

# GM 08546-B

REPORT ON THE MAGNETOMETER SURVEY

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VAL D'OR, Que.

**Report on the Magnetometer Survey  
of the Western Section of  
the Property of  
SNOWSHOE GOLD MINES, LIMITED  
Vassan twp., N.W. Quebec**

by

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INTRODUCTION

The survey described in this report covered the western part of the main property comprising claims A-55152, A-60342, A-55156 to A-55159 inclusive as well as part of claims A-55146 to A-55149 incl., A-55151; A-55153 and A-55155. It also covered two claims, A-60345 and A-60346, which are detached from the main property and are located on the northwestern shore of the De Montigny Lake.

Two previous surveys have been conducted in April - May 1942 and December 1942 January 1943 by Techni-Counsel Limited over the eastern part of the main Snowshoe claims; the present survey serves to complete the previous work and extend the magnetometer investigation over the entire area of the property.

The Snowshoe claims are nearly completely covered by the waters of De Montigny lake and, therefore geological knowledge on the underlying rocks

could be gained only through geophysical surveying or drilling from the ice in winter months. The first magnetometer survey by Techni-Counsel indicated the presence of a large intrusive mass of granodiorite, the existence of which was subsequently confirmed by diamond drilling. Promising gold values have been obtained in the granodiorite plug both on the Snowshoe and the neighboring Western Quebec Mines properties.

### RESULTS OF THE PRESENT SURVEY

The most outstanding results of the present survey is the discovery of a structure that seems to be a large drag fold surrounding from the South, West and North the previously outlined intrusive mass.

There are various facts that lead us to accept the structural interpretation in the form of a large drag fold of greenstones englobing the intrusive plug:

1. The magnetic map clearly shows the existence of a belt of strongly magnetic greenstones marked zone "MG". The eastern contact (a), (b), (c) of this zone is well-defined, the western one (m), (n), (p) is also well-marked between (n) (p), while the position of section (m) (n), which lies outside of the limits of our survey, has been only approximately assumed.

Zone "MG" is flanked, both east and west, by less magnetic greenstones designated as zones "IG<sub>1</sub>" & "IG<sub>2</sub>".

The magnetic belt "MG" forms a well-defined fold the heart of which is occupied by the granodiorite intrusive plug underlying zone "P".

2. The existence of the fold is also suggested by the variation of the strike of a certain number of minor magnetic belts or magnetic contacts, such as  $m_1m_1$ ;....  $m_2m_2$  &  $c_1c_1$  which can be individualized within zones "MG" & "IG<sub>2</sub>". The pattern of these small magnetic variations is consistent with the general folded structure.

3. Drag folding is known to affect the Malartic Syncline and especially its northern limb. A sketch attached to this report and based on G.S.C. preliminary map 43-6A, by G.W.E. Norman, and on a number of surveys performed by our organization shows that this drag folding took place along an axis marked DF<sub>1</sub>-DF<sub>1</sub> which, when extended to the East, crosses the Snowshoe ground.

Results of drilling done up to date in the granodiorite underlying zone "T" established that the entire intrusive mass is well fractured and shattered. Until now the cause of this fracturing was not well apparent. In fact, it was hard to believe that it could be related to the "K Zone" fault the continuity of which was not sufficiently proven and which, in any case, seemed too far away to affect the plug. On the contrary, the presence of the drag fold explains very logically the shattering of the intrusive plug which was compressed like a nut in a nutcracker between the limbs of the drag fold.

The survey indicates the absence of granodiorite intrusive plugs in the area west of zone "T". It also shows that the "K Zone" fault either does not extend thus far west or is shifted far to the North by the drag fold we discovered. In any case, the "K Zone" does not seem to act as a controlling factor to the ore deposition on the Snowshoe ground.

#### RECOMMENDATIONS

The presence of a large drag fold surrounding a granodiorite plug establishes a striking parallel between conditions prevailing at Lamaque and those existing on Snowshoe, the only difference being that the structure and the intrusive plug are much larger at Snowshoe. These geological conditions, together with the already proven existence of rather strong and extensive gold mineralization, point to economic possibilities that would justify a very large exploration program of the Snowshoe intrusive plug.

We strongly recommend that the granodiorite plug be cross-sectioned by several series of diamond-drill holes, the sections to be drilled both in the north-south and east-west directions. The aim of this preliminary program is twofold; first, the plug may be cut by a gold-bearing zone similar to the one known at the Siscoe mine; such a zone being narrow in comparison to the entire plug could well be missed if drilling is sparsely distributed near the contacts of the plug. Secondly, zones of shattering forming a sort of pipe within the plug may be expected. The proximity of such a structure would certainly be indicated by a crowding of gold values in certain sections of the drilled area, thus pointing to zones where detail drilling has to be undertaken.

The size of the plug on the Snowshoe property being of some 300 acres, the localization of ore shoots within such a large favorable area will not be easy and will necessitate very numerous drill holes to be spotted in a well-defined and systematic pattern. A minimum of 25,000 feet of diamond drilling will have to be performed in this first stage of the exploration program.

The exploratory drilling will have to be followed by detail work, the amount of which can hardly be foreseen at the present stage of development. In any event, this detail drilling should not be limited to less than another 25,000 feet.

APPENDIX

TECHNICAL DETAILS OF THE MAGNETOMETER SURVEY

Network of measurement stations

Picket lines were started at 300-foot intervals, at an angle of 80 degrees to a base line which has been tied in to the survey point of the south end of Island No. 7 and extended to the northwest shore of lake De Montigny. All the ends of the lines were tied in by chainages, furthermore, the lines North of the base line on the western group of claims located at the shore of the lake have been tied in by chainages to the Range Line II/III of Vassan twp. Numbered pickets have been established on the ice of the lake and on the shore. In spite of the fact that the pickets on the ice have already disappeared, it will be possible to accurately correlate diamond drilling or underground workings with the results of the magnetometer survey, this because the network was accurately surveyed and tied in to the coordinate system of the property. All chainages, except the regular intervals of 300 and 100 feet, are marked on the map.

The new survey performed this year covered a total area of 471.6 acres and the length of profiles equals 68,195 feet.

Magnetometer stations established and measurements performed can be classified as follows:

Base stations	3
Ordinary stations	<u>708</u>
TOTAL of measurement stations	711
Check measurements on bases	52
Check measurements on ordinary stations	<u>9</u>
TOTAL of measurements performed	772

Magnetometer Survey

Readings were taken with a Ruska magnetometer measuring the variations of the vertical component of the earth's magnetic field. The unit of measurement used throughout the survey and shown on the map is the gamma, (1 gamma = 1/100,000 Gauss C.G.S. unit). All measurements were tied in magnetically to a base station established on Island No. 6 of Western Quebec Mines Limited and considered to have a zero value. The same base has been used in all previous surveys performed on Snowshoe and, therefore, the new survey is accurately tied in to all the

previous surveys.

The instruments used was adjusted to ensure precision, its scale coefficient being reduced and temperature coefficient annulled. Errors introduced by diurnal magnetic variations were eliminated as far as possible by checking at regular intervals on magnetic bases. The mean quadratic error calculated from 9 double measurements shows that our survey can be considered accurate within 10.4 gammas.

The total value of the vertical component of the natural magnetic field in the district is of about 58,000 gammas, the intensity being close to 60,000 and the inclination of approximately 77 degrees.

The results of the magnetometer survey have been presented on three maps. The first one was drawn at a scale of 200 feet to the inch and shows mostly the results of the new survey; on this map profiles have been plotted at a scale of 2,000 gammas to the inch. A second map drawn at a scale of 300 feet to the inch combines the new survey with all the previous surveys done on Snowshoe and the neighbouring property of Western Quebec Mines Limited; this map shows profiles at scales of 500, 1000, 2000 and 5000 gammas to the inch. Finally, a one-mile-to-the-inch sketch was prepared to present the relationship of the newly discovered drag-fold with the other drag-folds affecting the Malartic Syncline.