

## LONG LAKE AREA - GEOLOGY

104P58

The following rock types were distinguished.

## UNIT 1: LIMESTONE (GOOD HOPE GP)

The limestone is quite variable. White or light grey, finely crystalline, blue-grey weathering limestone forms ridges at the eastern edge of the prospe mapped area. Further west, are black argillaceous, grey-weathering limestones and white, red-brown-~~ed~~ weathering limestones.

## UNIT 1a: RED LIMESTONE (GOOD HOPE GP) (Spec. 32878c)

Three beds of brick-red limestone, <sup>containing</sup> with minor bands of brick-red shale, occur in the unit 1 limestone. These beds are recessive and range from 3 to 10 m thick. They are underlain by grey, thinbedded clastic limestone and overlain by massive grey limestone or dolomite.

## UNIT 2: QUARTZ SANDSTONE (ATAN GP) (Spec 32876, 32877)

This clean, well-sorted, uniformly moderate-grained qtz sandstone forms the most prominent of the ridges east of the north end of Long Lake. It contains minor mica, is slightly limonitic throughout and is locally hematitic along fractures.

## UNIT 3: SILTSTONE (ATAN GP) (Spec HA83-82)

This siltstone, fine-grained, grey-brown to blue-grey, soft and lacking any carbonates, is recessive and rubbly (usually thin-bedded) in outcrop; the creek immediately west of the sandstone ridge follows its outcrop trace.

## UNIT 4: DOLOMITE (GOOD HOPE GP)

The dolomite is mainly white or cream-colored, finely to moderate-grained, crystalline and buff to red-brown weathering. It is interbanded with limestone to some extent.

UNIT 5 - LIMEY SILTSTONE (<sup>KECHIKA?</sup> ATAN GP) (Spec HA83-84)

The limey siltstone is soft, olive-grey, highly calcitic, thinbedded, and contains locally abundant grey limestone nodules. It fines upward from siltstone in the east to claystone in the west.

UNIT 6 - QUARTZ SANDSTONE (<sup>SANDPILE?</sup> ATAN GP) (Spec HA83-86)

This rock type is very similar to unit 2 in appearance, but is not limonitic. It is cream-colored, uniformly moderate-grained, composed entirely of rounded quartz grains, is massive (although bedding traces can be seen on weathered surfaces), and resistant to weathering.

The small outcrop hosting the copper-showing on the western shore of Long Lake has been included in unit 6 although it is grey, and argillaceous (and appears to be a large lens enclosed by unit 5); it too is composed mainly of moderately-sized rounded quartz grains.

UNIT 7 - FETID DOLOMITE (<sup>McDAME?</sup> ~~KECHIKA~~ GP) (Spec HA83-85)

This dolomite is dark grey (in its northern exposures) to black (at the south end of Long Lake), fine-grained, thinly-banded and has a distinct sulphurous odor. It is quite resistant to weathering and caps a prominent ridge west of Long Lake. At its top uppermost exposures, it forms a sedimentary breccia of grey dolomite clasts in a creamy dolomite matrix.

UNIT 8 - SHALE (LOWER SYLVESTER GP) (Spec HA83-77)

This black shale, soft, fine-grained, well-cleaved, graphitic(?), and with minor fine-grained disseminated pyrite, is very recessive; outcrops occur only at the base of the major cliffs formed by unit 9.

UNIT 9 - CHERT (LOWER SYLVESTER GP) (Spec HA83-78)

The chert is light grey, cut by many black hairline fractures, and contains minor disseminated pyrite. ~~The chert~~ <sup>It becomes</sup> ~~is~~ ~~be~~ ~~is~~ green-grey, soft and

slaty (ie argillaceous or tuffaceous) to the west (stratigraphically upwards). This unit is very resistant to weathering; the major cliffs ridges west of Long Lake are edged to the east by it.

#### UNIT 10 - LIMEY GREYWACKÉ (LOWER SYLVESTER GP) (Spec HA83-79)

The limey greywacke is light grey, finely clastic and quite calcitic. It is not well-bedded or cleaved.

#### UNIT 11 - ANDESITIC VOLCANICS (UPPER SYLVESTER GP) (Spec HA83-81)

This unit contains mainly andesitic tuffs, but also tuffaceous chert and a few narrow serpentinite pods.

### STRUCTURE & STRATIGRAPHY

The stratigraphy is very straight-forward: all bedding is roughly  $160^{\circ}/40-90^{\circ}$  and most units <sup>and contacts</sup> can be traced on the map. Without the McDane Memoir I am not sure that I have placed each unit into its proper group (but the rocks are the same, regardless of name). All units appear

No faults were stumbled on and none are needed to clarify simplify the geology.

## ECONOMIC POTENTIAL

The copper showing near the north end of Long Lake on the west side is insignificant. Fine-grained greywacke of unit 6 has been partially silicified and quartz-brecciated over an area  $20m \times 30m$ . Copper mineralization (bornite and chalcocite (?)) is confined to a few patches in an area  $2m \times 4m$ . The highest-grade material was sampled (Spec 32868C). There is no structural control to the alteration and the rock-type itself does not outcrop elsewhere.

Several very promising alteration zones near the base of the Upper Sylvester (up ~~from~~ andesites were sampled. Iron-carbonate alteration zones are small (5m wide maximum) but rich in malachite (32875) or pyrite iron sulphides (abundant pyrite, lesser arsenopyrite, rare coarse marcasite in Spec 32870; 5% coarse pyrrhotite, 3% radiating marcasite in a float, spec 4A83-80, <sup>nearby</sup>). Several zones of strong clay (?) alteration and silicification, each containing 2 to 10% fine-grained pyrite, were sampled. These represented by 32872 and ~~32874~~ (20 meters wide but irregular in width and shape) and 32874 (extensive <sup>rusty</sup> rubble across 100 meters of hillside, extending <sup>south</sup> to the ridge-top) are the <sup>largest</sup> ~~most~~ significant. In addition to pyrite, these zones contain malachite (? 32869?), arsenopyrite (rare - 32872) and native sulphur (minor - 32874). The small zones represented by 32873 are brecciated.

These zones may form a N-S trend, with the exception of 32873, they align at  $\sim 160^\circ$ ; ~~and~~ spec 4A83-87 (Fe-carb malachite alt<sup>=</sup>) and talus sample 83CAAT-100 are from the next creek north, also in line.

Three samples were taken of rocks at the headwaters of Rosella Creek, in an attempt to find the source of the Rosella Creek placer gold. Two samples of unaltered unit 2 quartz sandstone were taken. Although limonitic, the sandstone is probably too well sorted to be a paleoplacer. Conglomerates are not present in the mapped area, but could be a host elsewhere. The unit 1a red limestone was also sampled (32878), though without much enthusiasm.

The four most northerly trenches east of Long Lake were examined. The

two southern ones, apparently put in solely to obtain fresh samples of the exposed ~~to~~ black limestone, show no alteration; no sulphides (not even pyrite). ~~and not~~ The two northern ones are located just west of a prominent limestone ridge and east of a few less prominent limestone outcrops. The soil is red in <sup>trenches</sup> their vicinity. I assume that the trenches were an attempt to uncover a <sup>target</sup> precessivite unit indicated either by soil geochem or by stratigraphic cont ~~to~~ (ie by comparison with prospects on Mt. Haskin). Neither trench exposed either bedrock or ~~any~~ interesting float. Soil sample 83CAA-1 is from the southern trench wall.

NOTES:

1. The Cu showing was staked in June 1965 by JK Armstrong of Fort Reliance Minerals as the AM1 & AM2 claims.
2. The camp creek was silt sampled in 1982
3. The bush is bad; much time is wasted walking through it to the rocks.

## REVISIONS TO GROCERY ORDER - AUG 20, 1983

### CANCEL :

1. Two pairs sunglasses
2. Two bottles "Glo in the Dark" suntan oil

### ADD :

1. 50 2"x4" s , forty cubits long.
2. 1 case "Wipe in the Rain" brand waterproof toilet paper.
3. 1 Book: "Ark-building for Beginners" by Noah A. Noah.
4. 2 large umbrellas, equipped with battery-powered sunlamps.
5. Two snow shovels
6. Two large bottles "Dr. Johnson's Magic Ointment for Mildewed Fingers & Moldy Toes"
7. Forty-day <sup>(+40 night)</sup> supply of elephant grass, rabbit pellets, horse biscuits, canary seed, gopher grub, doggy bones, etc, etc.
8. Six sunny days (if not available in Watson Lake, try Air Express from Kamloops or Osoyoos)