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CAM MINES LIMITED




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REPORT ON
SAVANT LAKE CLAIM GROUPS
SAVANT LAKE AREA
PATRICIA MINING DIVISION
ONTARIO

June 9th, 1971
Toronto, Ontario


O. E. Leigh, P. Eng.
Derry, Michener & Booth

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CAM MINES LIMITED

REPORT ON SAVANT LAKE CLAIM GROUPS

Introduction

Cam Mines Limited has acquired, under the terms of an option agreement dated May 6th, 1971, 116 claims in four separate groups, in the Savant Lake area, in Boucher and Conant Townships and the adjoining Evans Lake area, all in the Patricia Mining Division of Ontario. The Savant Lake area is approximately 25 miles north of the new base metal discoveries at Sturgeon Lake.

The claims are for the most part underlain by steeply dipping Archean felsic agglomerates and tuffs interbedded with mafic volcanic and clastic sediments. These rocks occupy the south limb of a southwest trending syncline which is bounded to the southeast by a foliated granite mass. This limb of the syncline is folded into a southerly direction in the vicinity of the Evans Lake area claims and continues south to the Sturgeon Lake area.

Three miles north of the village of Savant Lake along the east side of Highway 599 a sulphide prospect containing sphalerite with minor galena and chalcopyrite was located during road construction. At that time the prospect was examined and the mineralization sampled in four short trenches along a strike length of 150 feet. Sample widths and assays varied from 2 feet grading 29.9% Zn and 11.4% Pb to 14 feet carrying only traces of zinc. More work is required to determine the nature and extent of this prospect. Other gold and base metal showings are known in the general Savant Lake area but no other mineralized zones are known to occur on the Cam Mines ground.

The writer has researched the available literature on the area (see references) but has not visited the property. An exploration programme

consisting of geological mapping, geophysics and diamond drilling is recommended for the property at an estimated cost of approximately \$70,000 which amount includes the \$11,600 for the balance of the purchase price of all the claims under option.

Property and Location (Refer to Map 1) (Lat. 52°18'; Long. 90°42')

The 116 claims comprising four separate claim groups are located in Boucher and Conant Townships and the adjoining Evans Lake area to the west, all in the Patricia Mining Division of Ontario. Three of the claim groups totalling 87 claims extend in a northsouth direction from about one mile to five miles north of the village of Savant Lake, which is located at the junction of Highway #599 (the Pickle Crow road) and the Canadian National Railways line. Two of these three blocks extend along the highway and the third, or southern group, is located just west of the road.

The fourth group of 29 claims is located about three miles east of Highway 599 in the southwest quarter of Conant Twp. at the north end of Harold Lake which is about 10 miles north of Savant Lake village. Highway 599 provides easy access to the Evans Lake area claims but the Conant Twp. group can only be reached either by trail from the highway or by air. Map 1 accompanying this report shows the location of the individual claims and Appendix II provides a detailed listing of the claims located in each township.

Option Terms of the Hadley Claims

Under the terms of the "Option to Purchase" agreement dated May 6th, 1971, between Mr. E. W. Hadley and Cam Mines Limited, the latter has acquired 116 claims in four groups for a cash payment of \$11,600. In order to exercise the option, further payments totalling \$100 per claim if all claims are acquired, or if all claims are not acquired, then \$200 per claim acquired must be paid prior to October 31st, 1972. At the date of exercising the option, Cam agrees to pay to the vendor a royalty of 1% of the net smelter return on any future production from the property acquired by Cam Mines. The company also agrees to keep all claims in good standing throughout the option period and for a period of 90 days following notice of withdrawal from any or all claims.

History

The area has been mapped by the G.S.C. (2) and the O.D.M. (3), (4), (6), while Map 1119C illustrates the aeromagnetic pattern of the area. The area has been prospected intermittently for several decades by companies and individuals and a number of gold and to a lesser extent base metal occurrences have been located in the general area, particularly around Savant Lake. Interest was renewed in the region upon the discovery of the Mattabi Mines deposit located approximately 30 miles southwest of Savant Lake and by the New Brunswick Uranium-Falconbridge Option discovery about three miles east of the Mattabi deposit, both in the southern part of the Sturgeon Lake greenstone belt.

The Evans Lake area has been covered by airborne geophysical surveys on several different occasions but, except for the Canex Aerial airborne survey in 1970 over part of the Evans Lake area, the information obtained from these surveys has not been made public.

Assessment files in the Department of Mines office in Toronto have been searched for records of previous work on the ground acquired by Cam Mines and surrounding areas. The only data on file consists of a ground geophysical survey over a block of claims southwest of Evans Lake (Report 6.266) and part of the Canex Aerial airborne survey mentioned above (Report 2.138). The ground geophysical survey data was not available for examination at the time of writing. The Canex survey covered most of the Cam claims in the Evans Lake area as shown on Map 3. The only electromagnetic anomaly located by this survey in the vicinity of the claims was a weak four-line conductor without magnetic correlation over a small lake just north of claim 288388.

In 1965, Golsil Mines drilled eight short holes on a copper showing located about one mile west of the south end of Evans Lake. Six of these holes intersected sulphides containing chalcopyrite (grades not reported) and traces of sphalerite and galena over core lengths varying from 15 to 32 feet. A number of drill holes have been put down in the general area and some logs of drill holes by Canex Aerial Exploration and the Canadian Nickel Company are on file. Most of these holes intersected assemblages of acid and intermediate volcanics, clastic sediments, minor graphite and sulphides. The sulphides consisted of both massive to disseminated pyrrhotite and/or pyrite with traces of chalcopyrite. One of these holes drilled by the Canadian Nickel Company in Conant Twp. is located about 600 feet east of claim 287621 and intersected sediments, gneisses, amphibolites and a narrow zone of massive pyrrhotite with traces of pyrite and chalcopyrite.

Except for the sphalerite showing east of Highway 599 no other mineralization is known to occur on the claim groups.

Geology (Map 3)

A large portion of the area around Evans and Harold Lakes is underlain by the upper unit of the Savant Group (Skinner) and consists of steeply dipping interbedded dacite and rhyolite agglomerate and tuff, basic to intermediate volcanics (greenstone), metasilstone and phyllite, together with minor greywacke and iron formation. This unit which may be as much as 30,000 feet in total thickness is in contact with foliated granitic masses to the southeast and to the southwest. Dacitic agglomerates which form part of the upper Savant Group are well exposed on the Evans Lake claims in road cuts along Highway 599.

The upper unit of the Savant Group in this area is interpreted by Skinner to occupy the centre of a major southwest plunging syncline which has been intensely drag-folded and well foliated. On the north side of the syncline north of Hough Lake, bedding strikes roughly eastwest whereas along the southern limb, in the vicinity of the Cam properties, the general trend is southwest.

However south of Evans Lake the southern limb of the syncline has been folded to the south and is sandwiched between the granitic masses mentioned previously and continues southerly to the Sturgeon Lake area. Prominent airphoto lineaments in this area outline the surface trace of this fold.

A major northeasterly striking fault through Savant Lake has been traced south along the east side of Harold Lake and separates the lower Savant Group composed mainly of clastic sediments, from the upper Savant Group.

The Savant Lake area greenstone belt is the northward continuation of the extensive greenstone belt which contains the recently discovered orebodies at

Sturgeon Lake. Acid tuffs, rhyolites and intermediate volcanic rocks in this area are believed to represent a volcanic assemblage similar in origin to the host rocks east of Sturgeon Lake.

Mineralization (Refer Map 2)

The sphalerite mineralization located three miles north of Savant Lake village immediately east of Highway 599 and located in the southwest corner of Claim PA-244167 is the only mineralized occurrence known to the writer on any of the claims.

This showing was examined in November 1969 by Mr. D. W. Sullivan, P. Eng., and a copy of his report is attached as Appendix III.

Sullivan describes the mineralization as "bands and patches of massive sphalerite, some galena and minor chalcopryrite and contains important values in silver and cadmium over a width of about 4 feet". The prospect has been sampled in four trenches (see Map 2 which shows sample locations and values). Sullivan also reports that a chip sample over "about 4 feet" gave 21.80% zinc, 8.85% lead, 0.08% cadmium, 0.01 oz./ton gold and 1.88 oz./ton silver. The location of this sample is not known other than for the fact that it was taken "across the heavily mineralized zone". A further 5 feet on the north side of the showing gave "low values".

The sulphide showing occurs in acid volcanic rocks consisting of dacite and rhyolite tuffs which strike about N15°W and dip steeply northeast.

We have been informed that the showing was not detected by the ground electromagnetic survey (O.D.M. File 2.266). No other showings are known to occur on the claim group.

Conclusions and Recommendations

A number of gold and base metal showings are known to occur in the Savant Lake area including the zinc showing located on the Cam ground 3 miles north of the village of Savant Lake.

The four claim groups acquired by Cam Mines are underlain in part at least by acid and intermediate volcanic rock assemblages which are considered to be favourable host rocks for copper-zinc ore deposits in the Canadian Shield. Records of scattered drilling throughout the area indicate that the favourable volcanic rocks are often associated with sulphide zones occasionally carrying traces of chalcopyrite and sphalerite. We would anticipate that the geology in this area is, in many respects, similar to the geology in the vicinity of the base metal deposits at Sturgeon Lake and it is, therefore, recommended that a thorough ground exploration programme should be carried out on the Cam properties.

The recommended exploration programme consists of two phases. The first phase would involve geological mapping over the entire claim groups at a scale of 1" = 400 ft. using air photos enlarged to this scale for mapping control. The objective of this work is to try to differentiate the acid and intermediate volcanic assemblages as a guide to the possible location of base metal mineralization commonly found in association with rhyolites. All areas thought to be underlain by these favourable rock types would then be covered by magnetometer and electromagnetic surveys on grid lines at 400 foot intervals. Vertical loop electromagnetic surveys would be employed in areas believed to be underlain by shallow overburden and Turam Surveys are recommended in areas of deeper overburden.

Phase II would consist of drill testing; conductors and/or geological structures located by the mapping and geophysical work in addition to a minimum of three short holes on the zinc showing beside Highway 599.

It is believed that the Conant Twp. claim group has been flown by one or more companies and, if possible, the airborne results pertaining to these claims should be purchased from one of these companies.

Appendix I is a recommended budget for the above work.



O. E. Leigh, P. Eng.

June 9th, 1971

Derry, Michener & Booth

B & C LTD 814577

List of References

- (1) Sullivan, D. W. - Report on Hadley Sulphide Showing at Savant Lake - December 3, 1969.
- (2) Skinner, R. - G.S.C. - 68-45 and Map IS-14-1968 - Geology of Sioux Lookout Map Area.
- (3) Moore, E. S. - O.D.M. - Vol. XXXVII, Part IV-1928 and Map No. 37j - Lake Savant Area.
- (4) Graham, A. R. - O.D.M. - Vol. XXXIX, Part II-1930 and Map No. 39b - Sturgeon Lake Gold Area.
- (5) Rogers, D. P. - O.D.M. - GR #24 - Metionga Lake Area and Map No. 2044 - E1/2 and Map 2044 W1/2.
- (6) Miniss Lake Sheet - Map P-354, O.D.M.
- (7) Minnitaki-Sturgeon Lake Map P-353, O.D.M.
- (8) Kashaweogama Lake - Map 1119G
- (9) Sioux Lookout - Geophysical Paper - 7122
- (10) Map 2199 - O.D.M. - Scale 1" = 16 miles
- (11) Assessment Files
 - (a) Geophysical Survey (file 2.266)
 - (b) Airborne Survey (file 2.138)
 - (c) Geophysical Survey (file 63-978)
 - (d) Various drill holes and records
- (12) Evans Lake Area - Plan M-1774 - O.D.M.
- (13) Boucher Twp. - Plan M-1664 - O.D.M.
- (14) Conant Twp. - Plan M-1682 - O.D.M.

CAM MINES LIMITED

Budget Estimate for Savant Lake Claim Groups

Phase I

Supplies, camp gear, maps, air photos (enlarged), etc.	\$ 2,000	
Purchase of airborne survey data on Conant Twp. Claims (30 line miles @ \$25/line mile)	750	
Office overhead	1,000	
Mobilization and demobilization (2 men from Toronto)	1,000	
Geological mapping (1 geologist and 1 helper - 2 months)	4,000	
Accommodation and food (\$10 per man-day)	1,200	
Line cutting (400 foot spacing over 1/2 of claims - 60 line miles @ \$70/mi.)	4,200	
Magnetometer Survey (60 line miles @ \$50/mi.)	3,000	
Electromagnetic Survey (40 line miles @ \$100/mi.)	4,000	
Turam Survey (20 line miles @ \$150/mi.)	<u>3,000</u>	
Sub-Total		\$ 24,150

Phase II

Diamond Drilling		
(a) 3 holes on zinc showing - 450 ft. @ \$10/ft.	\$ 4,500	
(b) Drilling of anticipated conductors - 2000 ft. @ \$10/ft.)	20,000	
Reports, Maps, etc.	<u>2,000</u>	
Sub-Total		26,500
Balance of cost of property if option exercised (\$100 per claim)	\$11,600	<u>11,600</u>
Total		\$ 62,250
Contingency allowance @ 10%		<u>6,225</u>
Grand Total	(say)	<u><u>\$ 70,000</u></u>

List of Claims Under Option to Can Mines Limited

Patricia Mining Division,
Thunder Bay District, Ontario

	<u>No. of Claims</u>
Boucher Twp. - O.D.M. Plan 1664	
— PA-253509 - 514 inclusive ✓	6
— PA-275615 - 617 ✓ "	3
Conant Twp. - O.D.M. Plan 1682	
— PA-287602 - 624 inclusive ✓	23
— PA-287639 - 844 ✓ "	6
Evans Lake Area - O.D.M. Plan 1774	
— PA-244156 - 168 inclusive ✓	13
* — PA-249600 - 617 ✓ "	18
— PA-253493 - 508 ✓ "	16
— PA-275618 - 624 ✓ "	7
— PA-287652 - 653 ✓ "	2
— PA-288387 - 408 ✓ "	<u>22</u>

Total 116

* NOTE: PA 249600
 PA 249601
 PA 249607
 PA 249608

RE-STAKED AS
 PA 302435
 PA 302443
 PA 302436
 PA 302438

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REPORT
ON
HADLEY SULPHIDE SHOWING
AT
SAVANT LAKE
STURGEON LAKE AREA
PATRICIA MINING DIVISION
ONTARIO

D. W. Sullivan, P. Eng.

December 3, 1969



SOURCES OF INFORMATION

- (1) Ontario Department Mines, Preliminary
Map P.353, "Minnitaki-Sturgeon Lakes
Sheet" (1966), 52G, 52J.
- (2) Ontario Department Mines, G.R. No.24
"Metionga Lake Area" D.P. Rogers, (1964).
- (3) Ontario Department Mines, Vol. 39, Pt 2
"Sturgeon Lake Area".
- (4) Geol. Survey of Canada, Aeromagnetic maps
1107G, 1108G, 1117⁹G, 1118G.
- (5) Geol. Survey of Canada, Paper 68-45,
"Geology Sioux Lookout Area" with map
No. 50-14 (1968) by R. Skinner.

INTRODUCTION

On November 26, 1969, the writer examined a very interesting base and precious metal sulphide showing located on a group of 13 claims on the Pickle Crow - Savant Lake Highway about 3 miles north of the Town of Savant Lake. It occurs within a belt of altered acid volcanics possibly close to a contact with metasediments and granite. The showing itself consists of bands and patches of massive sphalerite (zinc sulphide), some galena and minor chalcopyrite and contains important values in silver and cadmium over a width of about 4 feet. Because of heavy snow and overburden the walls of the mineralized zone were impossible to determine.

Considering the geological environment and the fact that other base metal and precious metal occurrences are known along this same volcanic belt (one is located $\frac{1}{2}$ mile north) then the occurrence definitely warrants further investigation by geophysical methods and diamond drilling. Drilling should be done on the sulphide zone regardless of the geophysical results since hand samples show low conductivity when tested by the writer.

PROPERTY

Consists of 13 contiguous mining claims of about 40 acres each in the Patricia Mining Division of Ontario and are numbered as follows:

PA 244156 to 244168 - - - 13 claims

LOCATION AND ACCESS

They are located on the immediate west side of the Pickle Crow - Savant Lake Highway, about 3 miles north of the Town of Savant Lake on the C. N. Railway and is therefore readily accessible. The area surrounding the showing has been the scene of recent lumbering operations and can be easily explored by geophysical means.

The writer confirmed the staking around the "Hadley Showing" and found it in order. The sulphide Showing is in the extreme south west corner of tagged mining claim PA 244167 at a point 150 feet east and 90 feet north of the No. 3 Post of claim PA 244167.

GEOLOGY

The important rocks in the area are the Proterozoic volcanics, metavolcanics and metasediments

flanked by younger granitic intrusives on the east and west.

This belt of volcanics or greenstone is part of the same volcanic belt which extends 25 miles northeast from the recent Mattagami Lake Mines base and precious metal recovery within acid or rhyolitic volcanics near a contact of intermediate to basic volcanics. This entire area of Keowatin volcanics is known to contain many gold occurrences along with base metal occurrences. The latter metals have only recently become important and are the target for concentrated exploration at the present time in the Savant - Sturgeon Lakes Area.

The "Hadley Sulphide Showing" occurs in an acid volcanic series of rocks consisting of dacite and rhyolite tuffs. The enclosing rocks strike about 15° north of west and dip very steeply north. A study of map #14 - 1968, which is part of G. S. C. Paper 68-45, confirms the general rock type and indicates that the discovery may be on a minor or local flexure in the volcanic belt which extends northeast and northwest of the Showing (see attached map).

A chip sample across the heavily mineralized zone gave the following assays over about 4 feet:
zinc 21.80%, lead 8.85%, cadmium 0.08%, gold 0.01 oz.

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and silver 1.68 oz. A second chip sample across 5 feet on the north side of the sulphides gave low values.

A similar base metal and precious metal occurrence is known about $\frac{1}{2}$ mile north in the same volcanic belt.

CONCLUSIONS AND RECOMMENDATIONS

The "Hadley Sulphide Showing" of zinc and lead sulphides with silver and cadmium is considered to be worthy of careful exploration by geophysical means. Samples of massive zinc - lead sulphides were hand - tested for conductivity and found to very weakly conductive, therefore, geophysical testing must be carefully done and any weak conductors must be tested by drilling. The Showing is considered to be important enough to be tested by two or three short drill holes even if geophysics indicates otherwise.



Respectfully submitted,

A handwritten signature in cursive script, appearing to read "D. W. Sullivan".

D. W. Sullivan, P. Eng.,
F. O. A. C.

December 3, 1969

CERTIFICATE OF QUALIFICATION

I, Orval E. Leigh, residing at 40 Runsey Road, Toronto, Ontario, do hereby certify that:

1. I am a consulting geologist associated with the firm Derry, Michener & Booth
2. I am a graduate of the University of Toronto, Faculty of Applied Science and Engineering with a degree of B.A.Sc. (1958) Applied Geology, and have been practicing my profession since graduation.
3. I am a registered Professional Engineer in the Province of Ontario and the Province of Manitoba.
4. I have no interest in, nor do I expect to receive any interest, directly or indirectly in Cam Mines Limited.
5. This report, and the conclusions and recommendations made, are based upon examination of all data made available by Cam Mines Limited, published maps and records and examination of assessment work on file at the Ontario Department of Mines.
6. The property was not visited.

Orval E. Leigh, P. Eng.

June 9th, 1971
Toronto, Ontario.