British Columbia Geological Survey
Geological Fieldwork 1985

TATSHENSHINI MAP-AREA* (114P)

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INTRODUCTION

The authors extended their studies of mineral deposits and environments in the Tatshenshini map-area (*114P*) during a 5-day period in late August 1985. Brief visits were made to Windy-Craggy, Red Mountain (Fair), Mount Henry Clay, and Gold Cord. Access to all properties was by charter helicopter from either Noranda's base camp or Stryker/Freeport Resources' base camp, located on the Haines Road at kilometre 151 (Mile Post 94) and kilometre 72 (Mile Post 45) respectively.

MOUNT HENRY CLAY (Lat. 59°23' Long. 136°29.5; 114P/7, 8)

Mount Henry Clay is situated along the British Columbia/Alaska border (Fig. 27-1), 65 kilometres northwest of Haines, Alaska and approximately 10 kilometres west-southwest of the border crossing at Pleasant Camp. Access is by helicopter from the Haines Road.

Recent exploration interest in the area, both on the Canadian and American sides of the border, stemmed first from the discovery of the large and potentially economically significant Windy-Craggy deposit located 75 kilometres to the northwest, and second from discovery of large, bedded, polymetallic massive sulphide boulders at the toe of the small Mount Henry Clay hanging glacier, which transects the unsurveyed border. On the Canadian side, Stryker/Freeport Resources staked numerous claims to cover potential source areas for these boulders as well as several newly discovered showings. On the American side, Bear Creek Mining Company has also been searching for the source of the high-grade boulders. During 1985 Bear Creek Mining Company diamond drilled five holes through the hanging glacier; the results of the program are not known.

GEOLOGICAL SETTING

The reader is referred to MacIntyre and Schroeter (1985) for a description of the geological setting and mineral occurrences in the area.

LOW JARVIS PROSPECT (MOUNT HENRY CLAY)

In 1985 Stryker/Freeport Resources completed five diamond-drill holes totalling approximately 850 metres on the Low Jarvis prospect. The program attempted to locate, sample, and determine the source and extent of numerous high-grade zinc-copper-silver-barite float boulders found at the toe of the Mount Henry Clay hanging glacier on the Canadian side of the border.

The only rock exposure in the immediate area is on Jan Still Ridge (local name); it consists of a shallow (30 to 50), northwesterly dipping sequence of black shales overlain by volcanic agglomerate and massive chloritic andesite. Thin bands of quartzite and/or black shale are interbedded in the andesites. At the south end near the top of the ridge trace chalcopyrite was noted near the helipad. Immediately below the helipad (approximately 10 metres), on a vertical cliff, Stryker/Freeport Resources located an exposure of bedded barite and sulphides (mainly sphalerite and pyrite) which they call the Jumar showing.

North of the helipad and the Jumar Showing, Stryker/Freeport found massive sulphide boulders consisting of well-bedded sphalerite, pyrite, chalcopyrite, tetrahedrite, and barite (Fig. 27-1).

GOLD CORD (MOUNT McDONELL) (Lat. 59°27' Long. 136°30'; 114P/7, 8)

INTRODUCTION

The Gold Cord gold prospect (Plate 27-1) is located 8 kilometres west of Pleasant Camp, the United States/Canada border crossing at kilometre 65 on the Haines Road. A caterpillar trail leads to the property from the Haines Road near Pleasant Camp; however, helicopter access was used from Stryker/Freeport Resources camp located near kilometre 72 on the Haines Road, approximately 12 kilometres from Gold Cord.

HISTORY

Mineralization on Mount McDonell was first discovered in the late 1890s by Indians associated with the legendary Jack Dalton, an Alaskan trader. In 1899 the Gold Cord showing was sampled by placer miners working in the nearby Porcupine placer mining camp in the United States, and described by United States Geological Survey geologist, Alfred Brooks, in the same year. It was later examined by Charles Wright (1904) and Henry Eakin (1919). In 1925 John D. Senbraten and his partner, William Bunting, staked the property and traced the Gold Cord vein for approximately 2 900 metres by hand trenching and sank three shafts over the next five years. This work was partially financed by the Alaska-Juneau Gold Mining Co. who eventually participated in the excavation and deepening of 7 shafts and 32 pits on the property before 1929.

The property remained virtually dormant until 1968, except for some minor activity by the Alaska-Juneau Co. and Livingstone Wernecke in the late 1930's. In 1968, L. Combs and Assoc. of Whitehorse attempted to develop the property. An 11-kilometre road was built to the property and engineering studies were completed in 1969. Unfortunately further financing attempts failed.

In 1979 Karl and Jenny Gruber of Whitehorse restaked the property as the KARL *1-20* claims and optioned it to Exotic Gold Inc. However, work was not carried out and the property reverted to the Grubers.

In 1984 the property was optioned to Noranda Exploration Co. Ltd. who subsequently entered into a joint venture agreement with Canadian United Minerals Inc. In October 1984, Noranda completed three diamond drill holes totalling 163.5 metres on the Gold Cord vein. Unfortunately core recovery was very poor and wet ther conditions forced the program to be stopped prematurely due to a lack of drilling water; consequently, the vein was not adequately tested by this program. No work was carried out in 1985.

PROPERTY GEOLOGY AND MINERALIZATION

The host rock for the Gold Cord vein is a homogeneous, equigranular, fine to medium-grained diorite, which is one of several elongate, northwesterly trending *Oligocene* (?) intrusions that are part of the Tkope River intrusions. The diorite is unaltered except

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British Columbia Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1985, Paper 1986-1.

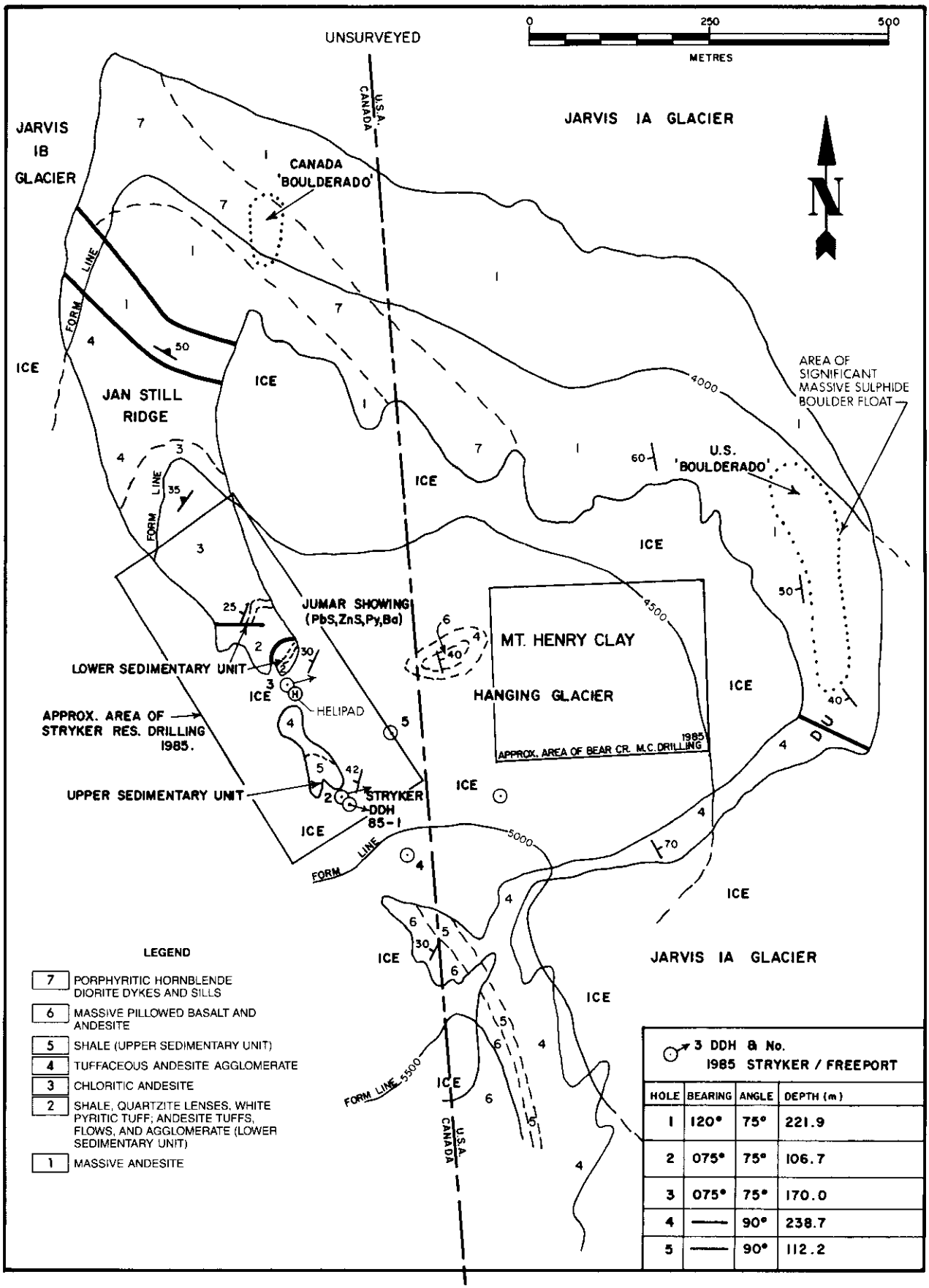

Figure 27-1. Geology of Low Jarvis Area, Mount Henry Clay (after company plans).

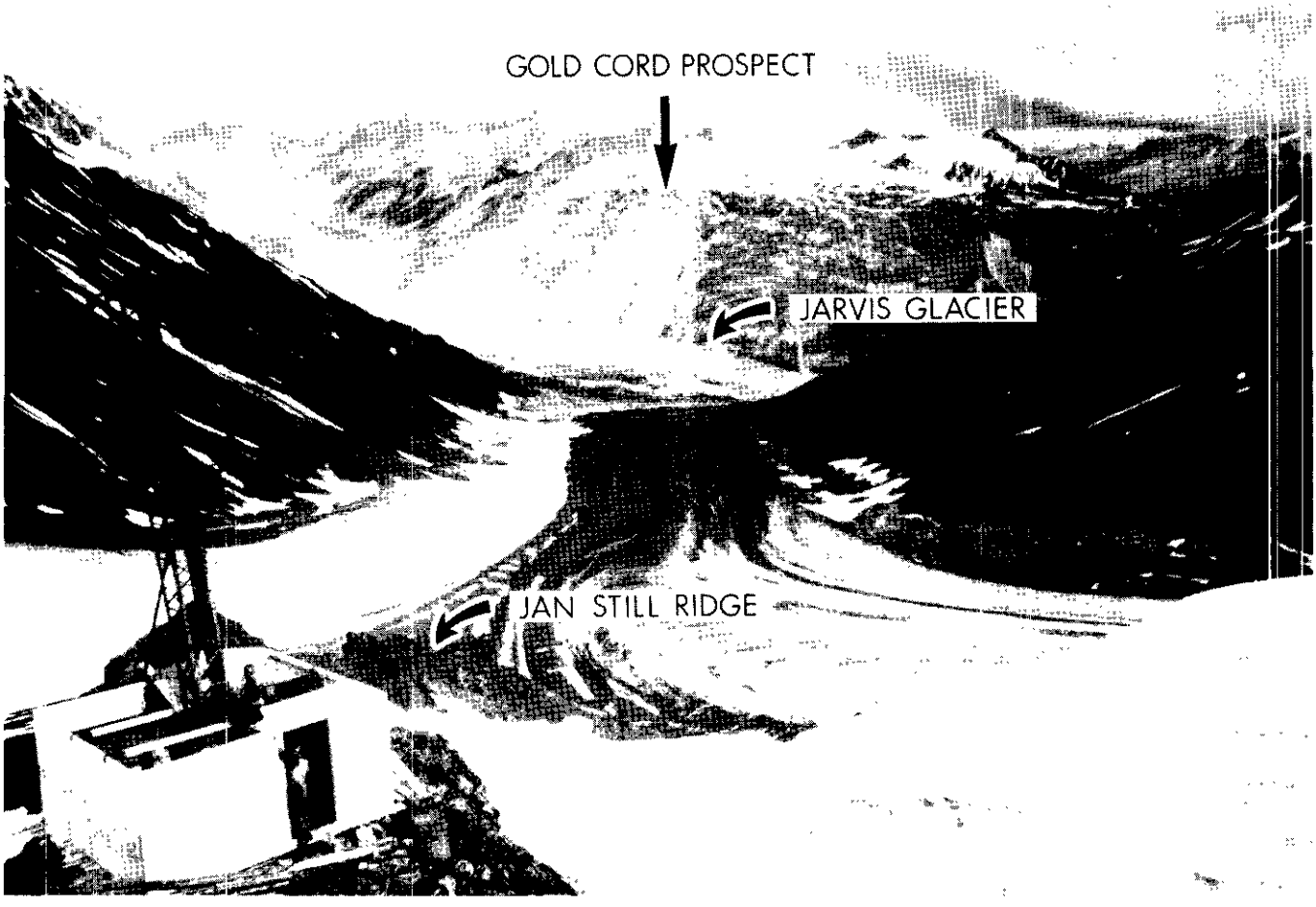

Plate 27-1. Looking northerly from Mount Henry Caly past Stryker Resources drill setup to the Gold Cord prospect.

TABLE 27-1. GOLD CORD VEIN

SAMPLE NUMBER	SAMPLE DESCRIPTION	GOLD ppm	SILVER ppm	COPPER per cent
GC-85-1	Grab of quartz vein with minor malachite and sphalerite (dump)	19.0	22.0	0.51
GC-85-2	Grab of 0.6-metre quartz vein	<0.3	< 10.0	0.40
GC-85-3	Grab of 0.6-metre quartz vein	16.4	21.0	1.02
GC-85-3a	Chip sample across 0.6-metre quartz vein with visible gold	72.0	190.0	2.13
GC-85-4	Grab of quartz from small dump	2.7	< 10.0	0.016
GC-85-5	Composite grab of quartz from 3 small dumps	7.5	13.0	0.013
GC-85-6	Grab of quartz (dump)	0.3	< 10.0	0.38
GC-85-7	Composite grab from large dump of quartz	83.0	42.0	0.41
GC-85-8	Grab of quartz (dump)	0.3	< 10.0	0.17

for local epidote-coated fractures in areas of shearing. In the area of the Gold Cord vein, the diorite is locally foliated. Foliation is defined by hornblende and is parallel to Gold Cord vein.

Numerous lineaments and faults trend easterly; some are eroded and form prominent depressions, others are infilled with quartz and form resistant ridges.

The Gold Cord vein consists of generally white quartz, sparsely mineralized with free gold, pyrite, local chalcopyrite, and trace sphalerite. The vein fills a shear zone within the diorite and follows the south or footwall side of the structure. It strikes approximately 115 degrees and dips from 30 degrees to 80 degrees toward the north; it has been traced over a surface length of 470 metres. The vein, situated at elevation 1 475 metres, has been tested in the past by two main shafts. Apparently within these shafts the vein splits into two or three distinct 30 to 120-centimetre-wide veins that are separated by 5 to 45 centimetres of weakly pyritized diorite. On surface the vein ranges from 0.1 metre to 0.75 metre wide; it is commonly oxidized and coated with limonite; rarely, malachite is present. Thin selvages of gouge material usually accompany the vein. The shafts and old stonehouse are caved.

The writers collected grab samples along a 500-metre interval of the Gold Cord vein (Fig. 27-2) and the results are presented in Table 27-1. Native gold was identified at sample site GC-85-3 in the hangingwall portion of the 0.6-metre quartz vein.

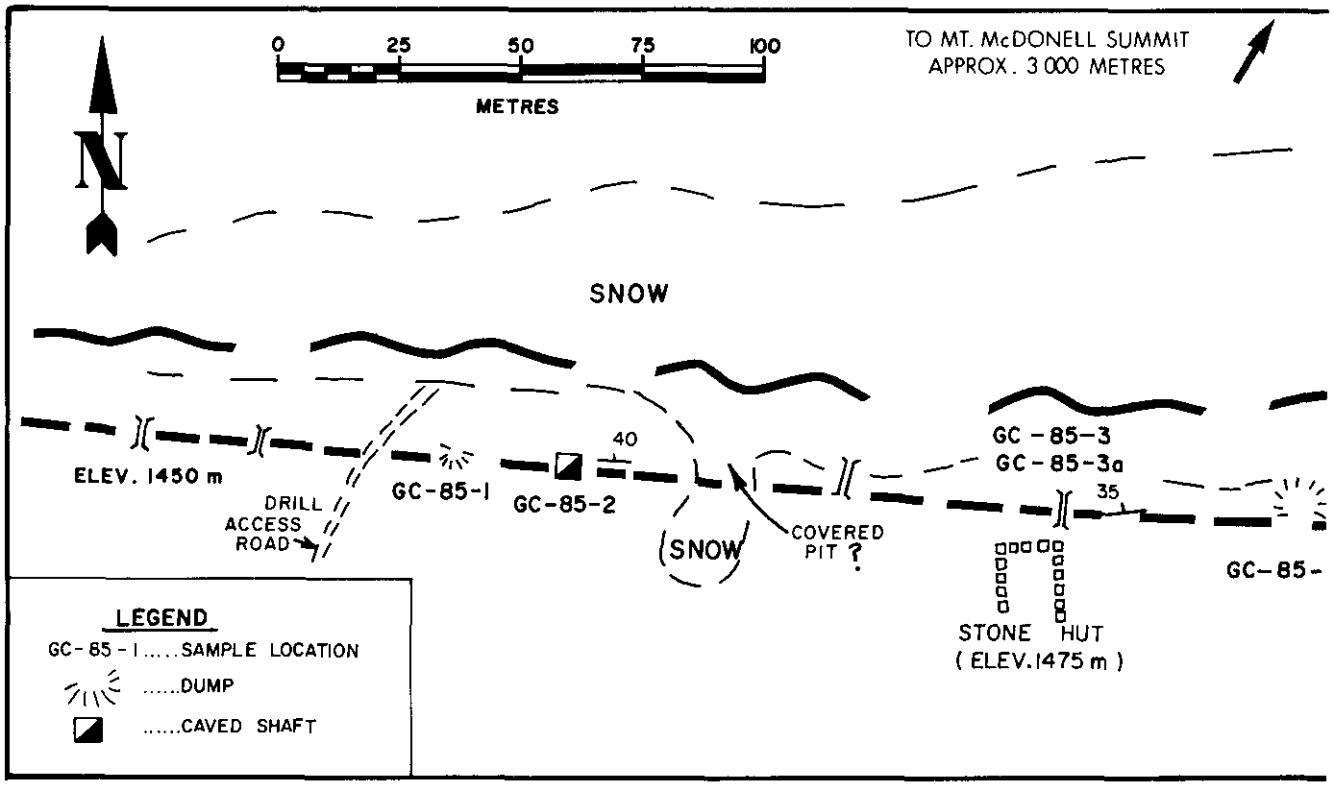

Figure 27-2. Sketch map of Gold Cord (Vein) prospect.

RED MOUNTAIN (FAIR) (Lat. 59°42' Long. 137°10'; 114P/11)

INTRODUCTION

The Red Mountain property is located approximately 30 kilometres west of the Haines Road (from kilometre 113 or Mile Post 70). The Fair claims straddle Red Mountain, which is 7.5 kilometres east-northeast of the confluence of the O'Connor and Tatshenshini Rivers. On 1:250 000 topographic maps, the Red Mountain prospect is located approximately 4 000 metres south of the top of Red Mountain. Access is by helicopter from the Haines Road. An old caterpillar trail leads from the road to an abandoned airstrip located 7 kilometres east of Red Mountain.

Red Mountain is the most prominent feature in the immediate area with its reddish brown colour, north-south elongated, rounded top, and steep east and west sides.

PREVIOUS WORK

The only previous work in the area was done on the east side of Red Mountain. Since the 1960s claims have been staked to cover a sub-horizontal shear zone containing quartz, sphalerite, galena, and pyrrhotite on the east-facing cliff (Joe showing).

The area was mapped by Campbell and Dodds as part of the Geological Survey of Canada's 'Operation Saint Elias', in 1978.

PROPERTY GEOLOGY

The Red Mountain property is underlain by limestones and fine-grained clastic rocks of probable Paleozoic age which are overlain unconformably or structurally by younger volcanic and associated intrusive rocks. A hornblende feldspar porphyry dyke swarm intrudes all these rocks.

In the claim area the suspected Paleozoic rocks consist of well-bedded, grey fine-grained, and white crystalline limestone interbedded with grey cherty argillites and minor quartzites. These are deformed into open to moderate folds with north-trending axial planes.

On the south part of the claims these rocks may be overlain by another sequence of limestones that contain quartz veins; the second sequence may be a facies equivalent of Norian age limy siltstones in the Windy-Craggy area, which is located approximately 32 kilometres to the west. Samples of both types of limestone on the Red Mountain property were collected for potential microfossils.

Unconformably overlying the Paleozoic rocks is a package of argillite (exhalite?), submarine volcanic rocks, and associated intrusives. Near the upper contact of the Paleozoic limestone package, fine-grained, siliceous dykes appear to be feeders to overlying cherty tuffaceous beds which contain disseminated and occasionally massive pyrrhotite and pyrite. Locally, the cherty units are brecciated and consist of white siliceous fragments embedded in a black cherty matrix. The volcanic rocks are bimodal, consisting of pillowed andesite to basalt (?), and massive to fragmental dacite. The pillowed volcanics may correlate with pillowed volcanic rocks in the Windy-Craggy area, which are of Norian age. Interbedded laminated argillites containing disseminated and streaky pyrite with or without pyrrhotite may be of exhalative origin.

The contact between the volcanic rocks, cherty tuffs, and limestones is obscured by talus but diamond drilling shows skarn-type alteration; the limestone has been either recrystallized to marble or silicified to fine-grained, banded to wispy, streaked, white-coloured 'porcellanite'. The associated irregular alteration zone contains quartz, andalusite, and minor amounts of plagioclase, sillimanite, muscovite, trace K-feldspar, and minor pyrrhotite. The pinkish hue in some rocks is probably due to abundant andalusite.

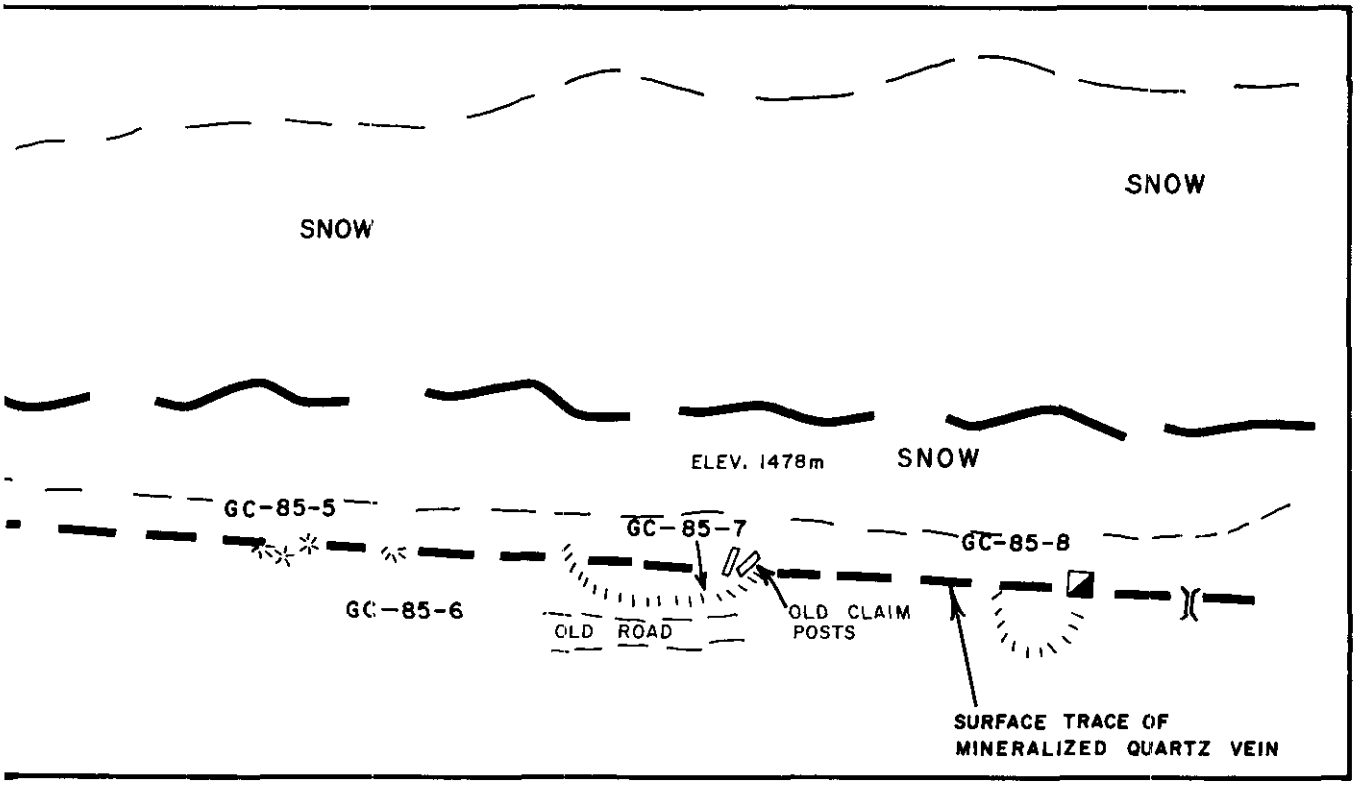

Figure 27-2. Sketch map of Gold Cord (Vein) prospect.

On top of Red Mountain, a 'diabase' crops out which has weak columnar jointing; it may be comagmatic with or intrusive into the pillow basalts. A similar situation occurs at Windy-Craggy, where several diabase dykes intrude the sequence.

Cutting all rock types, except the 'diabase', are a series of subparallel feldspar to hornblende-feldspar porphyry dykes which range in thickness from less than 1 metre to almost 100 metres.

MINERALIZATION

At least three different styles of mineralization have been observed on the property:

(1) Barren pyrrhotite-pyrite argillite and cherty tuff with or without breccia zones.
(2) Lead-zinc-silver-copper skarns.
(3) Arsenopyrite-base metal-quartz shear zones (such as the Joe showing).

Where sampled, the pyrrhotite-pyrite zones, which occur principally on the southern portion of the property, are barren. Pyrrhotite occurs in all rock types as disseminations, fracture fillings, or replacing amygdules.

Skarn mineralization occurs mainly in the northern portion of the property. It consists of small irregular 'pods' or patchy zones of galena, sphalerite, chalcopyrite, pyrite, and pyrrhotite in a gangue of epidote-diopside and rare garnets, which occur near or at the contact between limestone and light grey hornblende feldspar porphyry dykes. On the southern portion of the property, diamond drilling intersected narrow skarn zones in white 'porcellanite'; these contained disseminated and fracture-filling pyrrhotite, and traces of chalcopyrite and sphalerite in 0.5-metre-wide quartz veinlets.

Within the volcanic rocks, disseminated arsenopyrite and pyrite occur adjacent to narrow, sub-horizontal shear zones which carry base-metal sulphides. The Joe showing, for example, which occurs on the east-facing cliff of Red Mountain, consists of quartz, sphalerite, galena, and pyrrhotite in sheared volcanic rocks. Diamond drilling on the west side of the mountain intersected local, narrow (5-centimetre) quartz veins containing arsenopyrite (95 per cent), sphalerite (2 per cent), pyrrhotite (2 per cent), and calcite (1 per cent). Locally, pyrrhotite and trace amounts of chalcopyrite were observed in epidotized tuff.

WORK DONE

During 1985 Noranda Exploration Co. Ltd. completed three diamond-drill holes totalling approximately 550 metres on the southern part of the property. The writers briefly examined surface showings and drill core which were stored at elevation 1 036 metres.

WINDY-CRAGGY
(Lat. 59°44.5′ Long 137°44.5′; 114P/12)

A brief visit was made to the Windy-Craggy massive sulphide deposit (reserves estimated at 317 450 000 tonnes grading 1.5 per cent copper, 0.9 kilograms cobalt, plus gold and zinc) but bad weather prevented any geological work from being carried out.

During June and July of 1985 Newhawk Gold Mines Ltd., under a joint venture agreement with Geddes Resources Ltd., completed construction of an 850-metre airstrip capable of handling De Haviland Caribou aircraft. The airstrip was constructed approximately 2 kilometres north-northwest of Tats Lake for the purpose of flying in heavy equipment to allow future underground testing of the deposit.

ACKNOWLEDGMENTS

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