INTRODUCTION

The Bill prospect is located 135 kilometres southeast of Dease Lake at latitude 57 degrees 45 minutes north and longitude 127 degrees 45 minutes west, in the Liard Mining Division (Fig. 51). Access is by helicopter from either Sturdee Valley airstrip, which lies 70 kilometres to the southeast or the Hyland Post airstrip which lies 30 kilometres to the southwest. The claims (Bill 1, 2, and 3) total 43 units; they are owned by Cominco Ltd. but were operated in 1982 and 1983 by DuPont of Canada Exploration Limited. Most of the area of the claims lies above treeline. Surveys by Cominco in 1981 and by DuPont in 1982 outlined a large gold-arsenic soil anomaly.

The writer spent three days on the property in July 1983.

PROPERTY GEOLOGY

Basalt forms the base of the volcanic pile in the area of the property; it is overlain by a dominantly andesitic tuff sequence. The tuffs are overlain by a complexly intercalated sequence of carbonized volcanic sedimentary rocks ranging in composition from andesite to rhyolite. No significant volume of intrusive rock was noted on the property.

Intercalated sedimentary and volcanic rocks that underly the claim group have been regionally metamorphosed to lower greenschist grade; most are now schist and phyllite. At least two phases of folding took place and boudinaging of quartz and/or carbonate lenses is common. The volcanic rocks are mainly tuffaceous, ranging in composition from andesitic to rhyolite; in part composition depends on the percentage of quartz eyes present. Locally there are flows of massive or pillowed basalt. The sedimentary rocks include weakly to moderately carbonatized siliceous siltstone: these are often intercalated with intermediate to acidic tuffs, crinoidal limestone, calcareous sandstone, and quartzite. A distinctive sequence of pelite and greywacke structurally overlies the volcanic sequence.

STRUCTURE

All the rocks on the claim group are foliated to some degree and the foliation has moderate dips. Boudinaging of quartz lenses or pods is common in more mafic units. Common carbonate ± quartz knots lie parallel to banding in well bedded crinoidal limestone. Kink bands in the sheared felsic tuffs and folding of boudinaged quartz knots and veins in basic tuffs indicates at least two periods of deformation.

MINERALIZATION AND ALTERATION

Gold with arsenopyrite occurs as late-stage fracture fillings in quartz ± carbonate veins and pods, as dry veinlets, and also as disseminations and stockworks in altered tuffs; arsenopyrite is the most abundant metallic mineral. Pyrite is ubiquitous in the altered tuffs with at least two stages observed. Chalcopyrite occurs in trace amounts. Carbonate veinlets carrying euhedral quartz grains and pyrite veinlets cut quartz...
Arsenopyrite veinlets. Quartz veins range in width from less than 1 centimetre to 1.5 metres. Most are steeply dipping and cut stratigraphy. Fault zones may be an important guide to mineralization. Apparently intense quartz-sericite alteration has replaced basic volcanic rocks along zones of structural weakness; gold mineralization is most abundant where quartz-sericite alteration is most intense. Quartz veins within quartz-sericite altered zones are most likely to be in the cores of the altered zones. Overall, arsenopyrite abundance does not correlate well with gold values; locally, however, the two are closely correlated.

WORK DONE

During 1983, DuPont diamond drilled approximately 1175 metres in a six-hole program designed to test previous soil geochemical anomalies, to test geophysical anomalies, and to test analyses from hand-blasted trenches.

ACKNOWLEDGMENTS

The writer would like to thank DuPont (especially Tom Drown and Joanne Forbes) for providing access to the property and their kind hospitality while on the property.
INTRODUCTION

The Toodoggone River area lies approximately 300 kilometres north of Smithers; it is now recognized as a significant precious metals camp. Access into the area continued to be by aircraft only, mainly from Smithers.

The writer spent two 1-week periods in the area completing regional mapping north of the Toodoggone River. The mapping was done in conjunction with Andre Panteleyev and Larry Diakow at a scale of 1:25 000. A preliminary map of the Toodoggone area, at a scale of 1:50 000, will be available in early 1984.

WORK DONE

Brief visits were made to the Golden Lion, JD, and AL properties and two stratigraphic sections located north of Moyez Creek were examined.

Work carried out by companies in the Toodoggone River area included the following:

(1)  **Kidd Creek Mines Ltd.**

   (a)  JD (Mineral Inventory 94E-32) — 1 200 metres of surface trenching in 22 trenches on the Gumbo and Gasp zones.

   (b)  AL (Mineral Inventory 94E-78, 79) — 2 400 metres of surface trenching in 43 trenches including the Bonanza and Ridge zones.

(2)  **SEREM Inc.**

   (a)  Lawyers (Mineral Inventory 94E-66) — 3 054.2 metres of diamond drilling in 17 holes (eight on Cliff Creek, seven on Duke’s Ridge, and two on AGB).

   (b)  Lawyers — 1 800 metres of backhoe trenching on Cliff Creek and Duke’s Ridge zones.

Minimal work was done on a few other claims within the area in order to maintain them in good standing.

(3)  **Newmont Exploration of Canada Limited**

   (a)  Shas (Mineral Inventory 94E-50) — 674 metres of diamond drilling in nine holes and 20 blasted trenches explored the main zone and a new area, the Creek zone, with encouraging results.

   Gold-silver-bearing quartz vein stockworks occur within a 1 000 by 1 600-metre area of altered Toodoggone tuffs.

   (b)  Golden Lion (Mineral Inventory 94E-77) — 21 backhoe trenches totalling 1 908 metres in length outlined an area of significant silver mineralization.
Regional exploration was also carried out by:

(4) **DuPont of Canada Exploration Limited**

Pel — 139 metres of diamond drilling was done in two holes on an alteration zone in Toodoggone 'grey dacite'.

(5) **Taiga Consultants Ltd.**

Property work, including prospecting, geological mapping, and sampling, was carried out on the Mets, Belle, and Saunders claims.

(6) **Asitka Resource Corporation**

Grace (Mineral Inventory 94E-47, 48, 49) — the company carried out approximately 500 metres of diamond drilling to test copper-zinc-gold mineralization in skarn zones along marble-granodiorite contacts and gold mineralization in siliceous zones and in chloritic veins within coarse pyritic meta-siltstone.

(7) **Western Horizons Resources Ltd.**

Golden Stranger (Mineral Inventory 94E-76) — conducted geological mapping and prospecting on the Dave Price and Gord Davies claims.

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**REFERENCES**


Figure 52. Time stratigraphic cross-sections of the Hazelton and enclosing Groups (modified from Tipper and Richards, 1976).