Geological Report

on

Annett Gold Option

Shining Tree I Property

Shining Tree, Ontario

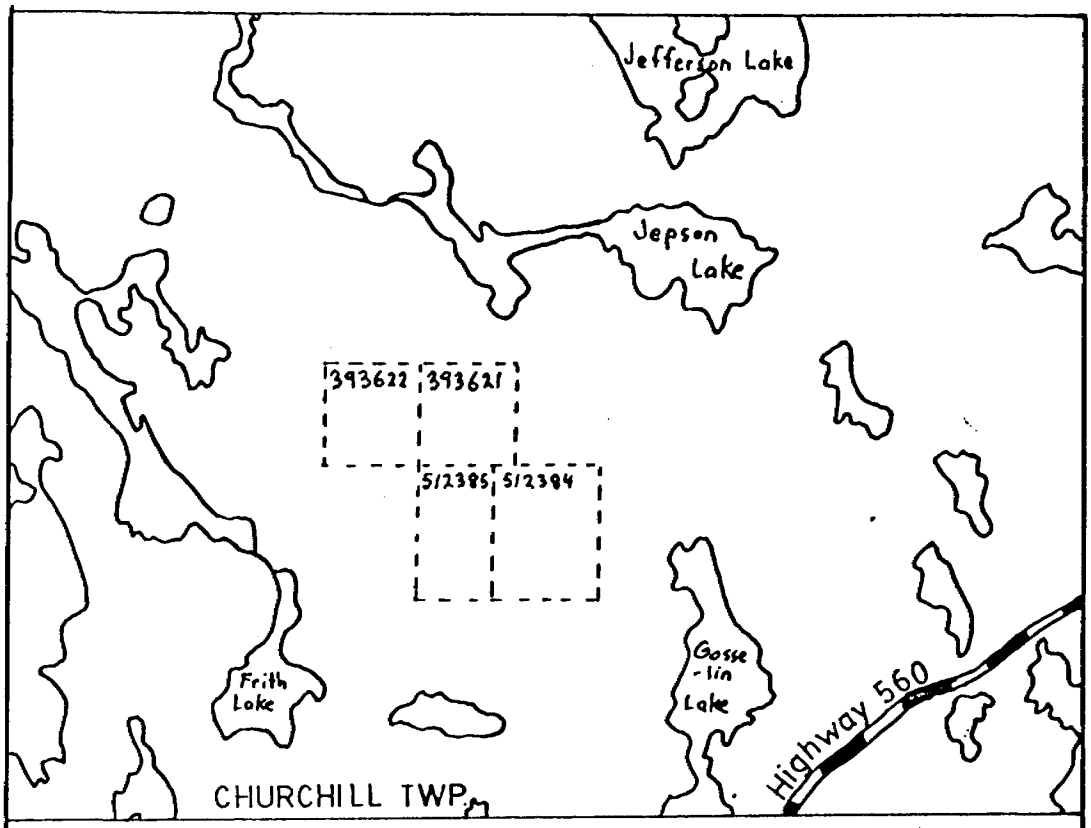
Larder Lake Mining Division

District of Sudbury

Patiño Mines (Quebec) Limited

June, 1981

A. LOCATION MAP



PATINO MINES (QUEBEC) LTD

LOCATION MAP SHINING TREE I PROPERTY
ANNETT OPTION
CHURCHILL TOWNSHIP
DISTRICT OF SUDBURY

Scale: 1" to 1/2 mile

B. Introduction

The Annett Option - Shining Tree I Property consists of four contiguous claims in south-central Churchill Township, about 2.25 miles (3.6 km) north from the village of Shining Tree, Ontario.

The original gold discovery in the Shining Tree area was made by F. Gosselin, H. Frith and C. Speed in 1911, about one half mile (0.8 km) to the south of the present map area. Previous exploration work appears to have been limited to one claim (L-512385) of the present claim block although small trenches are observed throughout the area.

In the fall of 1980, Patino Mines (Quebec) Limited took an option on the four claims held by Mr. R. Annett of Shining Tree, Ontario. During the winter of 1980-1981, electromagnetic and magnetometer surveys were conducted over the claim block. Subsequent to the geophysical surveys, detailed geological mapping was conducted by the author and Peter Born in May, 1981 on the previously cut grid lines.

Auriferous quartz veins are observed cross-cutting metasomatically altered and "relatively" unaltered metavolcanic rocks in the Shining Tree area. From previous mapping by the author on the claims directly south of the present map area, it was observed that the quartz veining is associated with zones of intense alteration. The host rocks were produced as the result of Co_2-K-Mg-Cr metasomatism. The purpose of the present geological survey is to examine whether or not the alteration zones extend further to the north and to trace any gold-bearing quartz veins in the area.

C. Property, Location and Access

The claim group consists of four contiguous claims which are located in south-central Churchill Township and the claim numbers are: L-393621, 393622, 512384 and 512385.

The claim block is situated about one mile (1.6 km) directly north of highway 560 and is located 2.25 miles (3.6 km) north of the village of Shining Tree, Ontario.

The property is accessible by a bush road which commences at highway 560 and runs north to the eastern edge of Speed Lake and further north into the property. Highway 560 connects to highway 144 about 25 miles (40 km) to the west and connects with Elk Lake about 60 miles (100 km) to the east.

D. Topography

The map area consists of generally low relief with hummocks of boulders and sandy glacial till. On the eastern edge of the claim group, a northwest-trending scarp rises 20 to 40 feet from the swamp. The outcrop exposure is poor and is frequently covered by a thin veneer of humus which has to be removed for geological mapping. Outcrop constitutes about 10% of the surface areas of the property. There are no lakes on the property except for a small pond in the southeast corner.

The vegetation consists of mainly cedar and tag alder swamps and open mixed bush of spruce, birch, poplar, balsam and minor red and white pine.

E. Previous Work

Previous assessment work appears to be limited to claim L-512385. In 1973, Noranda Exploration Company Limited optioned the claim (342849) and conducted magnetometer and geological surveys. Also, surface sampling from the pit at 31+70N, 26+50W (Patino grid) produced gold values of 0.005 oz/T over 1.5 ft, 0.005 oz/T over 1.0 ft and 0.29 oz/T (grab) and samples from the pit at 28+00N, 25+30W (Patino grid) yielded gold values of 0.44 oz/T over 2.0 ft and 0.83 oz/T over 0.5 ft. Two diamond drill holes were drilled at the latter pit, however recovery was supposedly poor.

In 1975, Tribridge Consolidated Gold Mines Ltd. conducted a geological survey over the claim and some surface sampling in the pits described above. The "F" zone described in the report corresponds to the pit at

31+70N, 26+50W, and the quartz-carbonate vein produced assays of 0.03 oz/T Au, 0.78 oz/T Ag over 0.8 ft, 0.01 oz/T Au, 0.32 oz/T Ag over 1.0 ft. The "G" zone corresponds to the pit at L28N, 25+30W and produced variable gold assays from 0.04 to 0.76 oz/T and 1.32 to 2.90 oz/T Ag over different lengths.

In 1979, Roy Annett filed bulldozing work on claims L-512384, 385, 393621 ,and 622.

In 1980, Patino Mines (Quebec) Limited took out an option on the claim group from Mr. R. Annett of Shining Tree, Ontario.

In the winter of 1980-1981, Patino Mines (Quebec) Limited conducted magnetometer and electromagnetic (EM-16) surveys over the claim block. Linear magnetic anomalies occur at the eastern and western edges of the claims and a strong electromagnetic conductor occurs at the eastern edge of the property.

F. General Geology

The area is mainly underlain by a sequence of Archean mafic to felsic metavolcanic and metasedimentary rocks, all of which are intruded by felsic plutonic rocks and diabase dykes. Small intrusive bodies of peridotite and gabbro occurs in the northwest corner of Churchill Township. Pleistocene and recent deposits consists mainly of poorly sorted till and gravel, muskeg and alluvium.

The northeast half of Churchill Township contains predominantly northwest-striking subalkalic felsic to intermediate flows with some pyroclastic units and to a lesser extent, iron formation, argillite and chert. The southwest half of Churchill Township consists mainly of northwest-trending metabasaltic flows and pillows with minor flows of felsic to intermediate metavolcanic rocks. Minor peridotite as well as dioritic to syenitic porphyritic rocks occur in the vicinity of Gosselin Lake (Carter, 1980).

The entire area has been intruded by northwest-trending diabase dykes. Nipissing diabase of Middle Pre-cambrian age, occurs in the southeast and southwest corners of the township.

G. Geology of the Annett Gold Option - Shining Tree I Property

Table of Geological Units

Early to Late Pre-cambrian
Mafic intrusive rocks
(5) Mafic gabbro and pyroxenite
Mafic intrusive rocks
(4) Diabase
Felsic to intermediate intrusive rocks
(3) Feldspar porphyry
Intermediate metavolcanic rocks
(2) Meta-andesite
Mafic metavolcanic rocks
(1) Metabasalts

Geology

The oldest rocks in the area are represented by Archean metabasalts (1) and meta-andesites (2). Two small feldspar porphyry dykes (3) cross-cut the metavolcanic rocks. Numerous diabase dykes (4) cross-cut the units described above. Small mafic gabbro-pyroxenite bodies (5) are located throughout the map area. The age relationship between this unit and the diabase is uncertain.

1. Mafic Metavolcanic Rocks - Basalt

The mafic metavolcanic rocks are characterized by medium to light red-brown coloured, rubbly weathered surfaces and medium to dark green fresh surfaces. The unit is basaltic in composition, however it does exhibit some variation in the degree of alteration and modal percentage of feldspar. The basalts consist mainly of massive to schistose flows with some pillowed sequences.

The pillows are generally bulbous and range in size from 1 to 3 feet (30 to 90 cm). Tops of the pillows are determined locally where concave surfaces are observed. The chilled rims are about 0.5 to 1.0 inch (1 to 2.5 cm) wide and interstitial to the pillow margins, altered hyaloclastite is observed.

Locally, flow top breccias of basaltic composition are observed and the breccia is usually several inches thick. The breccia consists of monolithic, comminuted fragments of lava which are subangular to angular and less than one inch (2.5 cm) in size but may range up to 3 to 4 inches (7 to 10 cm) in diameter. The unit is not bedded and grades into the massive basaltic flows.

The basalts are mainly chloritized which reflects regional low-grade greenschist facies metamorphism. In medium-grained basalts, the plagioclase feldspar is sericitized and epidotized. Locally, the basalts have a sugary appearance as the result of carbonatization. Minor finely disseminated pyrite is observed in the basalt.

2. Intermediate Metavolcanic Rocks - Meta-andesites

The meta-andesites are distinguished from the metabasalts on the basis of colour, hardness and texture. The andesite has lighter coloured weathered and fresh surfaces which are light brown, and light to medium green, respectively. The grain-size of the andesite is predominantly aphanitic although fine-grained rock types are present. The unit consists mainly of massive flows.

Locally, fragmental units of andesitic composition (2A) are observed in the map area. A northwest-trending fragmental unit is located at the eastern edge of the property and occurs over a strike length of approximately 2100 feet (640 m). A minor fragmental unit is located in the central portion of the map area in claims L-512385 and 393621. The fragmental unit consists of 50 to 80% angular to subangular, monolithic, comminuted lava

fragments that range in size from 0.5 to 3.0 inches (1 to 8 cm). The fragments are matrix-supported by a matrix of a similar composition to the fragments. There is no evidence of bedding and locally the breccia grades into a massive, strongly carbonatized or chloritized meta-andesite unit. The above evidence suggests that the fragmental unit represents a flow breccia which is related to the andesite flows.

Variations within the flow breccia consist of specularite (hematite) and calcite infilling of the matrix at L30+50N, 26W, strong carbonatization and 10-15% finely disseminated pyrite in the breccia at L32+00N, 26+50W. In the latter case, the intense alteration is related to the quartz veining which the flow breccia hosts.

3. Felsic to Intermediate Intrusive Rocks - Felspar Porphyry

Two small outcrops of feldspar porphyry were observed in the entire map area and are believed to represent small felsic dykes. The weathered surface is light pink in colour while the fresh surface is dark red to medium pink, depending upon the composition of the rock.

Compositionally, the unit ranges from a syenite to a granite. The syenitic variety is generally fine-grained and consists of 80% red potassium feldspar and 10-20% hornblende, whereas the granitic variety consists of 5 to 10% K-feldspar phenocrysts in a fine-grained groundmass of predominantly potassium feldspar and quartz with minor amounts of hornblende, biotite and 3% pyrite.

The feldspar porphyry is intrusive into the underlying metavolcanic rocks in the map area.

4. Mafic Intrusive Rocks - Diabase

Northwest to north-trending diabase dykes cross-cut the metavolcanic rocks and range in approximate width from 20 to 100 feet (6 to 30 m). The diabase weathers a red-brown, smooth surface

and tends to form ridges parallel to the strike of the dyke. The fresh surface is medium green in colour.

Texturally, the diabase is fine to med-grained, massive and exhibits sub-ophitic textures. The rock consists of 30 to 50% moderately sericitized/epidotized plagioclase feldspar and 50 to 70% chloritized and epidotized pyroxene. The dykes are slightly magnetic, thus minor magnetite is present, and minor pyrite (1-3%) is finely disseminated throughout the diabase.

5. Mafic Intrusive Rocks - Mafic Gabbro and Pyroxenite

This unit forms small intrusive bodies and dykes which appear to be intruded into the underlying metavolcanic rocks. The rock weathers a dark brown colour and is black on the fresh surface. It is generally aphanitic to medium-grained, massive, and equigranular.

The percentage of modal feldspar ranges from less than 10% (pyroxenite) to 10-20% (mafic gabbro). The mafic minerals are pyroxene and hornblende. The rock contains 1 to 2% pyrite.

The relationship between the mafic gabbro and diabase (4) is uncertain, however the relatively unaltered nature of these rocks suggests that they may be of similar ages and differ only in composition.

H. Structure

The general lack of extensive outcrop in the map area permitted a limited number of foliation and other structural measurements. The general trend of the rocks is variable and the directions vary from east-west to north-south trends. The steep to vertical dips of the units suggest isoclinal folding while the variation is the strike suggests a later phase of less pervasive open-style folding.

At the eastern edge of the property, there is a northwest-trending fault scarp which forms at the edge of the andesite flow breccia.

This fault structure forms a strong photo-linear and tends to be parallel or sub-parallel to the strike of the rock. The flow breccia appears to be suspectible to faulting and as a result of the faulting, the unit is strongly carbonatized.

I. Economic Geology

Gold was first discovered by F. Gosselin, H. Frith and C. Speed, in 1911, on claim L-512318, about 1/2 mile (0.8 km) south of the present map area. Free gold occurs in quartz veins that cross-cut the meta-volcanic rocks and their altered equivalents between Speed and Frith Lakes and in the Shining Tree area as a whole. As suggested by Carter (1980), the mineralization in the area appears to be structurally controlled along shears which parallel the layering in the volcanic rocks.

In the present map area, there are only a few trenches, all of which are related to quartz veins that occur near or at the surface.

The trench at 28+00N, 25+30W is in overburden but occurs in proximity to a 4" (10 cm) wide quartz vein which cross-cuts the diabase at 284°. The quartz vein contains minor amounts of pyrite.

The trench at 31+70N, 26+50W consists of a quartz vein striking 280° and dipping 70° to the north. The quartz veining cross-cuts a light grey-coloured carbonatized andesite flow breccia which contains 5-7% finely disseminated pyrite. The quartz vein is 3 inches to 1 foot (7 to 30 1m) wide and contains minor fine-grained galena and pyrite (10-15%). Assays values from the pit have been described above in "Previous Work".

At L34+50N, 22+00 to 23+00W, abundant quartz veining and trenching is observed. The anastomosing quartz veins cross-cut a strongly carbonatized (dolomitized?) pyritiferous (3-6% pyrite) meta-andesite. Locally the host rock becomes strongly sericitized and silicified, producing a light yellow-green felsic-looking rock. Fragments of

the host rock within the quartz veins suggests that there are probably several phases of quartz veining in the area. The quartz veins are several inches to one foot (5-30 cm) in width and trend from 320° to 350° and dip to the east. Minor pyrite is observed in the quartz veining.

At 18+00N, 21W, there is found a 100 feet (30 m) trench and two pits. The two pits are in overburden, however in the trench there is a northwest-trending quartz vein in a strongly sericitized meta-andesite host rock.

J. Conclusions and Recommendations

The most potential area for gold mineralization in the claim block appears to be in claim L-393621 between L30+50N and 36+00N at 23 to 27W on the Patino grid. The meta-andesite and andesite flow breccia are well carbonatized and sericitized and these host rocks carry 3 to 7% finely disseminated pyrite. The alteration of the andesite appears related to the infilling of the quartz veining which resulted in the hydrothermal alteration of the host rock. It is therefore recommended that:

1. more detailed geological mapping of this area be conducted in order to better understand the structure and geology of this zone;

2. a detailed assay program of both the host and quartz vein be carried out in order to determine the relationship between the presence of pyrite and galena in the rocks to potential Au and Ag mineralization; and

3. three short diamond drill holes (with X-ray-type diamond drill) be drilled in an east-west direction across the quartz veining in order to determine the extent of any mineralization.

A less potential target is along the fault scarp at the eastern edge of the property. It is also associated with a ridge of carbonatized

andesite flow breccia. Although there is no quartz veining observed cross-cutting the andesite, there is a significant electromagnetic (EM-16) conductor paralleling the fault structure. Diamond drilling in this area would provide information as to the significance between the conductor and fault.

There appears to be no potential for mineralization in the metabasalt as well as the other rock types. There was no metasomatic alteration nor significant quartz veining observed in these rock types.

Respectfully submitted,

Alice Born.

AB/so

Alice Born

June, 1981

REFERENCES

Carter, M.W., 1980:

Geology of Connaught and Churchill Townships, District of Sudbury, Ontario Geological Survey Report 190, 81 p., accompanied by Geological Map 2414, scale 1:31, 680.

McCannell, J.O., 1975:

Tribridge Consolidated Gold Mines Limited, Asquith and Churchill Townships, Shining Tree area, Ontario, Report on Mapping and Diamond Drilling; MNR Assessment Files, Kirklake, Ontario.

Ontario

41P11SW0020 2.4026 CHURCHILL

900

File _____

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) GEOLOGICAL

Township or Area CHURCHILL

Claim Holder(s) PATINO MINES (QUEBEC) LIMITED

Survey Company PATINO MINES (QUEBEC) LIMITED

Author of Report Alice Born

Address of Author % Patino Mines (Que) Ltd, Box 8000, Chibougamau Que

Covering Dates of Survey Dec 1980 - June 1981
(linecutting to office)

Total Miles of Line Cut 4.0 miles.

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	
--Magnetometer	
--Radiometric	
--Other	
Geological	20
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: July 13, 1981 SIGNATURE: Alice Born.
Author of Report or Agent

Res. Geol. _____ Qualifications on this file

Previous Surveys

File No.	Type	Date	Claim Holder
			L.D

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
L 8036	393621
	393622
	512384
	512385

If space insufficient, attach list

TOTAL CLAIMS 4

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS -- If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

_____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency _____
(specify V.L.F. station)

Parameters measured _____

GRAVITY

Instrument _____

Scale constant _____

Corrections made _____

_____

Base station value and location _____

_____

Elevation accuracy _____

INDUCED POLARIZATION
RESISTIVITY

Instrument _____

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time _____ Frequency _____

– Off time _____ Range _____

– Delay time _____

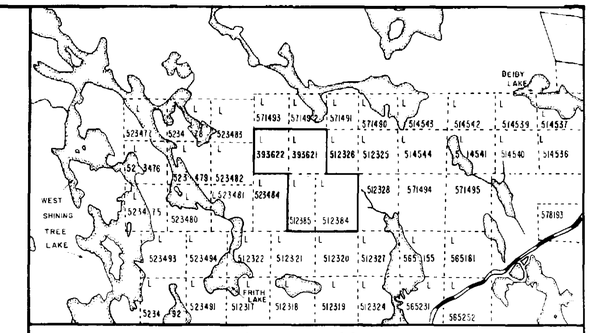
– Integration time _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____



Location Map
of
Annett Option - Gosselin North Grid
CHURCHILL TWP.

LEGEND

EARLY TO LATE PRECAMBRIAN

MAFIC INTRUSIVE ROCKS

5 Mafic Gabbro - Pyroxenite

MAFIC INTRUSIVE ROCKS

Diabase

FELSIC TO INTERMEDIATE INTRUSIVE ROCKS

3 Feldsprar Porphyry

INTERMEDIATE METAVOLCANIC ROCKS

2 Meta-andesites
2A Pyroclastic Flows + Fragmental Units
2cbt Carbonated
2S Schistose
2ser Sericitized

MAFIC METAVOLCANIC ROCKS

1 Metabasalts
1chl Chloritized
1cbt Carbonated
1S Schistose
1P Pillowed
1F Flows
1fbx Flow Breccia

QV, ⌇ QUARTZ VEINING
EXTENT OF OUTCROP AREA
EXTENT OF SUBOUTCROP AREA
EXTENT OF SWAMP AREA
EXTENT OF GLACIAL HUMMOCKS
BOULDERS
TRENCH, PIT

GEOLOGICAL CONTACT, ASSUMED, KNOWN
PILLOWED TOPS
JOINTING, VERTICAL, DIPPING
QUARTZ VEINING, VERTICAL, DIPPING
FOLIATION, VERTICAL, DIPPING
FLOW CONTACTS, VERTICAL, DIPPING
FAULT

PY - PYRITE
HM - HEMATITE
DDH - DIAMOND DRILL HOLE

GEOLOGY BY ALICE BORN, PETER BORN
MAY 81

PATINO MINES (QUEBEC) LIMITED
EXPLORATION DEPARTMENT

ANNETT OPTION - SHININGTREE I
PROPERTY
CHURCHILL TOWNSHIP, ONTARIO

draughted by	ALICE BORN	date MAY 81	Scale 1"=200'
conducted by	Alice Born & Peter Born	date MAY 81	
checked by	ALICE BORN	date MAY 81	Drawing N° 1

41P11SW0020 2.4026 CHURCHILL