TP PROPERTY

Atlin Mining Division
British Columbia

GENERAL COMMENTS

by

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INTRODUCTION

At the request of E.R. Wozniak and A. Jackson, Cyprus Gold (Canada) Ltd., the writer spent four days at the TP prospect near Atlin in late August. The purpose of the visit was two-fold; firstly to examine and assess the importance of the variety of intrusive rocks in the area of the principal mineral showing, and secondly to assist R. Durfeld by offering comments and suggestions re the 1988 exploration program on the property.

The following report deals with the general geological setting of the TP claims, the nature and style of intrusive rocks in the area of the gold-cobalt-magnetite skarn zone, and offers some comments on shear zone mineralization in the northeast property area.

A number of photographs illustrating geological relationships in various parts of the property are appended, as is a recent paper dealing with the general area by M. Mihalynuk of the Provincial Geological Surveys Branch.

GEOLOGICAL SETTING

The TP claims cover a 13 by 5 km area known as the Tagish Highlands between Skelly Lake on the north and Warm Creek on the south some 55 km west of Atlin in northwestern British Columbia. Elevations range from about 770 metres near Warm Creek to 2244 metres at Teepee Peak in the southern claims area. The southern and western parts of the property feature rugged topography.

The property includes an area immediately west of the regional north-northwest striking Llewellyn Fault which marks the boundary between the Coast Crystalline Complex on the west and Mesozoic volcanic and sedimentary sequences to the east.

Much of the claims area is underlain by Pre-Permian Boundary Ranges (formerly Yukon Group) metamorphic rocks which are overlain by a remnant of early Mesozoic layered rocks at higher elevations in the southern claims area. Both the metamorphic units and younger volcanic and sedimentary rocks are intruded by a variety of plutonic rocks including Coast granitic rocks which occupy much of the area to the west of the property.

Pre-Permian metamorphic rocks within the claims area include quartz-chlorite schists and gneisses with some calcareous units which have been locally converted to magnetite skarns in the southern property area. The principal mineral zone, a gold-cobalt-magnetite skarn, is developed in one of these units.

Early Mesozoic (late Triassic?) volcanic and lesser sedimentary rocks unconformably overlie the metamorphic rocks. These include a dark grey feldspar porphyry (andesite) flow unit in the saddle area at 1950 metre elevation above the main mineral zone. Thin (3 metre) intraflow sediments separate these from flow banded fragmental felsic volcanics and andesite tuffs which are the structurally lowest units in contact with the metamorphic rocks.

INTRUSIVE ROCKS

As noted, a variety of intrusive rocks cut both the metamorphic and younger volcanic sequences. Based on personal observations, these include from youngest to oldest:

- Basic Dykes
- Quartz Porphyry Dykes
- Feldspar Porphyry Dykes
- Quartz Monzonite Porphyry Stock
- Coast Granodiorites
- Diorite - Hornblendite

Coast granodiorites and younger varieties probably range in age from late Cretaceous to early Tertiary (80-50 Ma). More basic varieties , Diorites and hornbelndites, appear to be principally restricted to the metamorphic complex and may represent feeders for late Triassic volcanics.

Basic Dykes

These were observed in two localities and are believed to represent the youngest intrusive event. Where seen, they are weakly magnetic, have a north-northeast trend and range in width from 0.5 to 2 metres. One dyke was seen cutting northwest striking felsic volcanic rocks in the cirque above the main skarn zone and another crosscuts the arsenopyrite bearing quartz veins in the north-northwest shear zone in the northeast part of the property.

These dykes are dark grey, fine grained with chilled margins and contain 1-2 mm subrounded white feldspar phenocrysts.

Quartz Porphyry Dykes

This particular unit, ubiquitous in the area of the gold-cobalt-magnetite skarn where it occurs as dykes and dyke swarms, is probably related to the leucocratic quartz monzonite stock exposed 0.5 km to the east.

The dykes, 1 to 20 metres wide, parallel northwest foliations in the metamorphic rocks and weather white. They contain only minor disseminated pyrite and appear to post date the skarn mineralization. On fresh surface, 1 mm anhedral quartz phenocrysts are contained in a very fine grained quartzofeldspathic matrix which locally features graphic and myrmekitic textures.

Angular inclusions of metamorphic rocks were noted in the vicinity of the main skarn zone as was a breccia dyke with angular 2 cm fragments of quartz porphyry in a very fine grained grey siliceous matrix.

Feldspar Porphyry

Feldspar porphyries are spatially and temporally related to quartz porphyry dykes and occur mainly in the area of the skarn zone and to the south.

Scattered 2-4 mm euhedral plagioclase phenocrysts and 2 mm biotite plates are set in a fine grained light grey matrix with no disseminated sulfides. The dykes, 1 to 10 metres wide, have no preferred orientation and appear to terminate the skarn zone on the north.

While these are considered slightly older than the quartz

porphyry dykes, confusing relationships exist (see photos).

Feldspar porphyries are not as areally extensive as the quartz porphyries. A volcanic variety, with 2-8 cm clasts in a feldspar porphyry matrix was noted below the skarn zone and southwest of the first camp area (photo).

Quartz Monzonite Porphyry

This rock type, exposed in a 3 by 2 km stock 0.5 km east of the main skarn zone and believed to be of late Cretaceous age, is the source of the quartz porphyry dykes and possibly the feldspar porphyry dykes as well.

This is a leucocratic, medium grained grey to buff rock with 2-5 mm subhedral pink to white feldspar phenocrysts in a quartzofeldspathic matrix with 2-5% hornblende and biotite and minor disseminated pyrite.

The stock is partly unroofed in the cirque east of the principal skarn showing. At the head of the cirque, the upper contact is at an elevation of approximately 1750 metres or about 100 metres vertically below the skarn surface exposure, and is probably the source of extensive dyking and skarnification in this area. The probability of this intrusive at relatively shallow depths below the main mineralized zone would seriously limit depth potential.

Coast Granodiorite

This rock type was seen in the northeast claims area only where it is an equigranular grey to buff rock typical of the Coast Plutonic Complex.

Diorite - Hornblendite

Medium grained, dark grey diorite was noted in the north part of the cirque north of the main skarn zone where it is in contact with late Triassic felsic volcanics on the east and in gradational contact with medium to coarse grained hornblendite on the west. Large inclusions of felsic volcanics were noted in the diorite.

Both varieties are weakly magnetic and the hornblendite contains disseminated pyrrhotite and locally inclusions of metamorphic rocks.

These more basic varieties are considered to be significantly older than other intrusive types - possibly late Triassic - early Jurassic.

Conclusions

The frequency of quartz porphyry and feldspar porphyry dykes in the immediate vicinity of the principal skarn zone suggests a genetic relationship with the gold-cobalt mineralization. Both varieties of dykes are believed to be related to the nearby quartz monzonite porphyry stock which may lie at relatively shallow depths below the skarn zone thus limiting depth potential.

Older,basic intrusive varieties may also have caused some skarnification of the metamorphic complex but these are not known to contain gold-cobalt values.

Young basic dykes are of economic importance inasmuch as they crosscut mineralized structures.

QUARTZ-ARSENOPYRITE-PYRITE VEINING

A brief examination was made of a cirque area in the northeast part of the property where a north-northwest shear zone in metamorphic rocks contains quartz veins with arsenopyrite and pyrite (see photos).

This cirque area includes a number of northeast striking, apparently barren, 1 metre wide quartz veins. The principal zone of interest is a north-northwest striking shear zone, parallel to the host metamorphic rock schistosity, which contains persistent quartz-arsenopyrite-pyrite lenses. These vary from several cm to 2 metres in width and the zone is locally cut and offset by 1 - 2 metre wide, north-northeast striking basic dykes. The zone may be terminated to the northwest by Coast granodiorites.

Several samples reportedly contain good gold values with arsenic.