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SURFACE LEACHING OF METALS

KLIYUL AREA, B. C.

Several geologists visiting the Kliyul area, especially the SOUP claims, have noted the remarkable degree of oxidation, and some have been aware of the possibility of surface leaching of metals. These phenomena are well known in some parts of the world.

Thus, in the rather similar magnetite-chalcopyrite-gold deposits of Tennant Creek, Australia, which I investigated, copper and gold are leached from surface zones. At Oktedi, New Guineau, oxidized outcrops contained less than 1 gm gold per ton, whereas deeper zones contain 5-6 gms per ton. (This major porphyry copper-gold deposit was discovered by Kennecott with which Sullivan and Rodgers were associated. Canadian explorationists who took part, inform me that the surface geochemical expression is similar to that found on the SOUP claims).

The Berg deposit, south of Smithers, B.C., found and drilled by Kennco under my direction has very marked oxidation and surface leaching.

Although I am not suggesting that in the Kliyul area, there is anything like the depth of oxidation and leaching common in Australia or New Guinea, it is quite possible that the 7,000 foot mountain on the SOUP projected above the valley glaciers. In any case, there is direct evidence of surface leaching of copper and gold: -

- (1) In 1964, George Mannard, an extremely capable geologist, visited this area for American Metals. For sampling, Mannard took advantage of "actively eroding gullies, enabling the testing of relatively unweathered material". His samples were taken from magnetite-rich zones on the southern portion of the property (Claim 10). His results were: -

	<u>Width</u>	<u>Au</u>	<u>Cu</u>
Site 1	20 ft	0.09 oz/ton	0.81%
Site 2 (500 N of 1)	35 ft	0.06 " "	0.56
Site 3 (1,000 ft. N of 1)	<u>30 ft</u>	<u>0.10</u> " "	<u>0.44</u>
Average	28 ft	0.08 oz/ton	0.57%

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This is very comparable to the material we intersected in drilling the KLI claims.

In 1971, Falconbridge drilled 3 packsack holes in the oxidized outcrop to depths of 15 ft (1) and 25 ft (2) "at sites dictated by topography and water supply..... close to Mannard's sample sites". In the first hole the upper 5 ft assayed trace gold and 0.07% copper. Remaining samples 0.16% to 0.37% copper and 0.02 oz gold. Geologist T. Gyr, noted that "leaching seems to be predominant in the first 5 to 15 ft.

Dr. A.J. Sinclair, P.Eng., made a mineralographic study of the drill cores in 1975 and reported: "It is interesting to note that the short X-ray drill holes put down in 1971 did not actually penetrate the zone of weathering."

Two other gossanous surface samples graded 0.1 - 0.2% copper and 0.012 oz gold.

- (2) The soil sampling on the northern portion of the SOUP claims tends to suggest that the higher values occur in actively eroding gullies. This has been taken by some to indicate soil enrichment. It may also reflect more contact with the sort of material sampled by Mannard.
- (3) T. Rodgers and I have investigated essentially identical mineralization on the KLI claims. A 60 ft surface sample on a relatively fresh magnetite zone exposed to active erosion averaged 0.1% copper and 0.04 oz gold. Drill holes in the primary material averaged 0.06 oz gold, 0.45% copper and 0.22 oz silver.

A drill hole (5) after passing through 22 ft of overburden entered a limonite stained zone with minor malachite. A sample from 23-35 ft assayed 0.005 oz gold, 0.12% copper and 0.01 oz silver. From 52 to 91.5 ft the core averaged 0.075 oz gold, 0.95% copper, 0.17 oz silver.

In summary, the evidence indicates the presence of surface leaching and suggests that surface chip sampling may give deceptively low results. Such leaching can also render difficult, evaluation by surface inspection. It reinforces for me, the positive significance of the high geochemical results.

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