QUEBEC DEPARTMENT OF NATURAL RESOURCES
MINERAL DEPOSITS SERVICE

Preliminary Report
Southwest quarter of
Guercheville Township
by Arthur Maybin

INTRODUCTION

The Southwest quarter of Guercheville township is bounded by latitudes 75°30' and 49°34' and longitudes 75°25' and 75°30'. It comprises a 25 square mile area in the county of Abitibi East, about 50 miles southwest of Chibougamau.

The area was previously mapped by Remick in 1955 at a scale of 1 inch to 1 mile (Preliminary report No. 343).

The area is best reached by air from Chibougamau. Planes can land on stretches of the Opawica river. The Chibougamau-Senneterre highway passes about 10 miles to the north making the area accessible by canoe. However many sets of rapids along the Opawica river make the trip very tedious.

GENERAL GEOLOGY

All consolidated rocks in the area are Precambrian in age. They have for the most part been regionally metamorphosed. Four major rock types have been identified. A belt of meta-volcanic rocks outcrops in the northern portion of the area extending both to the north and east. A meta-anorthosite portion of the Opawica complex outcrops in the central portion. A gneissic biotite granite underlies the southern portion of the area. Porphyritic hornblende granite intrudes the volcanic rocks and anorthosite in the northwest.

METAMORPHOSED LAVAS

The metavolcanic rocks consist mainly of pillowed basalts small interlayered gabbro sills that have been intruded by the Opawica Complex, gneissic biotite granite, and porphyritic hornblende granite.

The lavas vary from pillowed to strongly schistose. The pillowed lavas are restricted to the southern half of the belt. These pillowed basalts exhibit scoriaceous flow tops that are highly schistose. The basalts in the northern portion of the belt show a well developed schistosity that obscures original structures.

Table of Formations

Pleistocene and Recent		Boulders, gravel, sand, silt clay
	Felsic Intrusive Rocks	Porphyritic Hornblende Granite (La Ronde Pluton)
		Gneissic Biotite Granite (Opawica Pluton)
	Basic Intrusive Rocks	Meta-anorthosite (part of the Opawica complex)
	Keewatin Type Rocks	Metabasalts and interlayered metagabbro sills

The basalt is green on the fresh surface and greyish green on the weathered surface. The basalts are all fine grained consisting of plagioclase, actinolite and chlorite.

OPAWICA COMPLEX
META-ANORTHOSITE MEMBER OF THE OPAWICA RIVER COMPLEX

The Opawica complex is a layered igneous complex. It is very similiar to the Dore Lake Complex which is the host rock for the major ore deposits of the Chibougamau camp.

The meta-anorthosite underlies the central portion of the area, and consists of 75-90 percent plagioclase and 10-25 percent of chlorite and amphibole. The plagioclase consists of rounded to ellipsoidal grains varying in size from 3/4 inch to 4 inches in diameter. The chlorite and amphibole form intercumulus grains generally much smaller than the cumulus plagioclase. The plagioclase appears very fresh in places exhibiting good albite twinning. The fresh plagioclase is grey whereas the altered plagioclase is milky white.

The meta-anorthosite is generally massive, but locally a good foliation is developed due to the elongation of the plagioclase.

FELSIC INTRUSIVE ROCKS
GNEISSIC BIOTITE GRANITE

The gneissic biotite granite underlies the southern 1/5 of the map-area. The rock is medium grained consisting of quartz, biotite and plagioclase. Locally muscovite is an important constituent making up as much as 10 percent of the rock. A well developed foliation due to the alignment of biotite is characteristic of this rock.

PORPHYRITIC HORNBLENDE GRANITE

A zoned porphyritic hornblende granite stock outcrops in the northwest corner of the study area. Four distinct zones can be mapped. The outermost zone is a breccia where the granite is in contact with the meta-anorthosite. The rock consists of angular hornblende-rich blocks in a matrix of feldspar. The next zone is a medium-grained hornblende syenite consisting of hornblende and potassium feldspar. A zone of medium-grained hornblende granite is the next rock type found. The rock consists of quartz hornblende, and potassium feldspar. The core of this intrusive is a porphyritic hornblende granite. The rock consists of potassium feldspar phenocrysts about 3/4 to linch long and $\frac{1}{2}$ inch wide in a medium-grained groundmass of quartz, hornblende, and potassium feldspar. All these units are massive.

STRUCTURAL GEOLOGY

The schistosity in the metavolcanic rocks trends almost EW except in the north central area where a fault has been mapped. The schistosity trends between 10 and 20 east of north.

The foliation in the gneissic biotite granite is nearly parallel to that of the metavolcanic rocks except locally where almost north-south trends were observed.

Altitude of volcanic rocks

Pillow structures and scoriaceous flow tops indicate tops toward the north. These structures can only be seen in the southern portion of the volcanic belt.

A fault trending N10E cuts the central area. This fault causes the schistosity in the volcanic rocks to parallel its trend.

ECONOMIC GEOLOGY

Two of the main mining camps in the Superior Province of Quebec have strikingly similar geology to this study area. The Chibougamau camp and the Matagami camp both have layered igneous complexes associated with them. In the Chibougamau camp all the major mines are located in shear zones within the Dore Lake Complex. The Matagami camp has the Bell River Complex associated with it. The Opawica Complex, is a similar layered igneous complex. A possible genetic association of layered igneous complexes with centre of volcanism cannot be ignored. The similarities among the three regions makes the study area an ideal place for further exploration. No large mineralized shear zones have been observed in the Opawica Complex. However, the possibility of finding ore deposits within it still exists since much of the area is covered by sand and gravel.

One must remember that in Matagami the ore deposits are associated with felsic volcanic rocks. In this light and evidence from observed outcrops, it seems likely that felsic volcanic rocks do occur to the north of the observed basalts. It is my opinion that further exploration is warranted to the north in the volcanic rocks.

JD/ia