timiskaming are intruded by a wide variety of igneous rocks, classed as Algoman and ranging in composition through basic diorite, syenite, syenite porphyry, feldspar porphyry and granite. The last stage of the igneous activity and included within the Matachewan formation is represented by swarms of north-south trending diabase dykes. These occur with great regularity throughout the area and cut all of the earlier formations.

The mineral deposits of the area are found in these early pre-Cambrian rocks. They are commonly closely related to one or more of the types of syenite porphyry and are usually associated with some marked structural feature such as a line of weakness between the Keewatin and Timiskaming or a similar condition within the formations themselves.

In the south-western third of the township all of these early pre-Cambrian formations and structures are overlain by flat dipping beds of Cobalt conglomerate and greywacke.

SPECIFIC GEOLOGY:

The Palangio-Nasso claim group occupies a position along the north boundary of the southern sedimentary syncline and maintains this sedimentary-volcanic contact within its borders for a distance of some 8000 feet east from Mistinikon lake, to its mutual boundary with the Min-Ore property. The contact is offset in many places by north-south trending diabase dykes and faults.



On the Min-Ore property, the northern border of this sedimentary syncline is found in contact with a volcanic basic flow, Keewatin in age and with a composition closely resembling a peridotite. This rock, which is fine to medium grained in texture, is generally serpentized, carbonatized and locally sheared. It is within this basic formation and associated with strong shear structures that mineralized deposits containing molybdenite and chalcocopyrite are found on the Min-Ore.

This serpentized basic flow enters the Palangio-Nasso ground near the extreme north-east corner of the group on claim MR 26843. On its extension westerly from this point it is interrupted, within 500 feet of the boundary, by a north trending fault which offsets the serpentine formation about 650 feet to the south. From here the flow continues westerly with only minor interruptions, by diabase dykes, across claims 26843 and 26851 to the vicinity of Long lake in the eastern portion of MR 26852. At this point, a faulting has been assumed to explain a sudden reduction in the width of the serpentine flow from one of 450 feet, which was constant for a 2000 foot strike length east of the lake, to a 200 foot width west of the lake. Further offsets by diabase dykes were observed on its continuation to the west as far as a wide diabase on the western portion of MR 26855. Beyond this, there is no evidence in the form of outcrops to confirm its presence at all.

Near the west boundaries of claims 26855, 52 and 47, another strong north-south fault zone has been assumed to explain a radical change in the observed geological formations. To the east of this structure the geological sequence remained fairly constant, with the large extent of Timiskaming sediments forming the bedrock in the majority of the claims to the south and underlain successively to the north by serpentized basic lava and andesite flows. To the west, however, the rock sequence is made up of alternate horizons of acid flows and tuffs interspersed with bands of andesitic meta

diorite. At the north side of this sequence, and near the northern boundary of the group, outcrops of serpentized basic lava are found. This band has been interpolated to be about 400 feet wide and may or may not bear some relation to a similar formation found on claim MR 26847 to the east of the assumed fault.

Near Mistinikon lake these formations, west of the fault, are intruded by a mass of serpentized peridotite striking parallel to the lake and bounded on the east by the assumed fault structure.

The sediments observed were largely greywacke, having strikes varying between S 75° E and N 60° E and with steep dips both to the north and south. Near the south boundary of the group, on claim 26846, rock outcrops suggest a conglomerate horizon having a minimum width of 400 feet although no evidence could be found of the extension of this along and near the east boundary.

The volcanics and the sediments are cut by several types of porphyry but owing to the scarcity of outcrops, little information was provided to determine their extent, nature or orientation. The largest observed occurrence of these porphyries was a red syenite dyke intruding the sediments in the easterly portion of MR 26845. This dyke has a north-south trend parallel to an assumed fault structure and can be traced over a strike length of 1000 feet. In the vicinity of the common claim corner at the south-west angle of MR 26855, numerous outcrops of basic porphyry or gabbro occur. This body is apparently rimmed by an aciditic variety of the sediments in which occur black cherty layers containing interbeds heavy in pyrite and pyrrhotite.

#### STRUCTURAL GEOLOGY:

The geological structure on this claim group is complex and mapping in much greater detail than that carried out would be necessary before a completely satisfying interpretation could be achieved. The eastern portion of the group, from Long lake to the east boundary, is without complication in

that the formations carry along their course with only minor interruptions by diabase dykes. The serpentinized basic lava maintains a fairly constant width of 450 feet along this strike length and contains numerous strong shears which are likely related to the strong fault zone following along or near the serpentinized lava-sedimentary contact. This zone is marked by the presence of strong shearing and heavy carbonatization or green carbonate zones.

West of Long lake, no satisfactory proof of the continuation of the carbonate fault structure can be found; and although serpentinized basic lava is present, the band is only half the width of a similar formation east from the lake. Although a north trending fault has been interpreted along the length of Long lake, this does not satisfy the conditions encountered and it must be assumed that the carbonate fault structure enters the serpentinized lava west of Long lake and causes an apparent diminution in width by a strong vertical displacement.

West from Pine lake for a distance of 2000 feet, the ground is largely occupied by a diabase dyke swarm. This, with its accompanying offsets, fault structures and folding, sharply delimits any attempt to trace rock horizons through this area. The rock formations are radically different on continuation to the west, suggesting that the diabase swarm marks the position of fault structure having an appreciable horizontal displacement.

In the south portion of MR 26847, a strong east-west shear structure has been observed in association with a serpentinized basic lava. This structure offsets the diabases of the dyke swarm and may be the continuation of the main carbonate fault zone extending eastward from Pine lake.

ECONOMIC GEOLOGY:

Locations of potential economic interest have been explored at various sites on the property. These are numbered from 1 to 10 on the accompanying map and are briefly described below:

1. Near the north boundary of MR 26843 a rock pit has been sunk to a depth of six feet in the exploration of a 24-inch shear in an intermediate lava. This shear, striking at N 78° W, has a dip of 80° to the south and contains moderate amounts of pyrite, pyrrhotite and minor chalcopyrite. Copper assays from here are reported to be less than one percent. This zone has been further explored by at least one diamond drill hole.

2. In the central portion of MR 26843 a test pit has explored pyrite-pyrrhotite mineralization on a carbonated contact between serpentinized lava and feldspar porphyry. This is close to the main serpentine-sedimentary contact and probably along the main carbonate fault zone. Two drill holes at this point have explored conditions both to the north and to the south of the showing.

3. At this location, in the western part of MR 26843, a strong 5-foot shear in serpentinized lava has been explored by rock trenching. Only minor amounts of mineralization were observed. The shear, which carries a high development of actinolite, strikes approximately E-W and dips at 85° to the north.

4. A rock pit in the south-west portion of MR 26843 has explored a 6-foot shear in serpentinized lava. Mineralization, in the form of pyrite and pyrrhotite, is present in minor amounts.

5. Near the mutual boundary between MR 26851 and 56, rock trenching and stripping have disclosed a green carbonate zone some 20 feet in width on a strike of approximately S 45° E. Quartz veining carrying molybdenite, galena and pyrite occurs along the south wall. Another rock pit lying 50 feet to the south-east is composed entirely of green to brown carbonate rock cut by S 25° E breaks carrying pyrite, galena and sphalerite. Channel sampling along one wall

of this trench is reported to have returned \$8.00 in gold values over 5 feet. One diamond drill hole under this occurrence failed to intersect green carbonate but obtained a 2-foot intersection carrying sphalerite and galena.

6. North of Pine lake a self-potential survey carried out by Mining Geophysics Corporation, during the term of their option, encountered anomalous conditions which were repeated 100 feet to each side of the picket line. This appears to be along the north contact of a serpentized basic lava but a pit sunk at this point to investigate it further failed to reach bedrock at 12 feet.

7. Near the south-west angle of MR 26855, extensive rock trenching and two drill holes have explored a pyrrhotite zone in acid tuffs or silicified greywackes. This zone has been traced over a length of 300 feet and it may be connected through a folded horizon with similar material lying to the south-west along the side of a draw trending at N 30° W. No values in copper or gold have been obtained from this material.

8. Near the south boundary of MR 26848 a 20-foot wide rust zone on the contact between acid tuffs and meta diorite contains pyrite, pyrrhotite and minor chalcopyrite. This zone has been explored by stripping, rock trenching and one diamond drill hole. Minor amounts of chalcopyrite are reported from the drilling.

9. On claim MR 26850, a 25-foot wide pyrrhotite zone in acid tuffs can be traced over a length of 400 feet. No values are reported here.

10. On claim MR 26846, a 14-inch shear in conglomerate containing quartz-calcite streaks occurs along the south boundary. This zone carries weak sphalerite mineralization and has been explored by means of one trench and a drill hole, facing north and collaring on the shear.

REFERENCES:

1. Geology and Ore Deposits of the Matachewan-Kenogami Area  
- W. S. Dyer  
- Ontario Department of Mines, Vol. XLIV, part 2, 1955
2. Map 44a, Ontario Department of Mines
3. Aeromagnetic Sheet 287 g, G. S. C.

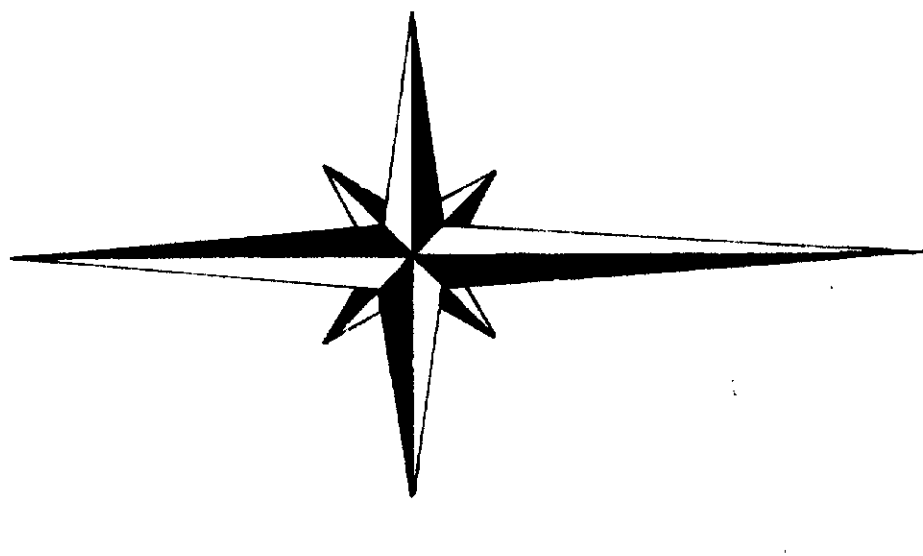
ATTACHMENTS:

Geological Plan of Palangio-Nasso Property,  
Powell Township, Matachewan Area

Scale: 1" = 200'

Haileybury, Ontario  
September 5, 1958

  
D. K. Burke, P. Eng.  
Mining Geologist



**GEOLOGICAL PLAN**  
**OF**  
**PALANGIO - MASSO PROPERTY**  
**MATACHEWAN AREA ONTARIO**  
**POWELL TWP.**  
**GEOLOGY BY - G. BURNS**  
**SCALE - 1" = 200'**  
**DATE - 4 SEPT 58**



**SYMBOLS**

- Contour line grid
- New parcel line grid
- ▭ 5/8" MAP
- ▭ ROAD
- ▭ Railway center
- ▭ Pipeline
- ▭ Drill hole
- ▭ Water race
- ▭ Road
- ▭ Ponding - springs, seeps
- ▭ Stream - probable, unpermanant
- ▭ Stratigraphic base line
- ▭ Area inside - contour
- ▭ Road show and title
- ▭ Boundary, other

**LEGEND**

- 10 Palangio
- 9 Masso
- 8 Gabbro
- 7 Diabase
- 6 Gabbro - quartz, diorite
- 5 Diorite - gabbro, quartzite
- 4 Stratigraphic base line
- 3 Area inside - contour
- 2 Road show and title
- 1 Boundary, other

